

July 13, 2013 Update

Le Jardin de Mère Nature dans une Petite Planète

(Mother Nature's Garden on a Small Planet)

a SPECIES DISTRIBUTION LISTING for
TOWNSHIP 13 SOUTH, RANGE 15 EAST PIMA COUNTY, ARIZONA
Gila and Salt River Baseline and Meridian

Record Created and Maintained by William T. Kendall

“An increasing need for careful husbandry of the earth's natural resources has renewed interest in the classification and mapping of ecosystems. The inventory of our remaining biotic entities is particularly urgent because the increased aspirations of a constantly growing world population are placing ever greater stress on these generous, but finite, living resources.”

United States Department of Agriculture, Forest Service, General Technical Report RM-73



This photograph was taken looking northeast into the Santa Catalina Mountains.
William T. Kendall, August 4, 2005

“To know the desert involves an acquaintance with all its aspects, and all its physical

features, as well as all of the animals and plants that have learned how to find in it a congenial place to live. The most significant lesson that the desert dweller can learn from a familiarity with its plant and animal life is to regard himself not as an exile from some better place, but as a man at home in an environment to which his life can be adjusted without physical or intellectual loss.”

Forest Shreve, *The Cactus and Its Home*, located in *Discovering the Desert*, by William G. McGinnies

MAJOR CONTRIBUTORS AND SOURCES OF INFORMATION

Matthew B. Johnson, Program Manager and Curator of the Desert Legume Program - Boyce Thompson Southwestern Arboretum
MBJ (date of observation)

William T. Kendall *WTK (date of observation)*

Arizona Daily Star *ADS (date of article)*

Southwest Environmental Information Network (SEINet) *85 (a date of a search for information on the species)*

E. Lendell Cockrum. 1960. *The Recent Mammals of Arizona: Their Taxonomy and Distribution*, The University of Arizona Press, Tucson, Arizona. This inclusion is based on the general distribution maps and statements. *118 (distribution note, map - Figure Number and Page Number)*

Charles H. Lowe. 1964. *The Vertebrates of Arizona with Major Section on Arizona Habitats*, The University of Arizona Press, Tucson, Arizona. *55*

SPECIES DISTRIBUTION LISTINGS

Species Distribution Listings are being developed to encourage and promote the conservation of local native animals and plants. The listings are developed for legally defined geographic areas, and larger bodies of water. The listings include species reported as having been observed in or reported from the described area. Exotic and non-local landscaped plants are not included in the listings unless they have become naturalized into the surrounding native environment. Neither “Man” nor our domesticated animals, except for feral animals, have been included in the listings of species; however, they have had an impact on all natural areas, the future degree of this impact must be managed in order to restore and provide for the continuation of the natural interrelationships between all species.

Due to the continuing addition of species, the listings should be considered works in progress. In the listings, and most often in the listing of animals, species may have been included based on general distribution mapping and/or statements and not on an observation made in a specific location. It is recommended that we consider a species “confirmed” as occurring in a township or general listing area only after we have at least three recorded sightings cited in the footnotes with no more than one of those records being based on general distribution mapping for the species. Note that the Southwest Environmental Information Network (SEINet) *85* may have several collections recorded for a species within any given township or listing area, and that the date shown in parentheses is a date of the search of their records and not a date of recorded sighting. Note also that many of the individual species collection records found in SEINet include additional associated species. For assistance with the identification of a plant, contact the University of Arizona Herbarium (520-621-7243; FAX: 520-621-7186; P.O. Box 210036 Herring Hall, 1130 East South Campus Drive, Tucson, Arizona 85721).

The species are presented alphabetically by division, class, family and genus within their kingdoms. Unlike the usage by most authors, all common names have been capitalized, to normalize simply return uppercase letters, except for those used in proper names, to lowercase letters. Common names presented in languages other than English may lack the inclusion of certain characters/phonetic symbols because of an inability to reproduce them. The vernacular names included by Daniel F. Austin in his book *Baboquivari Mountain Plants: Identification, Ecology, and Ethnobotany* are noted ^{“140”} with synonyms (dialectic variants or alternate transcriptions) printed in angle brackets <> and/or variations printed in brackets []. An attempt has been made to identify the range in mature heights reported for the plants. Whenever possible the flowering period is reported to early month (1st-10th), mid-month (11th-20th) and late month (21st-end of the month). The individual species records include a general description of the habitat which is provided to help visualize the types of natural habitats the species may be found in. These descriptions have been developed, in part, from herbarium records and general descriptions of habitat found in literature, and should not be considered limiting as to the type of habitat that a plant might occupy. The terms “streambed”, “creekbed”, “riverbed” or “lakebed” refer to their dry aspects. Plants reported as occurring in recently burned areas were observed in that area

within one year following a fire. The range in elevation has been rounded off to the nearest 100 feet up for the higher elevation, or down for the lower elevation. Species reported as being within 0 to 100 feet are recorded as occurring “from sea level”. The reporting of the ecological formations generally follows the mapping presented in the “Biotic Communities of the Southwest” by David E. Brown and Charles H. Lowe, August 1980, with the exception of the “wetlands” which are being reported as an ecological formation in the listings; footnotes: Species not considered to be native to Arizona are shown as being **EXOTIC**, printed in red. Exotic plants are not recommended for use in landscaping or restoration projects. Plants that may be an attractive component of a restored native habitat are so noted. Plants reported as having been used by native peoples of North America and which might be investigated to determine their value as a home garden or commercial crop may be so noted, much of this information is based on the records of the Native American Ethnobotany website [University of Michigan - Dearborn], footnote *127*, the inclusion of these plants in the listings is not a recommendation for their use and should not serve as an inference that they are in any way safe to use. When describing the “native range” of plants in North America northwestern refers to Alaska, northern refers to northern Canada (the Yukon Territory, Northwest Territories and Nunavut), northeastern refers to Greenland, central refers to southern Canada (north-central: British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, Newfoundland and Labrador, New Brunswick, Nova Scotia and Prince Edward Island) and the United States (south-central), and southern refers to Mexico, below which is Central America and South America. In the footnotes, the source(s) used for the inclusion of the species in the listing is printed in either green *00* (indicating that the entry is based on an actual sighting) or blue *00* (indicating that the entry is based on a general distribution description and/or mapping). Plants listed in the book “Livestock-Poisoning Plants of Arizona” by Ervin M. Schmutz, Barry M. Freeman and Raymond E. Reed and published in 1968 (80) as being either “Major Poisonous Range Plants” or “Secondary Poisonous Range Plants” are further identified by their listing heading being printed in red in the footnotes; plants considered to be “Rarely Poisonous and Suspected Poisonous Range Plants” and “Poisonous Cropland and Garden Plants” have also been noted.

Local native plants are recommended for use in landscape and restoration projects. Once established many native species require little, if any, irrigation. The inclusion of a plant in the township listing does not necessarily mean that the plant is suitable for the site in which you want to plant it. Ideally restoration should include those species of plants that were native to the property. The source material, of plants and seed, used in the project should be as local as possible. In order to determine what plants were native try to locate photographs of the area prior to clearing or look for natural areas and remnant populations and plants adjacent to where the restoration is to take place. Plants should be planted in their approximate original habitat and density and taking into consideration the original local native site and elevation of occurrence.

The use of local native plants in landscape and restoration projects encourages native animals to remain in the area and helps us to retain the area’s natural beauty and unique identity and heritage.

A NOTE TO RANCHERS: The development of the Species Distribution Listings has been made, in part, with the hope that they will enhance the body of information you are using to assist you in your efforts to improve on the management of native rangelands, bringing about a more productive rangeland, enhanced wildlife management, and an economically and ecologically stable environment.

The Species Distribution Listings have been created and maintained by William T. Kendall. Any questions, concerns, corrections and/or comments, including the reporting of unrecorded species and information relating to historical distributions, may be sent to the following address: Kendall Environmental Surveys, P.O. Box 86091, Tucson, Arizona 85754-6091

DISCLAIMER: The information presented under “Township Notes” has been obtained from large scale mapping and should be used only as a general guide. The listings are not meant to take the place of on-site surveys for species. Information used in the listings is accepted from biologists and individuals interested in helping to promote the conservation of our natural resources. Mistakes are made in the identification of species, the interpretation of data and in the recording of information, and changes in nomenclature occur. For these reasons I can not and do not warrant the accuracy of these listings. Attempts are made to keep the information contained in the Species Distribution Listings as accurate as possible; however, I disclaim any implied warranty or representation about its accuracy, completeness, or appropriateness for any particular purposes. Users of the information found in the listings assume full responsibility for their use of the information and understand that Kendall Environmental Surveys is not responsible or liable for any claim, loss, or damage resulting from its use.

CAUTION: Many native desert plants have sharp thorns and spines. Care should be given when handling these plants and consideration should be given to public safety at sites where they are to be planted. Range plants having a known toxic or poisonous property may be so noted. Footnotes for plants whose sources may have cautionary statements, comments and information on rarely poisonous or suspected poisonous properties may be shown in red *00*. Many poisonous plants are similar in appearance to edible ones. No field collected plant should be eaten unless you know for a fact that it is safe for you to do so.

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Class Filicopsida: The Ferns

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Class Magnoliopsida: The Dicots

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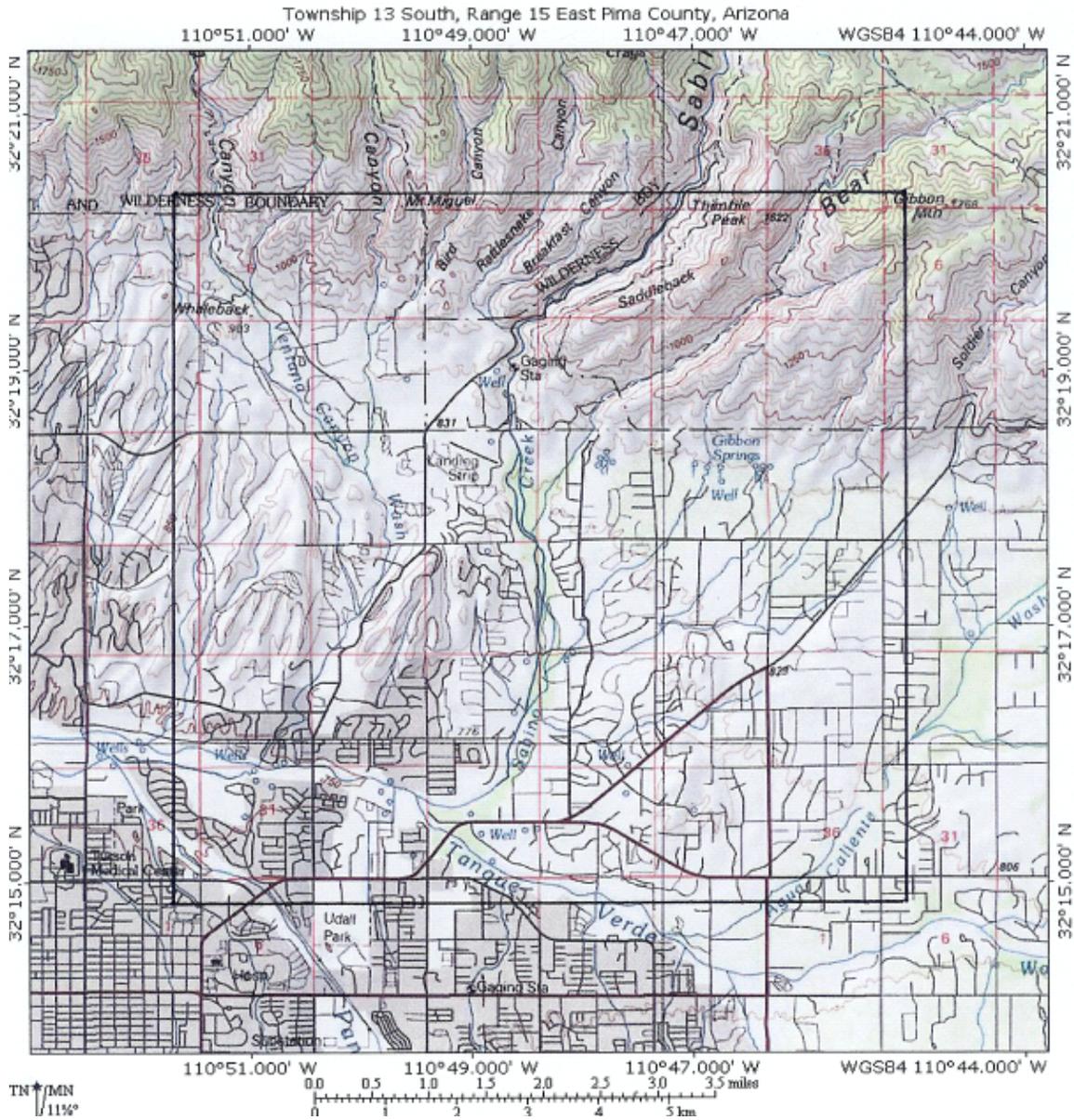
Class Aves: The Birds

Class Mammalia: The Mammals

Class Reptilia: The Reptiles

Acknowledgements

Footnotes and References for the Species Distribution Listings



Map of Township, shown with adjacent sections

TOWNSHIP NOTES

LOCATION: This township is located in northeastern Pima County in south-central Arizona. This township is bounded on the south by the alignment Grant Road and on the east by the alignment for Melpomene Way. Portions of this township are located within the City of Tucson and the Coronado National Forest including the Pusch Ridge Wilderness Area.

LANDMARKS: A southern portion of the Santa Catalina Mountains is located in the northern portion of this township with much of the township located in the foothills. Named peaks and ridges include Mt. Miguel, Thimble Peak (5,323 feet) and Saddleback Ridge. Named canyons include Bear Canyon, Bird Canyon, Breakfast Canyon, Esperero Canyon, Rattlesnake Canyon, Sabino Canyon and Ventana Canyon. Named springs include the Barrel Spring and Gibbon Springs. Named creeks,

washes and lakes include the Aqua Caliente Wash, Bear Creek, Esperero Wash, Pantano Wash, Sabino Creek, Tanque Verde Creek, Ventana Canyon Wash and Sabino Lake.

ELEVATION: Elevations range from approximately 2,450 feet in the Tanque Verde Creek on the west township line to approximately 5,408 feet at a point on the east township line west of Gibbon Mountain (1).

PHYSIOGRAPHIC PROVINCE: Portions of this township are located within the Sonoran Desert and Mexican Highland Sections of the Basin and Range Physiographic Province (2).

SOILS: Soils have been described as being Thermic (hot) Arid Soils (soils with mean annual temperatures of 59 degrees to 72 degrees Fahrenheit (15 degrees to 22 degrees Centigrade) and 5 to 10 inches (13 to 25 cm) mean annual precipitation) and/or Thermic (hot) Semiarid Soils (soils with mean annual temperatures of 59 degrees to 72 degrees Fahrenheit (15 degrees to 22 degrees Centigrade) and 10 to 16 inches (25 to 41 cm) mean annual precipitation) of the Grabe-Gila-Pima Association (deep soils of the floodplains), Mohave-Tres Hermanos-Anway Association (deep, arid soils on the valley plains), Pinaleno-Nickel-Palos Verdes Association (deep, arid, gravelly soils on deeply dissected uplands) and the Rock Outcrop-Lampshire-Cellar Association (rock outcrop and very shallow and shallow semiarid soils of the mountains and foothills) (3).

BIOTIC COMMUNITY: Portions of this township are located within the Arizona Upland Subdivision of the Sonoran Desertscrub Regional Formation of the Desertscrub Formation, Scrub-Grassland (Semidesert Grassland) Regional Formation of the Grassland Formation and the Madrean Evergreen Woodland of the Woodland Formation with associated Wetlands (4).

LISTED BELOW ARE A FEW OF THE NATIVE PLANTS REPORTED
AS OCCURRING IN THIS TOWNSHIP THAT MIGHT BE CONSIDERED
FOR USE IN LANDSCAPE AND RESTORATION PROJECTS

Common Name (Family Name: Scientific Name - range in reported mature heights)

Trees and Large Shrubs (over 7 feet maximum height)

Fremont Cottonwood (Salicaceae: *Populus fremontii* - 20" to 112' in height, see NOTES)
Western Black Willow (Salicaceae: *Salix gooddingii* - 4' to 98' in height, see NOTES)
Arizona Sycamore (Platanaceae: *Platanus wrightii* - 13' to 83' in height, see NOTES)
Arizona Black Walnut (Juglandaceae: *Juglans major* - 5' to 66' in height, see NOTES)
Velvet Ash (Oleaceae: *Fraxinus velutina* - 40" to 65' in height, see NOTES)
Saguaro (Cactaceae: *Carnegiea gigantea* - 5' to 60' in height)
Netleaf Hackberry (Ulmaceae: *Celtis laevigata* var. *reticulata* - 40" to 60' in height)
Velvet Mesquite (Fabaceae: *Prosopis velutina* - 2' to 56' in height)
Coyote Willow (Salicaceae: *Salix exigua* - 20" to 56' in height)
Western Soapberry (Sapindaceae: *Sapindus saponaria* var. *drummondii* - 7' to 50' in height, see NOTES)
Western Mulberry (Moraceae: *Morus microphylla* - 6½' to 50' in height, see NOTES)
Blue Paloverde (Fabaceae: *Parkinsonia florida* - 40" to 40' in height)
Desert Elderberry (Caprifoliaceae: *Sambucus nigra* subsp. *canadensis* - 7' to 36' in height)
Desert Willow (Bignoniaceae: *Chilopsis linearis* subsp. *arcuata* - 5' to 33' in height)
Ocotillo (Fouquieriaceae: *Fouquieria splendens* - 5' to 33' in height)
Soaptree Yucca (Agavaceae: *Yucca elata* - acaulescent to 30' in height)
Foothill Paloverde (Fabaceae: *Parkinsonia microphylla* - 40" to 26' in height)
Hop Bush (Sapindaceae: *Dodonaea viscosa* - 2' to 26' in height)
Catclaw Acacia (Fabaceae: *Acacia greggii* var. *greggii* - 40" to 25' in height)
Desert Hackberry (Ulmaceae: *Celtis pallida* - 3' to 20' in height)
Rosary Babybonnets (Fabaceae: *Coursetia glandulosa* - 3' to 20' in height)
Bitter Snakewood (Rhamnaceae: *Condalia globosa* var. *pubescens* - 2' to 20' in height)
Whitethorn Acacia (Fabaceae: *Acacia constricta* - 1' to 20' in height)
Longleaf Joint-fir (Ephedraceae: *Ephedra trifurca* - 20" to 16½' in height)
Chain-fruit Cholla (Cactaceae: *Cylindropuntia fulgida* var. *fulgida* - 3' to 15' in height)
Staghorn Cholla (Cactaceae: *Cylindropuntia versicolor* - 3' to 15' in height)
Seep Willow (Asteraceae: *Baccharis salicifolia* - 1' to 15' in height)
Desert Cotton (Malvaceae: *Gossypium thurberi* - 3' to 14' in height)
Desert Broom (Asteraceae: *Baccharis sarothroides* - 3' to 13' in height, see NOTES)

Southern Cattail (Typhaceae: *Typha domingensis* - 3' to 13' in height)
 Greythorn (Rhamnaceae: *Ziziphus obtusifolia* var. *canescens* - 3' to 13' in height)
 Kearney Snakewood (Rhamnaceae: *Condalia warnockii* var. *kearneyana* - 20" to 13' in height)
 Creosote Bush (Zygophyllaceae: *Larrea tridentata* - 20" to 13' in height)
 Arrow-wood (Asteraceae: *Hymenoclea monogyra* - 1' to 13' in height)
 Jojoba (Simmondsiaceae: *Simmondsia chinensis* - 8" to 13' in height)
 Pencil Cholla (Cactaceae: *Cylindropuntia arbuscula* - 20" to 12' in height)
 Fishhook Barrel Cactus (Cactaceae: *Ferocactus wislizeni* - 8" to 11' in height)
 Teddybear Cholla (Cactaceae: *Cylindropuntia bigelovii* - 20" to 10' in height)
 Berlandier Lycium (Solanaceae: *Lycium berlandieri* - 20" to 10' in height)
 Cane Cholla (Cactaceae: *Cylindropuntia spinosior* - 16" to 10' in height)
 Smooth Chain-fruit Cholla (Cactaceae: *Cylindropuntia fulgida* var. *mamillata* - 2' to 9' in height)
 Desert Honeysuckle (Acanthaceae: *Anisacanthus thurberi* - 3' to 8' in height)
 Engelmann Pricklypear Cactus (Cactaceae: *Opuntia engelmannii* var. *engelmannii* - 20" to 8' in height)
 Desert Spoon (Liliaceae: *Dasyliirion wheeleri* - 16" to 8' in height)
 Four-spined Klein's Cholla (Cactaceae: *Cylindropuntia x tetracantha* - 1' to 8' in height)
 Desert Night-blooming Cereus (Cactaceae: *Peniocereus greggii* var. *transmontanus* - 1' to 8' in height)

Shrubs (2 to 7 feet maximum height)

Canyon Ragweed (Asteraceae: *Ambrosia ambrosioides* - 1' to 7' in height, see NOTES)
 Narrow-leaf Saltbush (Chenopodiaceae: *Atriplex canescens* var. *linearis* - 1' to 7' in height)
 California Brickellbush (Asteraceae: *Brickellia californica* var. *californica* - 1' to 7' in height)
 Limberbush (Euphorbiaceae: *Jatropha cardiophylla* - 1' to 7' in height)
 Tulip Pricklypear Cactus (Cactaceae: *Opuntia phaeacantha* - 10" to 7' in height)
 Desert Rosemallow (Malvaceae: *Hibiscus coulteri* - 3" to 7' in height)
 Fairyduster (Fabaceae: *Calliandra eriophylla* - 4" to 78" in height)
 Desert Christmas Cactus (Cactaceae: *Cylindropuntia leptocaulis* - 1' to 6' in height)
 White Brittlebush (Asteraceae: *Encelia farinosa* - 1' to 6' in height)
 American Threefold (Asteraceae: *Trixis californica* - 10" to 6' in height)
 Black-spined Pricklypear Cactus (Cactaceae: *Opuntia macrocentra* var. *macrocentra* - 2' to 5' in height)
 Button Brittlebush (Asteraceae: *Encelia frutescens* - 1' to 5' in height)
 White Rantany (Krameriaceae: *Krameria grayi* - 8" to 5' in height)
 Desert Mistletoe (Viscaceae: *Phoradendron californicum* - 8" to 5' in height, see NOTES)
 Turpentine Bush (Asteraceae: *Ericameria laricifolia* - 10" to 50" in height)
 Triangleleaf Bursage (Asteraceae: *Ambrosia deltoidea* - 1' to 4' in height)
 Mariola (Asteraceae: *Parthenium incanum* - 1' to 4' in height)
 Golden-flowered Agave (Agavaceae: *Agave chrysantha* - 20" to 40" in height)
 Arizona Cockroach Plant (Apocynaceae: *Haplophyton crooksii* - 7" to 40" in height)
 Range Ratany (Krameriaceae: *Krameria erecta* - 2" to 40" in height)

Grasses

Spidergrass (Poaceae: *Aristida ternipes* - 10" to 79" in height)
 Deergrass (Poaceae: *Muhlenbergia rigens* - 14" to 63" in height)
 Cane Bluestem (Poaceae: *Bothriochloa barbinodis* - 20" to 60" in height)
 Bullgrass (Poaceae: *Muhlenbergia emersleyi* - 20" to 60" in height)
 Tanglehead (Poaceae: *Heteropogon contortus* - 8" to 60" in height, see NOTES)
 Whiplash Pappusgrass (Poaceae: *Pappophorum vaginatum* - 16" to 52" in height)
 Sideoats Grama (Poaceae: *Bouteloua curtipendula* - 3" to 52" in height)
 Arizona Cottontop (Poaceae: *Digitaria californica* - 12" to 48" in height)
 Streambed Bristlegrass (Poaceae: *Setaria leucopila* - 8" to 48" in height)
 Plains Bristlegrass (Poaceae: *Setaria vulpiseta* - 8" to 48" in height)
 Grisebach's Bristlegrass (Poaceae: *Setaria grisebachii* - 4" to 48" in height)
 Bush Muhly (Poaceae: *Muhlenbergia porteri* - 10" to 44" in height)
 Plains Lovegrass (Poaceae: *Eragrostis intermedia* - 8" to 40" in height)
 Parish Threeawn (Poaceae: *Aristida purpurea* var. *parishii* - 4" to 40" in height)
 Arizona Brome (Poaceae: *Bromus arizonicus* - 4" to 40" in height)
 Tufted Lovegrass (Poaceae: *Eragrostis pectinacea* - 4" to 40" in height)
 Littleseed Muhly (Poaceae: *Muhlenbergia microsperma* - 4" to 40" in height)
 Mexican Panicgrass (Poaceae: *Panicum hirticaule* var. *hirticaule* - 2" to 40" in height)

Sixweeks Threeawn (Poaceae: *Aristida adscensionis* - 1¼" to 40" in height)
 Slender Grama (Poaceae: *Bouteloua repens* - 4" to 32" in height)
 Squirreltail (Poaceae: *Elymus elymoides* - 3" to 31 (to 78"?) in height)
 Bigelow Bluegrass (Poaceae: *Poa bigelovii* - 1" to 28" in height)
 Knotgrass (Poaceae: *Paspalum distichum* - 2" to 26" in height)
 Sixweeks Fescue (Poaceae: *Vulpia octoflora* - 2" to 24" in height)
 Desert Fluffgrass (Poaceae: *Dasyochloa pulchella* - ½" to 12" in height)

Vines and Climbers

Fingerleaf Gourd (Cucurbitaceae: *Cucurbita digitata* - 3' to 40' in length)
 Canyon Grape (Vitaceae: *Vitis arizonica* - 16" to 33' in length)
 Fringed Twinevine (Asclepiadaceae: *Funastrum cynanchoides* subsp. *cynanchoides* - 40" to 20' in length)
 Hartweg Twinevine (Asclepiadaceae: *Funastrum cynanchoides* subsp. *heterophyllum* - 20" to 20' in length)
 Schott Yellowhood (Fabaceae: *Nissolia schottii* - 9' to 16' in length)
 Slender Janusia (Malpighiaceae: *Janusia gracilis* - 16" to 10' in length)
 Climbing Plumbago (Plumbaginaceae: *Plumbago scandens* - 1' to 10' in length)
 Gila Manroot (Cucurbitaceae: *Marah gilensis* - to over 6' in length)
 Tumamoc Globeberry (Cucurbitaceae: *Tumamoca macdougali* - 28" to 5' in length)
 Pringle Clustervine (Convolvulaceae: *Jacquemontia pringlei* - to 3' in height, 5' to 10' in length)

Shrubs (under 2 feet maximum height), Subshrubs, Herbs and Small Succulents

Hoary Indian Mallow (Malvaceae: *Abutilon incanum* - 8" to 7' rarely to 13' in height)
 New Mexico Thistle (Asteraceae: *Cirsium neomexicanum* - 16" to 9½' in height)
 Parish Goldeneye (Asteraceae: *Viguiera parishii* - 16" to 8¼' in height)
 Spectacle Fruit (Capparaceae: *Wisizenia refracta* - 2' to 8' in height)
 White Cheesebush (Asteraceae: *Hymenoclea salsola* - 10" to 8' in height)
 Shrubby Indian Mallow (Malvaceae: *Abutilon abutiloides* - 12" to 78" in height)
 Parry Penstemon (Scrophulariaceae: *Penstemon parryi* - 2' to 5' in height)
 Rose Globemallow (Malvaceae: *Sphaeralcea ambigua* subsp. *rosacea* - 20" to 5' in height)
 Brownfoot (Asteraceae: *Acourtia wrightii* - 1' to 5' in height)
 Pineneedle Milkweed (Asclepiadaceae: *Asclepias linaria* - 1' to 5' in height)
 California Plumeseed (Asteraceae: *Rafinesquia californica* - 8" to 5' in height)
 Yellow Monkeyflower (Scrophulariaceae: *Mimulus guttatus* - 2" to 5' in height)
 Fragrant Flatsedge (Cyperaceae: *Cyperus odoratus* - 2" to 52" in height)
 Parry False Prairie-clover (Fabaceae: *Marina parryi* - 8" to 50" in height)
 Bladdermallow (Malvaceae: *Herissantia crispa* - 8" to 4' in height)
 Parish Larkspur (Ranunculaceae: *Delphinium parishii* var. *parishii* - 6½" to 4' in height)
 Tall Mountain Larkspur (Ranunculaceae: *Delphinium scaposum* - 6" to 4' in height)
 Yellow Menodora (Oleaceae: *Menodora scabra* - 6" to 4' in height)
 Distant Phacelia (Hydrophyllaceae: *Phacelia distans* - 3" to 44" in height)
 Desert Tobacco (Solanaceae: *Nicotiana obtusifolia* var. *obtusifolia* - 12" to 42" in height, see NOTES)
 Violet Ruellia (Acanthaceae: *Ruellia nudiflora* var. *nudiflora* - 12" to 40" in height)
 Violet Snapdragon (Scrophulariaceae: *Sairocarpus nuttallianus* - 12" to 40" in height)
 Longflowered Tubetongue (Acanthaceae: *Justicia longii* - 8" to 40" in height)
 Desert Marigold (Asteraceae: *Baileya multiradiata* - 6" to 40" in height)
 Burroweed (Asteraceae: *Isocoma tenuisecta* - 6" to 40" in height)
 Hoary Tansyaster (Asteraceae: *Machaeranthera canescens* subsp. *canescens* var. *incana* - 6" to 40" in height)
 Covena (Liliaceae: *Dichelostemma capitatum* subsp. *capitatum* - 4" to 40")
 Mesa Tansyaster (Asteraceae: *Machaeranthera tagetina* - 2" to 40" in height)
 Chia (Lamiaceae: *Salvia columbariae* - 1" to 40" in height)
 Desert Senna (Fabaceae: *Senna covesii* - 10" to 32" in height)
 Bigelow Wishbone Bush (Nyctaginaceae: *Mirabilis laevis* var. *villosa* - 6" to 32" in height)
 Whitestem Paperflower (Asteraceae: *Psilostrophe cooperi* - 4" to 32" in height)
 Hillside Vervain (Verbenaceae: *Verbena neomexicana* - 12" to 30" in height)
 Covena (Liliaceae: *Dichelostemma capitatum* subsp. *pauciflorum* - 4" to 30" in height)
 Caliche Globemallow (Malvaceae: *Sphaeralcea laxa* - 12" to 28" in height)
 Slender Goldenweed (Asteraceae: *Machaeranthera gracilis* - 4" to 28" in height)
 Spreading Fleabane (Asteraceae: *Erigeron divergens* - 2¾" to 28" in height)
 Bearded Prairie Clover (Fabaceae: *Dalea pogonathera* var. *pogonathera* - 8" to 24" in height)

Rose Bladderpod (Brassicaceae: *Lesquerella purpurea* - 6" to 24" in height)
 Wavy Scaly Cloakfern (Pteridaceae: *Astrolepis sinuata* subsp. *sinuata* - 4" to 24" in height)
 Hairyseed Bahia (Asteraceae: *Bahia absinthifolia* - 4" to 24" in height)
 Desert Mariposa Lily (Liliaceae: *Calochortus kennedyi* - 4" to 24" in height)
 New Mexico Plumeseed (Asteraceae: *Rafinesquia neomexicana* - 4" to 24" in height)
 Golden Dogweed (Asteraceae: *Thymophylla pentachaeta* var. *pentachaeta* - 4" to 24" in height)
 Gordon Bladderpod (Brassicaceae: *Lesquerella gordonii* var. *gordonii* - 3" to 24" in height)
 Flatcrown Buckwheat (Polygonaceae: *Eriogonum deflexum* var. *deflexum* - 2" to 24" in height)
 Texas Stork's Bill (Geraniaceae: *Erodium texanum* - 2" to 24" in height)
 Mexican Gold Poppy (Papaveraceae: *Eschscholzia californica* subsp. *mexicana* - 1" to 24" in height)
 Mojave Lupine (Fabaceae: *Lupinus sparsiflorus* subsp. *mojavensis* - 8" to 20" in height)
 Lacy Tansyaster (Asteraceae: *Machaeranthera pinnatifida* subsp. *pinnatifida* - 6" to 20" in height)
 Dakota Mock Vervain (Verbenaceae: *Glandularia bipinnatifida* - 4" to 20" in height)
 Desert Windflower (Ranunculaceae: *Anemone tuberosa* var. *tuberosa* - 3" to 20" in height)
 Desert Zinnia (Asteraceae: *Zinnia acerosa* - 3" to 20" in height)
 Cleftleaf Wildheliotrope (Hydrophyllaceae: *Phacelia crenulata* - 3" to 18" in height)
 Esteve's Pincushion (Asteraceae: *Chaenactis stevioides* - 2" to 18" in height)
 Bundle Hedgehog Cactus (Cactaceae: *Echinocereus fasciculatus* - 2" to 18" in height)
 Common Owl's Clover (Scrophulariaceae: *Castilleja exserta* subsp. *exserta* - 4" to 16" in height)
 California Goldfields (Asteraceae: *Lasthenia californica* subsp. *californica* - 3" to 16" in height)
 Arizona Phacelia (Hydrophyllaceae: *Phacelia arizonica* - 1" to 16" in height)
 Shaggyfruit Pepperweed (Brassicaceae: *Lepidium lasiocarpum* var. *lasiocarpum* - 8" to 15" in height)
 Creamcups (Papaveraceae: *Platystemon californicus* - 2" to 14" in height)
 Miniature Woollystar (Polemoniaceae: *Eriastrum diffusum* - 1½" to 14" in height)
 Star Cloakfern (Pteridaceae: *Notholaena standleyi* - 2" to 13" in height)
 White Tackstem (Asteraceae: *Calycoseris wrightii* - 10" to 12" in height)
 Desert Holly (Asteraceae: *Acourtia nana* - 2" to 12" in height)
 Sand Bells (Hydrophyllaceae: *Nama hispidum* - 2" to 12" in height)
 Prairie Zinnia (Asteraceae: *Zinnia grandiflora* - 2" to 12" in height)
 Graham Pincushion Cactus (Cactaceae: *Mammillaria grahamii* - 1" to 12" in height)
 Orcutt Lupine (Fabaceae: *Lupinus concinnus* subsp. *orcuttii* - 6" to 10" in height)
 Straight-spined Hedgehog Cactus (Cactaceae: *Echinocereus fendleri* var. *rectispinus* - 4" to 10" in height)
 Wright's Lipfern (Pteridaceae: *Cheilanthes wrightii* - 1½" to 10" in height)
 Woolly Crinklemat (Boraginaceae: *Tiquilia canescens* var. *canescens* - 4" to 8" in height)
 California Caltrop (Zygophyllaceae: *Kallstroemia californica* - 2" to 8" in height, stems to 5' in length)
 Manybristle Chinchweed (Asteraceae: *Pectis papposa* var. *papposa* - ½" to 8" in height)
 Golden Linanthus (Polemoniaceae: *Leptosiphon aureus* subsp. *aureus* - 2" to 7" in height)
 Yellow Desert Evening-primrose (Onagraceae: *Oenothera primiveris* subsp. *primiveris* - to 4" in height)
 Ledge Saliginella (Selaginellaceae: *Selaginella rupincola* - 1½" to 3" in height)
 Arizona Spikemoss (Selaginellaceae: *Selaginella arizonica* - ½" to 1½" in height)

CONSERVATION RELATED AGENCIES AND ORGANIZATIONS

Arizona Department of Agriculture

<http://www.azda.gov/>

Native Plant Crimes HOTLINE: 602-364-0907

The mission statement of the Arizona Department of Agriculture is to regulate and support Arizona agriculture in a manner that encourages farming, ranching, and agribusiness while protecting consumers and natural resources.

NOTICE OF INTENT TO CLEAR LAND

The Arizona Department of Agriculture enforces the sections of the Arizona Revised Statutes commonly referred to as the "Arizona Native Plant Law". The statutes require, in part, that anyone who is clearing land notify the State of Arizona in advance of the clearing. Some land owners involved in the clearing of land allow for nurseries and people who are interested in salvaging plants to do so prior to the clearing. The Arizona Department of Agriculture posts these notifications in their county offices. You

may also contact the Arizona Department of Agriculture and, for a fee, be put on a mailing list of people receiving copies of the Notices of Intent to Clear Land.

Contact Information: Arizona Department of Agriculture, 1688 West Adams Street, Phoenix, Arizona 85007. Telephone number: 602-542-4373.

Arizona Game and Fish Department

<http://www.gf.state.az.us/>

Operation GAME THIEF: 602-942-3000

The mission statement of the Arizona Game and Fish Department is to conserve, enhance, and restore Arizona's diverse wildlife resources and habitats through aggressive protection and management programs, and to provide wildlife resources and safe watercraft and off-highway vehicle recreation for the enjoyment, appreciation, and use

As part of their conservation program the Arizona Game and Fish Department provides ideas on how to learn to live with, and landscape for, wildlife:

LIVING WITH WILDLIFE

http://www.azgfd.gov/w_c/urban_wildlife.shtml

Contact Information: Arizona Game and Fish Department, 5000 West Carefree Highway, Phoenix, Arizona 85086-5000. Telephone number: 602-942-3000

Arizona Native Plant Society

<http://www.aznativeplantsociety.org/>

The Arizona Native Plant Society is a statewide nonprofit organization devoted to Arizona's native plants. Its mission is to promote knowledge, appreciation, conservation, and restoration of Arizona native plants and their habitats. They work with the Southwest Rare Plant Task Force to develop strategies for protecting rare species and their habitats; they keep abreast of conservation issues concerning native plants species and responds to those through their Conservation Committee; they promote the use of native species in residential and commercial landscapes; they publish the Plant Press, support the publication of scholarly works and maintains a website with information and links about native plant, and they host a series of statewide events that provide forums to learn from professionals. Member activities and benefits include chapter and statewide gatherings; field trips and educational presentations; conservation through education, outreach and restoration; habitat restoration projects; informative website, newsletters and journals, and interactions with plant experts and enthusiasts.

LISTING OF SOURCES FOR NATIVE PLANTS AND SEEDS

The Arizona Native Plant Society maintains a listing of Native Plant and Seed Sources at:

<http://www.aznativeplantsociety.org/sources.php>

Contact Information: Arizona Native Plant Society, PO Box 41206, Tucson, Arizona 85717.

Tucson Cactus and Succulent Society

<http://www.tucsoncactus.org/>

The Tucson Cactus and Succulent Society is a non-profit organization dedicated to educating, teaching and learning about cacti and succulent plants. Their monthly programs feature knowledgeable individuals who can educate you and help you understand more about these fascinating plants. They conduct and sponsor native cactus and succulent rescue operations, plant sales, field trips, nursery and garden visits, conventions and conferences as well as other activities throughout the year.

NATIVE PLANT RESCUE NOTICE

Members of the Tucson Cactus and Succulent Society expend a tremendous amount of time and effort in organizing and overseeing their native plant rescue events. The native plant rescues carried out by the dedicated members of the Society provide an immeasurable service to our community. Members of the Tucson Cactus and Succulent Society organize native plant rescues in areas being cleared for development. If interested in rescuing plants and/or obtaining local native plants for your landscaping or restoration project join the Society and become a rescue crew member.

Contact Information: Tucson Cactus and Succulent Society, PO Box 64759, Tucson, Arizona 85728-4759. Telephone number: 520-885-6367.

LISTING OF PLANTS

STRICTLY ENFORCED LAWS PROTECT MANY OF ARIZONA'S NATIVE PLANTS FROM COLLECTION, MUTILATION AND DESTRUCTION

Native Plant Crimes HOTLINE: 602-364-0907

Kingdom Plantae: The Plant Kingdom
Subkingdom Tracheobionta: The Vascular Plants

Division Lycopodiophyta: The Lycopods

CLASS LYCOPODIOPSIDA: The CLUBMOSES, FIRMOSES and SPIKEMOSSES

Selaginellaceae: The Spike-moss Family

***Selaginella arizonica* W.R. Maxon: Arizona Spikemoss**

COMMON NAMES: Arizona Clubmoss; Arizona Selaginella; Arizona Spike-moss; Arizona Spikemoss; Desert Spike-moss; Flor de Piedra (Hispanic); Resurrection Fern. DESCRIPTION: Terrestrial perennial evergreen forb/herb (spreading prostrate and/or decumbent aerial stems ½ to 1½ inches in height); the branches form small low loose mats; the minute leaves are green or yellowish-green; the megaspores may be orange or yellow. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky mesas; rocky cliffs; bases of cliffs; rocky canyons; canyon sides; crevices in boulders and rocks; pockets of soil in bedrock; rocky bluffs; rocky ledges; rocky ridges; rocky ridgetops; rocky foothills; rocky hilltops; bouldery and rocky hillsides; rocky, rocky-gravelly, rocky-clayey, rocky-sandy-loamy, stony, stony-sandy, gravelly, gravelly-sandy-loamy, sandy-loamy and loamy slopes, bajadas; rocky outcrops; on boulders and rocks; amongst boulders and rocks; bases of rocks; basins; streambeds; bouldery-gravelly-sandy, rocky, gravelly and sandy washes; rocky-gravelly drainages; banks of rivers, and riparian areas growing in wet, moist and dry bouldery, bouldery-gravelly-sandy, rocky, rocky-gravelly, stony, stony-sandy, gravelly and sandy ground; rocky-sandy loam, gravelly-sandy loam, sandy loam and loam ground, and rocky clay ground, occurring from 1,900 to 6,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Selaginella arizonica* is native to southwest-central and southern North America. *5, 6, 15, 42 (050913), 43 (052510), 44 (050913 - no listings recorded under Common Names; genus record), 46 (Page 28), 51 (Page 76, color photograph 47), 63 (050913), 77, **85** (050913 - color presentation), 124 (032411 - no record of species; genus record), 140 (Page 305)*

***Selaginella rupincola* L.M. Underwood: Rockloving Spikemoss**

COMMON NAMES: Clubmoss; Ledge Selaginella; Peludita (Mexico, Sonora); Rock-loving Spike-moss; Rockloving Spikemoss; Siemprevive (Spanish); Spike Moss (a name also applied to the genus *Selaginella* and Selaginellaceae). DESCRIPTION: Terrestrial perennial forb/herb (slightly creeping or sprawling decumbent, ascending and/or erect aerial stems 1½ to 3 inches in height); the branches form loose clumps; the aerial leaves may be gray-green, light grayish-green or green; the megaspores are orange. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky peaks; cliffs; cliff faces; along bases of cliffs; rock walls; rocky canyons; rocky canyon walls; rocky canyon sides; canyon bottoms; along crevices in boulders and rocks; shallow soil on bedrock, rock ledges; rocky ridgetops; foothills; rocky hills; rocky

hillsides; bouldery, rocky, gravelly and loamy slopes; bases of slopes; bedrock and rocky outcrops; on boulders and rocks; amongst boulders and rocks; bases of boulders and rocks; rocky arroyos; bouldery and rocky seepages; along streams; along creeks; creekbeds; riverbeds; within bouldery drainages; rocky waterfalls; (rocky-sandy) banks of streams; around and in stock tanks, and gravelly riparian areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly and sandy ground and loam ground sometimes reported as growing in the shade, occurring from 100 to 7,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Selaginella rupincola* is native to southwest-central and southern North America. *5, 6, 15, 42 (050913), 43 (082810), 44 (050913 - no record of species; genus record), 46 (Page 29), 51 (Page 72, color photograph *34), 63 (050913), **85** (050913 - color presentation), 124 (040411 - no record of species; genus record), 140 (Page 305)*

Division Pteridophyta: The Ferns

CLASS FILICOPSIDA: The FERNs

Pteridaceae: The Maidenhair Fern Family

***Astrolepis sinuata* (M. Lagasca y Segura ex O. Swartz) D.M. Benham & M.D. Windham (subsp. *sinuata* is the subspecies reported as occurring in Arizona): Wavy Scaly Cloakfern**

SYNONYMY: (for subsp. *sinuata*: *Cheilanthes sinuata* (M. Lagasca y Segura ex O. Swartz) K. Domin; *Notholaena sinuata* (M. Lagasca y Segura ex O. Swartz) G.F. Kaulfuss). COMMON NAMES: Bulb Cloak Fern; Bulb Cloakfern; Calaguala (a name also applied to other species, Spanish: Chihuahua)¹⁴⁰; Canaguala (a name also applied to other species, Hispanic); Cañahuala (Spanish: Chihuahua)¹⁴⁰; Candelilla (“Little Candle”, Spanish: Coahuila)¹⁴⁰; Cloak-fern (a name also applied to other species and the genus *Astrolepis*); Doradillo (“Little Golden One”, Spanish: Coahuila)¹⁴⁰; Helecho (“Fern” a name applied to ferns, Spanish: Edo. México)¹⁴⁰; Jimmy-fern; Kalawala (Uto-Aztecan: Tarahumara)¹⁴⁰; Kalawala (Uto-Aztecan: Tarahumara); Má□-la (“Fern”, Uto-Aztecan: Luiseño)¹⁴⁰; Mási-l’y (“Fern”, Uto-Aztecan: Cahuilla)¹⁴⁰; Mexican Scaly Cloakfern (subsp. *mexicana*); Nacahuela (Spanish: Mexico)¹⁴⁰; Star-scaled [Wavy, Wavyleaf, Scaley] Cloak-fern (English)¹⁴⁰; Wavy Cloak Fern; Wavy Cloak-fern; Wavy Cloakfern; Wavy Scaly Cloakfern; Wavy Scaly Cloakfern (subsp. *sinuata*); Wavy-leaved Star Fern. DESCRIPTION: Terrestrial perennial evergreen forb/herb (fronds are 4 to 52 inches in length); the leaf blades may be gray-green, dark green or olive green with reddish-brown or brown stipes; sporulation generally takes place summer through fall. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; along rock cliffs; cliff faces; gravelly-loamy bases of cliffs; rocky and gravelly-loamy canyons; rocky canyon sides; canyon walls; along rocky canyon bottoms; rocky gorges; talus slopes; in rocky-loam soil along crevices in boulders and rocks; pockets of soil on bedrock; rocky knolls; rocky ledges; ridges; ridgetops; foothills; rocky hills; rocky hillsides; bouldery, bouldery-gravelly, rocky, rocky-stony, rocky-loamy, stony, gravelly-loamy and clayey slopes; rocky outcrops; amongst boulders and rocks; bases of boulders; rock niches; shaded nooks; lava flows; rocky banks; roadcuts; arroyos; draws; along bedrock ravines; along streams; streambeds; creekbeds; sandy riverbeds; along rocky and sandy washes; rocky drainages; banks of creeks; rocky margins of seeps; bottomlands, and riparian areas growing in moist and dry bouldery, bouldery-rocky-sandy, bouldery-gravelly, rocky, rocky-stony, gravelly and sandy ground; rocky loam, gravelly loam and sandy-clayey loam ground; clay ground, and silty ground, occurring from 700 to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Astrolepis sinuata* is native to south-central and southern North America; Central America and coastal islands in the Caribbean Sea, and northern, western and southern South America. *5, 6, 15, 28 (recorded as *Notholaena sinuata*, color photograph 10), 30, 42 (050913), 43 (052610 - *Astrolepis sinuata* (Lag. ex Sw.) D.M. Benham & Windham, *Cheilanthes sinuata* Domin, *Notholaena sinuata* (Lag.) Kaulf.), 44 (032411 - no record of species; genus record), 46 (recorded as *Notholaena sinuata* (Lag.) Kaulf., Page 41), 51 (*Notholaena sinuata* var. *sinuata* Page 156, color photograph 173), 58, 63 (050913 - color presentation), 77, **85** (050913 - color presentation), 122, 124 (032411 - no record of species; records for subspecies *sinuata* and genus), 140 (Pages 229-230, 232 & 303)*

Cheilanthes sinuata (see *Astrolepis sinuata* subsp. *sinuata*)

Cheilanthes standleyi (see *Notholaena standleyi*)

***Cheilanthes wrightii* W.J. Hooker: Wright’s Lipfern**

COMMON NAMES: Wright Lipfern; Wright’s Lip Fern; Wright’s Lipfern. DESCRIPTION: Terrestrial perennial evergreen forb/herb (fronds are 1½ to 10 inches in length); the leaf blades are green with brown to dark brown stipes; sporulation generally takes place between summer and fall. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rock cliffs; bases of cliffs; rocky canyons; rocky canyon walls; bouldery and rocky

canyon bottoms; chasms; talus slopes; soil filled crevices in rocks; rocky ledges; rocky ridges; ridgetops; foothills; rocky hills; hilltops; bouldery and rocky hillsides; along bouldery, rocky and rocky-gravelly-clayey slopes; bouldery and rocky outcrops; amongst rocks; on boulders; bases of boulders and rocks; rocky nooks; shady and mossy banks; flatish areas; within bedrock and rocky arroyos; draws; rocky ravines; along streams; streambeds; within rocky washes; rocky-gravelly drainages; soil pockets in depressions; rocky shelves; bottomlands, and rocky riparian areas growing in moist and dry bouldery, rocky, rocky-gravelly and gravelly ground; gravelly-sandy loam and sandy-clayey loam ground, and rocky-gravelly clay and gravelly clay ground, occurring from 900 to 7,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Cheilanthes wrightii* is native to southwest-central and southern North America. *5, 6, 15, 16, 42 (051013), 43 (081109), 44 (051013 - no record of species; genus record), 46 (Page 40), 51 (Page 141, color photograph 144), 58, 63 (051013 - color presentation), 77, **85** (051013 - color presentation of dried material), 122, 124 (031911 - no record of species; genus record), 140 (Page 303)*

Notholaena hookeri (see *Notholaena standleyi*)

Notholaena sinuata (see *Astrolepis sinuata* subsp. *sinuata*)

***Notholaena standleyi* W.R. Maxon: Star Cloak Fern**

SYNONYMY: *Cheilanthes standleyi* (W.R. Maxon) J.T. Mickel; *Notholaena hookeri* D.C. Eaton. COMMON NAMES: Cloak Fern (a name also applied to the genus *Notholaena*); [Star] Cloak Fern (English)¹⁴⁰; Cloak-fern; Hehe Quina (“Hairy Plant”, Seri)¹⁴⁰; Helecho (“Fern”, Spanish)¹⁴⁰; Rock Fern (English)¹⁴⁰; Standley Cloak Fern; Standley’s Cloak Fern; Star Cloak Fern; Star Cloak-fern; Star Cloakfern. DESCRIPTION: Terrestrial perennial evergreen forb/herb (fronds are 2 to 13 inches in length with the star-shaped laminae being 1 to 4 inches in width; one clump was observed and described as being up to 8 inches in width); the leaf blades are a shiny dark green above (with a cream-white, gold, silvery-yellow, yellow or yellow-green waxy-looking glandular exudate below) with brown or reddish-brown stipes; sporulation generally takes place between late spring and fall. HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; mountain peaks; rocky mountainsides; rocky cliffs; along bases of cliffs; bouldery and rocky canyons; canyon walls; bouldery canyon bottoms; rocky gorges; along crevices in rimrock, boulders and rocks; buttes; bouldery-gravelly knobs; rocky knolls; rocky and sandy ledges; under rocky ledges; rocky ridges; foothills; hills; rocky hilltops; bouldery and rocky hillsides; bouldery, bouldery-gravelly, rocky, rocky-gravelly-clayey, rocky-sandy-clayey-loamy, rocky-silty-loamy, sandy-loamy and loamy slopes; bajadas; boulder and rocky outcrops; amongst boulders, broken rocks and rocks; bases of boulders and rocks; hidden beneath overhanging rocks; sandy lava flows; bouldery lava beds; shaded pockets; bouldery prairies; along rocky arroyos; within rocky draws; gulches; rocky ravines; creekbeds; in bouldery-sandy and sandy washes; drainages; rocky banks of washes, and riparian areas growing in dry rimrock; bouldery, bouldery-gravelly, bouldery-sandy, rocky and sandy ground; rocky-sandy-clayey loam, rocky-silty loam, gravelly loam, sandy loam, silty loam and loam ground, rocky-gravelly clay ground, occurring from 900 to 8,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it is commonly found growing in clumps. *Notholaena standleyi* is native to southwest-central and southern North America. *5, 6, 15, 16, 28 (color photograph 11), 42 (051013), 43 (051013 - *Notholaena hookeri* D.C. Eaton, no record for *Notholaena hookeri* (Kimmel.) Domin), 44 (031911 - no record of species; genus record), 46 (Page 42), 51 (Page 157, color photograph 174), 58, 63 (051013 - color presentation including habitat), **85** (051013 - color presentation), 115 (color presentation), 124 (031911), 140 (Pages 229, 231-232 & 303)*

Superdivision Spermatophyta: The Seed Plants

Division Gnetophyta: The Gnetophytes

CLASS GNETOPSIDA: The GNETOPS

Ephedraceae: The Mormon-tea Family

***Ephedra trifurca* J. Torrey ex S. Watson: Longleaf Joint-fir**

COMMON NAMES: Brigham Young Tea (a name also applied to other species and the genus *Ephedra*); Cañatilla [Canatilla] (“Cane or Little Pipe”, Spanish: Arizona and Texas)¹⁴⁰; Canutillo (a name also applied to other taxa, Spanish); Canutillo [del Campo] (“[Wild] Cane or Little Pipe”, Spanish: New Mexico, Sonora)¹⁴⁰; Desert Ephedra; Desert Joint-fir; Desert Jointfir; Ephedra Tea; Hierba de la Coyuntura (“Jointed Herb”, Spanish: Mexico)¹⁴⁰; □I:šiw (Yuman: Cocopa)¹⁴⁰; Itama Real; Itamo Real (“Royal Spurge” a name also applied to other species, Spanish: Coahuila)¹⁴⁰; Joint Fir (English)¹⁴⁰; Joint Fir (a name

also applied to other species and the genus *Ephedra*); Jumway (Yuman: Walapai)¹⁴⁰; Kanutio (Yaqui); Ku:pag (Uto-Aztecan: Tohono O'odham)¹⁴⁰; Ku:pag <ku'upok> (Uto-Aztecan: Hiá Ce□ O'odham)¹⁴⁰; Kuupag (Uto-Aztecan: Akimel O'odham)¹⁴⁰; Kuuvid Nonovi <koovit nawnov> ("Pronghorn's Foreleg", Uto-Aztecan: Akimel O'odham)¹⁴⁰; Long Leaf Ephedra; Long-leaf Ephedra; Long-leaf Jointfir; Long-leaf Mormon Tea; Long-leaf Mormon-tea; Long-leafed Ephedra; Long-leafed Joint-fir; Long-leafed Ephedra; Long-leaved Joint Fir; Long-leaved Joint-fir; Long-leaved Jointfir; Longleaf Desert Tea; Longleaf Ephedra; Longleaf Joint-fir; Longleaf Jointfir; Longleaf Mormon Tea; Longleaf [Ephedra, Desert, Mexican, Mormon, Teamster's] Tea (English)¹⁴⁰; Mexican Tea (a name also applied to other taxa and the genus *Ephedra*); Mexican-tea (a name also applied to other taxa); Mexican Mormon Tea; Mexican Mormon-tea; Mexican-tea; Mormon Tea (a name also applied to other species and the genus *Ephedra*); Mountain Rush (English)¹⁴⁰; Ösvi <'□sivi> (Uto-Aztecan: Hopi)¹⁴⁰; Popotilla (Hispanic); Popotillo (a name also applied to other species and the genus *Ephedra*, Spanish: Chihuahua, New Mexico, Texas)¹⁴⁰; Sudupi (Uto-Aztecan)¹⁴⁰; Tepopote (Spanish: northeastern Baja California, Chihuahua, Coahuila, Sonora, Texas)¹⁴⁰; Teposote (Hispanic); Three-fork Ephedra (English)¹⁴⁰; Three-forked Ephedra; Threefork Ephedra; Tl'oh 'azihii (Athapascan: Navajo)¹⁴⁰; Topopote (Spanish); Tulbái <tulbil bida> ("Gray Water", Athapascan: Western Apache)¹⁴⁰; Tuttumpi (Uto-Aztecan: Panamint)¹⁴⁰; Tuttumpin (Uto-Aztecan: Shoshoni)¹⁴⁰; Tutut (Uto-Aztecan: Cahuilla)¹⁴⁰; Tųtųpųvų (Uto-Aztecan: Ute)¹⁴⁰; Tųvųt (Uto-Aztecan: Cupeño, Luiseño)¹⁴⁰; U'us Ti <oo-oosti> ("Sticks Tea", Uto-Aztecan: Akimel O'odham)¹⁴⁰. DESCRIPTION: Terrestrial perennial evergreen shrub (erect stems 20 inches to 16½ feet in height; one plant was observed and described as being 3 feet in height with a crown 5 feet in width); the gray bark is cracked and irregularly fissured; the stems are blue-green, green, olive-green or yellow-green; the twigs are light green turning yellow and finally gray with age; the leaves have been reduced to scales in whorls of three located at the nodes; the tiny flowers are pale yellow with male and female flowers occurring on separate plants; the production of the tan-brown strobili (female and male cones) generally takes place between early February and early June (additional records: one for mid-January and one for late July; coning has also been reported as taking place late winter through early spring). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; bases of mountains; gravelly mesas; canyons; clayey ridges; rocky ridgetops; foothills; rocky and gravelly hills; hilltops; rocky hillsides; knolls; rocky, rocky-gravelly, gravelly, gravelly-loamy and sandy slopes; rocky-sandy and gravelly-sandy alluvial fans; sandy bajadas; rocky outcrops; gravelly lava hills; sand hills; sand dunes; ridges of sand dunes; inter-dune swales; rocky, rocky-gravelly and sandy plains; rocky, gravelly and sandy flats; sandy basins; valley floors; roadcuts; along sandy roadsides; along rocky, rocky-sandy, gravelly, gravelly-clayey-loamy and sandy roadsides; within sandy arroyos; riverbeds; along and in rocky, sandy and sandy-silty washes; within drainages; (rocky, gravelly-sandy-loamy and sandy) banks of arroyos, rivers and washes; borders of washes; edges of rivers and swales; (sandy) margins of lakes; gravelly terraces; bottomlands; floodplains; lowlands; along canals; riparian areas, and disturbed areas growing in dry rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam and gravelly-clayey loam ground; clay ground, and sandy silty ground, occurring from sea level to 6,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and may live to be 50 years of age. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. This plant is valuable as a soil binder. This plant is browsed by Bighorn Sheep. *Ephedra trifurca* is native to southwest-central and southern North America. *5, 6, 13 (Pages 379-380), 15, 16, 18, 28 (color photographs 483 A&B), 42 (051013), 43 (081209), 44 (051013), 46 (Page 61), 48 (genus), 58, 63 (051013 - color presentation), 77, **85** (051013 - color presentation), 91 (Pages 196-197), 124 (031911 - no record of species; genus record), 127, 140 (Pages 130-131 & 291), **MBJ** (undated record which may include landscaped material that persists without maintenance), **WTK** (August 4, 2005)*

Division Magnoliophyta: The Flowering Plants

CLASS LILIOPSIDA: The MONOCOTS

Agavaceae: The Century-plant Family

***Agave americana* C. Linnaeus: American Century Plant**

COMMON NAMES: Agave (a name also applied to other species, the genus *Agave* and to the Agavaceae); Agave (Swedish); Agave d'Amérique (*Agave americana* subsp. *americana* var. *americana* - Not Accepted, *Agave americana* var. *americana* - Accepted, French); American Agave; American Agave (*Agave americana* subsp. *americana* var. *americana* - Not Accepted, *Agave americana* var. *expansa* - Accepted); American Aloe; American-aloe; American Century Plant; American Century Plant (*Agave americana* subsp. *americana*; *Agave americana* subsp. *protamericana* - Accepted; *Agave americana* subsp. *americana* var. *americana* - Not Accepted, *Agave americana* var. *americana* - Accepted; *Agave americana* subsp. *americana* var. *expansa* - Not Accepted, *Agave americana* var. *expansa* - Accepted); Amerikanische Agave (*Agave americana* subsp. *americana* var. *americana* - Not Accepted, *Agave americana* var. *americana* - Accepted, German); Century-plant (a name also applied to other species and the genus *Agave*); Century-plant (*Agave americana* subsp. *americana* var. *americana* - Not Accepted, *Agave*

americana var. *americana* - Accepted); Centuryplant (a name also applied to other species and the genus *Agave*); Galime (Hispanic); Garingboom (Afrikaans); Hundert-jährige *Agave* (*Agave americana* subsp. *americana* var. *americana* - Not Accepted, *Agave americana* var. *americana* - Accepted, German); L'gok (Tepehuán); Maguey (a name also applied to other species and the genus *Agave*, Spanish); Maguey (*Agave americana* subsp. *americana* var. *americana* - Not Accepted, *Agave americana* var. *americana* - Accepted, Spanish); Pita Común (*Agave americana* subsp. *americana* var. *americana* - Not Accepted, *Agave americana* var. *americana* - Accepted, Spanish); Pite (*Agave americana* subsp. *americana* var. *americana* - Not Accepted, *Agave americana* var. *americana* - Accepted, French); Spreading Century-plant (*Agave americana* subsp. *americana* var. *expansa* - Not Accepted, *Agave americana* var. *expansa* - Accepted); Wild Century-plant (*Agave americana* subsp. *protamericana*). DESCRIPTION: Terrestrial perennial evergreen leaf-succulent forb/herb, subshrub or shrub (acaulescent or short-stemmed with spreading ascending and/or erect leaves 40 inches to 6½ feet in height and 6½ to 13 feet in diameter with a flowering stem 5 to 40 feet in height; one plant was observed and described as being 4 feet in height and 4 feet in width); the leaves may be gray, gray-green, grayish-blue-green, bright green or green-blue; the flowers may be greenish, greenish-yellow or yellow; flowering generally takes place between early June and early August (additional records: one for mid-February and one for late September). HABITAT: Within the range of this species it has been reported from mountains; rocky hills; rocky and sandy slopes; rocky-sandy alluvial fans; flats; bottoms of arroyos; along and in washes; along sandy banks of streams, and disturbed areas growing in dry bouldery, rocky, rocky-sandy and sandy ground and rocky clay ground, occurring from 1,200 to 5,100 feet in elevation in the woodland, scrub, grassland and desertscrub ecological formations. NOTES: **EXOTIC** Plant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or fiber crop. The flowers are visited by hummingbirds. *Agave americana* is native to southwest-central and southern North America. *5, 6, 16, 17, 18, 26 (color photograph), 30, 42 (051013), 43 (081209), 44 (051013 - no listings recorded under Common Names for the species; genus record, color photograph), 63 (051013), 85 (051013), 97 (Avoid letting the sap come into contact with your skin or eyes.), 124 (032011 - no record of species or genus), 127, **MBJ** (undated record which, may include landscaped material that persists without maintenance)*

***Agave chrysantha* R.H. Peebles: Goldenflower Century Plant**

SYNONYMY: *Agave palmeri* G. Engelmann var. *chrysantha* (R.H. Peebles) E.L. Little ex L.D. Benson. COMMON NAMES: *Agave* (a name also applied to other species, the genus *Agave* and to the Agavaceae); Apache Trail *Agave*; Golden Flowered *Agave*; Golden-flower *Agave*; Golden-flowered *Agave*; Golden-flowered Century Plant; Goldenflower Century Plant; Maguey (a name also applied to other species and the genus *Agave*, Spanish). DESCRIPTION: Terrestrial perennial evergreen leaf-succulent forb/herb, subshrub or shrub (acaulescent stems with spreading-ascending leaves 20 to 40 inches in height and 1 to 6 feet in diameter with a flowering stem reaching to 6½ to 23 feet in height); the spreading to ascending leaves may be light blue-glaucous green, blue-gray-green, bluish-green, gray-green, gray-dark green (bluish), dark gray-green, grayish, pale green, green, dark green, green-gray, green-yellow, dark-green-gray, red or reddish (when in flower), yellow-green, yellow-glaucous green or yellowish-green and sometimes tinged with maroon; the flowers may be light cream, cream, golden-yellow, orange-yellow, white, pale yellow, yellow or yellow-orange; the anthers may be light brown, golden-yellow, lemon-yellow, white, light yellow or yellow; the stigma may be a deep orange-yellow; flowering generally takes place between late May and late August (additional records: four for early May, one for late September and one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; cliff faces; canyons; canyon bottoms; rocky knolls; rocky ledges; rocky ridges; ridgetops; foothills; rocky hills; hilltops; rocky and silty hillsides; bouldery and rocky slopes; bajadas; bedrock and rocky outcrops; amongst boulders; bouldery debris flows; rocky-clayey plains; bouldery flats; rocky roadsides, and within rocky-gravelly drainages growing in dry bouldery, rocky, rocky-gravelly, gravelly and sandy ground; rocky clay and clay ground, and silty ground, occurring from 2,300 to 7,000 feet in elevation in the forest, woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Hummingbirds have been observed visiting the flowers. *Agave chrysantha* is native to southwest-central North America. *5, 6, 13 (recorded as *Agave palmeri* Engelm. var. *chrysantha* (Peebles) Little, Page 76), 15, 17, 28 (color photograph 137), 42 (051013), 43 (032511), 44 (032511 - no record of species; genus record), 45 (color photograph), 46 (Page 195), 48 (genus), 63 (051013), 85 (051013 - color presentation including habitat), 91 (Pages 45-47), 124 (032511 - no record of species or genus), 115 (color presentation), **HR***

***Yucca elata* (G. Engelmann) G. Engelmann: Soaptree Yucca**

SYNONYMY: *Yucca elata* (G. Engelmann) G. Engelmann var. *elata*; *Yucca elata* (G. Engelmann) G. Engelmann var. *utahensis* (S.A. McKelvey) J.L. Reveal; *Yucca elata* (G. Engelmann) G. Engelmann var. *verdiensis* (S.A. McKelvey) J.L. Reveal; *Yucca utahensis* S.A. McKelvey; *Yucca verdiensis* S.A. McKelvey. COMMON NAMES: Amole (a name given to the roots, also applied to other species); Cortadillo (Spanish); Datil (a name also applied to other species); Palmella; Palmilla ("Small Palm", Spanish); Palmilla (a name also applied to other species, Spanish); Palmito (Spanish); Palmilija Jukka; Seifen-palmilie (German); Soap Weed (a name also applied to the genus *Yucca*); Soap-tree *Yucca*; Soap-weed *Yucca*; Soaptree; Soaptree *Yucca*; Soaptree *Yucca* (*Yucca elata* var. *elata*); Soapweed (a name also applied to other species and the genus *Yucca*); Soapweed *Yucca* (a name also applied to other species); Sota (Spanish); Soyate (Spanish); Spanish Bayonet (a name also applied to other species and the genus *Yucca*); Spanish-bayonet (a name also applied to other species and the genus *Yucca*); Takui (Tohono O'odham); Utah *Yucca* (*Yucca elata* var. *utahensis*); Verde *Yucca*; Verdi *Yucca* (*Yucca elata* var. *verdiensis*); Yuca (Spanish). DESCRIPTION: Terrestrial perennial evergreen leaf-succulent shrub or tree (procumbent or erect caulescent or acaulescent (rarely) stems to 30 feet in height with a flowering stalk reaching 2 to 8 feet in height); the narrow leaves may be gray-green, pale

green or green, dry leaves remain on the stem; the bell-shaped flowers may be cream, cream-white (with light green outer and light yellow-green inner tepal midstripes), creamish-white, creamy-white (often tinged with green or pink), greenish-white, white or yellowish-white; the styles and stigmas may be cream-white, cream-light green-white, light green or white; the anthers are yellow; flowering generally takes place between mid-April and early August (additional records: one dated February 1894 at Deming New Mexico, for two for late February, one for late August, one for mid-September, one for early October and one for late November); the fruit ripens between early August and early October. HABITAT: Within the range of this species it has been reported from mountains; rocky-sandy-clayey-loamy and sandy mesas; plateaus; hanging gardens; rocky canyons; rocky canyon walls; rocky canyon bottoms; bedrock ridges; meadows; rocky foothills; bases of foothills; hills; rocky and gravelly hillsides; along bouldery, rocky, rocky-sandy-clayey-loamy, shaley-gravelly-sandy, sandy and loamy slopes; sandy bajadas; sand hills; sand dunes; gypsum dunes; prairies; sandy plains; shaley esplanades; gravelly, sandy, sandy-loamy and clayey-loamy flats; sandy uplands; basins; gravelly-silty-loamy and sandy valley floors; along rocky-sandy, gravelly gravelly-sandy-clayey-loamy, sandy and sandy-loamy roadsides; along clayey arroyos; rocky draws; along creeks; along rivers; along and in gravelly and sandy washes; within drainages; within drainage ways; inter-dune swales; edges of rivers; benches; terraces; floodplains; lowlands, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-gravelly-sandy, gravelly and sandy ground; rocky-sandy-clayey loam, gravelly loam, gravelly-sandy-clayey loam, gravelly-silty loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; silty clay and clay ground, and gypsum ground, occurring from 900 to 7,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop; it was also noted as having been used in toys or in games, as ceremonial drug or medication, as a decoration and as a commodity used in personal hygiene. The growth rate of wild growing plants is about 1 inch in height each year with taller plants being 200 to 300 years of age. The flower of the Soaptree Yucca is pollinated by the Yucca Moth, *Tegeticula yuccasella*, and the moth's larvae feed on the developing fruit. *Yucca elata* is native to southwest-central and southern North America (the Soaptree Yucca (*Yucca elata* var. *elata*) ranges from central and southern Arizona east to southern New Mexico and southwestern Texas and south into the northern Mexican states of Chihuahua, Coahuila and Sonora; the Utah Yucca (*Yucca elata* var. *utahensis*) is ranges from southern Nevada east to southwestern Utah and south to north-central Arizona, and the Verdi Yucca (*Yucca elata* var. *verdiensis*) is known only from central Arizona). *5, 6, 13 (placed in the Liliaceae, Pages 48-49, color photograph including habitat: Plate G.1., Page 395), 15, 16, 18, 26 (color photograph), 28 (color photograph 146), 42 (051113 - *Yucca elata* var. *elata* Engelm. and *Yucca elata* var. *verdiensis* (McKelvey) Reveal are both 'Accepted'), 43 (081309), 44 (032511 - no record of species; genus record), 45 (color photograph), 46 (recorded as *Yucca elata* Engelm., Page 188; *Yucca utahensis* McKelvey, Page 188, and *Yucca verdiensis* McKelvey, Page 188, the genus *Yucca* was placed in the Liliaceae), 53 (placed in the Liliaceae), 58, 63 (051113 - color presentation including habitat), 77, 85 (051113 - color presentation including habitat), 115 (color presentation), 124 (032111 - no record of species; genus record), 127, 134, **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Yucca elata var. *elata* (see *Yucca elata*)

Yucca elata var. *utahensis* (see *Yucca elata*)

Yucca elata var. *verdiensis* (see *Yucca elata*)

Yucca utahensis (see *Yucca elata*)

Yucca verdiensis (see *Yucca elata*)

Cyperaceae: The Sedge Family

***Cyperus odoratus* C. Linnaeus: Fragrant Flatsedge**

COMMON NAMES: Calingale; Coarse Cyperus (a name also applied to other taxa); Engelmann Flatsedge (*Cyperus engelmannii* - Not Accepted, *Cyperus odoratus* - Accepted); Engelmann's Cyperus (*Cyperus engelmannii* - Not Accepted, *Cyperus odoratus* - Accepted); Engelmann's Flatsedge (*Cyperus engelmannii* - Not Accepted, *Cyperus odoratus* - Accepted); Engelmann's Sedge (*Cyperus engelmannii* - Not Accepted, *Cyperus odoratus* - Accepted); Engelmann's Umbrella-sedge (*Cyperus engelmannii* - Not Accepted, *Cyperus odoratus* - Accepted); False Rusty Flat Sedge; False Rusty Flat-sedge; Fragrant Cyperus; Fragrant Flat Sedge; Fragrant Flat-sedge; Fragrant Flatsedge; Fragrant Umbrella Sedge; Fragrant Umbrella-sedge; Galingale (a name also applied to other species and the genus *Cyperus*); Large Head Flat Sedge; Long Spike Flatsedge; Long-spike Flatsedge; Longspike Flatsedge; Michaux's Cyperus; Odorous Flatsedge; Rusty Cyperus; Rusty Flat Sedge; Rusty Flatsedge; Rusty Flatsedge; Rusty Umbrella-sedge; Rusty-flatsedge; Scented Flatsedge; Slender Flatsedge (a name also applied to other taxa); Souchet d'Engelmann (*Cyperus engelmannii* - Not Accepted, *Cyperus odoratus* - Accepted, French); Zacate (a name also applied to other species, Spanish). DESCRIPTION: Terrestrial annual or perennial graminoid (culms 2 to 52 inches in height; plants were observed and described as being 10 inches in height and 8 inches in width); the foliage is yellow-green; the spikelets may be green, red-brown, yellow-brown or yellow-green; flowering generally takes place between mid-May and late

November (additional records: four for mid-January, one for late January, one for early February, eight for mid-March, two for late March and one for mid-April). HABITAT: Within the range of this species it has been reported from mountains; gravelly canyons; sandy canyon bottoms; chasms; foothills; rocky and clayey slopes; amongst rocks; sandy prairies; sandy and clayey flats; valley bottoms; along arroyos; draws; bottoms of gullies; around springs; along streams; gravelly streambeds; along creeks; along sandy creekbeds; along rivers; along sandy and sandy-loamy riverbeds; sandy washes; drainages; along sandy drainage ways; around pools; clayey rain pools; around lakes; ciénegas; marshes; silty swamps; along (rocky, sandy, clayey, silty and silty-clayey) banks of springs, streams, creeks, rivers and lakes; along (sandy and silty-clayey) edges of rivers; pools, poolbeds, ponds, lakes and lagoons; margins of ponds and lakes; (gravelly) sides of rivers; shorelines of rivers, ponds and lakes; mudflats; sandbanks; gravel and sand bars; beaches; sandy benches; terraces; sandy floodplains; around sandy-silty tanks; sandy-silty shores of reservoirs; banks of levees; canal banks; along and in ditches; banks and edges of ditches; gravelly, sandy and muddy riparian areas, and disturbed areas growing in shallow water; muddy, and wet and moist rocky, stony, gravelly and sandy ground; sandy loam and silty-clayey loam ground; clay ground, and sandy silty and silty ground, occurring from sea level to 6,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it forms large dense bunches. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Ducks use this plant for cover and feed on the seeds, shoots and roots. *Cyperus odoratus* is native to Australia; western and southeastern Asia and coastal islands in the North Pacific Ocean; central and southern Africa and coastal islands in the West Indian Ocean; east-central, southwest-central and southern North America and coastal islands in the North Atlantic Ocean; Central America and coastal islands in the Caribbean Sea, and South America. *5, 6, 42 (051113), 43 (081309), 44 (090511), 46 (Page 149), 58, 63 (051113 - color presentation), **85** (051413 - color presentation), 124 (090511), 127, 140 (Page 290)*

Lemnaceae: The Duckweed Family

***Lemna gibba* C. Linnaeus: Swollen Duckweed**

COMMON NAMES: Bucklige Wasserlinse (German); Fat Duck Weed; Fat Duck-weed; Fat Duckweed; Gibbous Duck-weed; Gibbous Duckweed (Nebraska); Humpbacked Duckweed; Humped Duckweed; Inflated Duckweed; Kupandmat (Swedish); Lentille d'Eau Bossue (French); Swollen Duckweed; Thick Duck-weed; Thick Duckweed. DESCRIPTION: Floating aquatic or semi-aquatic perennial forb/herb (1/16 to 1/4 inch in length and sometimes slightly less in width); the stipes are white; the fronds are green, dark green or yellow-green sometimes with red markings; based on few records located, flowering generally takes place between late March and late September (flowering records: one for late March, one for late May, one for early June, three for late June, one for early July, one for early September and one for late September; flowering has also been reported as occurring between spring and fall). HABITAT: Within the range of this species it has been reported from seeps, around and in springs; along and in streams; streambeds; along and in creeks; in rivers; riverbeds; in pools; in ponds; muddy pondbeds; around and in lakes; bogs; ciénegas; marshlands; swampy areas; sloughs; edges of rivers and lakes; margins of lakes; bottomlands; reservoirs; canals; within ditches, and riparian growing in quiet brackish, stagnant and fresh water and on muddy, wet and moist ground occurring from sea level to 10,100 feet in elevation in wetland ecological formations within the forest, woodland, grassland and desertscrub ecological formations. NOTES: The free-floating fronds are often coherent in groups. *Lemna gibba* is native to south-central and southern North America and coastal islands in the Caribbean Sea; southeastern, central and southern South America; Europe and coastal islands in the North Atlantic Ocean and Mediterranean Sea; western, central, eastern and southern Asia and coastal islands in the North Pacific Ocean, and Africa and coastal islands in the Atlantic Ocean. *5, 6, 42 (051313), 43 (112110), 44 (051313), 46 (Page 166), 58, 63 (051313 - color presentation), **85** (051413 - color presentation), 124 (040911), 140 (Page 295)*

Liliaceae: The Lily Family

Brodiaea capitata (see *Dichelostemma capitatum* subsp. *capitatum*)

Brodiaea pulchella (see *Dichelostemma capitatum* subsp. *capitatum*)

Brodiaea pulchella var. *pauciflora* (see *Dichelostemma capitatum* subsp. *pauciflorum*)

***Calochortus kennedyi* Porter: Desert Mariposa Lily**

COMMON NAMES: Cobena Amarilla (Spanish); Desert Mariposa; Desert Mariposa Lily; Desert Mariposa Lily (var. *kennedyi* and var. *munzii*); Desert Mariposa-lily; Desert Mariposa Tulip; Desert Mariposa-tulip; Flame Mariposa (var. *kennedyi*); Kennedy Mariposa; Kennedy Mariposa Lily; Kennedy Mariposa-lily; Kennedy Mariposa Tulip; Kennedy Mariposa-tulip; Kennedy's Mariposa; Kennedy's Mariposa Lily; Kennedy's Mariposa-lily; Kennedy's Mariposa Tulip; Kennedy's Mariposa-tulip; Mariposa Lily (a name also applied to the genus *Calochortus*); Munz's Desert Mariposa Lily (var. *munzii*); Red Mariposa (var. *kennedyi*); Red Mariposa Lily; Red Mariposa Lily (var. *kennedyi*); Red Mariposa-lily (var. *kennedyi*); Yellow Desert Mariposa (var. *munzii*); Yellow-flowered Mariposa Lily (var. *munzii*). DESCRIPTION: Terrestrial perennial forb/herb (4 inches to 2 feet in height); the leaves (4 to 8 inches in length) are grayish-green; the bell-shaped flowers (1 to 2 inches in diameter) may

be golden, bright orange, orange, dark orange, orange-red, orange-yellow, reddish, reddish-orange, vermilion, light yellow or yellow often with a dark brown-purple or dark purple basal blotch; the anthers are purplish; flowering generally takes place between early March and mid-June. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; boulder mesas; cliffs; rocky and gravelly canyons; rocky canyon bottoms; rocky ledges; rocky ridges; rocky and sandy-loamy ridgetops; foothills; rocky and stony hills; hilltops; rocky and rocky-clayey hillsides; rocky, rocky-sandy, rocky-loamy, stony, sandy and clayey slopes; bajadas; amongst rocks; rocky, rocky-sandy and gravelly-sandy flats; basins; valley floors; along rocky roadsides; along creeks; borders of washes; benches, and riparian areas growing in dry bouldery, rocky, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; rocky loam and sandy loam ground, and rocky clay, gravelly clay and clay ground, occurring from 1,300 to 5,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Calochortus kennedyi* is native to southwest-central and southern North America. *5, 6, 15, 16, 28 (color photographs 319 & 529), 42 (051313), 43 (081509), 44 (100211), 46 (Page 185), 48 (genus), 63 (051313 - color presentation), 77 (color photograph #55), 85 (051413 - color presentation), 86 (color photograph), 106 (081509), 115 (color presentation), 124 (100211 - no record of species; genus record), **HR**

***Dasyliirion wheeleri* S. Watson: Common Sotol**

COMMON NAMES: Cactus Spoon; Common Sotol; Cucharilla (a name also applied to other species, Spanish); Desert Spoon (English)¹⁴⁰; Desert-spoon; Húumug (Uto-Aztec: Onavas Pima); Igabaané <ekibanne, k'ashbaané> (Athapascan: Western Apache)¹⁴⁰; Kokiše <kogice> (“Fire Stick?”, Athapascan: Chiricahua and Mescalero Apache)¹⁴⁰; Palma [Palmilla] (“[Little] Palm”, Spanish: Chihuahua); Palmilla de Serruchito (Mexico, Sonora); Palmilla de Serrucho (Spanish); Saño (Spanish); Sanó (Spanish)¹⁴⁰; Sawo (Spanish); Seré <selé> (Uto-Aztec: Guarijio)¹⁴⁰; Seréke <sere-ke> (Uto-Aztec: Tarahumara)¹⁴⁰; Seriki <sheriki> (“Straight”, Uto-Aztec: Mountain Pima)¹⁴⁰; Sotol, Sotol (Spanish)¹⁴⁰; Sotol de Desierto (Spanish); Spoon Flower; Spoon Plant; Spoon-flower; Spoon-leaf; Šušida Kúruí (Uto-Aztec: Northern Tepehuan)¹⁴⁰; Tehuizote (Spanish)¹⁴⁰; Umoga (Uto-Aztec: Mountain Pima)¹⁴⁰; Umug <uhmug, umu'k, 'umug> (Uto-Aztec: Akimel O'odham and Tohono O'odham)¹⁴⁰; Wheeler Dasyliirion; Wheeler Sotol. DESCRIPTION: Terrestrial perennial evergreen leaf-succulent subshrub or shrub (16 inches to 8 feet in height and 4 to 6 feet in width with a flowering spike reaching 6 to 17 feet in height; one plant was observed and described as being 6 feet in height and width); the spiny leaves (14 to 40 inches in length and ½ to 1 inch in width) may be bluish-gray, bluish-green, green or whitish; the flowers (dioecious, female and male flowers are born on separate plants) may be cream, greenish, greenish-white, greenish-yellow, white, pale yellow, yellow, yellow-green or yellowish-white; flowering generally takes place between early June and early October (additional records: one for mid-February, one for mid-May, one for late October and one for mid-November); the papery three-winged fruits may be golden-brown, reddish or straw. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky mesas; plateaus; canyon rims; bouldery and rocky canyons; rocky canyon bottoms; talus slopes; bases of cliffs; rocky ledges; rocky and shaley ridges; rocky ridgetops; bases of ridges; rocky balds; rocky openings in chaparral; rocky and gravelly hills; hilltops; rocky, rocky-gravelly, stony-gravelly and gravelly hillsides; bedrock, bouldery-gravelly-loamy, rocky, rocky-gravelly-clayey-loamy, shaley, gravelly, sandy-clayey and clayey slopes; bajadas; rocky outcrops; lava flows; prairies; gravelly flats; rocky valley floors; rocky arroyos; gulches; streambeds; along rivers; rocky washes; along drainages; benches; bottomlands; riparian areas, and disturbed areas growing in dry rocky desert pavement; rocky, rocky-gravelly, stony-gravelly, gravelly and sandy ground; bouldery-gravelly loam, rocky-gravelly-clayey loam, gravelly loam, gravelly-sandy loam and sandy loam ground, and sandy clay and clay ground, occurring from 1,700 to 7,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or fiber crop; it was also noted as having been used in ceremonial items as a tool (fire drill hearths). This plant may be browsed by Bighorn Sheep (*Ovis canadensis*). *Dasyliirion wheeleri* is native to southwest-central and southern North America. *5, 6, 13 (Pages 62-63), 15 (placed in the Agavaceae), 18, 26 (color photograph 141), 28 (color photograph 141), 42 (051313), 43 (081010), 44 (051313 - no record of species or genus), 45 (color photograph), 46 (Page 190), 48, 58 (placed in the Agavaceae), 63 (051313 - color presentation), 77 (placed in the Agavaceae), 85 (051513 - color presentation including habitat), 86 (color photograph), 115 (color presentation), 124 (102510 - no record of species), 127, 140 (placed in the Agavaceae/Ruscaceae, Pages 33-34 & 281), **HR***

***Dichelostemma capitatum* (G. Bentham) A. Wood subsp. *capitatum*: Bluedicks**

SYNONYMY: *Brodiaea capitata* G. Bentham; *Brodiaea pulchella* (R.A. Salisbury) E.L. Greene; *Dichelostemma pulchellum* (R.A. Salisbury) A.A. Heller; *Dichelostemma pulchellum* (R.A. Salisbury) A.A. Heller var. *capitatum* (G. Bentham) J.L. Reveal. COMMON NAMES: Blue Dicks (a name also applied to the species and genus *Dichelostemma*); Bluedicks (a name also applied to the species and genus *Dichelostemma*); Brodiaea (a name also applied to the species); Covena (a name also applied to the species); Covenna (a name also applied to the species); Coveria (a name also applied to the species); Crow Poison (a name also applied to the species and other species); Desert Hyacinth (a name also applied to the species and other taxa); Few-flowered Covena (a name also applied to the species); Fool's Onion (a name also applied to the species and other taxa); Fool's-onion (a name also applied to the species and other taxa); Grass Nuts (a name also applied to the species and other taxa); Grass-nuts (a name also applied to the species and other taxa); Hahd (a name also applied to the species, Pima); Indian Hyacinth (not recommended, a name also applied to the species); Papago Lily (a name also applied to the species); Purplehead (a name also applied to the species); Typical Beautiful Blue Dicks; Typical Beautiful Blue-dicks; Typical Beautiful Bluedicks; Typical Blue-

dicks California-hyacinth; Typical Capitate Blue Dicks; Typical Capitate Blue-dicks (a name also applied to the genus *Dichelostemma*); Typical Capitate Bluedicks; Typical Chester Lily; Typical Common Blue Dick; Typical Common Blue Dicks; Typical Common Blue-dick; Typical Common Blue-dicks; Typical Common Bluedicks; Typical Common Brodiaea; Typical Common Saitas; Typical Covenna; Typical Desert Hyacinth Blue Dicks; Typical Desert Hyacinth Blue-dicks; Typical Desert Hyacinth Bluedicks; Typical Hyacinth Blue Dicks; Typical Hyacinth Blue-dicks; Typical Hyacinth Bluedicks; Typical Papago Lily; Typical Vernal Pool Bluedicks; Typical Wild Hyacinth Blue Dicks; Typical Wild Hyacinth Blue-dicks; Typical Wild Hyacinth Bluedicks (a name also applied to the species); Wild Hyacinth (a name also applied to the species and other taxa). DESCRIPTION: Terrestrial perennial forb/herb (erect leaves and flowering stems 4 to 40 inches in height); the leaves are dark green; the flowers may be light blue, blue, dark blue, blue-purple, bluish-purple, light lavender, lavender, dark lavender, pink, pinkish-purple, pale purple, purple, dark purple, purple-blue, violet or white; flowering generally takes place between early February and late June (additional records: one for mid-July, one for late August; flowering beginning as early as December and ending as late as July has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky mesas; bedrock and gravelly plateaus; along canyon rims; canyons; canyon walls; gravelly-sandy canyon bottoms; talus; sandy pockets of soil on rocky banks; bluffs; rocky ridges; ridgetops; meadows; rocky foothills; rocky and cobbly-sandy-loamy hills; rocky hilltops; bouldery, rocky, rocky-sandy, gravelly-clayey-loamy and sandy hillsides; bouldery, rocky, rocky-silty, cobbly-sandy-loamy, gravelly, gravelly-sandy-clayey-loamy, sandy and sandy-loamy slopes; bajadas; bouldery and rocky outcrops; amongst boulders and rocks; rocky and clayey banks; rocky, rocky-clayey-loamy, gravelly, sandy and sandy-loamy flats; valley floors; sandy coastal terraces; in gravelly roadbeds; bouldery roadcuts; along rocky, rocky-clayey, stony-clayey and sandy roadsides; draws; gravelly streambeds; creekbeds; along and in stony-gravelly and sandy washes; depressions; sloughs; (sandy) banks of rivers; sandy benches; sandy terraces; riparian areas; waste places; recently burned areas of coastal sage scrub, and disturbed areas growing in wet (rarely reported - one record for a wet sandy wash), moist (rarely reported), damp (rarely reported) and dry desert pavement; bouldery, rocky, rocky-sandy, stony-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, cobbly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam and loam ground; rocky clay, stony clay and clay ground, and rocky silty and silty ground, occurring from sea level to 9,800 feet in elevation in the forest, woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Dichelostemma capitatum* subsp. *capitatum* is native to southwest-central and southern North America. *5, 6, 16 (recorded as *Dichelostemma pulchellum* (Salisb.) Heller), 28 (recorded as *Dichelostemma pulchellum*, color photograph 680), 42 (051613), 43 (081609), 44 (100311), 46 (recorded as *Dichelostemma pulchellum* (Salisb.) Heller, Page 182), 63 (051613 - color presentation), 85 (051813 - color presentation), 115 (color presentation of the species), 124 (100311 - no record of subspecies, species or genus), 140 (Page 306 - recorded as *Dichelostemma pulchellum* (Salisbury) Heller, placed in the Themidaceae), **MBJ** (recorded as *Dichelostemma pulchellum*, undated record which may include landscaped material that persists without maintenance)*

***Dichelostemma capitatum* (G. Bentham) A. Wood subsp. *pauciflorum* (J. Torrey) G. Keator: Bluedicks**

SYNONYMY: *Brodiaea pulchella* (R.A. Salisbury) E.L. Greene var. *pauciflora* (J. Torrey) C.V. Morton; *Dichelostemma pulchellum* (R.A. Salisbury) A.A. Heller var. *pauciflorum* (J. Torrey) R.F. Hoover. COMMON NAMES: Blue Dicks (a name also applied to the species and genus *Dichelostemma*); Bluedicks (a name also applied to the species and genus *Dichelostemma*); Brodiaea (a name also applied to the species); Covena (a name also applied to the species); Covenna (a name also applied to the species); Coveria (a name also applied to the species); Crow Poison (a name also applied to the species and other taxa); Desert Blue-dicks (a name also applied to the species); Desert Hyacinth (a name also applied to the species and other taxa); Few Flower Blue Dicks; Few Flowered Blue Dicks; Few-flower Blue Dicks; Few-flowered Blue Dicks; Few-flowered Bluedicks; Few-flowered Blue-dicks; Few-flowered Bluedicks; Few-flowered Covena; Fewflowered Blue Dicks; Fool's Onion (a name also applied to other taxa); Fool's-onion (a name also applied to other taxa); Grass Nuts (a name also applied to the species and other taxa); Grass-nuts (a name also applied to the species and other taxa); Hahd (a name also applied to the species, Pima); Indian Hyacinth (not recommended, a name also applied to the species); Papago Lily (a name also applied to the species); Purplehead (a name also applied to the species); Wild Hyacinth (a name also applied to the species and other taxa). DESCRIPTION: Terrestrial perennial forb/herb (erect leaves and flowering stems 4 to 30 inches in height); the leaves are dark green; the flowers may be pale blue, blue, blue-lavender-purple, blue-purple, bluish-lavender, lavender, pink, pink-purple, purple or white; flowering generally takes place between late January and late June (additional records: one record for early January, one record for mid-July, one record for mid-September and one record for early November). HABITAT: Within the range of this species it has been reported from rocky mountains; rocky mountainsides; gravelly and sandy mesas; plateaus; along rocky canyons; rocky canyon bottoms; gravelly-silty bluffs; buttes; gravelly ridges; rocky ridgetops; foothills; rocky hills; sandy hilltops; rocky, gravelly hillsides; rocky, rocky-gravelly and sandy slopes; rocky-sandy alluvial fans; bajadas; rocky outcrops; amongst boulders and rocks; terraces; prairies; plains; gravelly, gravelly-loamy and sandy flats; basins; sandy valley floors; along gravelly roadsides; rocky arroyos; along draws; gulches; ravines; along streams; silty creekbeds; riverbeds; along and in rocky and sandy washes; silty drainages; depressions; borders of washes; sandy beaches; gravelly terraces; sandy lowlands; ditches; around stock tanks; riparian areas, and disturbed areas growing in moist (rarely reported) and dry desert pavement; bouldery-sandy, rocky, rocky-sandy, cindery, gravelly and sandy ground; cobbly-silty loam, gravelly loam and sandy loam ground; rocky clay, stony clay and clay ground, and gravelly silty and silty ground, occurring from 900 to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers are reported to be fragrant. *Dichelostemma capitatum* subsp. *pauciflorum* is native to southwest-central and southern North America. *5, 6, 15, 42 (051613), 43 (081609), 44 (100311), 46 (recorded as

Dichelostemma pulchellum (Salisb.) Heller var. *pauciflorum* (Torr.) Hoover, Page 182), 58, 63 (051613 - color presentation), 77 (recorded as *Dichelostemma pulchellum* (Salisb.) Heller, color photographs #56 and #103), 85 (051813 - color presentation), 86 (note for *Dichelostemma pulchellum*), 115 (color presentation of the species), 124 (100311 - no record of subspecies, species or genus)*

Dichelostemma pulchellum (see *Dichelostemma capitatum* subsp. *capitatum*)

Dichelostemma pulchellum var. *capitatum* (see *Dichelostemma capitatum* subsp. *capitatum*)

Dichelostemma pulchellum var. *pauciflorum* (see *Dichelostemma capitatum* subsp. *pauciflorum*)

Poaceae (Gramineae): The Grass Family

Andropogon barbinodis (see *Bothriochloa barbinodis*)

Andropogon contortus (see *Heteropogon contortus*)

***Aristida adscensionis* C. Linnaeus: Sixweeks Threawn**

COMMON NAMES: Annual Bristle Grass (a name also applied to other species); Dog-town Grass (a name also applied to other species); Flechilla (Spanish); Needle Grass (a name also applied to other species and to the genus *Aristida*); Plumilla (Spanish); Purple Beard Grass (a name also applied to other species); Sabal Abu El-hosein (Arabic); Safwah (Arabic); Six Weeks Three Awn; Six Weeks Three Awn Grass; Six Weeks Threawn; Six-weeks Needle Grass; Six-weeks Needle-grass; Six-weeks Needlegrass; Six-weeks Three-awn; Six-weeks Three-awn Grass; Six-weeks Threawn; Sixweeks Three Awn; Sixweeks Three-awn; Sixweeks Threawn; Three-awn (a name also applied to other species and to the genus *Aristida*); Tres Barbas (Spanish), Triple-awn Beard Grass (a name also applied to other species and to the genus *Aristida*); Triple-awned Beard Grass (a name also applied to other species and to the genus *Aristida*); Triple-awned Beard-grass (a name also applied to other species and to the genus *Aristida*); Zacate Cola de Zorra (Spanish); Zacate de Semilla (Spanish); Zacate Tres Barbas (a name also applied to other species and to the genus *Aristida*, Spanish); 6-Weeks 3-Awn. DESCRIPTION: Terrestrial annual tufted graminoid (ascending and/or erect culms 1¼ to 40 inches in height); the color of the foliage has been described as being bright green, purple or yellow curing to straw; the florets may be purple, purplish or red-purple; flowering may take place year-round between early January and late December; the seed heads may be purple. HABITAT: Within the range of this species it has been reported from rocky mountains; mountaintops; rocky mountainsides; bedrock, rocky, rocky-sandy-loamy, gravelly, gravelly-sandy-clayey and sandy mesas; plateaus; rocky canyons; rocky and sandy canyon bottoms; rocky gorges; talus slopes; crevices in rocks; shallow pockets of soil; buttes; rocky ledges; rocky ridges; rocky and gravelly ridgetops; meadows; foothills; rocky, gravelly and sandy hills; rocky-gravelly and gravelly hilltops; rocky and stony hillsides; escarpments; sandy bases of escarpments; bedrock, bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-clayey, stony, stony-clayey, cobbly-sandy-clayey, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey, gravelly-clayey-loamy, sandy, sandy-clayey, sandy-clayey-loamy, sandy-silty, clayey and clayey-loamy slopes; bases of slopes; rocky alluvial fans; gravelly-sandy bajadas; rocky outcrops; amongst boulders and rocks; sandy lava flows; sand hills; sandy dunes; terraces; gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy and sandy-loamy prairies; cobbly, gravelly-sandy, sandy and clayey-loamy plains; rocky, rocky-sandy, gravelly, gravelly-loamy, gravelly-sandy-loamy, sandy, sandy-loamy and sandy-clayey-loamy flats; gravelly, gravelly-sandy and sandy uplands; valley bottoms; along rocky railroad right-of-ways; along roadbeds; gravelly roadcuts; along rocky, rocky-gravelly, rocky-sandy, rocky-clayey-loamy, gravelly, gravelly-sandy, gravelly-loamy, sandy and sandy-loamy roadsides; along and in sandy arroyos; gravelly bottoms of arroyos; rocky draws; ravines; seeps; silty springs; along streams; streambeds; along creeks; creekbeds; along rivers; sandy riverbeds; along and in rocky, rocky-sandy, cobbly-pebbly-sandy, gravelly, gravelly-sandy and sandy washes; bedrock and sandy drainages; within rocky drainage ways; silty depressions; swales; banks of draws and washes; borders of washes; along (rocky) edges of washes; along margins of washes; (sandy) sides of rivers; mudflats; sandy benches; shelves; terraces; bottomlands; floodplains; lowlands; ditches; gravelly-sandy riparian areas; sandy waste places, and disturbed areas growing in dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-pebbly, rocky-sandy, shaley, stony, cobbly, cobbly-pebbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, rocky-sandy loam, rocky-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam and silty loam ground; rocky clay, stony clay, cobbly-sandy clay, gravelly clay, gravelly-sandy clay, sandy clay and clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from below sea level to 12,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant may be confused with *Aristida purpurea* var. *parishii*. *Aristida adscensionis* is native to south-central and southern North America; Central America; South America, and other tropic, sub-tropic and warm-temperate regions of the world. *5, 6, 15, 16, 33 (Page 242), 42 (051813), 43 (080109), 44 (032611 - color presentation including habitat), 46 (Page 120), 58, 63 (051913 - color presentation), 77, 85 (051913 - color presentation), 105, 124 (032611), 140 (Pages 197 & 298)*

Aristida parishii (see *Aristida purpurea* var. *parishii*)

***Aristida purpurea* T. Nuttall: Purple Threeawn**

COMMON NAMES: Beard Grass; Blue Threeawn (var. *nealleyi*); Bunch Grass; Democrat Grass; Dogtown Grass (var. *longiseta*); Fendler Threeawn (var. *fendleriana* and var. *longiseta*); Fendler's Three-awn (var. *fendleriana*); Fendler's Threeawn (var. *fendleriana* and var. *longiseta*); Muskit Grass; Nealley Three-awn; No-eatum, O'gip [O'gwip, Toi'yaogwip, Yo'nip] (Uto-Aztecan: Shoshoni)¹⁴⁰; Parish Three Awn (var. *parishii*); Parish Three-awn (var. *parishii*); Parish Three-awn Grass (var. *parishii*); Parish Threeawn (var. *parishii*); Parish's Aristida (var. *parishii*); Parish's Three Awn (var. *parishii*); Parish's Three-awn (var. *parishii*); Parish's Three-awn Grass (var. *parishii*); Parish's Threeawn (var. *parishii*); Perennial Three-awn; Poverty Grass (a name also applied to other species and to the genus *Aristida*); Purple Aristida; Purple Beard Grass; Purple Needle Grass; Purple Needle-grass; Purple Three Awn; Purple Three-awn; Purple 3-Awn; Purple Three-awn Grass; Purple Three-awned Grass; Purple Threeawn; Purple Threeawn (var. *perplexa* and var. *purpurea*); Red Threeawn; Reverchon Three-awn; Purple Triple-awn Grass; Purple Triple-awned Grass; Red 3 Awn; Red Three Awn; Red Three Awn Grass; Red 3-awn; Red Three-awn; Red Three-awn (var. *longiseta*); Red Three-awn Grass; Red Threeawn; Red Threeawn; Red Threeawn (var. *longiseta*); Red Threeawn Grass; Reverchon Threeawn; Spear-grass; Three Awn (a name also applied to other species and to the genus *Aristida*); Three-awn (a name also applied to other species and to the genus *Aristida*); Threeawn (a name also applied to other species and to the genus *Aristida*); Tres Barbas (a name also applied to other species and to the genus *Aristida*); Tres Barbas Púrpura (Spanish); Tres Barbas Púrpura (var. *nealleyi* and var. *purpurea*, Spanish); Tres Barbas Rojo (var. *longiseta*, Spanish); Western Beard Grass; Western Beard-grass; Wire Grass (a name also applied to var. *longiseta*, other species and to the genus *Aristida*); Wiregrass; Wright Threeawn (var. *wrightii*); Wright Threeawn (var. *wrightii*). DESCRIPTION: Terrestrial annual or perennial tufted graminoid (a bunchgrass (clumpgrass) with ascending and/or erect culms 4 to 40 inches in height and up 4 to 12 inches in width at the base; plants were observed and reported as being 8 to 12 inches in height and 4 to 6 inches in width at the base, plants were observed and reported as being 14 inches in height and 2 to 6 inches in width at the base); the foliage is light to dark green curing to gray or straw; the inflorescence may be green, purplish or dark red-purple; the awns are purple; flowering generally takes place between early January and mid-August; however, flowering may occur throughout the year under favorable conditions (additional records, including varieties: one for early September, six for mid-September, two for late September, four for early October, three for late October, two for mid-November and two for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky summits; mountainsides; gravelly-sandy, sandy and clayey-loamy mesas; sandy-loamy-clayey plateaus; along canyon rims; rocky cliffs; cliff faces; chutes; along rocky and sandy canyons; rocky canyon sides; along bouldery-rocky-cobbly, rocky, rocky-gravelly, gravelly-sandy and sandy canyon bottoms; scree; talus slopes; crevices in bedrock, boulders and rocks; pockets of soil in bedrock; gravelly bluffs; buttes; sandy-clayey bases of buttes; rocky and sandy knolls; ledges; bouldery and rocky, gravelly-sandy-clayey and sandy ridges; ridgetops; silty ridgelines; rocky openings in forests; along and in rocky meadows; foothills; rocky, gravelly, sandy, loamy and clayey hills; hilltops; rocky, rocky-gravelly and gravelly hillsides; shaley escarpments; sandy bases of escarpments; bedrock, bouldery, bouldery-gravelly-loamy, rocky, rocky-cobbly, rocky-sandy, rocky-sandy-loamy, shaley, cindery, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-sandy-clayey, gravelly-clayey, sandy, loamy, sandy-clayey, clayey, clayey-loamy, silty-loamy and silty-clayey slopes; bases of slopes; sandy alluvial fans; rocky, rocky-gravelly, gravelly and sandy bajadas; bedrock, bouldery, rocky and shaley outcrops; amongst boulders and rocks; sandy lava flows; sand hills; sand dunes; in blow-sand deposits; gravelly and silty banks; breaks; cobbly-sandy terraces; rocky-sandy and sandy steppes; rocky, sandy, sandy-clayey, clayey, clayey-loamy and silty-loamy prairies; bouldery-rocky, rocky, gravelly, gravelly-sandy and sandy plains; fields; rocky, rocky-sandy, cindery, gravelly, gravelly-loamy, gravelly-clayey, sandy, loamy, clayey, clayey-loamy and silty-clayey flats; rocky, gravelly-sandy and sandy valley floors; valley bottoms; along railroad right-of-ways; two-tracks and roadbeds; along gravelly, gravelly-loamy, sandy, sandy-loamy and clayey roadsides; along and in rocky, gravelly, sandy and clayey-loamy arroyos; along sandy bottoms of arroyos; along and in sandy draws; gulches; gravelly-sandy bottoms of gulches; rocky gullies; rocky-gravelly ravines; within seeps; springs; in rocks along streams; bouldery streambeds; along creeks; along and in creekbeds; riverbeds; along and in bouldery, bouldery-cobbly-sandy, bouldery-gravelly, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along and in bedrock, bouldery, rocky, gravelly-sandy and sandy drainages; bouldery-rocky, rocky and pebbly drainage ways; sandy lakebeds; swamps; depressions; (rocky, gravelly and sandy) banks of rivers and washes; borders of washes; along (rocky and sandy) edges of rivers and washes; (gravelly) margins of washes; shorelines of lakes; mudflats; gravel bars; sandy beaches; rocky-clayey, gravelly and sandy benches; shaley, gravelly and gypsum terraces; bottomlands; gravelly and sandy floodplains; mesquite bosques; along ditches; recently burned areas; riparian areas, and disturbed areas growing in moist (rarely reported) and dry rocky desert pavement; bouldery, bouldery-rocky, bouldery-rocky-cobbly, bouldery-cobbly-sandy, bouldery-cindery, bouldery-gravelly, rocky, rocky-cobbly, rocky-gravelly, rocky-sandy, shaley, shaley-sandy, cobbly-sandy, cindery, gravelly, gravelly-sandy, pebbly and sandy ground; bouldery-gravelly loam, rocky loam, rocky-sandy loam, rocky-clayey loam, cobbly-gravelly loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, sandy-silty loam, clayey loam, silty loam, humusy loam and loam ground; rocky clay, rocky-sandy clay, gravelly clay, gravelly-sandy clay, sandy clay, sandy-loamy clay, silty clay and clay ground, and gravelly silty, sandy silty and silty ground, occurring from sea level to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant may be grazed by Black-tailed Prairie Dogs (*Cynomys ludovicianus*) and White-tailed Jackrabbits (*Lepus townsendii*). *Aristida purpurea* is native to central and southern North America and coastal islands in the Caribbean Sea. *5, 6, 15, 33 (Page 244), 42 (051913), 43 (081709), 44 (032611), 46 (Page 120), 48, 58, 63 (051913 - color presentation), 85 (052013 - color presentation), 105, 124 (032611), 140 (Page 197), **MBJ** (undated record which may include landscaped material that persists without maintenance), **WTK** (August 4, 2005)*

***Aristida purpurea* T. Nuttall var. *parishii* (A.S. Hitchcock) K.W. Allred: Parish's Threeawn**

SYNONYMY: *Aristida parishii* A.S. Hitchcock. COMMON NAMES: Arizona Three-awn; Parish Aristida; Parish Three Awn; Parish Three-awn; Parish Three-awn Grass; Parish Threeawn; Parish's Aristida; Parish's Three Awn; Parish's Three-awn; Parish's Three-awn Grass; Parish's Threeawn; Threeawn (a name also applied to other species and to the genus *Aristida*). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with erect culms 4 to 40 inches in height); the spikelets (flowers) may be reddish-purple or reddish-violet; based on few records located, flowering generally takes place between mid-February and mid-November (flowering records: two for mid-February, two for early March, four for mid-March, two for early April, one for mid-April, four for early May, one for mid-May, one for mid-June, one for early July, two for mid-July, one for early August, one for early September, one for mid-September, three for late October and one for mid-November). HABITAT: Within the range of this species it has been range reported from mountains; mountainsides; bases of mountains; mesas; rocky cliffs; canyons; rocky and sandy canyon bottoms; crevices in rocks; ridges; ridgelines; foothills; bouldery-rocky and rocky hills, rocky hillsides; bouldery, rocky and sandy slopes; bajadas; bouldery and rocky outcrops; amongst boulders and rocks; sandy plains; gravelly and sandy flats; silty valley floors; along gravelly railroad right-of-ways; along roadsides; arroyos; along bottoms of arroyos; gravelly-sandy-loamy draws; springs; around seeping streams; along streams; along streambeds; along and in bouldery, bouldery-cobbly-sandy, rocky, gravelly, gravelly-sandy and sandy washes; along and in rocky drainages; around pools; swales; banks of rivers and washes; borders of washes; along edges of washes and lakes; along margins of arroyos and washes; shorelines of lakes; beaches; floodplains; lowlands; riparian areas, and disturbed areas growing in moist (rarely reported) and dry rocky desert pavement; bouldery, bouldery-rocky, bouldery-cobbly-sandy, rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-clay loam and gravelly-sandy loam ground; clay ground, and silty ground, occurring from 500 to 6,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Aristida purpurea* var. *parishii* is native to southwest-central North America. *5, 6, 16 (recorded as *Aristida parishii* Hitchc.), 33 (recorded as *Aristida parishii* Hitchc., Page 240), 42 (051913), 43 (081809), 44 (032611 - color photograph), 46 (recorded as *Aristida parishii* Hitchc., Page 121), 48 (species), 63 (051913), 77 (recorded as *Aristida parishii* A.S. Hitchc.), 85 (052413 - color presentation of dried material), 105 (species), 124 (032611 - no record of variety; genus and species records), 140 (Page 298)*

***Aristida ternipes* A.J. Cavanilles: Spidergrass**

COMMON NAMES: Aristida Grass (a name that could possibly be applied to any other species in the genus *Aristida*); Ba'aso (Uto-Aztecan: Mayo)¹⁴⁰; Chak-suuk <tok-suuk> (Mayan: Maya)¹⁴⁰; Guatoco (Uto-Aztecan: Guarijío)¹⁴⁰; Hahay'iqálmongwa <hahai'iqálmongwa> (Uto-Aztecan: Hopi)¹⁴⁰; Otatillo (a name also applied to other species, Spanish: Mexico)¹⁴⁰; Spider Grass; Spider Three-awn; Spider Three-awn Grass; Spider Threeawn; Spidergrass; Three Awn (a name also applied to other species and the genus *Aristida*); [Poverty, Six-weeks] Three Awn (English)¹⁴⁰; Three-awn (a name also applied to other species and the genus *Aristida*); Three-awn Spidergrass; Threeawn (a name also applied to other species and the genus *Aristida*); Tl'oh ("Grass" a name applied to grasses, Athapascan: Western Apache)¹⁴⁰; Tres Barbas Arqueado ("Arched Three Barbs", Spanish: Mexico)¹⁴⁰; Wahá□ ("Grass" a name applied to any grass, Uto-Aztecan: Northern Paiute)¹⁴⁰; Wa□ai ("Grass" a name applied to any grass, Uto-Aztecan: Tohono O'odham)¹⁴⁰; Zacate (Spanish)¹⁴⁰; Zacate Araña (Spanish); Zacate Araña [de Tres Barbas] ("[Three-awn] Spider Grass" names also historically applied to other species, Spanish: Arizona, New Mexico, Sonora)¹⁴⁰; Zacate Barba ("Barbed Grass", Spanish: Sonora)¹⁴⁰; Zacate Barbón (Mexico: Sonora). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with ascending and/or erect culms 10 to 79 inches in height; one plant was observed and described as being 52 inches in height and 4 inches in diameter at the base); flowering generally takes place between mid-March and mid-December. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; bouldery-cobbly and rocky mesas; plateaus; rock cliffs; rocky canyons; rocky canyon walls; along rocky canyon bottoms; rocky talus; crevices in rocks; rock ledges; rocky ridges; rocky ridgetops; meadows; foothills; rocky, rocky-gravelly, gravelly-sandy, gravelly-clayey-loamy and sandy hills; rocky hillsides; bedrock, bouldery, rocky, rocky-gravelly, rocky-gravelly-clayey, rocky-loamy, gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy, sandy-loamy, sandy-clayey, sandy-clayey-loamy and loamy slopes; alluvial fans; gravelly and sandy bajadas; rocky outcrops; amongst boulders and rocks; cobbly and gravelly plains; bouldery-sandy, rocky-loamy, gravelly, gravelly-sandy, sandy and silty flats; valley floors; valley bottoms; coastal plains; in roadbeds; along bouldery-rocky and gravelly roadsides; along rocky and sandy arroyos; rocky bottoms of arroyos; along draws; ravines; along streams; streambeds; along and in bouldery creeks; rocky creekbeds; along rivers; riverbeds; along and in rocky and sandy washes; within drainages; banks of creeks; along edges of washes; sides of creeks; sandy beaches; benches; rocky terraces; bottomlands; sandy floodplains; mesquite bosques; along fencelines; stock tanks (charcos, represos); ditches; sandy riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky, bouldery-cobbly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, rocky-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, humusy loam and loam ground; sandy clay ground, and sandy silty and silty ground, occurring from sea level to 6,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Aristida ternipes* is native to southwest-central and southern North America; Central America, and northern South America. *5, 6, 15, 16, 33 (Page 238), 42 (052413), 43 (092709), 44 (033011), 46 (Page 119), 58, 63 (052413), 77, 85 (052513 - color presentation), 124 (033011 - no record of species; genus record), 140 (recorded as *Aristida ternipes* Cavanilles var. *ternipes*, Pages 196-198 & 298)*

***Arundo donax* C. Linnaeus: Giant Reed**

COMMON NAMES: Arundo Grass (a name also applied to the genus *Arundo*); Caña (Spanish); Cana Brava; Caña Común (Spanish); Caña de Castilla (Spanish); Caña Hueca (Hispanic); Cana-do-brejo (Portuguese: Brazil); Cana-do-reino (Portuguese: Brazil); Cañaveral (Spanish); Canne de Provence (French); Canno-do-reino (Portuguese: Brazil); Canuto (Hispanic); Capim-plumoso (Portuguese: Brazil); Carricillo (Hispanic); Carrizo (a name also applied to other species, Spanish: Mexico, Sonora and Peru); Carrizo Cane; Carrizo de la Selva (Hispanic); Carrizo Grande; Carrizo Reed; Danube Reed; Danubian Reed; Donax; Donax Cane; Elephant Grass (a name also applied to other species); Ghab (Arabic); Giant Arundo Grass; Giant Cane (a name also applied to other species); Giant Cane Carrizo; Giant Carrizo; Giant Carrizo Reed; Giant Donax; Giant Donax Cane; Giant Reed (a name also applied to other species); Giant River Reed; Giant Spanish Cane; Giant Spanish Reed; Giant-reed; Giantreed; Grand Roseau (French); Gubaguih (Hispanic); Halal (Hispanic); Invasive Giant Reed; Italian Reed; Italienskt Rör (Swedish); Oboe Reed; Pakaab (Hispanic); Pfahrohr (German); Provence Cane; Qalam (Arabic); Spaanse-riet (Afrikaans); Spanish Cane; Spanish Reed; Spanish-reed; Tarro (Hispanic); Tekhalal (Hispanic); Variegated Donax; Weedy Giant Reed. DESCRIPTION: Terrestrial perennial graminoid, subshrub or shrub (a giant reed-like grass with erect culms 6 to 33 feet in height); the flowers are in cream or whitish plumes; flowering may take place throughout the year, but mostly between early spring and fall. HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; rocky canyon bottoms; bluffs; rocky slopes; plains; valleys; coastal basins; along sandy roadsides; arroyos; seeps; along seepage streams; springs; along streams; in sandy soils along creeks; along and in rivers; along and in sandy riverbeds; along sandy washes; along drainages; waterholes; along lakes; along (sandy) banks of streams, creeks and rivers; edges of rivers; along margins of ponds and lakes; benches; sandy terraces; sandy bottomlands; floodplains; mesquite woodlands; along canal banks; along culverts; along and in ditches; ditch banks; sandy riparian areas, and disturbed areas growing in shallow water and wet, moist and dry (periodically flooded) rocky, rocky-sandy, gravelly and sandy ground and sandy clay and clay ground, occurring from sea level to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant which poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used in the making of splints, yellow dyes, musical instruments and ceremonial items. Giant Reed was intentionally introduced into the Los Angeles, California area in the early 1800's; its clonal root masses (to over 3 feet thick) may extend to several acres. Giant Reed Grass may be confused with the native Common Reed Grass, so proper identification must be assured prior to implementing control measures. *Arundo donax* is native to western, central, eastern and southern Asia and coastal islands in the Pacific and Indian Oceans. *5, 6, 18, 22 (color photographs), 26 (color photograph), 30, 33 (Page 93), 42 (052513), 43 (071209), 44 (041311 - color photograph), 46 (Page 89), 63 (052513 - color presentation including habitat), 77, 85 (052513 - color presentation including habitat), 109, 115 (color presentation), 124 (041311 - no record of genus or species), 127, **HR***

***Avena fatua* C. Linnaeus: Wild Oat**

COMMON NAMES: Aveia-brava (Portuguese: Brazil); Aveia-fátua (Portuguese: Brazil); Aveia-selvagem (Portuguese: Brazil); Avena Cimarrona (Spanish); Avena Loca (a name also applied to other species, Spanish); Avena Silvestre (Spanish); Avoine Folle (French); Cha-hiki (Japanese RŌmaji); Common Oat (*Avena fatua* var. *sativa* - Not Accepted, *Avena sativa* - Accepted); Common Oats (*Avena fatua* var. *sativa* - Not Accepted, *Avena sativa* - Accepted); Common Wild Oat; Common Wild Oats; Common Wildoat; Common Wildoats; Dinbaan (Arabic); Drake; Fat Oat; Fat Wild Oat; Flaver; Flax Grass; Flax-grass; Flaxgrass; Flughafer (German); Flyghavre (Swedish); Folle Avoine (French); Havercorn (a name also applied to other species); Hever; Karasu-mugi (Japanese RŌmaji); Oat (*Avena fatua* var. *sativa* - Not Accepted, *Avena sativa* - Accepted); Oat Grass (a name also applied to other species and to the genus *Avena*); Oatgrass (a name also applied to other species); Oatgrass (*Avena fatua* var. *sativa* - Not Accepted, *Avena sativa* - Accepted); Oats (*Avena fatua* var. *sativa* - Not Accepted, *Avena sativa* - Accepted); Pin Grass (a name also applied to other species); Poor Oat; Potato Oat; Potato Oats; Spring Wild Oat; Spring Wild-oat; Tartarean Oat (a name also applied to other species); Wheat Oat; Wheat Oats; Wild Oat (a name also applied to other species); Wild Oats (a name also applied to other species and to the genus *Bromus*); Wild Oats (*Avena fatua* var. *sativa* - Not Accepted, *Avena sativa* - Accepted); Windhafer (German); Zommeir (Arabic). DESCRIPTION: Terrestrial annual tufted graminoid (decumbent, geniculate, ascending and/or erect culms 3 to 79 inches in height); the foliage is green; the flowers are green; flowering generally takes place between early February and late August (additional records: two for mid-January, one for early October, one for late October, one for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; cliffs; rocky and rocky-sandy canyons; rocky canyon bottoms; pockets of soil in rocks; bluffs; ridgetops; openings in woodlands; meadows; hills; rocky, cobbly-sandy-loamy and clayey hillsides; rocky, rocky-loamy, rocky-clayey, sandy, sandy-loamy, loamy, loamy-clayey and clayey slopes; sandy bajadas; rocky outcrops; sandy plains; sandy, clayey and clayey-loamy flats; uplands; basins; valley floors; coastal hills; coastal prairies; coastal flats; along railroad right-of-ways; along rocky, rocky-gravelly-loamy, gravelly, gravelly-loamy and clayey-loamy roadsides; sandy arroyos; seeps; springs; along streams; sandy streambeds; along and in rocky-cobbly creeks; creekbeds; along rivers; along and in gravelly and sandy washes; drainages; freshwater marshes; depressions; swales; along (rocky) banks of streams, creeks, rivers, riverbeds and washes; (rocky) edges of ponds and lakes; margins of washes; benches; terraces; bottomlands; floodplains; lowlands; stock tanks; canals; canal banks; along ditches; silty ditch banks; bouldery and sandy riparian areas; waste places; recently burned areas in coastal sage scrub and chaparral, and disturbed areas growing in wet, moist, damp and dry bouldery, rocky, rocky-cobbly, rocky-sandy, gravelly and sandy ground; rocky loam, rocky-gravelly loam, cobbly-sandy loam, gravelly loam, sandy loam, clayey loam, silty loam and loam ground; bouldery clay, rocky clay, loamy clay and clay ground, and silty ground, occurring from sea level to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland

ecological formations. NOTES: **EXOTIC** Invasive Plant which poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food. Seed can remain dormant in soil for as long as 10 years. *Avena fatua* is native to Europe and coastal islands in the North Atlantic Ocean; Asia and coastal islands in the North Pacific Ocean, and northern Africa. *5, 6, 15, 16, 33 (Page 166), 42 (052513), 43 (092709), 44 (032611 - color photograph), 46 (Page 100), 63 (052513 - color presentation), 68, 77, 85 (052513 - color presentation), 101 (color photograph), 124 (032611), 127*

***Bothriochloa barbinodis* (M. Lagasca y Segura) W.G. Herter: Cane Bluestem**

SYNONYMY: *Andropogon barbinodis* M. Lagasca y Segura. COMMON NAMES: Algodoneso (Spanish: Mexico)¹⁴⁰; Barbed Beard Grass (Oklahoma); Barbed Beard-grass (Oklahoma); Beard-grass (a name also applied to other species and the genus *Bothriochloa*); Bristlejoint Bluestem; Cane Beard Grass; Cane Beard-grass (English)¹⁴⁰; Cane Beardgrass; Cane Bluestem; Cane Bluestem (var. *barbinodis*); Cola de Coyote (“Coyote’s Tail”, Spanish: Nuevo León)¹⁴⁰; Feather Bluestem; Feather Grass; Fuzzy Top; Fuzzy Top Beardgrass; Fuzzy-top; Palmer’s Cane Bluestem (*Bothriochloa barbinodis* var. *palmeri* - Not Accepted, *Bothriochloa palmeri* - Accepted); Perforated Bluestem; Pin-hole Beard Grass; Pinhole Beardgrass; Pinhole Bluestem; Pitted Beardgrass (*Bothriochloa barbinodis* var. *perforata* - Not Accepted, *Bothriochloa perforata* - Accepted); Plains Beardgrass; Popotillo [Perforado, Plateado] (“[Perforated, Folded] Little Broom”, Spanish: Sonora)¹⁴⁰; Popotillo Algodonero (Spanish); Silver Beardgrass; T’oh (“Grass” a word used for any grass, Athapascan: Western Apache)¹⁴⁰; Wahá (“Grass” a word used for any grass, Uto-Aztecan: Northern Paiute)¹⁴⁰; Waai (“Grass” a word used for any grass, Uto-Aztecan: Tohono O’odham)¹⁴⁰; Yajewel-g-ute (Havasupai); Zacate Popotillo (“Little Broom Grass”, Spanish: Mexico)¹⁴⁰; Zacatón (Hispanic). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with spreading decumbent, geniculate, ascending and/or erect culms 20 inches to 5 feet in height; one plant was observed and described as being 4 inches in width at the base); the foliage is bluish-green or yellow-green curing to a dull red, reddish-brown or yellow; the spikelets (flowers) are tawny-green or tan; the silvery-white inflorescences are oblong to fan-shaped; flowering generally takes place between late March and early December (additional records: one for early February and two for mid-February). HABITAT: Within the range of this species it has been reported from rocky mountains; mountainsides; rocky and gravelly mesas; plateaus; cliffs; along cliff faces; rocky bases of cliffs; rocky and gravelly-loamy canyons; along bedrock, bouldery-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy canyon bottoms; rocky chasms; crevices in bedrock, boulders and rocks; buttes; ledges; rocky and sandy-loamy ridges; rocky ridgetops; clearings in woodlands; meadows; cinder cone peaks; rocky foothills; rocky hills; rocky and gravelly hillsides; escarpments; rocky, rocky-loamy, gravelly, gravelly-sandy-loamy, gravelly-loamy, gravelly-clayey, gravelly-clayey-loamy, sandy, sandy-loamy, sandy-clayey, sandy-clayey-loamy and clayey-loamy slopes; bases of slopes; bajadas; rocky outcrops; amongst boulders and rocks; sand dunes; sandy plains; gravelly, sandy, sandy-clayey and clayey flats; rocky valley floors; railroad right-of-ways; clayey roadbeds; along gravelly, gravelly-loamy, sandy and silty-clayey-loamy roadsides; along rocky, stony and sandy arroyos; sandy bottoms of arroyos; sandy-clayey-loamy draws; gullies; ravines; rocky seeps; springs; along sandy streams; along and in bouldery streambeds; along creeks; along and in creekbeds; along rivers; within bouldery-cobbly-sandy riverbeds; along and in rocky, rocky-gravelly, cobbly-sandy-loamy, gravelly, gravelly-sandy, gravelly-loamy, sandy and clayey washes; within gravelly-sandy-loamy drainages; within rocky and clayey drainage ways; ciénegas; swales; rock tanks; along (sandy) banks of creeks, rivers, washes and lakes; borders of washes; (sandy) edges of creeks; sides of creekbeds; bouldery-sandy and sandy beaches; benches; rocky and gravelly terraces; bottomlands; floodplains; lowlands; mesquite bosques; stock tanks; along and in ditches; bouldery-cobbly-sandy, rocky and sandy riparian areas, and disturbed areas growing in moist and dry rocky desert pavement; bouldery, bouldery-cobbly-sandy, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, cobbly-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam, silty-clayey loam and loam ground; gravelly clay, sandy clay and clay ground, and silty ground, occurring from sea level to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and is extremely drought-resistant and tolerant of coastal conditions. Pronghorn (*Antilocapra americana*) browse this plant. *Bothriochloa barbinodis* is native to southwest-central and southern North America; Central America, and western and southern South America. *5, 6, 15, 16, 30, 33 (recorded as *Andropogon barbinodis* Lag., Page 306), 42 (052513), 43 (092709), 44 (032711), 46 (recorded as *Andropogon barbinodis* Lag., Page 142), 48, 58, 63 (052513 - color presentation), 77, 85 (052513 - color presentation), 105 (recorded as *Andropogon barbinodis* Lag.), 124 (032711), 140 (Pages 198-199 & 299)*

***Bouteloua curtipendula* (A. Michaux) J. Torrey: Sideoats Grama**

COMMON NAMES: Avenilla (Hispanic); Banderilla (“Little Flag”, Spanish: Baja California, Chihuahua, Sonora); [Pasto] Banderilla (“Little Flag [Grass]”, Spanish: Chihuahua, Sonora)¹⁴⁰; Banderita (Hispanic); Dadpk Waai <da:pk washai, dadpk washai> (“Slippery Grass / Smooth Grass”, Uto-Aztecan: Hiá Ceai O’odham, Tohono O’odham)¹⁴⁰; Fall Grama Grass; Fall Gramma Grass; Grama (a name also applied to other species and the genus *Bouteloua*, Spanish: Oklahoma); Grama-azul (Portuguese: Brazil); Grama del Cerro (Hispanic); Grama Grass (a name also applied to other species and the genus *Bouteloua*, Nebraska); Gramilla (“Little Grass”, Spanish: Mexico)¹⁴⁰; Hairy Mesquite Grass (a name also applied to other species); Hairy Muskit (a name also applied to other species); Harushö (Uto-Aztecan: Hopi)¹⁴⁰; Isnáap Ic Is (“Whose Fruit Is On One Side” a name also applied to other species, Hokan: Seri)¹⁴⁰; Mesquit Grass (a name also applied to other species); Mesquite Grass (a name also applied to other species and the genus *Bouteloua*); Muskit (a name also applied to other species); Navaja Sa’i <sha’i> (Uto-Aztecan: Mountain Pima)¹⁴⁰; Navajita (“Little Knife” a name also applied to other species, Spanish: Baja California,

Chihuahua, Sonora); Navajita [Banderilla] (“Little Knife” [Little Flag] Spanish: Baja California, Chihuahua, Sonora)¹⁴⁰; Owiv (“Grass”, Uto-Aztecan: Ute); Prairie Oats (Kansas)¹⁴⁰; Qm-u-se’-a (Havasupai); Racemed Atheropogon; Racemed Boutelous; Side Oat Grama; Side Oats; Side Oats Grama; Side Oats Grama Grass; Side Oats Gramma Grass; Side Oats Grammagrass; Side-oat Grama; Side-oat Gramma; Side-oats; Side-oats Grama (a name also applied to the genus *Bouteloua*); Side-oats Grama (var. *caespitosa*); Side-oats Grama Grass; Side-oats Grama-grass; Side-oats Gramina; Side-oats Gramma; Side-oats Gramma-grass; Side-oats Gramma Grass; Side-oats Grama; Sideoat Grama; Sideoat Gramma; Sideoats Grama (English)¹⁴⁰; Sideoats Grama (var. *caespitosa* and var. *curtipendula*); Sideoats Grama Grass; Sideoats Gramma-grass; Sideoats Grass; Stort Moskitgräs (Swedish); Ta Tăn Inj (Kiowa Tanoan: Tewa)¹⁴⁰; Tall Grama (a name also applied to other species and the genus *Bouteloua*); Tall Grama Grass; Tall Grama Oats; Tall Grama-grass; Tall Gramma; Tall Gramma Grass; Tall Mesquite (a name also applied to other species); Tall Mesaquite Grass; Tap’ēñita (Kiowa Tanoan: Tewa)¹⁴⁰; Tl’oh (“Grass”, a word used for grasses, Athapascan: Western Apache)¹⁴⁰; Tl’oh Lichíí’ <y’oh lici> (“Red Grass”, Athapascan: Navajo)¹⁴⁰; Tl’oh Nástasí (“Grass That Bends Back Around”, Athapascan: Navajo)¹⁴⁰; Tlobindaikehtii (“Grass With Seeds Lying on Top of One Another”, Athapascan: Chiricahua and Mescalero Apache)¹⁴⁰; Uitsaku Juatarhu (Purépecha); Wahá□ (“Grass” a word used for grasses, Uto-Aztecan: Northern Paiute)¹⁴⁰; Wiry Grama; Zacate de Navaja (“Knife Grass”, Spanish: Sonora)¹⁴⁰. DESCRIPTION: Terrestrial perennial (usually) tufted graminoid (a bunchgrass (clumpgrass) with decumbent, geniculate, ascending and/or erect culms 3 to 52 inches in height and up to 2 feet in width at the base; one plant was observed and described as being 12 to 16 inches in height and 16 inches in width at the base, one plant was observed and described as being 28 inches in height and 4 inches in width at the base); the foliage is bluish-green or purple-green curing to reddish-brown or straw; the flowers are bright purple; the anthers are orange, purple, red, yellow or dark yellow; flowering generally takes place between late April and mid-November (additional records: one for mid-February, one for early April, one for early December); the mature fruits are red-brown. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky mountainsides; bouldery, rocky, rocky-gravelly, gravelly, pebbly-sandy, sandy and clayey-loamy mesas; plateaus; rocky and sandy canyon rims; rims of gorges; cliffs; hanging gardens; sandy bases of cliffs; along rocky, sandy and loamy canyons; along stony and sandy canyon walls; along rocky and sandy canyon bottoms; rocky gorges; sandy crevices in rocks; rocky-gravelly, gravelly and sandy bluffs; rocky, gravelly-clayey and clayey buttes; rocky and sandy-clayey bases of buttes; knolls; rocky and sandy ledges; along rocky, rocky-sandy, shaley, gravelly-loamy and sandy-silty-loamy ridges; rocky, gravelly, gravelly-clayey, gravelly-silty-loamy ridgetops; clayey ridge slumps; clearings and openings in forests and woodlands; meadows; rocky and clayey-loamy foothills; rocky, rocky-gravelly and cindery (scoria) hills; sandy hilltops; rocky, shaley, stony and sandy hillsides; sandy bases of escarpments; along bedrock, bouldery, bouldery-rocky-sandy, rocky, rocky-cobbly-gravelly, rocky-gravelly, rocky-sandy, rocky-sandy-loamy, rocky-loamy, rocky-clayey, rocky-clayey-silty, shaley, shaley-silty, stony, stony-gravelly, stony-sandy, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey, sandy, sandy-loamy, sandy-clayey-loamy, sandy-silty, loamy, clayey, clayey-loamy and silty-loamy slopes; gravelly bajadas; rocky outcrops; amongst boulders, rocks and cobbles; clayey and silty rockbeds; sandy lava flows; sand hills; sand bluffs; sand dunes; sandy and sandy-clayey banks; breaks; rocky-sandy and stony-gravelly benches; benchlands; breaks; rock shelves; shaley barrens; sandy steppes; rocky-clayey, sandy, clayey-loamy and silty-clayey prairies; rocky, sandy and sandy-clayey plains; rocky, rocky-gravelly, sandy, sandy-clayey, sandy-silty, loamy, clayey and clayey-silty flats; rocky, sandy, clayey, clayey-loamy and silty-clayey uplands; sandy valley floors; valley bottoms; sandy roadcuts; along gravelly and sandy roadsides; along and in bedrock, rocky and gravelly arroyos; sandy bottoms of arroyos; along and in rocky, loamy, loamy-clayey and silty draws; gullies; bottoms of gullies; along ravines; bedrock bottoms of ravines; seeps; along springs; around streams; along streambeds; in silty-loamy soils along and in creeks; along rocky creekbeds; along rivers; riverbeds; along and in rocky, rocky-gravelly, gravelly and sandy washes; along and in rocky-clayey-silty, gravelly-sandy, gravelly-clayey, sandy, clayey and silty-loamy drainages; within drainage ways; coves; ciénegas; marshes; silty-clayey depressions; silty slumps; in low swales with Desert Willow; along (gravelly-sandy, sandy, clayey and silty) banks of draws, gullies, streams, creeks, rivers and washes; borders of washes; along (rocky) edges of ravines, springs and washes; margins of streams, rivers and pools; (clayey-loamy) shores of lakes; gravel bars; rocky-sandy benches; rock shelves; gravelly terraces; bottomlands; gravelly, sandy and clayey floodplains; mesquite bosques; along sandy fencelines; clayey catchments; stock tanks; rocky riparian areas, and disturbed areas growing in mucky (rarely reported), and wet (rarely reported), moist (rarely reported) and dry rimrock; rocky desert pavement; bouldery, bouldery-rocky-sandy, bouldery-cobbly-sandy, rocky, rocky-cobbly-gravelly, rocky-gravelly, rocky-sandy, shaley, stony, stony-gravelly, stony-sandy, cobbly, cindery (scoria), cindery-gravelly, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; rocky loam, rocky-sandy loam, rocky-sandy-clayey loam, rocky-clayey loam, gravelly loam, gravelly-clayey loam, gravelly-silty loam, sandy loam, sandy-clayey loam, sandy-silty loam, clayey loam, silty loam, silty-clayey loam and loam ground; bouldery clay, rocky clay, gravelly clay, gravelly-sandy clay, sandy clay, loamy clay, silty clay and clay ground; rocky silty, rocky-clayey silty, shaley silty, sandy silty, clayey silty and silty ground, and chalky ground, occurring from 300 to 9,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fiber or fodder crop; it was also noted as having been used as a decoration. Sideoats Grama may be useful in controlling erosion. Stems may occur singly or in small clusters from creeping rhizomes (var. *curtipendula*), or form into large clumps from a common root crown (var. *caespitosa*). In areas where it occurs naturally, consider including Sideoats Grama seed in reseeding mixtures. This plant is a larval food plant for the Orange Skipperling (*Copaeodes aurantiacus*). *Bouteloua curtipendula* is native to central and southern North America; Central America, and South America. *5, 6, 15, 16, 18, 30, 33 (Page 143, “One of the most important range grasses in the Southwest, highly palatable and a vigorous grower.”), 42 (052613), 43 (092909), 44 (041311), 46 (Page 129), 48, 58, 63 (052713 - color presentation), 77, 82, 85 (052913 - color presentation), 105 (“This is one of our most important range

grasses. ... It cures well and maintains a fairly high feeding value throughout the year. ... Sideoats is a normal component of most Arizona grassland ranges, and these ranges are not in excellent condition without an abundance of the grass. It lengthens the grazing season and increases forage production, in addition to providing variety in the feed.”), 106 (061407), 124 (041311), 127, 140 (Pages 199-200 & 299)*

Bouteloua filiformis (see *Bouteloua repens*)

***Bouteloua repens* (K.S. Kunth) F.L. Scribner & E.D. Merrill: Slender Grama**

SYNONYMY: *Bouteloua filiformis* (E.P. Fournier) D. Griffiths). COMMON NAMES: Large Mesquite Grama; Navajta (“Little Knife” a name also applied to other species, Spanish: Mexico, Sonora); Navajta Rastrera (Spanish); Slender Grama (*Bouteloua filiformis*); Zacate Sabanilla (Spanish). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with sprawling decumbent, geniculate, ascending and/or erect culms 4 to 32 inches in height and up to 4 inches in width at the base); the leaves are bright green (purple and yellow forms were also reported) curing to gray or yellow; the spikelets (flowers) are reddish-purple; the anthers may be orange, purple, red or yellow; flowering generally takes place between early August and early November (additional records: two for early January, three for late February and one for mid-June; flowering beginning as early as June and July and ending as late as December has also been reported). HABITAT: Within the range of this species it has been reported from rocky mountains; mountainsides; gravelly and gravelly-loamy mesas; cliff faces; bases of cliffs; rocky canyons; along rocky and gravelly-sandy canyon bottoms; talus slopes; crevices in rocks; pockets of soil in rocks; rocky buttes; rocky ledges; bedrock ridges; rocky ridgetops; openings in forests; rocky and gravelly-loamy foothills; rocky hills; hilltops; rocky and rocky-clayey hillsides; along rocky, rocky-gravelly, rocky-gravelly-sandy-loamy, rocky-clayey, rocky-sandy-loamy, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy and clayey slopes; alluvial fans; bajadas; bedrock and rocky outcrops; amongst rocks; rocky banks; prairies; llanos; rocky, cobbly and sandy plains; sandy and clayey flats; bedrock valley floors; valley bottoms; sandy ocean shores; railroad right-of-ways; along rocky roadbeds; along gravelly and sandy roadsides; along rocky and sandy arroyos; bottoms of arroyos; rocky draws; bottoms of draws; gulches; ravines; along streams; along and in rocky streambeds; along and in rocky, gravelly, gravelly-loamy and sandy washes; along and in bedrock drainages; within drainage ways; ciénegas; rocky-clayey swales; (gravelly-loamy) banks of washes; edges of arroyos; (sandy) shorelines of oceans; benches; bottomlands; floodplains; mesquite bosques; riparian areas, and disturbed areas growing in moist (rarely reported) and dry rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy loam, rocky-sandy loam, cobbly-sandy loam, gravelly loam, gravelly-sandy loam, sandy loam and clayey loam ground, and rocky clay and clay ground, occurring from sea level to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Slender Grama holds up well under heavy grazing pressure. *Bouteloua repens* is native to southwest-central and southern North America; Central America and coastal islands in the Caribbean Sea, and northern South America. *5, 6, 15, 16, 33 (recorded as *Bouteloua filiformis* (Fourn.) Griffiths, Page 145), 42 (053113), 43 (093009), 44 (112210 - no record of species; genus record), 46 (recorded as *Bouteloua filiformis* (Fourn.) Griffiths, Page 129), 48, 58, 63 (053113 - color presentation), 77, **85** (053113 - color presentation), 105 (recorded as *Bouteloua filiformis* (Fourn.) Griffiths), 124 (102510 - no record of species; genus record), 140 (Page 299)*

Bouteloua repens var. *repens* (see footnote 85 under *Bouteloua repens*)

***Bromus arizonicus* (C.L. Shear) G.L. Stebbins: Arizona Brome**

SYNONYMY: *Bromus carinatus* W.J. Hooker & G.W. Arnott var. *arizonicus* C.L. Shear. COMMON NAMES: Arizona Brome (a name also applied to other species); Arizona Brome Grass; Arizona Chess. DESCRIPTION: Terrestrial annual tufted graminoid (erect culms 4 to 40 inches in height); the flowers are burgundy; flowering generally takes place between early February and early September (additional records: two for late October). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mesas; rocky canyons; sandy canyon bottoms; talus slopes; bluffs; ledges; ridges; openings in woodlands; sandy meadows; foothills; hills; rocky hillsides; rocky, gravelly and sandy-loamy slopes; bouldery outcrops; amongst boulders and rocks; sand dunes; sandy plains; gravelly, sandy and clayey flats; sandy-clayey-loamy valley bottoms; coastal bluffs; coastal dunes; sandy coastal flats; along railroad right-of-ways; along gravelly and sandy roadsides; within arroyos; bottoms of arroyos; gulches; around springs; around seeping streams; in sand along streams; streambeds; along creeks; creekbeds; along rivers; sandy riverbeds; along and in gravelly, gravelly-sandy, gravelly-sandy-silty, gravelly-loamy and sandy washes; within drainages; marshy areas; along (rocky) banks of streams, rivers and washes; (rocky, gravelly-sandy and sandy) edges of washes; along shores of lakes; gravel and sand bars; sandy beaches; sandy benches; bottomlands; sandy floodplains; along ditches; ditch banks; gravelly-sandy and sandy riparian areas; waste places, and disturbed areas growing in moist, damp and dry bouldery, bouldery-rocky-sandy, rocky, rocky-sandy, shaley, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, sandy-clayey loam, clayey loam and loamy ground; clay ground; gravelly-sandy silty ground, and humusy ground, occurring from sea level to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Bromus arizonicus* is native to southwest-central and southern North America. *5, 6, 15, 16, 33 (Page 44), 42 (060313), 43 (100109), 44 (041311), 46 (Page 77), 58, 63 (060113), **80** (**The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant.** Species of the genus *Bromus* can be hosts of the Ergot Fungus. “Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or

convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*).” See text for additional information.), 85 (060113 - color presentation), 124 (041311 - no record of species; genus record), 140 (Page 299), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Bromus carinatus var. *arizonicus* (see *Bromus arizonicus*)

***Bromus catharticus* M.H. Vahl: Rescuegrass**

SYNONYMY: *Bromus uniolooides* K.S. Kunth; *Bromus willdenowii* K.S. Kunth. COMMON NAMES: Australian Oats; Bian Sui Que Mai (var. *catharticus*, transcribed Chinese); Brome de Schrader (var. *catharticus*, French); Brome Grass (New Mexico, a name also applied to other species and to the genus *Bromus*); Bromo Cebadilla (Spanish); Bromo di Schrader (var. *catharticus*, Italian); Bromo-de-Schrader (var. *catharticus*, Portuguese); Cebadilla (Spanish); Cebadilla (var. *catharticus*, Spanish); Cebadilla Australiana (var. *catharticus*, Spanish); Cebadilla Criolla (var. *catharticus*, Spanish); Cebadilla Pampeana (var. *rupestris*, Spanish); Flat Spiked Brome Grass; Flat-spiked Brome Grass; Grazing Brome (var. *elatus* - Not Accepted - unknown variety); Horn Grass; Johnson Grass (a name also applied to other species); Horntrespe (var. *catharticus*, German); Plattlosta (var. *catharticus*, Swedish); Prairie Grass (var. *catharticus*); Rescue Brome; Rescue Brome Grass; Rescue Bromegrass; Rescue Grass (a name also applied to other species); Rescue Grass (var. *catharticus*); Rescue-grass; Rescuegrass; Rescuegrass; Schrader’s Brome (a name also applied to other species); Schrader’s Brome Grass; Schrader’s Bromegrass (var. *catharticus*); Schrader’s Bromus; Schrader’s Grass; Schrader’s-grass; Southern Chess; Triguillo (var. *catharticus*, Spanish); Wild Brome Grass. DESCRIPTION: Terrestrial annual or perennial tufted graminoid (decumbent, ascending and/or erect culms 10 inches to 4 feet in height); the foliage is light green or green; the florets are green; flowering generally takes place between mid-March and mid-August (additional records: one for early January (in the Southern Hemisphere), two for mid-February, one for late February, one for early September, one for mid-September, three for early October, one for mid-October and one for late November). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; rocky cliffs; rock walls; canyon rims; rocky canyons; gravelly and sandy canyon bottoms; talus slopes; meadows; foothills; rocky hills; bases of hills; sandy-loamy, sandy-clayey, loamy and silty slopes; bajadas; sand hills; sand dunes; sandy-loamy prairies; sandy flats; sandy-loamy basins; valley floors; clayey valley bottoms; coastal dunes; railroad right-of-ways; along sandy roadsides; draws; along bottoms of draws; seeps; springs; along streams; streambeds; along rivers; riverbeds; along and in cobbly washes; sandy drainages; drainage ways; in rocks around ponds; boggy areas; freshwater marshes; along (loamy) banks of rivers and lakes; edges of springs, streams, rivers, drainages and marshes; along margins of springs, rivers, washes and ciénegas; shores of rivers and lakes; sandy beaches; sandy benches; bottomlands; sandy floodplains; lowlands; mesquite bosques; along fencerows; margins of stock tanks; canals; along canal banks; ditches; along ditch banks; riparian areas; waste places, and disturbed areas growing in wet, moist and dry rocky, rocky-sandy, cobbly, gravelly and sandy ground; gravelly loam, sandy loam, clayey loam and loam ground; sandy clay and clay ground; silty ground, and chalky ground, occurring from sea level to 12,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as fodder. *Bromus catharticus* is native to South America. *5, 6, 15, 16 (recorded as *Bromus willdenowii* Kunth), 33 (Page 44), 42 (060213), 43 (100309), 44 (032711), 46 (Page 77), 58, 63 (060213 - color presentation), 68, 77, 80 (**The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant.** Species of the genus *Bromus* can be hosts of the Ergot Fungus. “Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*).” See text for additional information. Rescuegrass, *Bromus willdenowii* (confused with *Bromus catharticus*) is also listed as a Rarely Poisonous and Suspected Poisonous Range Plant. “This introduced annual grass has been reported to develop toxic concentrations of nitrate.”), 85 (060613 - color presentation), 101 (color photograph), 124 (032711), 127, 140 (Page 299)*

Bromus catharticus var. *catharticus* (see footnote 85 under *Bromus catharticus*)

***Bromus diandrus* A.W. Roth (variety *rigidus* (A.W. Roth) F. Sales is the variety reported as occurring in Arizona): Ripgut Brome**

SYNONYMY: (for var. *rigidus*: *Bromus diandrus* A.W. Roth subsp. *rigidus* (A.W. Roth) J.M. Lainz Ribalaygua; *Bromus rigidus* A.W. Roth). COMMON NAMES: Brome (a name also applied to the genus *Bromus*); Broncho Grass; Broncho Grass (var. *diandrus*); English Great Brome; Giant Brome; Giant Brome (var. *diandrus*); Great Brome; Great Brome Grass; Great Brome-grass; Great Bromegrass; Hohe Trespe (var. *diandrus*, German); Needle Brome; Rip Gut; Rip Gut Brome; Rip Gut Brome Grass; Rip Gut Grass; Rip-gut; Rip-gut Brome; Rip-gut Brome Grass; Rip-gut Grass; Ripgut; Ripgut Brome (var. *rigidus*); Ripgut Brome Grass; Ripgut Bromegrass; Ripgut Cheat; Ripgut Chess; Ripgut Grass (var. *rigidus*); Ripgutgrass; Steife Trespe

(var. *rigidus*, German). DESCRIPTION: Terrestrial annual or perennial tufted graminoid (decumbent, ascending and/or erect culms 8 inches to 3 feet in height); the foliage is dark green; flowering generally takes place between late February and early July (additional records: one for mid-January, two for early February, one for late August, one for late October, one for late November and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; rocky-clayey mountaintops; sandy mesas; plateaus; cliffs; hanging gardens; bouldery-rocky and rocky canyons; bouldery-gravelly-sandy and sandy canyon bottoms; rocky talus; pockets of sandy-humusy soil in rocks; ridges; sandy-loamy ridgetops; openings in woodlands; meadows; foothills; rocky hills; bouldery-rocky, rocky and clayey hillsides; bouldery, rocky, rocky-clayey, cobbly-sandy-loamy, cobbly-clayey, gravelly-sandy-loamy, sandy, sandy-clayey and loamy slopes; bouldery-gravelly-sandy alluvial fans; rocky outcrops; amongst boulders; bases of boulders; sand dunes; prairies; gravelly and clayey flats; sandy uplands; valley floors; coastal dunes; along gravelly railroad right-of-ways; along sandy roadsides; within sandy arroyos; ravines; gravelly-sandy soil along streams; bouldery streambeds; along creeks; along rivers; in rocky and sandy washes; along and in bouldery-rocky and sandy drainages; sandy pondbeds; depressions; along sloughs; swales; along (sandy) banks of creeks and rivers; edges of lakes; along margins of creeks and washes; sandy beaches; along sandy benches; shelves; sandy terraces; loamy bottomlands; bouldery-gravelly-sandy, gravelly, sandy, sandy-silty and loamy floodplains; mesquite bosques; dams; within ditches; rocky-sandy and gravelly-sandy riparian areas; waste places, and disturbed areas growing in moist, damp and dry bouldery, bouldery-rocky, bouldery-gravelly-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; cobbly-sandy-loamy, gravelly, gravelly-sandy loam, sandy loam, sandy-silty loam and loam ground; rocky clay, cobbly clay, sandy clay and clay ground; sandy silty ground, and sandy humus ground, occurring from sea level to 8,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC Invasive Plant** which poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America. *Bromus diandrus* is native to middle and southern Europe and islands in the Mediterranean Sea; western Asia, and northern Africa and islands in the North Atlantic Ocean. *5, 6, **33** (recorded as *Bromus rigidus* Roth, Page 50), 42 (060613), 43 (100309), 44 (102611), 46 (recorded as *Bromus rigidus* Roth, Page 78), 63 (060613), 77, **80** (**The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant**). Species of the genus *Bromus* can be hosts of the Ergot Fungus. "Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*)." See text for additional information.), **85** (060613 - color presentation), 101 (color photograph, *Bromus rigidus* Roth), 124 (102611 - no record of species; genus record), 127*

Bromus diandrus subsp. *rigidus* (see *Bromus diandrus* var. *rigidus*)

Bromus rigidus (see *Bromus diandrus* var. *rigidus*)

Bromus madritensis subsp. *rubens* (see *Bromus rubens*)

Bromus mairitensis subsp. *rubens* (see *Bromus rubens*)

Bromus uniolooides (see *Bromus catharticus*)

Bromus willdenowii (see *Bromus catharticus*)

***Bromus rubens* C. Linnaeus: Red Brome**

SYNONYMY: *Bromus madritensis* C. Linnaeus subsp. *rubens* (C. Linnaeus) Duvin; *Bromus matritensis* C. Linnaeus subsp. *rubens* (C. Linnaeus) Duvin ort. var.). COMMON NAMES: Bromo (a name also applied to the genus *Bromus*); Bromo Rojo (Spanish); Compact Brome; Foxtail Brome; Foxtail Chess (also applied to *Bromus madritensis*); Red Brome; Red Brome Foxtail Chess; Red Brome Grass; Red Brome-grass; Red Brome-grass; Red Brome-grass; Red Foxtail Brome; Red Foxtail Chess; Red Foxtail Cheat-grass; Spanish Brome; Tofslost (Swedish); Tufted Brome. DESCRIPTION: Terrestrial annual tufted graminoid (decumbent, geniculate, ascending and/or erect culms 3 inches to 2 feet in height); the foliage is light green curing to a light straw yellow; the spikelets (flowers) may be purple, red-brown, reddish or reddish-purple; the awns are reddish; flowering generally takes place between late January and early June (additional records: one for late June, one for early July, one for late August and one for late November); the seedheads are red, reddish-brown or purplish. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy-silty mesas; cliffs; rocky-pebbly cliffsides; hanging gardens; bases of cliffs; along rocky, stony and silty canyons; bouldery-sandy, rocky and clayey canyon bottoms; talus; pockets of sandy soil in bedrock, boulders and rocks; bluffs; buttes; rocky and rocky-stony ledges; rocky promontories; along rocky and silty-loamy ridges; ridgetops; sandy meadows; sandy edges of meadows; cinder cones; rocky foothills; bouldery, rocky, gravelly-sandy, sandy, loamy and silty-loamy hills; sandy-clayey and clayey hilltops; rocky and clayey hillsides; bedrock, bouldery, bouldery-rocky, rocky, rocky-gravelly-sandy, rocky-sandy, rocky-loamy, rocky-clayey, rocky-clayey-loamy, rocky-clayey-silty, cobbly-sandy-loamy, cindery, gravelly, gravelly-sandy, gravelly-clayey, sandy, loamy, silty and silty-loamy slopes; rocky alluvial fans; rocky, gravelly and sandy bajadas; rocky outcrops; sandy bases of rock outcrops; amongst boulders and rocks; sand dunes; berms;

rocky-silty terraces; plains; rocky, rocky-sandy-clayey, cindery, gravelly, sandy-silty, loamy, clayey, silty and silty-loamy flats; cindery valley floors; valley bottoms; coastal bluffs; coastal flats; along railroad right-of-ways; along gravelly roadbeds; rocky roadcuts; along rocky-clayey-silty, gravelly, gravelly-sandy and sandy-loamy roadsides; within rocky, gravelly and sandy arroyos; draws; along rocky gullies; rocky and gravelly ravines; seeps; springs; around seeping streams; bouldery and rocky-sandy streambeds; along and in creeks; rocky creekbeds; along rivers; riverbeds; along and in rocky, stony-gravelly, gravelly, gravelly-sandy and sandy washes; within rocky and sandy drainages; rocky and sandy drainage ways; oases; pondbeds; gravelly-clayey soils around lakes; sandy, sandy-silty and silty lakebeds; coves; saltwater marshlands; depressions; swales; (gravelly-sandy, sandy and loamy) banks of streams, rivers and washes; borders of washes; along (sandy and sandy-silty) edges of washes, lakes and freshwater and saltwater marshes; margins of washes; sides of lakes; sandy beaches; sandy benches; rocky-silty, gravelly and sandy terraces; sandy, sandy-loamy and loamy bottomlands; rocky, sandy and loamy floodplains; mesquite bosques; stock tanks; around reservoirs; canal banks; bouldery, gravelly, gravelly-sandy and sandy riparian areas; sandy and sandy-clayey waste places; recently burned areas of scrub, and disturbed areas growing in wet, moist, damp and dry desert pavement; bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-gravelly-sandy, rocky-pebbly, rocky-sandy, shaley, stony, stony-gravelly, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, cobbly-sandy loam, sandy loam, clayey loam, silty loam and loam ground; rocky clay, rocky-sandy clay, gravelly clay, sandy clay and clay ground, and rocky silty, rocky-clayey silty, gravelly silty, sandy silty and silty ground, occurring from sea level to 8,000 feet in elevation in the forest, woodland, scrub, grassland, deserts scrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant which poses a significant threat to our native biotic communities. *Bromus rubens* is native to southern Europe and coastal islands in the Mediterranean Sea; middle and western Asia and coastal islands in the Mediterranean Sea, and northern Africa and coastal islands in the North Atlantic Ocean. *5, 6, 15, 16, 22 (color photograph), 33 (Page 50), 42 (060713), 43 (100309 - no record for *Bromus madritensis* subsp. *rubens*), 44 (032711 - species records located under *Bromus madritensis* L. subsp. *rubens* (L.) Husn; genus record), 46 (Page 78), 58, 63 (060713 - color presentation), 68, 77, **80 (The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant. Species of the genus *Bromus* can be hosts of the Ergot Fungus. "Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*)." See text for additional information.), 85 (060813 - color presentation), 105, 124 (032711 - no record of species; genus record), 140 (Pages 201, 202, 214 & 299), **MBJ** (undated record which may include landscaped material that persists without maintenance)***

Cenchrus ciliaris (see *Pennisetum ciliare*)

Chaetochloa leucopila (see *Setaria leucopila*)

Critesion murinum subsp. *leporinum* (see *Hordeum murinum* subsp. *leporinum*)

***Cynodon dactylon* (C. Linnaeus) C.H. Persoon: Bermudagrass**

COMMON NAMES: 'A'ai Hihimdam Va□ai (Uto-Aztecan: Hiá Ce□ O'odham)¹⁴⁰; 'A'ai Himdam Vashai [A'ai Hihimdam Wa□ai] ("Grass that Spreads in All Directions", Uto-Aztecan: Akimel O'odham and Tohono O'odham)¹⁴⁰; Acacacahuiztli (Hispanic); Acacahuiztli (Náhuatl); Acaxacahuiztli <acacacahuiztli> (Uto-Aztecan: Náhuatl)¹⁴⁰; Bahama Grass (var. *dactylon*); Bahama-grass; Baso Huilanch (Mayo); Bermud Grass; Bermuda Couch Grass; Bermuda Devil Grass; Bermuda Grass (a name also applied to var. *dactylon* and to the genus *Cynodon*); Bermuda Grass (English)¹⁴⁰; Bermudagrass (German, a name applied to var. *dactylon*); Bermudagrass (a name also applied to the genus *Cynodon*); Bermudgrass; Bramilla (Hispanic); Cane Grass; Canzuuc (Maya); Capim-bermuda (Portuguese, applied to var. *dactylon*); Chiendent Pied-de-poule (French); Coarse Kweek; Common Bermuda Grass; Common Bermuda-grass; Common Bermudagrass; Creeping Bermuda Grass; Creeping *Cynodon*; Creeping-cynodon; *Cynodon Dactyle* (French, applied to var. *dactylon*); Devil Grass; Devil's Grass (var. *dactylon*); Devilgrass; Dhub (India, applied to var. *dactylon*); Diente de Perro ("Dog's Tooth", Spanish)¹⁴⁰; Doab Grass; Doab-grass; Dog-tooth Grass (a name also applied to the genus *Cynodon*); Dog'-tooth; Dog's Grass; Dog's Tooth; Dog's Tooth Grass; Dog's-tooth Grass; Doob (India, applied to var. *dactylon*); Doob Grass; Doob-grass; Doorba; Dub (northern India); Dub Grass; Dub-grass; Durba (Bengal); European Bermuda Grass; Gallito ("Little Rooster", Spanish: Mexico)¹⁴⁰; Gallitos (Hispanic); Gewonekweek (Afrikaans); Giant Bermuda Grass (var. *aridus*); Giant Bermudagrass; Gou Ya Gen (transcribed Chinese); Grama ("Grass", Spanish: Spain)¹⁴⁰; Grama (Bermuda) de la Costa (Spanish); Grama-seda; Gramilla (Hispanic); Grana (Hispanic); Grama Rastrera (Spanish, applied to var. *dactylon*); Gramina (Italian); Grand Chiendent (French, applied to var. *dactylon*); Green Couch; Green Couch Grass; Guix-biguiñi (Zapotec); Hariali (Deccan); Hariali Grass (var. *dactylon*); Hundezahngras (German, applied to var. *dactylon*); Hundtandsgräs (Swedish); Indian Couch; Indian Couch Grass; Indian Couch-grass; Indian Doab; Indian Doob; Kan-suuk (Mayan: Maya)¹⁴⁰; Ki: Weco Va□ai (Uto-Aztecan: Hiá Ce□ O'odham)¹⁴⁰; Kii Wecho Vashai [Ki: Weco Wa□ai] ("Grass Around Houses" used when first seen, Uto-Aztecan: Akimel O'odham and Tohono O'odham)¹⁴⁰; Komal Himdam ("Spreads Out Flat Grass", Uto-Aztecan: Akimel O'odham)¹⁴⁰; Kweekgras (Afrikaans, applied to var. *dactylon*); Lan-suuk (Maya); Manienie; Motie Molulu; Najeel (Arabic); Owiv ("Grass", Uto-Aztecan: Ute)¹⁴⁰; Pasto Bermuda (Hispanic); Pasto de Bermuda (Spanish); Pasto Estrella (Hispanic); Pata de Gallo ("Rooster's Foot", Spanish: Sonora)¹⁴⁰; Pata de Perdiz (Hispanic);

Pata de Pollo (Hispanic); Plain Couch; Quick Grass (var. *dactylon*); Sacate Lana (Mexico Sonora); Scotch Grass; Scutch Grass; Theel (Arabic); Th'oh ("Grass" a word applied to any grass, Athapascan: Western Apache)¹⁴⁰; Tsakam Toom (Hispanic); Vai □ oi [Vásoi] ("Grass" a word applied to any grass, Uto-Aztecan: Northern Tepehuan)¹⁴⁰; Wahá □ ("Grass" a word applied to any grass, Uto-Aztecan: Northern Paiute)¹⁴⁰; White Quick Grass; Wire Grass (a name also applied to other species and to the genus *Aristida*); Wire-grass; Xusí (Yuman: Cocopa)¹⁴⁰; Zacate (Hispanic); Zacate Bermuda (Spanish: Sonora)¹⁴⁰; Zacate Borrego (Hispanic); Zacate Chino (Hispanic); Zacate Conejo ("Rabbit Grass", Spanish: Chihuahua)¹⁴⁰; Zacate de Bermuda (Spanish, applied to var. *dactylon*); Zacata de Lana ("Wool Grass", Spanish: Mayo, Sonora)¹⁴⁰; Zacate del Conejo (Hispanic); Zacate Inglés ("English Grass", Spanish: Sonora)¹⁴⁰; Zacate Pilillo (Hispanic); Zaruue (Hispanic); Zarzuue (Mayan: Maya, Yucatán)¹⁴⁰. DESCRIPTION: Terrestrial perennial graminoid (a sodgrass with stoloniferous, usually also rhizomatous creeping, spreading and/or trailing prostrate, decumbent and/or geniculate culms 2 to 24 inches in height); the foliage is green or yellow-green curing to straw after a frost; the color of the florets has been described as being purple; flowering generally takes place between mid-February and mid-December (additional record: one for early January). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky canyons; bouldery-gravelly-sandy, rocky and sandy canyon bottoms; pockets of sandy soil in boulders; buttes; meadows; foothills; rocky hills; bouldery and rocky hillsides; rocky, rocky-cobbly-gravelly, gravelly, sandy and clayey slopes; rocky outcrops; sand hummocks; alcoves; prairies; cobbly plains; gravelly, sandy and clayey flats; basins; bolsons; valley floors; clayey valley bottoms; along railroad right-of-ways; along gravelly, gravelly-clayey-loamy and sandy roadsides; along and in sandy arroyos; gravelly and sandy bottoms of arroyos; seeps; springs; about streams; seeping streams; along and in muddy streambeds; along creeks; along sandy creekbeds; along rivers; sandy riverbeds; along and in rocky and sandy washes; within drainages; within rocky drainage ways; tinajas; waterholes; moist beds of dried vernal pools; in clayey soils around ponds; playas; ciénegas; freshwater marshes; clayey marshlands; sandy depressions; along (sandy) banks of draws, streams, creeks, rivers and washes; borders of washes; (sandy) edges of rivers, ponds, lagoons, bogs and marshes; margins of rivers; (sandy) sides of rivers; shores of lakes; gravel bars; sandy beaches; along bouldery and sandy benches; sandy and loamy bottomlands; floodplains; mesquite bosques; in and around clayey-loamy stock tanks; sandy-loamy edges of reservoirs; edges of canals; along canal banks; along ditch banks; bouldery, rocky and sandy riparian areas; waste places, and disturbed areas growing in muddy and wet, moist, damp and dry bouldery, bouldery-cobbly-sandy, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-cobbly-gravelly, rocky-cobbly-sandy, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; clay ground, and bouldery-gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 6,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant which poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a veterinary aid. Bermuda Grass is sometimes confused with another exotic species, Large Crabgrass (*Digitaria sanguinalis*) a species of similar general appearance. Bermuda Grass goes dormant when nighttime temperatures drop below freezing or average daytime temperatures are below 50 degrees Fahrenheit. Vigorous growth is achieved when nighttime temperatures are above 60 degrees Fahrenheit and daytime temperatures are above 85 degrees Fahrenheit. *Cynodon dactylon* is native to Africa. *5, 6, 15, 16, 18, 22 (color photograph), 30, 33 (Page 129), 42 (060813), 43 (100509), 44 (032711), 46 (Page 124), 58, 63 (060813 - color presentation), 68, 77, 80 (Bermudagrass is listed as a Poisonous Cropland and Garden Plant. "Cattle grazing on Bermudagrass pasture may develop photosensitization, paralysis or a nervous syndrome."), 85 (061113 - color presentation), 101 (color photograph), 105, 109, 124 (032711), 127, 140 (Pages 202-203 & 299), **HR***

***Dactyloctenium aegyptium* (C. Linnaeus) C.L. von Willdenow: Egyptian Grass**

COMMON NAMES: Beach Wiregrass; Coast Button Grass (a name also applied to other species); Comb Fringe Grass; Crowfoot Grass (a name also applied to other species); Crowfootgrass (a name also applied to other species); Duck Grass (a name also applied to other species); Durban Crowfoot; Durban Crowfoot Grass; Durban Crow's Foot Grass; Durban Crow's-foot Grass; Durban Crowfootgrass; Durban's Crow-foot Grass; Egyptian Crabgrass; Egyptian Crowfoot Grass; Egyptian Crowfootgrass; Egyptian Finger Grass; Egyptian Finger-grass; Egyptian Fingergrass; Egyptian Grass; Estrela (Portuguese: Brazil); Finger Comb Grass; Finger Grass; Grama-de-dedo-egipcia (Portuguese: Brazil); Grama Egipcia (Portuguese: Brazil); Knapphirs (Swedish); Makri (India); Mão-de-sapo (Portuguese: Brazil); Na'eem el-Saleeb (Arabic); Pata de Cuervo (Spanish); Rig'l'al'harbaya (Arabic); Três-dedos (Portuguese: Brazil). DESCRIPTION: Terrestrial annual tufted graminoid (prostrate, decumbent, geniculate and/or ascending culms 2 to 40 inches in height); the stems and leaves are green; the florets are maroon; the anthers are pale yellow; based on few records located, flowering generally takes place between late July and late November (flowering records: one for mid-March, one for late July, one for early August, four for mid-August, one for late August, two for early September, three for mid-September, one for early October, four for mid-October, one for late October, one for early November, two for mid-November, one for late November and three for late December). HABITAT: Within the range of this species it has been reported from rocky canyons; canyon bottoms; rocky bluffs; hills; hillsides; rocky slopes; along dunes; sandy-loamy plains; flats; uplands; basins; valley floors; coastal bluffs; along coastal dunes; coastal plains; coastal flats; coastal beaches; along coastlines; along gravelly roadsides; arroyos; along gravelly bottoms of arroyos; along streams; in gravelly soils along rivers; sandy riverbeds; along and in sandy washes; along banks of rivers; sandy beaches; floodplains; lowlands; mesquite/acacia forests; riparian areas, and disturbed areas growing in moist and dry rocky, gravelly and sandy ground and sandy loam ground, occurring from sea level to 4,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant which poses a significant threat to our native biotic communities. *Dactyloctenium aegyptium* is native to southern Asia and islands in the North Pacific Ocean, and Africa and islands in the North Atlantic Ocean and Indian Ocean. *5, 6, 33 (Pages 127-128), 42 (061213), 43 (100509), 44 (110311 - color

photograph of seed), 46 (recorded as *Dactyloctenium aegyptium* (C. Linnaeus) H.E. Richter, Page 124), 63 (061213 - color presentation), **85** (061213 - color presentation), 124 (110311 - no record of species or genus)*

***Dasyochloa pulchella* (K.S. Kunth) C.L. von Willdenow ex P.A. Rydberg: Low Woollygrass**

SYNONYMY: *Erioneuron pulchellum* (K.S. Kunth) T. Tateoka; *Tridens pulchellus* (K.S. Kunth) A.S. Hitchcock; *Triodia pulchella* K.S. Kunth. COMMON NAMES: Desert Fluffgrass; False Fluff Grass; False Fluffgrass; Fluff Grass (a name also applied to other species); Fluff-grass (a name also applied to other species); Fluffgrass (a name also applied to other species); Low Fluffgrass; Low Triodia; Low Woolly Grass; Low Woolly-grass; Low Woollygrass; Low Woollygrass; Oerennuak Grass; Zacate Borreguero (Spanish). DESCRIPTION: Terrestrial perennial (often appearing to be an annual and has also been described as being a short-lived perennial) tufted graminoid (a bunchgrass (clumpgrass) with creeping, spreading and trailing prostrate, decumbent, geniculate, ascending and/or erect culms ½ to 12 inches in height; plants were observed and recorded as being 2 to 4 inches in height and 2 to 4 inches in width, plants were observed and recorded as being 4 inches in height and 12 inches in width); the foliage is bluish-green curing to a gray-white; the flowers are green, silvery or white; flowering generally takes place between mid-March and late October (additional records: two for mid-February and one for early December). HABITAT: Within the range of this species it has been reported from mountains; rocky-sandy, gravelly, sandy-loamy and clayey mesas; along rocky, gravelly and sandy canyons; gravelly and gravelly-sandy canyon bottoms; gorges; lava rincons; rocky talus slopes; sandy soils in crevices in rocks and rock slabs; knolls; rocky and gravelly ridges; clayey ridgetops; rocky ridgelines; meadows; gravelly foothills; rocky, gravelly and sandy hills; rocky, rocky-sandy and gravelly hillsides; sandy bases of escarpments; sandy edges of escarpments; bedrock, bouldery, rocky, rocky-cobbly-gravelly, rocky-gravelly, stony, cindery-clayey, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-sandy-clayey-loamy, gravelly-loamy, gravelly-clayey, sandy and loamy slopes; rocky alluvial fans; rocky-sandy, gravelly and sandy bajadas; rocky outcrops; amongst boulders and rocks; rocky-sandy coves; sandy benches; sand hills; sand dunes; breaks; gravelly steppes; sandy and clayey plains; rocky, cindery, gravelly, gravelly-sandy, sandy, sandy-loamy and clayey flats; stony uplands; valley floors; sandy valley bottoms; along railroad right-of-ways; along bouldery-rocky, rocky, gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy and sandy-loamy roadsides; along two-tracks; sandy arroyos; sandy bottoms of arroyos; gravelly draws; bottoms of gulches; rocky gullies; streambeds; along creeks; creekbeds; along and in rocky, rocky-sandy, cobbly-gravelly, gravelly, gravelly-sandy and sandy washes; along and in rocky and sandy drainages; playas; marshes; clayey depressions; swales; along banks of washes; borders of washes; edges of washes; (rocky-sandy) shores of lakes; beaches; benches; gravelly and sandy terraces; rocky-sandy and loamy bottomlands; floodplains; rocky lowlands; mesquite bosques; sandy riparian areas, and disturbed areas growing in moist, damp or dry desert pavement; bouldery, bouldery-rocky, rocky, rocky-cobbly-gravelly, rocky-gravelly, rocky-sandy, shaley, stony, cobbly, cobbly-gravelly, cindery, gravelly, gravelly-sandy, pebbly and sandy ground; gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam, clayey loam and loam ground; rocky clay, cindery clay, gravelly clay, gravelly-sandy clay, sandy clay and clay ground, and sandy silty ground, occurring from 100 to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This low, densely tufted perennial may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. This plant is browsed by the Desert Bighorn Sheep (*Ovis canadensis mexicana*); however, it has been reported that this plant is generally avoided by grazing animals. *Dasyochloa pulchella* is native and endemic to southwest-central and southern North America. *5, 6, 15 (recorded as *Erioneuron pulchellum* (H.B.K.) Tateoka), 16 (recorded as *Erioneuron pulchellum* (H.B.K.) Tateoka), 33 (recorded as *Tridens pulchellus* (H.B.K.) Hitchc., Page 97), 42 (061213), 43 (071309), 44 (032811 - records located under *Erioneuron pulchellum*, color photograph), 46 (recorded as *Tridens pulchellus* (H.B.K.) Hitchc., Page 90), 58 (recorded as *Erioneuron pulchellum* (H.B.K.) Tateoka), 63 (061213 - color presentation), 77 (recorded as *Erioneuron pulchellum* (H.B.K.) Tateoka), **85** (061313 - color presentation including habitat), 105 (recorded as *Tridens pulchellus* (H.B.K.) Hitchc.), 124 (032811 - no record of species or genus, record for *Erioneuron*), 127, **MBJ** (undated record which may include landscaped material that persists without maintenance), **WTK** (August 4, 2005)*

***Digitaria californica* (G. Bentham) J.T. Henrard: Arizona Cottontop**

SYNONYMY: *Trichachne californica* (G. Bentham) M.A. Chase. COMMON NAMES: Arizona Cotton Grass; Arizona Cotton Top; Arizona Cotton-grass; Arizona Cotton-top; Arizona Cottongrass; Arizona Cottontop; California Cotton-grass; California Cotton-top; California Cottontop; California Crab Grass; California Crabgrass; Cotton Grass (a name also applied to other species); Cotton Top (Texas, a name also applied to other species); Cotton-top (a name also applied to other species); [Arizona, California] Cotton-top (English)¹⁴⁰; Cottongrass (a name also applied to other species); Cottontop (a name also applied to other species); Plumero Blanco (“White Feather Duster”, Spanish)¹⁴⁰; Punta Blanca (Spanish); Tl’oh (“Grass” a word applied to any grass, Athapascan: Western Apache)¹⁴⁰; Wahá□ (“Grass” a word applied to any grass, Uto-Aztecan: Northern Paiute)¹⁴⁰; Wa□ai (“Grass” a word applied to any grass, Uto-Aztecan: Tohono O’odham)¹⁴⁰; Zacate Punta Blanca (“White Top Grass”, Spanish: Chihuahua, Sonora)¹⁴⁰. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with geniculate, ascending and/or erect culms 1 to 4 feet in height); the foliage may be dark bluish-green, gray-green, green or yellow-green curing to gray or straw; spikelets (flowers) are purplish-pink, flowering generally takes place between early August and early December (additional records: one for early May and one for early July); the cottony seedheads are covered by silky hairs. HABITAT: Within the range of this species it has been reported from rocky mountains; mountaintops; sandy-loamy mesas; shaded rocky cliffs; bases of cliffs; rocky and gravelly-loamy canyons; rocky canyon walls; sandy canyon bottoms; bouldery and rocky talus slopes; crevices in rocks; rock buttes; knobs; ledges; rocky ridges; foothills; bouldery and rocky hills; rocky hillsides; bouldery escarpments; bouldery, bouldery-rocky, bouldery-rocky-sandy, rocky, rocky-

gravelly, rocky-sandy-loamy, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-clayey, gravelly-sandy-loamy, sandy, sandy-loamy, sandy-clayey and clayey-loamy slopes; alluvial fans; bajadas; bouldery outcrops; amongst boulders and rocks; sand dunes; silty plains; rocky, gravelly and sandy flats; hollows; valley floors; valley bottoms; coastal plains; roadbeds; along gravelly and sandy roadsides; arroyos; rocky draws; gulches; ravines; springs; along creeks; creekbeds; riverbeds; along and in sandy and silty-clayey washes; within drainage ways; marshes; along (rocky and sandy) banks of arroyos, streams and washes; borders of washes; gravel bars; along benches; terraces; clayey bottomlands; sandy floodplains; ditches; sandy riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery, bouldery-rocky, bouldery-rocky-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, cobbly, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; rocky-sandy loam, rocky-clayey loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam and loam ground; gravelly clay, sandy clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 7,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Digitaria californica* is native to southwest-central and southern North America; Central America, and western and southern South America. *5, 6, 15, 16, 33 (recorded as *Trichachne californica* (Benth.) Chase, Page 296), 42 (061313), 43 (100609), 44 (110311), 46 (recorded as *Trichachne californica* (Benth.) Chase, Page 132), 48, 58, 63 (061313 - color presentation), 77, 85 (061313 - color presentation), 105 (recorded as *Trichachne californica* (Benth.) Chase), 124 (110311), 140 (Pages 199, 203-204 & 299), **HR***

***Digitaria sanguinalis* (C. Linnaeus) J.A. Scopoli: Hairy Crabgrass**

COMMON NAMES: Abu Rokba (Arabic); Blodhirs (Swedish); Blutfennich (Bohemia); Bluthirse (German); Common Crab Grass (a name also applied to other species); Common Crabgrass (a name also applied to other species); Crab Finger Grass; Crab Finger-grass; Crab Fingergrass; Crab Grass (a name also applied to other species); Crab-grass (a name also applied to other species); Crabgrass (a name also applied to other species); Crowfoot (a name also applied to other species); Digitale Sanguine; Finger Grass (a name also applied to other species); Finger-grass (a name also applied to other species); Fingergrass (a name also applied to other species); Garrachuelo (Spanish); Hairy Crab Grass; Hairy Crabgrass (a name also applied to other species); Hairy Finger Grass (a name also applied to other species); Large Crab Grass; Large Crab-grass; Large Crabgrass (a name also applied to other species); Manne Terrestre (French); Mock Sandburr; Northern Crab Grass; Northern Crab-grass; Northern Crabgrass; Panic Sanguin (French); Pigeon Grass (a name also applied to other species, Hopkinton, Iowa); Polish Millet; Purple Crabgrass (a name also applied to other species); Redhair Crab-grass; Redhair Crabgrass; Summer Grass; Zacate Cangrejo (Spanish); Zacate Cangrejo Velludo (Spanish); ābu Rokba (a name also applied to other species, Arabic). DESCRIPTION: Terrestrial annual graminoid (spreading decumbent culms 6 to 52 inches in height); flowering generally takes place between late June and late October (additional records: one for mid-January, two for late May and three for mid-November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rock walls; rocky canyons; sandy canyon bottoms; ridges; meadows; foothills; gravelly hills; hillsides; bouldery, rocky, rocky-sandy, sandy, sandy-loamy, loamy, clayey and clayey-loamy slopes; amongst rocks; sandy, sandy-loamy and clayey-loamy flats; uplands; valley floors; valley bottoms; coastal dunes; along gravelly, gravelly-sandy and sandy roadsides; arroyos; draws; seeps; springs; along streams; within rocky and sandy streambeds; along creeks; along and in rocky creekbeds; along rivers; sandy riverbeds; along and in sandy washes; along and in drainages; drainage ways; pools; sandy-loamy soils along ponds; saltwater marshes; swales; (sandy and silty) banks of streams, creeks, washes and drainages; edges of saltmarshes and depressions and lakes; sandy benches; rocky shelves; rocky and sandy bottomlands; sandy floodplains; seeps along canals; sandy edges of canals; along and in ditches; edges of ditches; sandy riparian areas; waste places, and disturbed areas growing in wet, moist, damp and dry rocky, rocky-sandy, rocky-cobbly-sandy, gravelly, gravelly-sandy and sandy ground; cobbly-sandy loam, sandy loam, clayey loam, silty loam and loam ground; gravelly clay and clay ground, and silty ground, occurring from sea level to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant. Large Crabgrass is sometimes confused with another exotic species, Bermudagrass (*Cynodon dactylon*) a species of similar general appearance. *Digitaria sanguinalis* is native to eastern and southern Europe and islands in the Mediterranean Sea; central and southern Asia, and northern Africa and islands in the North Atlantic Ocean. *5, 6, 15, 33 (Page 295), 42 (061313), 43 (100609), 44 (110311), 46 (Page 132), 58, 63 (061413 - color presentation), 68, **85** (061413 - color presentation), 101 (color photograph), 124 (110311)*

***Echinochloa colona* (C. Linnaeus) J.H. Link: Jungle Rice**

SYNONYMY: *Echinochloa colonum* (C. Linnaeus) J.H. Link. COMMON NAMES: Armilán (Spanish); Arroz del Monte (Spanish); Awnless Barnyard Grass; Awnless Barnyard-grass; Awnless Barnyardgrass; Birds Rice; Blé du Dekkan (French); Capim-arroz (Portuguese: Brazil); Capim-da-colônia (Portuguese: Brazil); Capituva (Portuguese: Brazil); Corn Panic Grass; Corn Panic-grass; Corn Panicgrass; Deccan Grass; Dekkan Grass; Jangle-rice; Janglerice; Jungle Grass (a name also applied to the genus *Echinochloa*); Jungle Rice; Jungle Rice Grass; Jungle Rice-grass; Jungle Ricegrass; Jungle-rice; Junglergrass; Junglerice; Junglerice Grass; Leopard Grass; Little Barnyard Grass; Little Barnyardgrass; Millet (a name also applied to other species); Millet Rice; Millet-rice; Milletrice; Pasto del Arroz (Spanish); Red Striped Crabgrass; Schamahirse (German); Shama Millet (a name also applied to other species); Shanwa Millet; Shanwamillet; Short Millet; Small Barnyard Grass; Small Barnyardgrass; Southern Cockspur; Tiger Grass; Tiger Millet; Watergras (Afrikaans); Watergrass (a name also applied to other species); Zacate Pinto (Spanish); Zacate Rayado (Spanish); Zacate Tigre (Spanish); Zancaraña (Spanish); ābu Rokba (a name also applied to other species, Arabic). DESCRIPTION: Terrestrial annual tufted graminoid (spreading decumbent, geniculate, ascending and/or erect culms 4 to 40 inches in height); the foliage is blue-green, green or yellow-green and may be mottled with purple; the stems may be colored with purple, the leaves may be banded with purple; the spikelets (flowers) are pale

green or green; flowering generally takes place between late July and mid-November (additional records: one for mid-January, one for late March, one for early June, one for early July and one for mid-December); the fruits may be green, maroon and/or red. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky mesas; plateaus; rocky canyons; canyon bottoms; meadows; rocky hills; rocky hillsides; pockets of soil on rocky outcrops; rocky, sandy and loamy slopes; amongst cobbles; cobbly and sandy plains; plains; gravelly-silty, loamy-clayey and silty flats; valley floors; valley bottoms; coastal flats; along roadsides; along and in gravelly arroyos; along bottoms of arroyos; gulches; seeps; springs; sandy streambeds; along creeks; along rivers; bouldery-cobbly-sandy riverbeds; along and in bouldery, rocky, gravelly, sandy and silty-clayey washes; along and in drainages; around pools; muddy ponds; in pondbeds; along lakes; marshes; silty-muddy swamps; within sandy depressions; swales, along (sandy and sandy-silty) banks of arroyos, rivers, washes and drainages; (sandy-loamy) edges of rivers, riverbeds and pools; (muddy) margins of ravines, rivers and pools; along shores of lakes; along beaches; sandy benches; sandy terraces; loamy bottomland; rocky, sandy and silty floodplains; lowlands; mesquite woodlands; dams; around and in sandy and silty stock tanks (represos); shores of reservoirs; within ditches; along ditch banks; bouldery, rocky and sandy-clayey-loamy riparian areas; waste places, and disturbed areas growing in shallow water; mucky and muddy, and wet, moist, damp and dry bouldery, bouldery-cobbly-sandy, rocky, cobbly, gravelly and sandy ground; sandy-clayey loam, humusy-clayey loam and loam ground; sandy clay, loamy clay and silty clay ground, and gravelly silty, sandy silty and silty ground, occurring from sea level to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant that poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food. *Echinochloa colona* may be native to Europe; however, the native origin of this species is obscure. *5, 6, 15, 16 (recorded as *Echinochloa colonom* (L.) Link), 30, 33 (recorded as *Echinochloa colonom* (L.) Link, Pages 275-276), 42 (061413), 43 (100809 - no record of *Echinochloa colonom*), 44 (011411), 46 (recorded as *Echinochloa colonom* (L.) Link, Page 138), 63 (061413 - color presentation), 68 (recorded as *Echinochloa colonom* (L.) Link), 77 (recorded as *Echinochloa colonom* (L.) Link), **85** (110611 - color presentation of dried materials), 101 (color photograph), 124 (110611), 127, 140 (Page 299)*

Echinochloa colonom (see *Echinochloa colona*)

***Echinochloa crus-galli* (C. Linnaeus) A.M. Palisot de Beauvois: Barnyardgrass**

COMMON NAMES: Ankee Millet (Iowa); Arrocillo (Spanish); Barn Grass; Barn Yard Grass (a name also applied to other species); Barn-grass (a name also applied to other species); Barngrass (a name also applied to other species); Barnyard Grass (a name also applied to other species and the genus *Echinochloa*, Nebraska); Barnyard Millet (a name also applied to the genus *Echinochloa*); Barnyard-grass (a name also applied to other species and the genus *Echinochloa*, Nebraska); Barnyardgrass (a name also applied to other species); Billion-dollar Grass (*Echinochloa crus-galli* subsp. *edulis* - Not Accepted, *Echinochloa crus-galli* var. *frumentacea* - Not Accepted; *Echinochloa frumentacea* - Accepted); Chicken Panic; Chicken Panic Grass; Chicken Panicgrass; Chicken-panic Grass; Chicken-panic-grass; Cock's Foot (a name also applied to other species); Cock's-foot (a name also applied to other species); Cock-spur Barnyard Grass; Cocks Foot Grass (a name also applied to other species); Cocks-foot Grass (a name also applied to other species); Cock-spur Barnyard Grass; Cocksfoot Grass; Cocksfoot Panicum; Cockshin Grass; Cockspur (a name also applied to the genus *Echinochloa*); Cockspur Barnyard Grass; Cockspur Grass (a name also applied to the genus *Echinochloa*); Cockspur-grass (a name also applied to the genus *Echinochloa*); Cockspur-panic; Common Barnyard Grass; Common Barnyard-grass; Common Barnyardgrass; Common Cockspur; Common Cockspur Grass; Crusgalli Barnyard Grass; Denieba (Arabic); Echinochloa Pied-de-coq (French); Gewöhnliche Hühnerhirse (German); Grama Morada (Hispanic); Hedgehog Grass; Hönshirs (Swedish); Hühnerhirse (German); Japanese Millet (a name also applied to other species); Large Barnyard Grass; Large Barnyard-grass; Large Barnyardgrass; Large Crowfoot Grass (New Mexico); Loose Panic Grass; Loose Panic-grass; Mexican Barnyard Grass; Panic Pied-de-coq (French); Pasto Alemán (Hispanic); Pasto Mijillo (Hispanic); Pata de Gallo (Spanish); Pi (transcribed Korean); Pie de Gallina (Spanish); Pied-de-coq (French); Rice Barnyardgrass (*Echinochloa crus-galli* var. *oryzicola* - Not Accepted, *Echinochloa phyllopogon* - Accepted); Sanwak (India); Water Grass (a name also applied to other species); Water-grass (a name also applied to other species); Watergrass (a name also applied to other species); Wild Millet; Zacate de Agua (Spanish); Zacate de Corral (Spanish). DESCRIPTION: Terrestrial annual graminoid (spreading decumbent and/or erect culms 4 to 83 inches in height; one plant was described as being 4 feet in height and 40 inches in diameter at the base); the foliage may be gray-green or yellow-green; the leaves may have purple bands; flowering generally takes place between late April and early November; however, flowering year round has been reported (additional record: one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; gravelly-sandy and sandy mesas; gravelly-sandy plateaus; bases of cliffs; rocky and gravelly-loamy canyons; rocky, rocky-sandy, sandy and loamy canyon bottoms; pockets of soil; bluffs; ridges; ridgetops; openings in woodlands; loamy meadows; foothills; escarpments; rocky, gravelly, sandy, sandy-clayey-loamy, loamy, clayey and clayey-loamy slopes; amongst cobbles; gravelly-sandy plains; gravelly, gravelly-loamy and sandy flats; uplands; hollows; valley floors; coastal plains; along gravelly and sandy-loamy roadbeds; along gravelly, gravelly-loamy, gravelly-clayey-loamy, sandy and sandy-loamy roadsides; arroyos; along draws; gulches; gullies; bottoms of gullies; ravines; sandy and clayey seeps; springs; along and in sandy streams; along and in rocky-sandy and sandy streambeds; along creeks; along and in rocky creekbeds; along and in rivers; in cobbly-sandy and sandy riverbeds; along and in rocky, rocky-sandy and sandy washes; within drainages; poolbeds; along and in ponds; muddy pondbeds; along lakes; clayey lakebeds; bogs; ciénegas; clayey freshwater marshes; swamps; clayey-muddy depressions; within muddy sloughs; swales; along (muddy, gravelly-sandy, sandy-loamy and sandy) banks of springs, streams, creeks, rivers, washes, ponds and lakes; along (muddy, rocky and sandy) edges of streams, creeks, rivers, watercourses, ponds, lakes and sloughs; along (sandy and clayey)

margins of creeks, pools, ponds and lakes; sides of rivers; along (sandy-loamy) shores of ponds and lakes; mudflats; gravel, gravelly-sand and sand bars; sandy beaches; sandy benches; along terraces; sandy bottomlands; along sandy and sandy-silty floodplains; lowlands; fencelines; dams; levees; in mud around stock tanks (charcos, represos); muddy edges and shores of reservoirs; along and in muddy canals; muddy canal banks; along sandy-clayey ditches; along clayey-loamy ditch banks; cobbly-sandy riparian areas; waste places, and disturbed areas growing in shallow water; muddy, and wet, moist, damp and dry bouldery, rocky, rocky-sandy, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clay loam, silty loam, humusy-clayey loam and loam ground; sandy clay, loamy clay and clay ground, and sandy silty and silty ground, occurring from sea level to 9,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant that poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food. The origin of *Echinochloa crus-galli* is obscure; however, it may be native to tropical Asia or Europe. *5, 6, 30, 33 (Pages 276-277), 42 (061613), 43 (100809), 44 (041411), 46 (Page 138), 58, 63 (061713 - color presentation), 68, **80** (Barnyard Grass is listed as a Rarely Poisonous and Suspected Poisonous Range Plant “This annual grass has been reported to develop toxic levels of nitrate.”), **85** (061913 - color presentation), 101 (color photograph), 124 (041411), 127*

***Elymus elymoides* (C.S. Rafinesque-Schmaltz) G.D. Swezey: Squirreltail**

COMMON NAMES: Alkali Rye; Barb Goatgrass; Beardless Wild Rye; Bottle Brush (a name also applied to other species); Bottle Brush Grass; Bottle Brush Squirrel Tail; Bottle Brush Squirreltail; Bottle-brush Squirreltail; Bottle-brush Squirrel-tail; Bottlebrush Squirrel Tail; Bottlebrush Squirrel-tail; Bottlebrush Squirreltail; Common Squirrel-tail; Common Squirreltail (subsp. *elymoides*); Creeping Wild Rye; Long-bristle Wild Rye; Long-bristled Wild Rye; Long-bristled Wild-rye; Long-bristle Wild Rye; Mono’pū (Uto-Aztec: Paiute)¹⁴⁰; O’ro [O’do, O’ro, O’rorop] (Uto-Aztec)¹⁴⁰; Odorūmbiv (Uto-Aztec: Ute)¹⁴⁰; Orchard Barley; Pahankis (Uto-Aztec: Cahuilla)¹⁴⁰; Pesru <pésru> (Uto-Aztec: Hopi)¹⁴⁰; Porcupine Grass; Squaw Grass; Squirrel Tail; [Bottlebrush] Squirrel-tail (English)¹⁴⁰; Squirreltail (a name also applied to other species and the genus *Elymus*); T’oh (“Grass” a word applied to any grass, Athapascan: Western Apache)¹⁴⁰; Triguillo Desértico (“Little Desert Wheat”, Spanish: Mexico)¹⁴⁰; Wa□ai (“Grass” a word applied to any grass, Uto-Aztec: Tohono O’odham)¹⁴⁰; Western Bottle Brush Grass; Western Bottle-brush Grass; Western Squirreltail; Zacate Cebadilla [Sevaidilla] (“Little Nourishing Grass”, Spanish: Mexico)¹⁴⁰; Zacate Ladera (“Slope Grass, Spanish: Sonora)¹⁴⁰; Zee’iilwo’ii Ntsaaigii (Navajo); ‘Zéé’iilwoii <□aze□ i.1 □□i> (Athapascan: Navajo)¹⁴⁰. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with decumbent, geniculate, ascending and/or erect culms 3 inches to 31 inches (6½ feet?) in height; plants were observed and reported as being 12 inches in height and 6 inches in width at the base, plants were observed and reported as being 20 inches in height and 2 inches in width at the base); the foliage is green; the spikelets (flowers) are gray-green or green; flowering generally takes place between mid-March and late October). HABITAT: Within the range of this species it has been reported from mountains; rocky and gravelly mountaintops; sandy mountainsides; rocky-sandy-silty bases of peaks; bases of mountains; rocky-sandy, stony-cobbly, shaley and sandy-clayey-loamy mesas; rocky, sandy and clayey-loamy plateaus; tablelands; canyon rims; cliff faces; bases of cliffs; bouldery, rocky, gravelly-sandy and sandy canyons; along pebbly-sandy canyon walls; shaley, gravelly and gravelly-sandy canyonsides; rocky and gravelly-sandy canyon bottoms; rocky gorges; rocky and clayey scree; rocky talus slopes; crevices in rocks; sandy bluffs; rocky, rocky-gravelly, gravelly, gravelly-sandy, gravelly-clayey, sandy-clayey and clayey buttes; stony, sandy and clayey knolls; rocky and sandy ledges; bouldery, rocky, rocky-gravelly, shaley, stony, gravelly, gravelly-sandy, sandy, sandy-silty-loamy and clayey ridges; rocky, shaley, stony-cobbly, gravelly, sandy and clayey ridgetops; ridgelines; rocky clearings in forests; rocky, rocky-silty, gravelly, sandy and loamy meadows; foothills; rocky, shaley, cindery (scoria), gravelly-sandy, sandy, sandy-clayey and clayey hills; rocky, stony-cobbly, gravelly, sandy and clayey hilltops; rocky, rocky-sandy, rocky-clayey and gravelly hillsides; sandy bases of hills; bouldery, bouldery-rocky, bouldery-silty, rocky, rocky-gravelly-loamy, rocky-sandy, rocky-sandy-loamy, rocky-sandy-clayey, rocky-loamy, rocky-clayey, rocky-clayey-loamy, rocky-silty, shaley, shaley-sandy, shaley-clayey, stony, stony-cobbly, stony-cobbly-sandy-clayey, stony-sandy, stony-clayey, cobbly-sandy-loamy, cindery-clayey, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, gravelly-clayey, gravelly-clayey-loamy, pebbly-sandy, sandy, sandy-loamy, sandy-clayey, sandy-clayey-loamy, loamy, clayey, clayey-loamy, clayey-silty, silty and silty-clayey slopes; gravelly bajadas; bouldery, rocky, shaley and clayey outcrops; amongst boulders, rocks and gravels; rocky fell-fields; rocky-clayey rock beds; bases of rocks; sandy alcoves; sandy lava flows; lava beds; sand dunes; sandy hummocks; blow-sand deposits; clayey mounds; gravelly mudslopes; breaks; shaley and gravelly benches; edges of clayey balds; loamy steppes; stony and sandy prairies; gravelly, pebbly, sandy, sandy-clayey and clayey plains; rocky, rocky-sandy, rocky-clayey, gravelly, gravelly-sandy-clayey, gravelly-loamy, sandy, sandy-clayey, clayey, silty-loamy and silty-clayey flats; pebbly-sandy, sandy and clayey uplands; rocky and clayey basins; basin floors; sandy and sandy-silty valley floors; clayey valley bottoms; along sandy and clayey railroad right-of-ways; roadbeds; sandy roadcuts; along rocky, rocky-gravelly-silty, rocky-sandy, cindery, gravelly and clayey roadsides; within arroyos; within rocky-sandy, shaley, gravelly-sandy, sandy and clayey draws; sandy bottoms of draws; gulches; bottoms of gulches; muddy-clayey, rocky and sandy gullies; bottoms of gullies; ravines; seeps; springs; along streams; gravelly-clayey streambeds; along creeks; rocky and clayey creekbeds; along rivers; sandy riverbeds; along and in rocky, rocky-sandy, shaley, sandy and clayey washes; within cobbly-gravelly, gravelly-sandy and sandy drainages; within rocky drainage ways; playas; sandy-clayey depressions; clay pits; swales; along (gravelly, sandy and silty) banks of streams, creeks and rivers; along edges of washes and lakes; margins of rivers, playas and (soda) lakes; (sandy) shores of lakes; along gravel, gravelly-sand and sand bars; sandy beaches; rocky, rocky-sandy, shaley, gravelly and sandy-clayey benches; gravelly and clayey terraces; sandy and clayey bottomlands; along sandy, sandy-clayey and clayey floodplains; clayey lowlands; mesquite bosques; fencelines; clayey catchments; around stock tanks; edges and margins of reservoirs; dry bottoms of reservoirs; along ditches;

sandy-loamy banks of ditches; sandy riparian areas, and disturbed areas growing in cryptogamic; shallow water and wet, moist, damp and dry rimrock; rocky desert pavement; bouldery, bouldery-rocky, bouldery-rocky-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-gravelly, stony, stony-cobbly, stony-sandy, cobbly-gravelly, cindery, gravelly, gravelly-sandy, pebbly, pebbly-sandy and sandy ground; rocky loam, rocky-gravelly-sandy-clayey loam, rocky-gravelly loam, rocky-sandy loam, rocky-clayey loam, stony-clayey loam, cobbly-sandy loam, gravelly-sandy-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, sandy-silty loam, clayey loam, silty loam, humusy loam and loam ground; rocky clay, rocky-sandy clay, shaley clay, stony clay, stony-cobbly-sandy clay, cindery clay, gravelly clay, gravelly-sandy clay, sandy clay, silty clay and clay ground; bouldery silty, rocky silty, rocky-gravelly silty, rocky-sandy silty, sandy silty, clayey silty and silty ground; humusy ground; peaty ground, and chalky ground, occurring from 1,500 to 11,600 feet in elevation in the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fodder crop. *Elymus elymoides* is native to west-central and southern North America. *5, 6, 15, 33 (*Elymus elymoides* (Raf.) Swezey [*Sitanion hystris* J.G. Smith] subsp. *elymoides*, Pages 115-117), 42 (061913), 43 (100809), 44 (110611 - color photograph), 46 (subsp. *elymoides*, recorded as *Sitanion hystris* J.G. Smith, "The mature awns penetrate the flesh of grazing animals, causing inflammation.", Page 96), 48, 63 (061913 - color presentation), 68, 77 (recorded as *Elymus elymoides* (Raf.) Swezey [*Sitanion hystris* (Nutt.) J.G. Smith]. Squirrel Tail), 85 (111011 - color presentation including habitat), 124 (110611), 127, 140 (204-206, 215 & 299)*

***Eragrostis cilianensis* (C. Allioni) F. Vignolo-Lutati ex E.E. Janchen: Stinkgrass**

SYNONYMY: *Eragrostis megastachya* (G.L. Koeler) J.H. Link. COMMON NAMES: Amoresco (Hispanic); Candy Grass (a name also applied to other species and the genus *Eragrostis*); Candy-grass (a name also applied to other species and the genus *Eragrostis*); Candygrass (a name also applied to other species and the genus *Eragrostis*); Éragrostide Fétide; Graminha (Portuguese: Brazil); Großes Liebesgras (German); Gray Love Grass; Lovegrass (a name also applied to other species and the genus *Eragrostis*); Stink Grass (a name also applied to other species and the genus *Eragrostis*); Stinkgrass (a name also applied to other species and the genus *Eragrostis*); Stinking Lovegrass; Strong-scented Lovegrass (a name also applied to other species); Strong-scented Lovegrass (a name also applied to other species); Watergrass; Zacate Apestoso (Hispanic); Zacate Arestoso¹⁴⁰; Zacate Borreguero (Hispanic); Zacate de Amor Hediondo (Hispanic); Zacate Estepario (Hispanic). DESCRIPTION: Terrestrial annual tufted graminoid (a bunchgrass with prostrate, decumbent, geniculate and/or erect culms 3 to 36 inches in height); the foliage is gray-green or light green; the spikelets (flowers) are greenish, white or whitish with green veins turning tawny with age, the anthers are yellow; flowering generally takes place between early July and late October (additional records: one for mid-March, one for late March, one for mid-May, one for late May, two for early June, one for mid-November, one for late November and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; sandy bases of cliffs; rocky, gravelly and sandy canyons; gravelly-sandy and sandy canyon bottoms; bluffs; knolls; ledges; bedrock ridges; bases of ridges; sandy meadows; bouldery foothills; rocky and gravelly hills; rocky and gravelly hillsides; rocky, rocky-gravelly, rocky-clayey-loamy, gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy-loamy, sandy-clayey, sandy-humusy, loamy, clayey and clayey-loamy slopes; sandy-loamy bottoms of slopes; rocky outcrops; amongst boulders and rocks; coves; sandy outwash; gravelly-clayey slides; gravelly-sandy plains; gravelly, sandy, sandy-loamy, sandy-silty and clayey-loamy flats; uplands; valley floors; valley bottoms; roadbeds; roadcuts; along gravelly, gravelly-loamy, sandy, sandy-silty and loamy roadsides; two-tracks; along sandy arroyos; bottoms of arroyos; loamy and loamy-clayey draws; gulches; gullies; gravelly-sandy seeps; springs; along streams; along and in cobbly-sandy and loamy-clayey streambeds; along creeks; in gravelly-sandy and sandy creekbeds; along rivers; in gravelly-sandy, sandy and sandy-clayey riverbeds; along and in gravelly, sandy and silty-clayey washes; within drainage ways; clayey lakebeds; ciénegas; marshes; bedrock depressions; silty swales; along (rocky-sandy, gravelly, sandy and sandy-loamy) banks of streams, creeks, rivers, washes and drainages; (sandy) edges of streams, ponds, lakes and marshes; mud flats; sandy areas of drawdown; sand bars; sandy benches; gravelly-loamy terraces; loamy bottomlands; gravelly, sandy and clayey floodplains; sandy mesquite bosques; sandy fencerows; around and in stock tanks (charcos, represos); around and in reservoirs; banks of reservoirs; along sandy ditches; sandy riparian areas; waste places, and disturbed areas growing in clayey-loamy mucky and wet, moist, damp and dry bouldery, rocky, rocky-gravelly, stony, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam, clayey-humusy loam and loam ground; gravelly clay, sandy clay, loamy clay, silty clay and clay ground; sandy silty and silty ground, and sandy humusy ground, occurring from sea level to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant. This plant may have a foul odor. *Eragrostis cilianensis* is native to middle, eastern and southern Europe; western, eastern and southern Asia, and Africa. *5, 6, 15, 16, 30, 33 (recorded as *Eragrostis megastachya* (Koel.) Link, Pages 82-83), 43 (101009), 44 (032811), 46 (Page 86), 58, 63 (101009 - color presentation of seed), 68, 77, 80 (This plant is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "This annual grass was reported to cause poisoning in horses when fed in large quantities over a long period of time."), 85 (112511 - color presentation), 101 (color photograph), 105 (recorded as *Eragrostis megastachya* (Koel.) Link), 124 (032811), 140 (Pages 207 & 300)*

***Eragrostis intermedia* A.S. Hitchcock: Plains Lovegrass**

COMMON NAMES: Love-grass (a name also applied to other species and the genus *Eragrostis*); Love-grass (English)¹⁴⁰; Plains Love Grass; Plains Love-grass; Plains Lovegrass; Tl'oh ("Grass" a name applied to grasses, Athapaskan: Navajo, Western Apache)¹⁴⁰; Wa□ai ("Grass" a name applied to grasses, Uto-Aztecan: Tohono O'odham)¹⁴⁰; Zacate Amor de

Planicie (Hispanic); Zacate de Amor (Hispanic); Zacate Llanero ("Prairie Grass", Spanish: Sonora)¹⁴⁰; Zacate Pradera (Hispanic); Zacate Volador ("Flying Grass", Spanish: Arizona, Sonora)¹⁴⁰. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with decumbent, geniculate, ascending and/or erect culms 8 to 40 inches in height; plants in clumps 2 inches to 1 foot in width at the base were observed and reported); the foliage is gray-green, green or yellow-green curing to a light straw-yellow; the branches of the inflorescence is red-purple; the spikelets (flowers) are green or greenish-tan; flowering generally takes place between early July and late October (additional records: one for mid-March, one for late March, one for mid-April, three for mid-May and one for late November; flowering beginning as early as June has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; bases of mountains; rocky, gravelly-sandy and sandy mesas; plateaus; bases of cliffs; canyons; canyon walls; along rocky and sandy canyon bottoms; talus slopes; crevices in rocks; clefts in granite domes; rocky bluffs; along rocky ridges; ridgetops; ridgelines; meadows; rocky and rocky-gravelly-loamy foothills; rocky hills; rocky hilltops; bouldery, rocky, gravelly-loamy and silty hillsides; rocky, rocky-gravelly, stony-clayey-loamy, gravelly, sandy, sandy-clayey, sandy-clayey-loamy, clayey and clayey-loamy slopes; bases of slopes; rocky outcrops; bases of rock outcrops; amongst boulders and rocks; sandy prairies; rocky, gravelly-sandy and sandy plains; clayey flats; sandy basins; dells; valley floors; roadbeds; along gravelly roadsides; two-tracks; sandy bottoms of arroyos; gulches; within sandy ravines (barrancas); springs; in cobbles and sand along streams; rocky and cobbly streambeds; along sandy creeks; riverbeds; along and in rocky, rocky-sandy and sandy washes; along and in sandy drainages; low spots; along (rocky-sandy, gravelly and sandy) banks of creeks, rivers and washes; edges of washes and lakes; along margins of streams; (rocky) shores of lakes and bays; benches; rock shelves; floodplains; along fencelines; sandy riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, stony, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, rocky-clayey loam, stony loam, stony-clayey loam, gravelly loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; rocky-clay, gravelly clay, sandy clay and clay ground, and silty ground, occurring from 100 to 8,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Eragrostis intermedia* is native to south-central and southern North America and Central America. *5, 6, 15, 30, 33 (Pages 80-81), 43 (053110), 44 (041511 - no record of Common Names listed under species; genus record), 46 (Page 87), 48, 58, 63 (053110 - color presentation), 77, **85** (112611 - color presentation), 105, 124 (041511), 140 (Pages 206-207 & 300)*

***Eragrostis lehmanniana* C.G. Nees von Esenbeck: Lehmann Lovegrass**

COMMON NAMES: Lehman (error) Lovegrass; Lehmann Love Grass; Lehmann Lovegrass; Lehmann's Love Grass; Lehmann's Lovegrass; Lovegrass (a name also applied to other species and the genus *Eragrostis*); Zacate Africano; Zacate de Amor; Zacate de Amor Lehman (Spanish). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with decumbent, geniculate, ascending and/or erect culms 8 to 48 inches in height); the foliage is bright green or yellow-green curing to a dull yellow; the spikelets (flowers) are grayish-green, lead or straw colored with yellowish anthers; flowering generally takes place between late July and early November (flowering records: one for early March, one for mid-March, one for early May, one for mid-May, two for early June, two for early July, two for late July, one for early August, three for mid-August, three for late August, one for early September, two for mid-September, one for late September, three for early October, two for mid-October, two for late October and two for early November; flowering beginning in February and ending in May and again beginning in August and end ending in November has also been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; rocky canyons; along rocky canyon bottoms; gravelly ridges; meadows; rocky foothills; rocky hills; rocky hillsides; rocky, gravelly, gravelly-loamy and sandy-loamy slopes; gravelly bajadas; rock outcrops; amongst boulders; dunes; gravelly plains; gravelly, sandy and clayey flats; clayey valley floors; roadbeds; along sandy and clayey roadsides; two-tracks; along arroyos; springs; along and in streambeds; along creeks; along and in creekbeds; along rivers; sandy riverbeds; along gravelly and sandy washes; drainages; depressions; along banks of rivers; shores of lakes; sandy beaches; cobbly-sandy benches; travertine clefts; terraces; loamy bottomlands; sandy floodplains; mesquite bosques; ditches; riparian areas, and disturbed areas growing in dry bouldery, bouldery-cobbly-sandy, rocky, rocky-cobbly-sandy, rocky-sandy, stony, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and clayey loam ground, and clay ground, occurring from 100 to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant that poses a significant threat to our native biotic communities. *Eragrostis lehmanniana* is native to southern Africa. *5, 6, 15, 16, 22 (color photograph), 33 (Page 79), 43 (101009), 44 (112611), 46 (Page 87), 58, 63 (101009 - color presentation of seeds), 77, **85** (112611 - color presentation), 105, 124 (112611 - no record of species; genus record), 140 (Pages 206, 207 & 300)*

Eragrostis megastachya (see *Eragrostis cilianensis*)

***Eragrostis pectinacea* (A. Michaux) C.G. Nees von Esenbeck ex E.G. von Steudel: Tufted Lovegrass**

COMMON NAMES: Carolina Love Grass; Carolina Lovegrass; Comb Grass (Nebraska); Desert Love Grass; Desert Lovegrass; Éragrostide Pectinée; False Red Top; False Redtop; Ihta Zaa (Mixteco); Kšam <košom, kwšam> (this name may refer to *Eragrostis mexicana* and/or *Eragrostis pectinacea*, Yuman: Cocopa)¹⁴⁰; Meadow Comb Grass; Pasto de Semillas de Pajarito (Hispanic); Pink Grass; Purple Eragrostis; Purple Love Grass; Purple Love-grass; Purple Lovegrass; Pursh's Eragrostis; Pursh's Love Grass; Pursh's Love-grass; Southern Eragrostis; Southern Love-grass; Spreading Lovegrass; Tufted Love Grass; Tufted Love-grass; Tufted Lovegrass; Western Love Grass; Western Lovegrass. DESCRIPTION: Terrestrial annual or perennial tufted graminoid (a bunchgrass (clumpgrass) with spreading decumbent, geniculate and/or erect culms 4 to 40 inches in height); the

spikelets (flowers) may be green, lead-green, dark reddish-purple, grayish-green or yellowish-brown; the anthers are purplish; flowering generally takes place between early July and mid-November (additional records: one for mid-February, two for early March, two for mid-March, one for late March, one for mid-May, one for early June and one for late December). **HABITAT:** Within the range of this species it has been reported from mountains; rocky mesas; plateaus; gravelly bases of cliffs; rocky canyons; sandy canyon bottoms; gravelly-clayey slides; along talus slopes; crevices in rocks; foothills; rocky hills; hillsides; bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy, gravelly-sandy-loamy, sandy-loamy, sandy-clayey, loamy and clayey-loamy slopes; bajadas; rocky outcrops; amongst boulders; short grass prairies; sandy plains; sandy flats; basins; loamy valley floors; valley bottoms; coastal plains; along sandy railroad right-of-ways; gravelly roadbeds; along gravelly-sandy, sandy and clayey roadsides; in two-tracks; within arroyos; sandy-silty bottoms of arroyos; draws; gulches; sandy ravines; springs; along streams; along and in sandy streambeds; along gravelly-sandy creeks; creekbeds; gravelly soils along rivers; sandy riverbeds; along and in bouldery-sandy, gravelly and sandy washes; within sandy, sandy silty and silty drainage ways; dry ephemeral pools; poolbeds; clayey lakebeds; playas; ciénegas; marshes; sandy-silty and silty depressions; clayey swales; along (muddy, sandy and sandy-loamy) banks of arroyos, streams, creeks, rivers and washes; (sandy) edges of arroyos, ponds, marshes, marshes, rivers and washes; margins of washes and ponds; along (silty) shores of rivers, pools and lakes; mudflats; cobbly-sand, gravel, gravelly-sand and sand bars; sandy beaches; sandy benches; gravelly terraces; clayey-loamy bottomlands; sandy floodplains; lowlands; mesquite bosques; in stock ponds; sandy edges of tanks and reservoirs; along and in ditches; gravelly and sandy riparian areas; waste places, and disturbed areas growing in muddy and wet, damp and dry bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, sandy loam, clayey loam, humusy-clayey loam and loam ground; gravelly clay, sandy clay and clay ground, and sandy silty and silty ground, occurring from sea level to 8,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. **NOTES:** This plant may be an attractive component of a restored native habitat. *Eragrostis pectinacea* is native to northeast-central, south-central and southern North America; Central America and coastal islands in the Caribbean Sea, and South America. *5, 6, 15, 16, 30, 33 (Pages 87-88), 43 (101009), 44 (112711), 46 (Page 86), 58, 63 (112711), 77, **85** (112711 - color presentation including habitat), 124 (112711), 140 (Page 300 - recorded as *Eragrostis pectinacea* (Michaux) Nees [*Eragrostis pectinacea* (Michaux) Nees var. *miserrima* (E. Fournier) J. Reeder])*

Erioneuron pulchellum (see *Dasyochloa pulchella*)

***Heteropogon contortus* (C. Linnaeus) A.M. Palisot de Beauvois ex J.J. Roemer & J.A. Schultes: Tanglehead**

SYNONYMY: *Andropogon contortus* C. Linnaeus. **COMMON NAMES:** Assegaaigras (Afrikaans); Barba Negra (“Black Beard”, Spanish: Mexico)¹⁴⁰; Bihag Wa□ai (“Wrap-around Grass”, Uto-Aztecan: Tohono O’odham)¹⁴⁰; Biibhinol Vashai (“Wrap-around Grass”, Uto-Aztecan: Akimel O’odham, Arizona)¹⁴⁰; Black Spear Grass; Black Speargrass; Bunch Spear Grass; Bunched Speargrass; Carrizo (a name also applied to other grasses, Spanish: Sonora)¹⁴⁰; Common Tangleweed; Contorted Tanglehead; Hierba Negros de los Prados (“Black Herb of the Prairies”, Spanish: Mexico)¹⁴⁰; Hierba Torcida (Spanish); Needlegrass (English: New Mexico)¹⁴⁰; Pili Grass; Piligrass (Hawaii); Rabo de Asno (“Donkey’s Tail”, Spanish: Mexico)¹⁴⁰; Retorcido Moreno (“Black Twisted”, Spanish: Mexico)¹⁴⁰; Spear Grass (a name also applied to other species); Speergras (German); Steekgras (Afrikaans); Tangel Head; Tangle Grass; Tangle Head; Tangle-head (English)¹⁴⁰; Tangle-head Grass; Tangelhead; Tanglehead (a name also applied to the genus *Heteropogon*); Tanglehead Grass (a name also applied to the genus *Heteropogon*); T’oh (“Grass” a name applied to any grass, Athapascan: Western Apache, Navajo)¹⁴⁰; Twisted Tanglehead; Ujchú (Uto-Aztecan: Guarijío)¹⁴⁰; Wahá□ (“Grass” any grass, Uto-Aztecan: Northern Paiute)¹⁴⁰; Zacate Aceitillo (“Oily Grass”, Spanish: Chihuahua, Sonora)¹⁴⁰; Zacate Colorado (“Red Grass”, Spanish: Arizona, Chihuahua, Sonora)¹⁴⁰; Zacate Retorcido (“Twisted Grass”, Spanish: Mexico)¹⁴⁰. **DESCRIPTION:** Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with ascending and/or erect culms 8 inches to 5 feet in height); the foliage is bright green or yellow-green curing to orange-brown; the spikelets (flowers) may be brown or purple; based on few records located, flowering generally takes place between early January and late May and again between late July and early December (flowering records: one for early January, three for late January, one for late February, one for mid-March, one for early May, one for late May, one for late July, three for early August, five for late August, three for early September, five for mid-September, four for late September, three for early October, three for mid-October, five for early November, one for mid-November and one for early December). **HABITAT:** Within the range of this species it has been reported from mountains; rocky mountainsides; rocky, gravelly and sandy mesas; cliffs; cliff faces; bases of cliffs; along and in rocky canyons; along canyon walls; along bouldery, rocky and gravelly canyon bottoms; rockslides; crevices in rocks; ledges; along rocky ridges; bouldery and rocky ridgetops; volcanic cones; gravelly and sandy foothills; rocky hills; rocky and gravelly-clayey hillsides; bedrock, rocky, gravelly, gravelly-sandy and sandy slopes; rocky outcrops; amongst boulders and rocks; lava flows; rocky and sandy plains; gravelly flats; valley floors; along sandy roadsides; along and in rocky and sandy arroyos; rocky-sandy bottoms of arroyos; along draws; gulches; within gullies; ravines; around seeping streams; streambeds; creekbeds; along and in rocky, rocky-sandy, cobbly, gravelly-sandy and sandy washes; within gravelly-sandy-loamy drainages; within rocky and sandy drainage ways; bedrock tinajas; around pools; (silty) banks of streams and rainwater basins; edges of washes; margins of waterways; sandy beaches; terraces; floodplains; riparian areas, and disturbed areas growing in dry bouldery, bouldery-sandy, rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam and loam ground; gravelly clay ground, and silty ground, occurring from sea level to 7,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. **NOTES:** This plant may be an attractive component of a restored native habitat; however, the awns may bring about painful sores in livestock and pets and in some areas may be considered to be a noxious weed. It is able to become established in newly disturbed and poor soils. *Heteropogon contortus* is native to south-central and

southern North America; eastern Asia, and possibly to other tropic sub-tropic and warm-temperate regions of the world. *5, 6, 15, 16, 33 (Page 302), 43 (101209), 44 (120411 - color photograph), 46 (Page 144), 48, 58, 63 (120411 - color presentation), 77, 85 (120411 - color presentation including habitat), 105 (Reports that Tanglehead Grass “is one of the easiest grasses to establish under conditions of low rainfall.”), 124 (120411 - no record of genus or species), 140 (Pages 207-208 & 300)*

Hordeum leporinum (see *Hordeum murinum* subsp. *leporinum*)

***Hordeum murinum* C. Linnaeus subsp. *leporinum* (J.H. Link) G. Arcangeli: Hare Barley**

SYNONYMY: *Critesion murinum* (C. Linnaeus) Á. Löve subsp. *leporinum* (J.H. Link) Á. Löve; *Hordeum leporinum* J.H. Link. COMMON NAMES: Cebadilla Silvestre; Charming Barley; Common Foxtail (a name also applied to other species); Hare Barley; Hare Wall Barley; Lepor Barley; Leporinum Barley; Mouse Barley (a name also applied to the species); Wild Barley (a name also applied to other species and the genus *Hordeum*). DESCRIPTION: Terrestrial annual tufted graminoid (nearly prostrate, ascending and/or erect culms 4 to 44 inches in height); flowering generally takes place between mid-March and early June. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; canyons; bluffs; ridgetops; openings in woodlands; foothills; hills; rocky and sandy slopes; sand dunes; sandy flats; valley floors; along roadsides; springs; along creeks; washes; depressions; edges of ponds; floodplains; ditches; ditch banks; riparian areas; waste places, and disturbed areas growing in wet and dry rocky, gravelly, gravelly-sandy and sandy ground and loam ground, occurring from sea level to 9,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant. The species, *Hordeum murinum*, was reported to have been utilized by native peoples of North America; it was noted as having been used for food and as a drug or medication (*H.m.* subsp. *glaucum*). *Hordeum murinum* C. Linnaeus subsp. *leporinum* is native to central, eastern and southern Europe; western and central Asia, and northern Africa and coastal islands in the North Atlantic Ocean. *5, 6, 15, 33 (recorded as *Hordeum leporinum* Link, Page 106), 43 (101309), 44 (041611), 46 (recorded as *Hordeum leporinum* Link, Page 97), 63 (041611 - color presentation of seed), 68 (recorded as *Hordeum leporinum* Link), 85 (041611 - color presentation of dried material), 101 (color photograph, recorded as *Hordeum leporinum* Link, “Awns of mature plants can cause serious injury to eyes, nose, and throat of grazing animals.”), 124 (041611 - no record of species or subspecies; genus record), 127 (species), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Melinis repens* (C.L. von Willdenow) G. Zizka: Rose Natal Grass**

SYNONYMY: *Rhynchelytrum repens* (C.L. von Willdenow) C.E. Hubbard; *Rhynchelytrum roseum* (C.G. Nees von Esenbeck) O. Stapf & C.E. Hubbard ex J.W. Bews. COMMON NAMES: Creeping Molasses Grass; Espiga Colorada (Spanish); Natal Grass (a name also applied to other species); Natal Red Grass; Natal Red Top; Natal Red Top Grass; Natal Red-top; Natal Redtop; Natal Redtop Grass; Natal Ruby Grass; Pasto (Hispanic); Red Natal Grass; Red Natalgrass; Rose Natal Grass; Rose Natalgrass; Yerba de Natal (Spanish); Zacate Natal (Hispanic); Zacate Rosado (subsp. *repens*, Spanish: Mexico, Sonora). DESCRIPTION: Terrestrial annual or perennial tufted graminoid (trailing, spreading, prostrate, decumbent and/or geniculate culms 8 inches to 5 feet in height); the inflorescence has been described as being brownish-pink, pink, deep pink, darkish purple, purplish-pink, reddish, rose or white; the (spikelets) flowers are red or dark rose with long silky purplish-pink hairs; the anthers are orange or orange-brown; flowering generally takes place between late January and mid-December. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky mesas; cliff faces; bases of cliffs; rocky canyons; rocky canyon walls; along rocky and gravelly canyon bottoms; crevices in boulders and rocks; rocky bluffs; ledges; rocky ridges; rocky ridgetops; meadows; foothills; hills; rocky hilltops; rocky hillsides; bouldery, rocky, rocky-gravelly, sandy and clayey slopes; rocky outcrops; amongst boulders and rocks; fumaroles; sand dunes; cobbly-sandy and clayey flats; basins; valley floors; coastal plains; coastal flats; railroad right-of-ways; along sandy roadsides; sandy arroyos; bottoms of arroyos; along streams; rocky streambeds; along creeks; creekbeds; along and in rocky, stony and sandy washes; drainages; drainage ways; swamps; depressions; sloughs; bouldery swales; banks of streams, rivers and drainage ways; terraces; bottomlands; sandy floodplains; lowlands; riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, stony, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam ground, and clay ground, occurring from sea level to 6,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant that poses a significant threat to our native biotic communities. *Melinis repens* is native to southern Asia; Africa, and coastal islands in the North Atlantic Ocean and Western Indian Ocean. *5, 6, 15 (recorded as *Rhynchelytrum repens* (Willd.) C.E. Hubb.), 18, 22 (color photograph), 30, 33 (recorded as *Rhynchelytrum roseum* (Nees) Stapf & Hubb., Pages 271-272), 43 (101609), 44 (121811 - listing of Common Names located under *Rhynchelytrum repens* (Willd.) C.E. Hubb.), 46 (recorded as *Rhynchelytrum roseum* (Nees) Stapf & Hubb., Page 138), 63 (121811 - color presentation), 77 (recorded as *Rhynchelytrum repens* (Willd.) C.E. Hubb.), 85 (121811 - color presentation including habitat), 124 (121811 - no record of genus or species), 140 (recorded as *Melinis repens* (Willdenow) Zizka subsp. *repens* [*Rhynchelytrum repens* (Willdenow) C.E. Hubbard], Page 300), **HR***

***Muhlenbergia emersleyi* G. Vasey: Bullgrass**

COMMON NAMES: Bull Grass; Bull Muhly; Bull-grass; Bullgrass; Cola de Ratón (Chihuahua); Cola de Zorra; Pićiraka (Tarahumara); Zacate Toro (Spanish: Sonora). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with decumbent and/or erect culms 20 inches to 5 feet in height and up to 8 inches to 5 feet in width at the base); the foliage is gray-green or light green curing to a light gray; the panicles (inflorescences) are light brownish, maroon or light

purplish; the spikelets (flowers) are light-maroonish-brown or purple; the anthers may be purple, purplish or yellowish; flowering generally takes place between mid-August and late November (additional record: one for late July); the caryopses (fruits) are reddish-brown. HABITAT: Within the range of this species it has been reported from rocky mountains; mountaintops; bouldery-gravelly mountainsides; plateaus; along rocky cliffs; rocky canyons; rocky canyon sides; along rocky canyon bottoms; talus; crevices in boulders and rocks; pockets of soil in tuff formations; bluffs; buttes; rocky ledges; rocky ridges; ridgetops; openings in forests and woodlands; foothills; bouldery, bouldery-rocky and rocky hills; hilltops; bouldery, rocky and rocky-clayey hillsides; escarpments; bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-gravelly-clayey, rocky-loamy, stony, stony-loamy, gravelly, gravelly-loamy, rocky-clayey, gravelly-clayey-loamy, loamy and clayey-loamy slopes; rocky bases of slopes; rocky outcrops; amongst boulders and rocks; sandy bases of boulders; along breaks; prairies; clayey-loamy flats; gravelly dells; valley floors; roadcuts; along roadsides; along rocky arroyos; within rocky draws; gulches; within ravines; bottoms of ravines; springs; rocky, rocky-sandy and sandy streambeds; in sand along creeks; along gravelly-sandy creekbeds; along and in rocky-sandy, gravelly and sandy washes; within drainages; (rocky) banks of gullies, streams and drainages; borders of washes; along (bouldery and rocky) edges of gullies, ravines (barrancas), seeps, washes and drainages; shores of lakes; benches; rocky-gravelly terraces; floodplains, and sandy riparian areas growing in wet, moist and dry bouldery, bouldery-rocky, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy loam, stony loam, gravelly loam, gravelly-clayey loam, sandy-clayey loam, clayey loam, humusy loam and loam ground; rocky clay and rocky-gravelly clay ground, and rocky-silty ground, occurring from 2,600 to 8,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and is grown as an ornamental. *Muhlenbergia emersleyi* is native to southwest-central and southern North America. *5, 6, 15, 18, 33 (Pages 219-220), 42 (062313), 43 (060810), 44 (010711 - no record of species; genus record), 46 (Page 112), 48, 58, 63 (062313 - color presentation), 77, 85 (062313 - color presentation), 105, 124 (010711 - no record of species; genus record), 140 (Pages 212 & 300)*

***Muhlenbergia microsperma* (A.P. de Candolle) C.B. von Trinius: Littleseed Muhly**

COMMON NAMES: Liendrilla Chica (Spanish); Liendrilla Fina (Spanish); Little Seed Muhly; Little-seed Muhley; Little-seed Muhly; Little-seeded Muhley; Little-seeded Muhli; Little-seeded Muhly; Littleseed Muhly; Small-seeded Muhlenbergia. DESCRIPTION: Terrestrial annual tufted graminoid (spreading decumbent, geniculate and/or erect culms 4 to 40 inches in height); the foliage may be purplish turning red with age; the inflorescence is tinged with purple; the spikelets (flowers) are dark pink or purplish; the anthers are purplish; flowering generally takes place between late January and mid-June (additional records: one for early January, one for early September, one for mid-September, one for late September, one for mid-October, one for late October, one for early November, three for mid-November, three for mid-December and two for late December; flowering beginning in October and ending in May has been reported); the caryopses (fruits) are reddish-brown. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky mountainsides; mesas; rocky cliffs; along bases of cliffs; bouldery, bouldery-rocky-sandy, rocky and sandy canyons; rocky canyon walls; rocky, rocky-silty, sandy and sandy-loamy canyon bottoms; gorges; scree; talus slopes; crevices in rocks; bluffs; buttes; rocky ledges, rocky and cobbly-sandy-loamy ridges; clayey ridgetops; margins of meadows; foothills; rocky and rocky-sandy hills; rocky, rocky-cobbly, rocky-gravelly and gravelly hillsides; bouldery, bouldery-sandy, bouldery-loamy, rocky, rocky-gravelly, rocky-sandy, rocky-loamy-clayey, rocky-clayey, gravelly, gravelly-sandy, gravelly-loamy, sandy, loamy, loamy-clayey, clayey and clayey-loamy slopes; bajadas; bouldery and rocky outcrops; amongst boulders and rocks; bases of boulders; lava bluffs; lava slopes; along lava slides; dunes; gravelly outwash plains; sandy plains; bouldery, rocky-sandy, gravelly and sandy flats; rocky-gravelly coastal slopes; coastal plains; sandy coastal flats; gravelly valley floors; along railroad right-of-ways; bouldery-gravelly-loamy and sandy roadsides; sandy arroyos; in the shade of mesquite trees in the bottoms of arroyos; draws; gulches; rocky-sandy ravines; springs; along streams in the partial shade of Mexican Blue Oaks; rocky and rocky-sandy streambeds; along creeks; along rivers; along and in rocky, rocky-silty, gravelly, gravelly-sandy and sandy washes; silty-clayey drainages; drainage ways; gravelly-sandy tinajas; depressions; along (rocky, gravelly-sandy and sandy) banks of arroyos, streams, washes and drainages; edges of gullies; margins of riverbeds; benches; bottomlands; rocky-sandy-loamy and sandy floodplains; mesquite bosques; around stock tanks (charcos); rocky margins of reservoirs; along and in ditches; sandy riparian areas and disturbed areas growing in wet, moist and dry gravelly desert pavement; bouldery, bouldery-rocky-sandy, bouldery-sandy, rocky, rocky-cobbly, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; bouldery loam, bouldery-gravelly loam, rocky-sandy loam, rocky-clayey loam, cobbly-sandy loam, gravelly loam, sandy loam, clayey loam and loam ground; rocky clay, rocky-loamy clay, loamy clay, silty clay and clay ground, and rocky silty ground, occurring from sea level to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This grass sometimes forms dense mound-like colonies. *Muhlenbergia microsperma* is native to southwest-central and southern North America; Central America; northern and western South America, and islands in the North Pacific Ocean. *5, 6, 15, 16, 30, 33 (Pages 195-196), 43 (101609), 44 (121911), 46 (Page 109), 63 (121911 - color presentation), 77, 85 (121911 - color presentation including habitat), 124 (121911 - no record of species; genus record), 140 (Pages 212 & 301)*

***Muhlenbergia porteri* F.L. Scribner ex W.J. Beal: Bush Muhly**

COMMON NAMES: Bakú (Tarahumara in Chihuahua)¹⁴⁰; Bush Grass (a name also applied to other species); Bush-grass (a name also applied to other species); Bush Muhly (a name also applied to other species); Hoe Grass (a name also applied to other species); Hoegrass; Liendrilla Amacollada (Hispanic); Mesquite Grass (a name also applied to other species); Mesquite

Muhley; Mesquite Muhly; Mesquitegrass; Porter Muhlenbergia; Porter's Muhlenbergia; Porter Muhley; Porter Muhly; Porter's Muhley; Porter's Muhly; Telaraña (Hispanic); Zacate Aparejo (Spanish: Sonora)¹⁴⁰. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass with spreading, trailing prostrate, decumbent, geniculate, ascending and/or erect culms 10 to 44 inches in height/length and 18 inches to 10 feet in width; one plant was observed and described as being 20 inches in height and 40 inches in width, several plants were observed and described as being 28 inches in height and 6½ feet in width, several plants were observed and described as being 3 feet in height and 10 feet in width); the stems are dull green but, and along with the leaves, may be tinged with purple; the leaves are green, purplish-green or yellow-green curing to buff; the panicles (compound inflorescences) are usually purple; the spikelets (flowers) are green becoming purple when mature; the anthers are purple to yellow; flowering generally takes place between late February and late October (additional records: one for late November and one for early December); the caryopses (fruits) are yellowish-brown the aggregate of which covers the plants in a misty shroud. HABITAT: Within the range of this species it has been reported from mountains; rocky and stony-sandy mountainsides; mesas; rocky cliffs; bouldery and rocky canyons; rocky canyonsides; rocky-sandy and gravelly canyon bottoms; gorges; bouldery talus slopes; crevices in rocks; buttes; along sandy-silty and silty ledges; ridges; rocky ridgetops; rocky foothills; rocky and sandy hills; bouldery-sandy and rocky hillsides; rocky escarpments; along bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-loamy, gravelly, gravelly-loamy, sandy and sandy-loamy slopes; bajadas; rocky outcrops; gravelly bases of rock outcrops; amongst boulders and rocks; alcoves; clefts in rocky hillsides; sandy lava flows; lava fields; sand dunes; dune-like areas of fine blow-sand deposits; gravelly-sandy banks; gravelly plains; rocky, gravelly-sandy, sandy and sandy loamy flats; open sandy ground amongst Ephedra and Larrea; basins; sandy valley floors; valley bottoms; along rocky, rocky-gravelly, gravelly, gravelly-loamy and sandy roadsides; rocky arroyos; within draws; bottoms of draws; gulches; ravines; springs; bouldery streambeds; along rivers; along and in rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along drainages; bouldery-cobbly and rocky drainage ways; around ponds; margins of washes; sandy-silty and silty benches; gravelly terraces; sandy floodplains; sandy mesquite bosques; around represos; riparian areas, and disturbed areas growing in damp and dry rocky desert pavement; bouldery, bouldery-rocky, bouldery-cobbly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, cobbly-sandy loam, gravelly loam, sandy loam, clayey loam and loam ground; gravelly clay, sandy clay and clay ground, and cobbly-sandy silty, sandy silty and silty ground often found growing in the protection of shrubs and trees, occurring from sea level to 7,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. In areas where it occurs naturally, consider including Bush Muhly seed in reseeding mixtures. According to the USDA Forest Service Fire Effects Information System, Bush Muhly germinates best when temperatures are at 86 degrees Fahrenheit (30 degrees Centigrade). When re-vegetating desert washes consider planting Bush Muhly along with Whitethorn Acacia (*Acacia constricta*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Limberbush (*Jatropha cardiophylla*), Triangleleaf Bursage (*Ambrosia deltoidea*) and White Bursage (*Ambrosia dumosa*). Bush Muhly is browsed by the Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*). This plant is a host for the smut fungus *Ustilago muhlenbergiae*. *Muhlenbergia porteri* is native to southwest-central and southern North America. *5, 6, 15, 16, 30, 33 ("Bush Muhly originally existed in extensive stands on the open range lands of southern Arizona but now occurs for the most part in the protection of shrubs and subshrubs and is seldom locally abundant. It is highly palatable and well liked by livestock despite the wiry culms.", Pages 201-202), 43 (101709), 44 (121911), 46 (Page 111), 48, 58, 63 (121911 - color presentation including habitat), 77, 85 (121911 - color presentation including habitat), 105 ("This was formerly one of the most abundant and important grasses of southern Arizona, but is found now largely as individual plants under the protection of shrubs. ... Where possible this grass should be allowed to set a full crop of seed during the summer growing season at least every second or third year. Deferment of grazing during July and August every year is recommended on run-down ranges."), 124 (121911), 140 (Pages 211, 212 & 301), **WTK** (August 4, 2005)*

***Muhlenbergia rigens* (G. Bentham) A.S. Hitchcock: Deergress**

COMMON NAMES: Basket Muhly; California Deer Grass; California Deer-grass; California Deergress; Deer Grass (a name also applied to other species); Deer Muhley; Deer Muhly; Deer-grass (a name also applied to other species, English: Arizona)¹⁴⁰; Deergress (a name also applied to other species); Escobón ("Big Brush", Spanish: Sonora)¹⁴⁰; Hierba del Paisano ("Country-man's Herb", Spanish: Sonora)¹⁴⁰; Liendrilla de Venado (Hispanic); Mašil ("Plant", Uto-Aztec: Tübatulabal)¹⁴⁰; Monopi [Monope, Mónop] (Uto-Aztec: Mono)¹⁴⁰; Nor <norr> <no!> ("To Turn [Leaves]", Uto-Aztec: Mountain Pima)¹⁴⁰; Pi'shu Li'awe (Language Isolate: Zuni)¹⁴⁰; Sipu(m)biv□ [Šipu(m)bav□] (Uto-Aztec: Kawaiisu)¹⁴⁰; Suul (Uto-Aztec: Cahuilla)¹⁴⁰; Tlo ("Grass", a word for any grass, (Athapascan: Chiricahua and Mescalero Apache)¹⁴⁰; T'oh ("Grass", a word applied to any grass, Athapascan: Navajo)¹⁴⁰; Wa□ai ("Grass", a word applied to any grass, (Uto-Aztec: Tohono O'odham)¹⁴⁰; Zacate Venado ("Deer Grass", Spanish: Sonora)¹⁴⁰. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with erect culms 14 to 63 inches in height in clumps to 4 to 40 inches in width at the base; one plant was observed and described as being 30 inches in height and 30 inches in width, one plant was observed and described as being 40 inches in height and 28 inches in width); the foliage is blue-green, gray-green or grayish curing to a gray straw color; the flowers are in long narrow spikes (3 to 16 inches in length and 1/4 to 3/8 inch in diameter); the panicles (inflorescences) are grayish-green; the spikelets (flowers) are grayish or light green; the anthers are purplish or yellow; flowering generally takes place between mid-July and late November (additional records: one for mid-April, three for early May, four for early June and two for late June); the caryopses (fruits) are brownish. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky mesas; plateaus; along rocky canyons; along bouldery, rocky, rocky-sandy, gravelly and sandy canyon bottoms; gorges; crevices in bedrock; meadows; foothills; rocky hills; rocky hillsides; rocky, rocky-sandy-loamy, sandy, clayey-loamy and clayey slopes; alluvial fans; amongst boulders and rocks; clayey flats; basins; valley bottoms; roadsides; along rocky

and sandy arroyos; bottoms of arroyos; within rocky and rocky-gravelly-sandy draws; bottoms of draws; gulches; along and in rocky gullies; bouldery and rocky bottoms of ravines; along seeps; around and in gravelly and sandy springs; along streamlets; along streams; along and in bedrock, rocky, gravelly and sandy streambeds; in boulders and rocky-sandy soil along creeks; along and in rocky, rocky-sandy, stony and sandy creekbeds; rocky riverbeds; along and in bouldery, rocky, rocky-gravelly, cobbly, gravelly and sandy washes; along and in bouldery and rocky drainages; water courses; bases of waterfalls; depressions; along (rocky, cobbly and sandy) banks of draws, streams, creeks, rivers and washes; along (gravelly-sandy) edges of arroyos, seeps, streams, streambeds, creeks, rivers and washes; along margins of streambeds and washes; sand bars; sandy terraces; bottomlands; gravelly-sandy floodplains; along fencelines; along ditch banks, and bouldery-cobbly-sandy, rocky-gravelly-sandy, cobbly, gravelly and sandy riparian areas growing in shallow water; muddy, and wet, moist, damp and dry (seasonally wet) bouldery, bouldery-cobbly-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly-clayey-loamy, gravelly-silty loam and clayey loam ground; clay ground, and silty ground, occurring from sea level to 9,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder and/or fiber crop; it was also noted as having been used in the making of cooking tools and containers, and as a ceremonial item. *Muhlenbergia rigens* is native to southwest-central and southern North America. *5, 6, 15, 18, 30, 33 (Page 218), 43 (060910), 44 (010811), 46 (Page 110), 48, 58, 63 (060910 - color presentation), 77, 85 (010811 - color presentation including habitat), 105, 124 (010811 - no record, genus), 127, 140 (Pages 211-212 & 301)*

Panicum capillare var. *hirticaule* (see *Panicum hirticaule* var. *hirticaule*)

Panicum capillare var. *pampinosum* (see *Panicum hirticaule* var. *hirticaule*)

***Panicum hirticaule* J.S. Presl: Mexican Panicgrass**

COMMON NAMES: Capim Lanudo (Portuguese, var. *stramineum*); Chiri Chiri (Spanish, var. *hirticaule*); Mexican Panic Grass; Mexican Panic-grass; Mexican Panicgrass; Mexican Witch Grass; Mexican Witch-grass; Mexican Witchgrass; Panizo Cauchin (Spanish); Rough Panic Grass; Rough Panic-grass; Rough-stalk Witch Grass; Rough-stalk Witch-grass; Rough-stalk Witchgrass; Rough-stalked Witchgrass; Roughstalk Witchgrass; Roughstalked Witchgrass; Sauhui (Spanish, var. *hirticaule*); Sonora Panic (var. *hirticaule*); Sonoran Panicgrass (var. *stramineum*); Sowi Millet (var. *hirticaule*); Triguillo (Spanish, var. *hirticaule*); Witchgrass (a name also applied to the genus *Panicum*); Woodland Panic; Zacahuastle (Spanish, var. *verrucosum*); Zacate de Año (Spanish, var. *hirticaule*); Zacate Peludo Perdis (Spanish, var. *hirticaule*). DESCRIPTION: Terrestrial annual tufted graminoid (decumbent, geniculate, ascending and/or erect culms 2 to 44 inches in height); the spikelets may be reddish-brown; flowering generally takes place between early August and early November (additional records: one for mid-May and one for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky, gravelly and sandy mesas; bases of cliffs; rocky and gravelly canyons; gravelly, gravelly-sandy and sandy canyon bottoms; soil pockets in bedrock and rocks; rocky ridgetops; meadows; rocky foothills; rocky and rocky-loam hills; hilltops; bedrock, rocky, rocky-gravelly, rocky-clayey and gravelly hillsides; bouldery-rocky, rocky, cindery, gravelly, gravelly-loamy, gravelly-clayey, sandy, sandy-loamy and sandy-clayey slopes; alluvial fans; bajadas; amongst boulders and rocks; bases of boulders and rocks; sand hills; dunes; rocky and sandy plains; rocky, sandy-loamy, clayey and sandy-silty flats; basins; valley floors; valley bottoms; along railroad right-of-ways; along rocky, rocky-loamy, sandy and silty roadsides; sandy arroyos; bottoms of arroyos; within sandy draws; ravines; along seepages; along streams; along bouldery-sandy and gravelly-sandy streambeds; along bouldery creeks; rocky creekbeds; along rivers; along and in gravelly, gravelly-sandy, sandy, clayey, silty and silty-clayey washes; drainages; within sandy and clayey drainage ways; oases; clayey depressions; sink-holes; clayey-loamy and silty swales; (rocky-sandy) banks of washes, drainages and drainage ways; along (bouldery) margins of creeks, washes and sloughs; sand bars; benches; rocky shelves; along gravelly-sandy and sandy floodplains; gravelly lowlands amongst Creosote Bushes; mesquite bosques; around stock tanks; along ditches; sandy riparian areas; waste places, and disturbed areas growing in wet, moist, damp and dry bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, sandy loam and clayey loam ground; rocky clay, gravelly clay, sandy clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Panicum hirticaule* is native to southwest-central and southern North America; Central America and coastal islands in the Caribbean Sea, and South America. *5, 6, 15, 16, 30, 33 (recorded as *Panicum capillare* L. var. *hirticaule* (Presl) Gould, Page 283; *Panicum capillare* L. var. *pampinosum* (Hitc. & Chase) Gould, Page 284; *Panicum capillare* L. var. *stramineum* (Hitc. & Chase) Gould, Page 283, and *Panicum sonorum* Beal, Page 282), 43 (122711), 44 (122711), 46 (Page 136), 58, 63 (122711 - color presentation of seed), 77 (recorded as *Panicum hirticaule* Presl [*Panicum capillare* L. var. *hirticaule* (Presl) Gould]), 80 (Species of the genus *Panicum* are listed as Rarely Poisonous and Suspected Poisonous Range Plants. Species of this genus have been reported to cause loss in livestock due to photosensitization and nitrate poisoning.), 85 (122711 - color presentation), 124 (122711), 127, 140 (recorded as *Panicum hirticaule* J. Presl var. *hirticaule* [*Panicum capillare* Linnaeus var. *hirticaule* (J. Presl) Gould], Pages 204, 213, 214 & 301)*

***Panicum hirticaule* J.S. Presl var. *hirticaule*: Mexican Panicgrass**

SYNONYMY: *Panicum capillare* C. Linnaeus var. *hirticaule* (J.S. Presl) F.W. Gould; *Panicum capillare* C. Linnaeus var. *pampinosum* (A.S. Hitchcock & M.A. Chase) F.W. Gould; *Panicum pampinosum* A.S. Hitchcock & M.A. Chase; *Panicum sonorum* W.J. Beal. COMMON NAMES: Chiri Chiri (Spanish); Mexican Panicgrass (a name also applied to the species); Roughstalk Witchgrass (a name also applied to the species); Sauhui (Spanish); Sonora Panic; Sowi Millet; Triguillo (Spanish); Witch-grass (a name also applied to the species, to other species and to the genus *Panicum*); Witchgrass (a name also applied to the species, to other species and to the genus *Panicum*); Zacate de Año (Spanish); Zacate Peludo Perdis (Spanish). DESCRIPTION: Terrestrial annual graminoid (erect-spreading culms 2 to 40 inches in height); flowering generally takes place between mid-August and mid-October (flowering beginning as early as July has been reported). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; canyons; gravelly, gravelly-sandy and sandy canyon bottoms; rocky ledges; openings in woodlands; meadows; rocky hills; rocky, rocky-clayey and gravelly hillsides; rocky, gravelly and gravelly-loamy slopes; bajadas; amongst boulders; dunes; sandy plains; clayey flats; basins; valley floors; along rocky-loamy roadsides; sandy draws; along seeps; along streams; streambeds; along and in oases; gravelly, gravelly-sandy, sandy and silty washes; within sandy drainage ways; sandy-silty depressions; clayey-loamy and silty swales; along margins of washes; along gravelly-sandy floodplains; mesquite bosques; ditches; sandy riparian areas, and disturbed areas growing in wet, moist and dry bouldery, rocky, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam and clay loam ground; rocky clay and gravelly clay and clay ground, and sandy silty and silty ground, occurring from sea level to 7,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Panicum hirticaule*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Panicum hirticaule* var. *hirticaule* is native to southwest-central and southern North America; Central America and coastal islands in the Caribbean Sea, and northern and western South America. *5, 6, 30 (species), 33 (recorded as *Panicum capillare* L. var. *hirticaule* (Presl) Gould, Page 283; *Panicum capillare* L. var. *pampinosum* (Hitchc. & Chase) Gould, Page 284, and *Panicum sonorum* Beal, Page 282), 43 (101809), 44 (122711 - species record), 46 (recorded as *Panicum pampinosum* (A.S. Hitchcock & M.A. Chase, Page 136), 63 (101809), 77 (recorded as *Panicum hirticaule* Presl [*Panicum capillare* L. var. *hirticaule* (Presl) Gould]), 80 (Species of the genus *Panicum* are listed as Rarely Poisonous and Suspected Poisonous Range Plants. Species of this genus have been reported to cause loss in livestock due to photosensitization and nitrate poisoning.), 85 (021011 - color presentation of dried material), 124 (021011 - no record of variety; genus and species records), 127, 140 (Pages 301)*

Panicum pampinosum (see *Panicum hirticaule* var. *hirticaule*)

Panicum sonorum (see *Panicum hirticaule* var. *hirticaule*)

Pappophorum apertum (see *Pappophorum vaginatum*)

Pappophorum mucronulatum (see *Pappophorum vaginatum*)

***Pappophorum vaginatum* S.B. Buckley: Whiplash Pappusgrass**

SYNONYMY: *Pappophorum apertum* W. Munro ex F. Lamson-Scribner; *Pappophorum mucronulatum* auct. non C.G. Nees von Esenbeck. COMMON NAMES: Mucronulate Pappusgrass; Pappusgrass; Pima Pappusgrass; Whiplash Pappus Grass; Whiplash Pappusgrass. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with decumbent, geniculate, ascending and/or erect culms 16 to 52 inches in height); the foliage is gray-green or light green; the inflorescence is usually whitish and may be tinged with purple; based on few flowering records available, flowering generally takes place between late March and late October (flowering records: two for late March, one for late April, one for early July, one for late August, three for early September, one for mid-September and one for late October; flowering ending as late as November has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mesas; bases of cliffs; rocky canyons; ridgetops; foothills; hills; rocky hillsides; rocky, sandy and clayey slopes; bajadas; rocky plains; gravelly and sandy-silty flats; basins; valley floors; valley bottoms; coastal dunes; sandy coastal flats; along railroad right-of-ways; along stony and sandy roadsides; along sandy gullies; along creeks; along and in gravelly washes; along drainage ways; depressions; banks of washes; along edges of washes; margins of washes; floodplains; dams; within sandy ditches, and disturbed areas growing in moist and dry rocky, stony, gravelly and sandy ground; clayey loam ground; clay ground, and sandy silty ground, occurring from sea level to 4,800 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Pappophorum vaginatum* is native to southwest-central and southern North America and southern South America. *5, 6, 15, 16, 33 (recorded as *Pappophorum mucronulatum* Nees., Page 103), 43 (101809), 44 (123011 - no record of genus or species), 46 (recorded as *Pappophorum mucronulatum* Nees., Page 91), 48, 63 (123011 - color presentation of seed), 77, 85 (123011 - color presentation), 105 (recorded as *Pappophorum mucronulatum* Nees.), 124 (123011 - no record of genus or species)*

***Paspalum distichum* C. Linnaeus: Knotgrass**

COMMON NAMES: Capim-aramé (Portuguese: Brazil); Couch Paspalum; Devil's Grass (a name also applied to other species); Devil's-grass (a name also applied to other species); Ditch Grass; Elliott's Paspalum; Eternity Grass; Finger-shaped Paspalum; Fort Thompson Grass; Ft. Thompson Grass; Ft. Thompsongrass; Ginger Grass; Grama Colorada (Spanish); Grama-braba (Portuguese: Brazil); Grama-da-praia (Portuguese: Brazil); Grama-doce (Portuguese: Brazil); Grama-rasteira-da-praia

(Portuguese: Brazil); Gramilla Blanca (Spanish); Joint Grass (a name also applied to other species); Joint-grass (a name also applied to other species); Jointgrass (a name also applied to other species); Ginger Grass; Grama Colorada (Spanish); Grama-de-Joanópolis (Portuguese: Brazil); Gramilla Blanca (Spanish); Joint Grass; Joint Paspalum; Joint Paspalum Grass; Jointed Crown-grass; Jointed Crowngrass; Jointed Knotgrass; kishū-suzume-no-hie (Japanese Rōmaji); Knot Grass (a name also applied to other species); Knot Paspalum; Knot-root Paspalum; Knotroot Paspalum; Mercer Grass; Paspalum (a name also applied to the genus *Paspalum*); Moddeid (Arabic); Salt Jointgrass (a name also applied to other species); Seashore Paspalum (a name also applied to other species); Seaside Millet (a name also applied to other species); Shuang Sui Que Bai (transcribed Chinese); Summer Seep-grass; Thompson Grass; Thompsongrass; Turfgrass (a name also applied to other species); Water Couch (a name also applied to other species); Water Finger Grass; Water Finger-grass; Water-finger Grass. DESCRIPTION: Terrestrial (and semi-aquatic) perennial rhizomatous graminoid (erect culms with creeping stems/stolons 2 to 26 inches in height; one record reported stems reaching 10 to 12 feet in length); the foliage is blue-green or dark green with a bluish cast; the leaf sheaths may be purple; the spikelets are green or green and partially purple; the anthers are black or dark purple; the stigmas are black or dark purple; flowering generally takes place between mid-May and mid-November. HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; canyon bottoms; meadows; foothills; gravelly hills; hillsides; rocky, sandy, sandy-loamy, loamy, clayey and clayey-loamy slopes; dunes; prairies; clayey-loamy flats; muddy basins; valley floors; coastal saltmarshes; coastal shorelines; gravelly roadsides; arroyos; bottoms of draws; seeps; around and in gravelly, gravelly-sandy, sandy, sandy-loamy and clayey springs and outflows; along and in streams; along and in gravelly, gravelly-sandy and sandy streambeds; along and in creeks; along and in rivers; sandy, sandy-loamy, silty-clayey and clayey riverbeds; sandy washes; along drainages; sandy waterholes; around and in pools; around and in ponds; around and in lakes; lakebeds; ciénegas; along and in freshwater and saltwater marshes; swampy areas; depressions; along (muddy and sandy) banks of streams and rivers; along (gravelly and sandy) edges of springs, streams, streambeds, creeks, rivers, washes, waterholes, pools, ponds, lakes, lagoons and sloughs; (sandy) margins of streams, creeks, ponds and lagoons; (sandy) shores of rivers, ponds and lakes; mudflats; sand bars; beaches; sandy benches; coves; terraces; sandy bottomlands; sandy floodplains; around stock tanks (represos); around reservoirs; along and in ditches; along ditch banks; sandy and sandy-loamy riparian areas, and disturbed areas growing in shallow water; mucky; muddy, and wet, moist and damp rocky, gravelly, gravelly-sandy and sandy ground; sandy loam, clayey loam and loam ground, and silty clay and clay ground, occurring from sea level to 6,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Investigate to determine the possibility of using Knotgrass in the place of Bermudagrass as an irrigated lawn; it forms dense mats, and it may be useful as a soil binder. This grass is browsed by ducks and Whitetail Deer. *Paspalum distichum* is native to south-central and southern North America; Central America and coastal islands in the Caribbean Sea, and South America. *5, 6, 33 (Pages 292-294), 43 (101809), 44 (042111 - color photograph), 46 (Page 134), 58, 63 (010112 - color presentation), 85 (010112 - color presentation of seeds and dried material), 124 (010112), 140 (Page 301)*

***Pennisetum ciliare* (C. Linnaeus) J.H. Link: Buffelgrass**

SYNONYMY: *Cenchrus ciliaris* C. Linnaeus. COMMON NAMES: African Buffel Grass; African Buffel-grass; African Buffelgrass; African Foxtail; African Foxtail Grass; Alien Buffel Grass; Alien Buffelgrass; Anjangrass; Blue Buffalo Grass; Buffel (Spanish); Buffel Grass; Buffle Grass; Buffel-grass; Buffle-grass; Büffelgras (German); Buffelgrass; Bufflegrass; Buffle; Cadillac Buffel (Hispanic); Cenchrus Cilié (French); Common Buffel Grass; Common Buffel-grass; Common Buffelgrass; Common Bufflegrass; Dhaman (India); Hairy Buffelgrass; Huizapol (Hispanic); Introduced Buffel Grass; Introduced Pasture Buffel Grass; Invasive African Buffel Grass; Invasive Buffel-grass; Invasive Bufflegrass; Non-native Buffel Grass; Non-native Buffelgrass; Nonnative Buffel-grass; Nonnative Bufflegrass; Pasto Buffel (Spanish); Pasture Buffel Grass; Perennial Buffel Grass; Sabat (Arabic); Sandbur (a name also applied to other species); South African Buffel Grass; South African Buffelgrass; Weedy Buffel Grass; Zacate Buffel (Spanish: Mexico); Zacate Buffle (Hispanic). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with decumbent, geniculate, ascending and/or erect culms 4 inches to 5 feet in height); the leaves are green; the spikelets are reddish turning a golden-brown when dry; flowering may take place several times a year when sufficient moisture is available (flowering records: two for mid-February, one for early April, one for mid-April, one for early June, one for mid-August, one for late September, two for early October, four for mid-October, one for late October, one for late November and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; bases of cliffs; along rocky and sandy canyons; canyon bottoms; rocky-gravelly-clayey bluffs; buttes; ridges; ridgetops; foothills; rocky hills; rocky hillsides; rocky and gravelly slopes; alluvial fans; bajadas; rocky and rocky-gravelly outcrops; cobbly and sandy plains; rocky-loamy, gravelly-sandy and sandy flats; sandy uplands; valley floors; along rocky and sandy roadsides; along and in rocky and sandy arroyos; bottoms of arroyos; within draws; ravines; springs; along creeks; cobbly creekbeds; rocky, rocky-cobbly-sandy and cobbly riverbeds; along and in gravelly-sandy washes; along drainages; oases; marshes; within sandy depressions; (rocky-sandy) banks of washes; edges of arroyos and washes; (sandy) sides of rivers; sandy beaches; floodplains; lowlands; mesquite bosques; riparian areas, and disturbed areas growing in moist and dry rocky, rocky-cobbly-sandy, rocky-gravelly, rocky-sandy, stony, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam and loam ground; rocky-gravelly clay ground, and sandy-silty (loess) ground, occurring from sea level to 7,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant that poses a significant threat to our native biotic communities. *Pennisetum ciliare* is native to southeastern Europe and coastal islands in the Mediterranean Sea; western and southern Asia, and Africa. *5, 6, 16, 22 (color photograph), 30, 33 (Page 266), 43 (101909), 44 (010112 - Common Names listed under *Cenchrus ciliaris* L.), 46 (Supplement Page 1041), 63 (010112 - color

presentation), 77, **85** (010112 - color presentation), 124 (010112 - no record of species; genus record), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Pennisetum ruppelii (see *Pennisetum setaceum*)

***Pennisetum setaceum* (P. Forsskål) E. Chiovenda: Crimson Fountaingrass**

SYNONYMY: *Pennisetum ruppelii* E.G. von Steudel. COMMON NAMES: African Fountain Grass (a name also applied to other species); Annual Fountain Grass; Crimson Fountain Grass; Crimson Fountain-grass; Crimson Fountaingrass; Fjäderborstgräs (Swedish); Fountain Grass (a name also applied to the genus *Pennisetum*); Fountain-grass (a name also applied to the genus *Pennisetum*); Fountaingrass (a name also applied to the genus *Pennisetum*); Plumitas (Spanish); Pronkgras (Afrikaans); Purple Fountain Grass (a name also applied to other species); Red Fountain Grass; Red Fountain-grass; Red Fountaingrass; Tender Fountain Grass; Tender Fountain-grass; Tender Fountaingrass; Zacate de la Fuente. DESCRIPTION: Terrestrial perennial graminoid (a bunchgrass (clumpgrass) with ascending and/or erect culms 1 to 5 feet in height; one clump was noted as being 5 feet in height and width); the leaves are green; the inflorescences are purplish; flowering generally takes place from early March to mid-December (additional record: one for early February); the fruits are purplish. HABITAT: Within the range of this species it has been reported from mountains; bases of cliffs; canyons; canyon walls; rocky and rocky-sandy and sandy canyon bottoms; crevices in rocks; ridges; swards; rocky foothills; rocky hills; hilltops; rocky hillsides; bouldery, bouldery-sandy, rocky and loamy slopes; rocky-sandy-loamy alluvial fans; bajadas; amongst boulders and rocks, rocks cobbles and gravels; flats; coastal dunes; rocky coastal beaches; railroad right-of-ways; along rocky-clayey roadsides; draws; along streams; along and in creeks; riverbeds; along and in rocky and sandy washes; drainages; drainage ways; banks of drainages; along (pebbly-sandy and sandy) edges of creeks and lakes; margins of washes, pools and ponds; lake shores; sand bars; rocky strands; mesquite bosques; rocky edges of reservoirs; canals; culverts; ditches; riparian areas, and disturbed areas growing in wet, moist and dry bouldery, bouldery-sandy, rocky, rocky-cobbly-sandy, rocky-sandy, cobbly, cobbly-gravelly, gravelly, pebbly-sandy and sandy ground; rocky-sandy loam and loam ground, and rocky clay and clay ground, occurring from sea level to 7,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant that poses a significant threat to our native biotic communities. *Pennisetum setaceum* is native to western and southern Asia and northern, eastern and southern Africa. *5, 6, 16, 22 (color photograph), 26 (color photograph), 33 (recorded as *Pennisetum ruppelii* Steud., Page 266), 43 (101909), 44 (010512), 46 (Page 140), 63 (010512), 77, **85** (010512 - color presentation), 109, 124 (010512 - no record of species; genus record), **WTK** (August 4, 2005)*

***Poa bigelovii* G. Vasey & F.L. Scribner: Bigelow's Bluegrass**

COMMON NAMES: Bigelow Blue Grass; Bigelow Blue-grass; Bigelow Bluegrass; Bigelow's Blue Grass; Bigelow's Blue-grass; Bigelow's Bluegrass; Zacate Azule Nativo. DESCRIPTION: Terrestrial annual tufted graminoid (rarely geniculate (at base), ascending and/or erect culms 1 to 28 inches in height); the inflorescences are greenish or silvery; flowering generally takes place between late February and late May (additional records: two for early February, four for late June, two for early July, two for mid-July, three for mid-August and two for late August). HABITAT: Within the range of this species it has been reported from mountains; gravelly mesas; sandy cliffs; hanging gardens; rocky and gravelly-sandy canyons; bouldery, rocky, sandy, sandy-loamy and sandy-clayey canyon bottoms; chasms; along talus slopes; bases of cliffs; crevices in rocks; rocky and sandy ledges; ridges; clayey meadows; gravelly-sandy foothills; hills; rocky hillsides; bouldery, bouldery-gravelly, rocky, rocky-clayey-loamy, gravelly, gravelly-loamy, sandy, sandy-clayey-loamy, loamy, clayey-loamy and silty-loamy slopes; gravelly and sandy bajadas; bouldery and rocky outcrops; amongst boulders and rocks; coves; shelves; steppes; sandy plains; gravelly and sandy, loamy, clayey-loamy and silty-loamy flats; uplands; basins; rocky and sandy-clayey valley floors; valley bottoms; along gravelly roadsides; rocky, gravelly and sandy arroyos; rocky draws; bottoms of draws; ravines; seeps; bouldery and sandy springs; around seeping streams; along streams; streambeds; along creeks; sandy creekbeds; along rivers; riverbeds; along and in bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-loamy washes; drainages; within drainage ways; edges of washes; along (sandy) banks of arroyos, streams and washes; along edges of washes; shore of lakes; river channel bars; sandy beaches; sandy benches; terraces; gravelly-loamy and loamy bottomlands; sandy floodplains; rocky-sandy catchments; rocky margins of reservoirs; riparian areas, and disturbed areas growing in moist, damp and dry desert pavement; bouldery, bouldery-gravelly, rocky, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, rocky-clayey loam, gravelly loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clay loam, silty loam and loam ground, and sandy clay and clay ground, occurring from 500 to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Poa bigelovii* is native to southwest-central and southern North America. *5, 6, 15, 16, 33 (Pages 64-65), 43 (102009), 44 (011012), 46 (Page 83), 48 (genus), 58, 63 (011012), 77, **80** (The Ergot Fungus (*Claviceps* sp.) is listed as a Secondary Poisonous Range Plant. Bluegrasses of the genus *Poa* can be hosts of the Ergot Fungus. "Ergot contains poisonous alkaloids and other compounds that may cause chronic poisoning (gangrenous ergotism) in the extremities when consumed in small amounts, or convulsive poisoning when large amounts are eaten. Animals may be poisoned by feeding on mature, infected grain or hay. Livestock, especially cattle, and humans are susceptible. ... Pastures causing ergot poisoning should be mowed or the animals removed. Mildly poisoned animals will usually recover if removed from the infested pastures, kept quiet, and supplied with good feed and water. In Arizona, some losses may be expected on rangelands during wet years, but most losses have occurred from grazing pastures of Dallas Grass (*Paspalum dilatatum*).” See text for additional information.), 85 (011012 - color presentation including habitat), 124 (010912 - no

record of species; genus record), 140 (Page 301), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Rhynchelytrum repens (see *Melinis repens*)

Rhynchelytrum roseum (see *Melinis repens*)

***Schismus barbatus* (P. Loeffling ex C. Linnaeus) A. Thellung: Common Mediterranean Grass**

COMMON NAMES: Abu Mashi (a name also applied to *Schismus arabicus*); Abu-mashi (a name also applied to *Schismus arabicus*); Bearded Mediterranean Grass; Camel Grass (a name also applied to other species); Common Mediterranean Grass; Common Mediterranean Schismus; Common Mediterraneangrass; Kelch Grass; Kelch-grass; Mediterranean Grass (a name also applied to other species and the genus *Schismus*); Mediterranean Schismus; Mediterraneangrass (a name also applied to other species and the genus *Schismus*); Old Han Schismus; Zacate Mediterrane Comun. DESCRIPTION: Terrestrial annual tufted graminoid (prostrate, decumbent, geniculate, ascending and/or erect culms 1 to 14 inches in height); the foliage is green; the inflorescence is greenish-purple; the spikelets (flowers) may be purple tinged; flowering generally takes place between early January and early June (additional records: one for mid-October and one for late October, flowering beginning as early as November has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; sandy and sandy-silty mesas; rocky cliffs; rocky and clayey canyons; sandy canyon bottoms; rocky talus; bluffs; rocky ridges; ridgetops; ridgetops; rocky, stony-gravelly, sandy-loamy and clayey hills; hilltops; rocky hillsides; along rocky, rocky-gravelly-loamy, rocky-loamy-clayey, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy, loamy and clayey slopes; rocky alluvial fans; gravelly-sandy bajadas; rocky outcrops; amongst boulders; sand dunes; blow-sand deposits; shelves; gravelly-sandy plains; gravelly, gravelly-sandy, gravelly-loamy, sandy and silty flats; sandy valley floors; around wharves; roadbeds; along gravelly and sandy roadsides; springs; in sandy soils along streams; along gravelly-sandy and sandy creekbeds; along rivers; along rocky, gravelly and clayey-loamy riverbeds; along and in rocky-sandy, rocky-silty, gravelly, gravelly-sandy and sandy washes; drainages; sandy and silty lakebeds; depressions; (sandy) banks of streams; borders of washes; (sandy) edges of streambeds and lakes; margins of washes; beaches; sandy benches; gravelly and sandy terraces; floodplains; canal banks; gravelly-sandy riparian areas, and disturbed areas growing in wet, moist and dry desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, stony-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam and loam ground; rocky-loamy clay and clay ground, and rocky silty, gravelly silty, sandy silty and silty ground, occurring from sea level to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant that poses a significant threat to our native biotic communities. *Schismus barbatus* is native to southwestern Europe; western, central and southern Asia, and northern and southern Africa and coastal islands in the North Atlantic Ocean. *5, 6, 15, 16, 22 (color photograph), 33 (Pages 172-173), 43 (102209), 44 (011112 - color photograph), 46 (Page 98), 58, 63 (011112 - color presentation of seed), 68, 77, 85 (011112 - color presentation of dried material), 124 (011112 - no record of genus or species), **MBJ** undated record which may include landscaped material that persists without maintenance)*

***Setaria grisebachii* E.P. Fournier: Grisebach's Bristlegrass**

COMMON NAMES: Grisebach Bristlegrass; Grisebach's Bristle Grass; Grisebach's Bristlegrass; Cola de Zorra (Spanish). DESCRIPTION: Terrestrial annual tufted graminoid (decumbent, geniculate, ascending and/or erect culms 4 inches to 4 feet in height); the panicles (compound inflorescences) are purple; the flowers are yellow with purple spots; flowering generally takes place between late July and mid-October (flowering ending as late as November has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; cliffs; rocky bases of cliffs; rocky, gravelly-loamy and sandy canyons; sandy canyon bottoms; gorges; talus slopes; crevices; rocky ledges; along meadows; foothills; rocky hills; rocky, rocky-silty and gravelly-clayey hillsides; rocky, rocky-stony, gravelly, gravelly-clayey, gravelly-silty, sandy, sandy-loamy, loamy, clayey and clayey-loamy slopes; rocky outcrops; amongst boulders and rocks; sandy lava flows; gravelly-silty and clayey-loamy flats; valley floors; along railroad right-of-ways; along sandy roadsides; along and in arroyos; draws; bottoms of draws; rocky gulches; gravelly-sandy seeps; springs; along streams; along and in rocky-gravelly and gravelly streambeds; creeks; along rocky creekbeds; along sandy rivers; along and in sandy and clayey washes; along and in bouldery drainage ways; ciénegas; within swales; banks of washes; sandy benches; rocky bottomlands; sandy floodplains; mesquite bosques; along ditches; sandy riparian areas; waste areas, and disturbed areas growing in moist, damp and dry rocky, rocky-stony, rocky-gravelly, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, clayey loam and loam ground; clay ground, and rocky silty, gravelly silty and sandy silty ground, occurring from 1,200 to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Setaria grisebachii* is native to southwest-central and southern North America; Central America, and northwestern South America. *5, 6, 15, 33 (Page 269), 43 (102209), 44 (011112 - no record of species; genus record), 46 (Page 139), 58, 63 (011112 - color presentation), 77, **85** (011112 - color presentation of dried material), 124 (011112 - no record of species; genus record), 140 (Page 301)*

***Setaria leucopila* (F.L. Scribner & E.D. Merrill) K.M. Schumann: Streambed Bristlegrass**

SYNONYMY: *Chaetochloa leucopila* F.L. Scribner & E.D. Merrill. COMMON NAMES: Bristlegrass (a name also applied to other species and the genus *Setaria*); Plains Bristle Grass (a name also applied to other species); Plains Bristlegrass (a

name also applied to other species); Stream-bed Bristle Grass; Streambed Bristle Grass; Streambed Bristlegrass; White-haired Bristlegrass; Yellow Bristlegrass; Yellow Foxtail; Zacate Tempranero (Spanish). DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with decumbent, geniculate, ascending and/or erect culms 8 inches to 4 feet in height and to 20 inches in width at the base); the foliage is green; the spike-like panicles (compound inflorescence) are pale green; based on few records located, flowering generally takes place between early July and early November (additional records: one for early March, three for mid-March, one for late April, two for mid-June and two for late December). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; cliffs; rock walls; bases of cliffs, monoliths and rock walls; canyons; sandy canyon bottoms; gorges; talus slopes; crevices in rocks; buttes; crests of rocky buttes; ridges; ridgetops; foothills; rocky, gravelly and gravelly-sandy hills; rocky and rocky-sandy hillsides; escarpments; sandy bases of escarpments; rocky, rocky-clayey-loamy, gravelly, gravelly-sandy and sandy-loamy slopes; bases of slopes; alluvial fans; bajadas; rocky outcrops; amongst boulders and rocks; rocky and sandy lava flows; sand dunes; sandy steppes; sandy plains; gravelly, gravelly-sandy, sandy, sandy-loamy and sandy-silty flats; basins; valley floors; valley bottoms; coastal sand dunes; coastal flats; coastal beaches; railroad right-of-ways; roadbeds; along rocky, gravelly and sandy-loamy roadsides; along and in rocky-gravelly arroyos; bottoms of arroyos; rocky and gravelly-sandy-loamy draws; gulches; within rocky ravines; seeps; in sand around streams; bouldery streambeds; along creeks; in rocky and gravelly creekbeds; in sand along rivers; riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; within sandy drainages; within drainage ways; along (sandy-loamy) banks of draws, streams, rivers and washes; edges of arroyos, springs, washes, pools and marshes; margins of rivers and washes; sand bars; rocky benches; terraces; sandy-loamy bottomlands; floodplains; lowlands; mesquite bosques; sandy mottes; along and in ditches; clayey-loamy water tanks; gravelly and sandy riparian areas, and disturbed areas growing in wet, moist and dry rocky desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly-sandy loam, sandy loam, sandy-clayey loam and clayey loam ground; rocky clay and clay ground, and rocky silty and sandy silty ground often reported as growing at the base or under shrubby mesquites and other protected areas, occurring from sea level to 6,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Setaria leucopila* is native to southwest-central and southern North America. *5, 6, 33 (no record of species), 43 (061110), 44 (011212 - no record of species; genus record), 46 (included under *S. macrostachya* in the “first edition”, Page 139, and Supplement Page 1041), 48, 63 (011212 - color presentation), 77, 85 (011212 - color presentation), 124 (011212), 140 (Page 301)*

Setaria macrostachya (see NOTES and related footnotes 33, 46, 85, 105 and 140 under *Setaria vulpiseta*)

***Setaria vulpiseta* (J.B. de Lamarck) J.J. Roemer & J.A. Schultes: Plains Bristlegrass**

COMMON NAMES: Assaak; Bristle-grass (a name also applied to other species and the genus *Setaria*); [Plains, Summer] Bristle-grass (a name applied to *S. macrostachya*, English)¹⁴⁰; Bristlegrass (a name also applied to other species and the genus *Setaria*); Foxtail [Wild] Millet (a name applied to *S. macrostachya*, English)¹⁴⁰; Hasac (a name applied to *S. macrostachya*, Hokan: Seri)¹⁴⁰; Ne-kuuk-suuk (a name applied to *S. macrostachya*, Mayan: Maya)¹⁴⁰; Plains Bristle-grass (a name also applied to other species); Plains Bristlegrass (a name also applied to other species); Summer Bristle-grass; Wa□ai (“Grass” a word applied to any grass, Uto-Aztecan: Tohono O’odham)¹⁴⁰; Xica Quiix (“Globular Things” a name applied to *S. macrostachya*, Hokan: Seri)¹⁴⁰; Xikkaa Kiix; Zacate Tempranero [Temprano] (“Early Grass” a name applied to *S. macrostachya*, Spanish: Chihuahua, Sonora)¹⁴⁰; Zacate Temprano (a name applied to *S. macrostachya*); Zéé’ilwoii (“One That Goes Into the Throat” a name applied to *S. macrostachya*, Athapascan: Navajo)¹⁴⁰. DESCRIPTION: Terrestrial perennial tufted graminoid (a bunchgrass (clumpgrass) with decumbent, geniculate, ascending and/or erect culms 8 inches to 4 feet in height; one plant was observed and described as being 2 inches in width at the base, several plants were observed and described as being 8 to 16 inches in width at the base); the stems and leaves are pale to bright green sometimes with a bluish tinge curing to an orange-brown; the flowers may be orange and purple; flowering generally takes place between mid-April and mid-October (additional records: one for early March and one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; mesas; cliffs; bases of cliffs; rocky canyons; rocky canyon sides; rocky canyon bottoms; canyons; rocky talus; crevices in rocks; amongst rocky buttes; crests of buttes; rocky ledges; ridges; openings in woodlands; foothills; rocky hills; hilltops; rocky hillsides; rocky, rocky-loamy, gravelly, gravelly-loamy, sandy and clayey slopes; bajadas; rocky outcrops; amongst boulders and rocks; sandy dunes; sandy mesquite hummocks; plains; gravelly flats; valley floors; valley bottoms; along gravelly roadsides; rocky arroyos; bottoms of arroyos; gravelly-sandy-loamy draws; streambeds; sandy creeks; sandy riverbeds; along and in gravelly washes; within drainages; drainage ways; depressions; ciénegas; (gravelly-sandy) banks of streambeds, creeks, rivers and washes; (rocky) edges of streambeds and washes; benches; sandy-loamy bottomlands; sandy floodplains; mesquite bosques; stock tanks; riparian areas, and disturbed areas growing in muddy and moist and dry bouldery, rocky, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, gravelly-sandy loam, sandy loam and clayey loam ground; sandy clay and clay ground, and cobbly-sandy silty ground sometimes in the partial shade of shrubs and trees, occurring from sea level to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: *Setaria vulpiseta*, the Plains Bristlegrass has been recorded in many texts as *Setaria macrostachya*; however, it has been reported that *Setaria macrostachya*, with the common name Large-spike Bristlegrass is an EXOTIC species that may also be found in Arizona. There appears to be some confusion as to what’s what with this species with regard to its taxonomy. The native Plains Bristlegrass may be an attractive component of a restored native habitat, and the plant is reportedly a good soil binder. Plains Bristlegrass is an important forage grass with a high palatability; however, it is often selectively grazed over other range grasses and does not stand up well to heavy grazing. The seeds are eaten by doves, quails, sparrows and other songbirds. *Setaria vulpiseta* is native to south-

central (again, some authors say that it is native and other authors say that it isn't) and southern North America; Central America and coastal islands in the Caribbean Sea, and South America. *5, 6, 15 (recorded as *Setaria macrostachya* H.B.K.), 16 (recorded as *Setaria macrostachya* H.B.K.), 33 (recorded as *Setaria macrostachya* H.B.K., Plains Bristlegrass, Page 270), 43 (102409), 44 (011212 - no record of species; genus record), 46 (recorded as *Setaria macrostachya* H.B.K., Plains Bristlegrass, Page 139 and Supplement, Page 1041), 47 (recorded as *Setaria macrostachya* H.B.K.), 58 (recorded as *Setaria macrostachya* H.B.K.), 63 (011212 - color presentation of seed), 77 (recorded as *Setaria macrostachya* H.B.K.), **85** (011312 - *Setaria macrostachya* Kunth and *Setaria vulpiseta* (Lam.) Roemer & J.A. Schultes, color presentation of dried material), 105 (recorded as *Setaria macrostachya* H.B.K.), 124 (011212 - no record of species; genus record), 140 (recorded *Setaria macrostachya* Kunth, Pages 215-216 & 301)*

***Sorghum halepense* (C. Linnaeus) C.H. Persoon: Johnsongrass**

COMMON NAMES: Alabama Guinea Grass; Alabama Guinea-grass; Aleppo Grass; Aleppo Millet Grass; Aleppo Milletgrass; Aleppo Sorgho; Aleppo Sorgo; Aleppo Sorghum; Aleppo-grass; Aleppohirse (German); Arabian Millet; Arabian Millet Grass (Utah); Australian Grass (a name also applied to other species); Cañota (Spanish); Chinese Sugarcane (a name also applied to other species); Common Johnson Grass; Common Johnson-grass; Common Johnsongrass; Cuba Grass; Doura; Egyptian Grass; Egyptian Millet (a name also applied to other species); Egyptian Rice-corn (a name also applied to other species); Evergreen Millet; False Guinea Grass; False Guinea-grass; False Guineagrass; Great Millet (a name also applied to other species); Green Valley Grass; Green Valley-grass; Green-valley Grass; Guinea Corn (a name also applied to other species); Guinea Grass; Halepa Grass; Halepa Sorghum; Herbe d'Alep (French); Herbe de Cuba; Hierba Johnson (Spanish); Imphee; Indian Millet (a name also applied to other species and the genus *Sorghum*); Johnson Grass (a name also applied to other species); Johnson-grass (a name also applied to other species); Johnsongras (Afrikaans); Johnsongrass (a name also applied to other species); Johnson Sorghum; Johnson's Sorghum; Maiden Cane (a name also applied to other species); Maiden-cane (a name also applied to other species); Meanie Grass; Mean's Grass; Means Grass; Means' Grass; Means-grass; Millet Seed; Morocco Millet; Ogräsdurra (Swedish); Racehorse Grass; Racehorse-grass; Saint Mary's Grass (a name also applied to other species); Shi Mao (transcribed Chinese); Sorgho d'Alep (French); Sorgo de Alepo; Sorgo de Aleppo (Spanish); St. Mary's Grass (a name also applied to other species); Syria Grass; Syria Millet; Syrian Grass; Syrian Millet; Wilde Mohrenhirse (German); Zacate Johnson (Spanish); Zacate Nilo (Spanish). DESCRIPTION: Terrestrial perennial graminoid (erect culms 20 inches to 8 feet in height, reportedly may reach 12 feet in flower); the foliage is green; the flowers may be cream-purple, greenish-purple, dark red-purple or purplish; flowering may take place year-round. HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; sandy canyon bottoms; bluffs; meadows; foothills; hills; rocky hillsides; rocky, sandy, sandy-loamy, sandy-silty and clayey-loamy slopes; amongst boulders and rocks; sand hummocks; rocky mudflows; sandy steppes; prairies; plains; gravelly, sandy, loamy and clayey-loamy flats; valley floors; coastal prairies; along cindery railroad right-of-ways; along gravelly-sandy, gravelly-loamy and sandy roadsides; arroyos; bottoms of arroyos; gulches; springs; rocky-sandy soil along streams; along and in streambeds; along and in rocky and rocky-gravelly-sandy creeks; along creekbeds; in sandy soil along and in rivers; along and in rocky and sandy riverbeds; within rocky and sandy washes; drainages; ciénegas; freshwater marshes; depressions; (sandy) banks of creeks, rivers and washes; edges of streams; gravel and sand bars; cobbly-sandy and sandy benches; cobbly-sandy and sandy terraces; sandy, loamy and silty bottomlands; sandy and sandy-loamy floodplains; mesquite bosques; silty-clayey stock tanks; along canals; along canal banks; along and in sandy-loamy ditches; along clayey and clayey-loamy ditch banks; gravelly-sandy and sandy riparian areas; waste places, and disturbed areas growing in wet, moist, damp and dry bouldery, rocky, rocky-gravelly-sandy, rocky-sandy, cobbly, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; sandy loam, clayey loam, silty-clayey loam and loam ground; silty clay and clay ground, and sandy-silty and silty ground, occurring from sea level to 7,500 feet elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant that poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a fodder and as a toy or in games (Kiowa children used stems and leaves to make grass whistles). Johnsongrass was reportedly introduced into the United States around 1830. *Sorghum halepense* readily hybridizes with *Sorghum bicolor* (Sorghum) which is also an exotic. *Sorghum halepense* is native to western, middle and southern Asia and northern Africa. *5, 6, 15, 16, 22 (color photograph), **33** (Pages 310-313), 43 (102409), 44 (011312 - color photograph), 46 (Page 143), 58, 63 (011312 - color presentation including habitat), **68** ("Johnsongrass ordinarily is good feed, but sometimes the plant, particularly the leaves, contain hydrocyanic (prussic) acid, a cyanide type of poisoning. Any factor which interrupts normal growth may cause the release of HCN within plants. Rapid growth of new leaves, wilting due to drought, frost, freezing, cutting, or trampling are the most dangerous events." See text for additional information), 77, **80** (**Johnsongrass is Listed as a Major Poisonous Range Plant.** "Most losses from Johnsongrass are due to hydrocyanic-acid poisoning, but plants also accumulate dangerous levels of nitrate. Danger from HCN poisoning is greatest when soils are high in available nitrogen and low in phosphorus, when plants have been exposed to drought or disease which results in slow or stunted growth, and when plants are making rapid regrowth or have been frosted. Leaves are more toxic than stems, and young plants are more toxic than mature ones.... Management to defer pastures during dangerous periods of growth, and feeding of animals before turning them on pastures containing Johnsongrass are the best preventive measures." See text for additional information.), **85** (011312 - color presentation including habitat), **101** (color photograph), **105**, 124 (042711), 127, 140 (Page 301)*

Trichachne californica (see *Digitaria californica*)

Tridens pulchellus (see *Dasyochloa pulchella*)

Triodia pulchella (see *Dasyochloa pulchella*)

***Vulpia octoflora* (T. Walter) P.A. Rydberg: Sixweeks Fescue**

COMMON NAME: Common Six Weeks Grass (for var. *octoflora*); Common Six-weeks Fescue (for var. *octoflora*); Common Six-weeks Grass (for var. *octoflora*); Common Sixweeks Fescue (for var. *octoflora*); Common Sixweeks Grass (for var. *octoflora*); Common Sixweeksgrass (for var. *octoflora*); Eight Flowered Fescue (for var. *octoflora*); Eight-flower Six Weeks Grass (for var. *octoflora*); Eight-flower Six-weeks Fescue (for var. *octoflora*); Eight-flower Six-weeks Grass (for var. *octoflora*); Eight-flower Sixweeks Grass (for var. *octoflora*); Eight-flowered Annual Fescue (for var. *octoflora*); Eight-flowered Fescue (for var. *octoflora*); Eight-flowered Six-weeks Grass (for var. *octoflora*); Eightflower Six Weeks Grass (for var. *octoflora*); Fescue Grass (for var. *octoflora*); Hairy Pullout Grass (for var. *hirtella*); Hairy Six Weeks Fescue (for var. *hirtella*); Hairy Six-weeks Fescue (for var. *hirtella*); Hairy Sixweeks Fescue (for var. *hirtella*); Pull-out Grass (for var. *octoflora*); Pull-out Vulpia (for var. *octoflora*); Pullout Grass (for var. *octoflora*); Six Weeks Fescue (a name also applied to the genus *Vulpia*); Six-weeks Fescue (a name also applied to the genus *Vulpia*); Six-weeks Grass; Six-weeks Rescue (for var. *octoflora*); Sixweeks Fescue (a name also applied to the genus *Vulpia*); Sixweeks Grass; Sixweeks Rescue (for var. *octoflora*); Slender Eight-flower Grass (for var. *octoflora*); Slender Eight-flowered Fescue (for var. *octoflora*); Slender 8-Flowered Fescue (for var. *octoflora*); Slender Fescue Grass (for var. *octoflora* and other species); Slender Fescue-grass (for var. *octoflora* and other species); Slender Rescue-grass (for var. *octoflora*). DESCRIPTION: Terrestrial annual solitary or loosely tufted graminoid (decumbent, geniculate, ascending and/or erect culms 2 inches to 2 feet in height); the foliage may be bright green or yellow-green; the florets are green; flowering generally takes place between early February and early August (additional record: one for mid-November). HABITAT: Within the range of this species it has been reported from bouldery mountains; rocky mountaintops; rocky mountainsides; gravelly, pebbly-sandy-silty, sandy and clayey-loamy mesas; plateaus; cobbly and sandy rims; rocky cliffs; sandy bases of cliffs; rocky canyons; canyon walls; bouldery, rocky, gravelly and sandy canyon bottoms; talus slopes; crevices in boulders and rocks; pockets of sandy soil in rock; gravelly-silty-clayey, sandy and chalky bluffs; rocky, rocky-gravelly-clayey, gravelly-sandy, gravelly-silty-loamy and sandy-clayey buttes; rocky and sandy ledges; along bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, gravelly, sandy and silty-loamy ridges; sandy ridgetops; ridgelines; rocky-clayey patches; rocky and clayey balds; rocky-sandy and sandy meadows; rocky-sandy rims of craters; rocky foothills; rocky, stony, stony-sandy, stony-clayey, cobbly-sandy-loamy, cindery (scoria), gravelly, gravelly-clayey, sandy-loamy and silty-loamy hills; rocky hilltops; rocky, rocky-gravelly, rocky-silty, gravelly and gravelly-loamy hillsides; escarpments; bouldery, rocky, rocky-cobbly, rocky-gravelly, rocky-gravelly-loamy, rocky-sandy, rocky-clayey, shaley, shaley-clayey, stony-cobbly, stony-sandy, gravelly, gravelly-loamy, gravelly-clayey-loamy, sandy, sandy-loamy, sandy-clayey, loamy, loamy-clayey, clayey, clayey-loamy and clayey-silty slopes; gravelly-sandy bases of slopes; rocky, rocky-sandy, rocky-sandy-loamy, gravelly-sandy and sandy alluvial fans; gravelly bajadas; bouldery, rocky, rocky-clayey, shaley and cindery (scoria) outcrops; sandy bases of outcrops; amongst boulders and rocks; rock beds; lava flows; sand hills; sand dunes; sandy and clayey breaks; benchlands; in silty-loam at edges of tablelands; clay pans; sandy steppes; gravelly, gravelly-sandy, sandy, sandy-loamy, loamy, loamy-clayey, silty, silty-loamy and silty-loamy-clayey prairies; stony and sandy plains; rocky, stony, gravelly, gravelly-clayey-loamy, sandy, sandy-clayey and clayey flats; rocky, gravelly, sandy, loamy, loamy-clayey, silty, silty-loamy and silty-loamy-clayey uplands; sandy and clayey basins; stony-clayey hollows; sandy-loamy valley floors, valley bottoms; coastal plains; coastal beaches; sandy coastal shorelines; railroad right-of-ways; sandy roadcuts; along rocky, gravelly, gravelly-sandy, gravelly-loamy, sandy, loamy-clayey, clayey and silty-loamy roadsides; along gravelly and sandy-loamy arroyos; bottoms of arroyos; sandy draws; sandy bottoms of draws; gulches; gullies; bottoms of gullies; ravines; sandy bottoms of ravines; rocky-clayey seeps; springs; humusy-loamy soils along streams; sandy streambeds; along creeks; rocky-sandy creekbeds; along rivers; gravelly-sandy and sandy riverbeds; along and in rocky-sandy, stony-gravelly, gravelly-sandy, sandy and sandy-loamy washes; along and in rocky-sandy, gravelly-sandy, clayey, silty-loamy and silty-clayey drainages; within sandy drainage ways; oases; around lakes; within sandy-silty-loamy buffalo wallows; sandy depressions; swales; along (gravelly-loamy, sandy, sandy-silty, loamy, loamy-clayey, silty and silty-clayey) banks of streambeds, creeks, rivers, washes and drainages; borders of washes; along (sandy) edges of washes; margins of streams, creeks, rivers, pools and ciénegas; (sandy) shorelines of rivers; areas of drawdown; gravel, gravelly-sand and sand bars; sandy beaches; cobbly-sandy-loamy and sandy benches; gravelly, gravelly-sandy and sandy terraces; sandy and loamy bottomlands; clayey floodplains; fencerows; clayey catchments; stock tanks (charcos); around reservoirs; ditches; sandy riparian areas; waste places, and disturbed areas growing in wet, moist, damp and dry cryptogamic; rimrock pavement; bouldery, rocky, rocky-cobbly, rocky-gravelly, rocky-sandy, shaley, stony, stony-cobbly, stony-gravelly, stony-sandy, cindery (scoria), gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-clayey loam, cobbly loam, cobbly-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, gravelly-silty loam, sandy loam, sandy-silty loam, clayey loam, silty loam, humusy loam and loam ground; rocky clay, rocky-gravelly clay, shaley-clay, stony clay, gravelly clay, gravelly-silty clay, sandy clay, loamy clay, silty-loamy clay, silty clay and clay ground; rocky silty, pebbly-sandy silty, sandy silty, clayey silty and silty ground; chalky ground, and rocky-powdery ground, occurring from sea level to 10,600 feet in elevation in the forest, woodland; scrub, grassland, desertscrub and wetland ecological formations. NOTES: Sixweeks Fescue may be useful in the restoration of disturbed areas and acts as a soils stabilizer, once established it is very drought tolerant. The Creosote Bush may serve as a nurse plant for Sixweeks Fescue. This plant is browsed by Bison (*Bos bison*), Black-tailed Jack Rabbits (*Lepus californicus*), Desert Mule Deer (*Odocoileus hemionus* subsp. *crooki*), Lesser Prairie Chicken (*Tympanuchus pallidicinctus*), Pronghorn (*Antilocapra americana*), White-tailed Prairie Dogs (*Cynomys leucurus*) and other small mammals, and Ground Squirrels (Townsend Ground Squirrel noted), Kangaroo Rats (Merriam's Kangaroo Rat noted), Pocket Gophers (Plains Pocket Gopher noted), Pocket Mice (Bailey's and Rock Pocket Mice noted) and

other small mammals and birds (Chukar and Sharp-tailed Grouse noted) feed on the seed. *Vulpia octoflora* is native to central and southern North America. *5, 6, 15, 16, 33 (recorded as *Festuca octoflora* Walt., Page 55), 43 (102709), 44 (011912 - records located under *Festuca octoflora*), 46 (recorded as *Festuca octoflora* Walt., Page 80), 58, 63 (011712 - color presentation), **85** (011812 - color presentation including habitat), 124 (011712)*

Typhaceae: The Cat-tail Family

Typha angustata (see *Typha domingensis*)

Typha angustifolia (see NOTES under *Typha domingensis*)

***Typha domingensis* C.H. Persoon: Southern Cattail**

SYNONYMY: *Typha angustata* J.B. Bory & L.A. Chaubard. COMMON NAMES: Cat-tail (a name also applied to other species; the genus *Typha*, and to the Typhaceae), Cattail (a name also applied to other species, the genus *Typha* and to the family Typhaceae); Dominican Cat-tail; Dominican Cattail; Lesser Reedmace; Narrow-leaf Cattail (a name also applied to other species); Narrow Leaf Cumbungi; Narrow-leaf Cumbungi; Narrow Leafed Cumbungi; Narrow-leaved Cumbungi; Narrow Leaved Cumbungi; Narrow-leaved Cumbungi; Piripepe (Spanish); Piriveví (Spanish); Santo Domingo Cattail; Southern Cat-tail; Southern Cattail; Southern Narrow-leaved Cat-tail; Southern Narrow-leaved Cattail; Southern Cat-tail; Southern Cattail; Southern Reed-mace; Southern Reedmace; Totorá (Spanish); Tropical Cattail; Tule (a name also applied to other species, Spanish); U□vak <oodvak, otoxak> (Uto-Aztec: Akimel O'odham)¹⁴⁰; Woody Cattail. DESCRIPTION: Semi-aquatic perennial forb/herb (erect shoots 3 to 13 feet in height); the leaves may be dark green or light yellowish-green; the pistillate flowers are light brown, tawny-brown or brown becoming buff or grayish; the staminate flowers are golden-yellow or yellow-green; flowering generally takes place between early March and late November (flowering records: one for early March, one for early April, one for late April, two for early May, three for mid-May, two for late May, four for early June, four for mid-June, one for late June, two for early July, two for mid-July, three for late July, two for early August, one for late August, one for early September, one for late September, one for early October, one for late October and one for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; canyons; rocky canyon bottoms; gorges; rocky hills; bouldery and rocky hillsides; muddy, rocky and clayey slopes; prairies; clayey flats; valley floors; draws; ravines; seeps; around and in gravelly and gravelly-sandy springs; along and in streams; along and in rocky-sandy and sandy streambeds, along and in creeks; cobbly creekbeds; along rivers; sandy and sandy-silty riverbeds; within rocky washes; along and in clayey drainages; waterholes (pozos); pools; around ponds; around lakes; lakebeds; lagoons (esteros); around bogs; boggy areas; ciénegas; along freshwater marshes; swamps; depressions; sinkholes; sloughs; (gravelly-sandy) banks of streams, rivers and washes; (silty) edges of creeks, rivers, pools; along shores of lakes; sand bars; sandy benches; bottomlands; sandy floodplains; lowlands; reservoirs; along canals; along ditches; muddy-sandy and gravelly-sandy riparian areas; waste places, and disturbed areas growing in shallow water; muddy, and wet, moist and damp bouldery, rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; clayey loam ground; clay ground, and sandy-clayey silty and sandy silty ground, occurring from sea level to 6,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, and may be aggressively invasive in wetlands. Arizona specimens were historically referred to as *Typha angustifolia*. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop. *Typha domingensis* is native to the subtropics; tropics, and warm-temperate regions of south-central and southern North America; Central America and coastal islands in the Caribbean Sea; South America; Eurasia, and Africa, and Australia and islands in the South Pacific Ocean. *5, 6, 15, 16, 28 (color photograph), 43 (042911), 44 (042911 - color photograph), 46 (Page 64), 58, 63 (011912 - color presentation), 68, 77, 85 (011912 - color presentation including habitat), 124 (042911), 127, 140 (Pages 34, 254 & 306), **HR***

CLASS MAGNOLIOPSIDA: The DICOTS

Acanthaceae: The Acanthus Family

***Anisacanthus thurberi* (J. Torrey) A. Gray: Thurber's Desert Honeysuckle**

COMMON NAMES: Anisacanthus; Buckbrush (English)¹⁴⁰; Chuparosa (Spanish: Sonora)¹⁴⁰; Chuparrosa (Spanish: Sonora); Cola de Gallo ("Rooster Tail", Spanish: Sonora)¹⁴⁰; Colegallo <colegaiyo, colegayo> (Spanish: Chihuahua, Sonora)¹⁴⁰; Desert Honeysuckle; [Thurber's] Desert Honeysuckle (English)¹⁴⁰; Hierba de Cáncer ("Cancer Herb" a name also applied to other species, Spanish: Mexico)¹⁴⁰; Lustich <lustiej> (Uto-Aztec: Guarijío)¹⁴⁰; Muicle (a name also applied to other species, Uto-Aztec)¹⁴⁰; Taparosa (Spanish)¹⁴⁰; Thurber Anisacanthus; Thurber Desert-honeysuckle; Thurber's Desert Honeysuckle; Thurber's Desert-honeysuckle. DESCRIPTION: Terrestrial perennial cold deciduous shrub (3 to 8 feet in height; one plant was observed and described as being 6½ feet in height and 40 inches in width); the stems are pale gray, gray, tan or white; the leaves are green or yellow-green; the tubular flowers may be brick-red, brown-orange, brownish-red, burnt-orange, copper-red, orange,

orange-brown, orange-red, orange with a purple fringe, orange-salmon, dull pink-orange, purplish, light red, red, red-orange, red-orange-brown, reddish-brown, reddish-orange or yellow; flowering generally takes place between late February and early August and again between late September and mid-December (additional records: one for early February and one for late August; flowering has also been reported as occurring mainly in the spring, but may take place almost throughout the year). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; cliffs; gravelly bases of cliffs; along bouldery, rocky and sandy canyons; rocky canyon bottoms; meadows; foothills; hills; gravelly hilltops; rocky and rocky-gravelly-loamy hillsides; escarpments; rocky, rocky-gravelly, rocky-clayey, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy and sandy slopes; bajadas; rocky outcrops; amongst boulders; traces; plains; flats; valley floors; valley bottoms; along roadsides; along arroyos; bottoms of arroyos; draws; sandy bottoms of draws; grottos; gulches; ravines; springs; along streams; along and in streambeds; along creeks; creekbeds; along rivers; riverbeds; along and in bouldery-rocky, rocky, gravelly and sandy washes; bouldery drainage ways; ciénegas; along (rocky and gravelly-sandy) banks of arroyos, rivers and washes; borders of washes; along edges of creeks and washes; rocky shelves; bottomlands; rocky-sandy floodplains; mesquite bosques; ditches, and bouldery riparian areas growing in dry bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, pebbly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam and gravelly loam ground; rocky clay and gravelly clay ground, and silty ground, occurring from sea level to 7,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, and is currently being used in plantings, often to attract hummingbirds. The Anna's Hummingbird (*Calypte anna*), Black-chinned Hummingbird (*Archilochus alexandri*), Broad-billed Hummingbird (*Cynanthus latirostris*), Costa's Hummingbird (*Calypte costae*) and Rufous Hummingbird (*Selasphorus rufus*) have been observed visiting the flowers, and the Verdin (*Auriparus flaviceps*) may use the flowers as a source of nectar. This plant is browsed by wildlife. *Anisacanthus thurberi* is native to southwest-central and southern North America. *5, 6, 10, 13 (Pages 216-217), 15, 16, 18, 28 (color photograph 539), 43 (102909 - *Anisacanthus thurberi* A. Gray), 44 (012112 - no record of species or genus), 46 (Page 801), 48, 58, 63 (012112 - color presentation of seed), 77 (color photograph #1), 85 (012112 - color presentation), 91 (Pages 92-94), 115 (color presentation), 124 (012112 - no record of species or genus), 140 (Pages 27-28 & 281)*

***Justicia longii* R.A. Hilsenbeck: Longflower Tube Tongue**

SYNONYMY: *Siphonoglossa longiflora* (J. Torrey) A. Gray. COMMON NAMES: Longflower Tube Tongue; Longflowered *Justicia*; Longflower Tubetongue; Longflowered Tube Tongue; Longflowered Tubetongue; *Siphonoglossa* (a name also applied to the genus *Siphonoglossa*); Tube-tongue; Tubetongue (a name also applied to the genus *Siphonoglossa*); White Needle Flower. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (8 to 40 inches in height, one plant was described as being 12 inches in height with a crown 12 inches in width, one plant was described as being 16 inches in height with a crown 16 inches in width); the foliage is gray-green or dark green; the flowers are white or light yellow; based on few records examined, flowering generally takes place between mid-April and early November (additional records: one for early February and one for mid-March); the green fruits turn dark brown when mature. HABITAT: Within the range of this species it has been reported from mountains; crevices in cliffs; bases of cliffs; canyons; canyon bottoms; rocky foothills; rocky and gravelly hills; bouldery-rocky, rocky and rocky-sandy hillsides; rocky and gravelly slopes; rocky outcrops; amongst boulders and rocks; plains; gravelly-sandy flats; basins; sandy arroyos; bottoms of arroyos; ravines; springs; along washes; within rocky and rocky-gravelly drainages; within drainage ways; along (rocky) banks of washes; margins of washes; mesquite bosques; , and bouldery-sandy riparian areas growing in dry bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground, occurring from 1,200 to 4,900 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the tubular flowers open in the evening and are reported to be slightly fragrant. This plant is browsed by wildlife and Hawkmoths reportedly visit the flowers. *Justicia longii* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Siphonoglossa longiflora* (Torr.) Gray), 16 (recorded as *Siphonoglossa longiflora* (Torr.) Gray), 28 (recorded as *Siphonoglossa longiflora*, color photograph), 43 (103009), 44 (012312 - no record of species; genus record lacks a listing under Common Names), 46 (recorded as *Siphonoglossa longiflora* (Torr.) Gray, Page 802, 58 (recorded as *Siphonoglossa longiflora* (Torr.) Gray), 63 (103009), 77 (recorded as *Siphonoglossa longiflora*, color photograph #58), 85 (012312 - color presentation including habitat), 115 (color presentation), 124 (012312 - no record of species; genus record), 140 (Pages 28 & 281)*

***Ruellia nudiflora* (G. Engelmann & A. Gray) I. Urban (var. *nudiflora* is the variety reported as occurring in Arizona): Violet Wild Petunia**

SYNONYMY: (for var. *nudiflora*: *Ruellia nudiflora* (G. Engelmann & A. Gray) I. Urban var. *glabrata* E.C. Leonard). COMMON NAMES: Common Wild Petunia; Longneck *Ruellia*; Oregano de China; Rama de Toro (Spanish); *Ruellia* (a name also applied to the genus *Ruellia*); Violet *Ruellia*; Violet Wild Petunia; Wild Petunia (a name also applied to the genus *Ruellia*). DESCRIPTION: Terrestrial perennial evergreen forb/herb or subshrub (erect stems 12 to 40 inches in height); the flowers are blue, lavender or purple; flowering generally takes place between mid-March mid-October. HABITAT: Within the range of this species it has been reported from mountains; gravelly mesas; rocky canyons; rocky canyon bottoms; foothills; rocky hillsides; rocky and gravelly slopes; alluvial fans; bajadas; plains; amongst rocks; flats; valley floors; roadsides; sandy arroyos; sandy draws; along gullies; along streams; riverbeds; along and in rocky and sandy washes; ciénegas; swales; banks of arroyos and washes; bottomlands; floodplains; openings in mesquite bosques; margins of stock tanks (charcos); within ditches; along ditch banks; riparian areas, and disturbed areas growing in moist and dry rocky, gravelly, gravelly-sandy and sandy ground; loam ground, and clay ground often in shaded areas, occurring from sea level to 4,300 feet in elevation in the woodland, grassland,

desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Ruellia nudiflora* is native to south-central and southern North America. *5, 6, 16, 43 (103109), 44 (012312 - no record of species or genus), 46 (Pages 799-800), 63 (012412 - color presentation), 77 (color photograph #3), 85 (012412 - color presentation), 115 (color presentation), 124 (012312 - no record of species; genus record), 140 (Page 281), **HR***

Siphonoglossa longiflora (see *Justicia longii*)

Amaranthaceae: The Amaranth Family

***Tidestromia lanuginosa* (T. Nuttall) P.C. Standley subsp. *eliassonii* I. Sánchez-del Pino & H. Flores Olvera: Woolly Tidestromia**

COMMON NAMES: Eliasson Tidestromia; Eliasson's Tidestromia; Espanta Vaqueras (a name also applied to the species, Spanish); Espanta Vaqueros (a name also applied to the species and other species, Spanish), Herba Lanuda (a name also applied to the species); Hierba Ceniza (a name also applied to the species); Honeymat (a name also applied to the species); Honeysweet (a name also applied to the species and the genus *Tidestromia*); Woolly Honeysweet (a name also applied to the species); Woolly Tidestromia (a name also applied to the species). DESCRIPTION: Terrestrial annual forb/herb (prostrate 4 inches to 1 foot in height); the stems are purple or reddish, the leaves are gray or white-green; the flowers are yellowish; flowering generally takes place between late June and late November. HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; sandy ridges; rolling foothills; rocky hill; rocky hillsides; rocky, gravelly and gravelly-loamy slopes; rocky bajadas; sand hills; sand dunes; sand hummocks; plains; sandy flats; basins; sandy valley floors; coastal flats; gravelly-loamy and sandy roadsides; gullies; sandy riverbeds; along and in rocky and sandy washes; banks of rivers; sandy-silty lowlands; along floodplains; mesquite bosques; sandy riparian areas, and disturbed areas growing in moist and dry rocky, gravelly and sandy ground; gravelly loam ground; gravelly clay ground, and gravelly-sandy silty and sandy silty ground, occurring from sea level to 5,500 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This variety was not found in either BONAP Database or the NRCS Plants Database. Subspecies and varieties for this species may or may not be recognized by various sources. Woolly Tidestromia is an alternate host plant of the Beet Leafhopper (*Circulifer tenellus*). *Tidestromia lanuginosa* subsp. *eliassonii* is native to southwest-central and southern North America. *28 (species, color photograph 491 of species), 43 (110109, no record), 44 (012812 - Common Names for subsp. *eliassonii* listed under *Tidestromia lanuginosa*), 46 (species, Page 268), 63 (012812 - *T.l.* var. *eliassonii* I. Sánchez-del Pino & H. Flores Olvera is not recorded as being either a subspecies or variety), **85** (012812), 106 (110109 - *Circulifer tenellus* C.F. Blake), 115 (color presentation of species), 124 (012812 - no record of subspecies; genus and species records), 140 (Page 282)*

Tidestromia lanuginosa ssp. *eliassoniana* (see *Tidestromia lanuginosa* ssp. *eliassonii*)

Tidestromia lanuginosa var. *eliassoniana* (see *Tidestromia lanuginosa* ssp. *eliassonii*)

Anacardiaceae: The Sumac Family

Rhus lancea (see *Searsia lancea*)

Rhus radicans var. *rydbergii* (see *Toxicodendron rydbergii*)

***Searsia lancea* (C. Linnaeus f.) F.A. Barkley: African Sumac**

SYNONYMY: *Rhus lancea* C. Linnaeus f. COMMON NAMES: African Sumac; Bastard Willow; Hlokoshiyne (isiZulu); Karee (Afrikaans); Karree (Afrikaans and English); Mokalaabata (North Sotho); Sauce Africano; South African Sumac; Umhlokotshane (amaXhosa); Western Karee; Willow Rhus. DESCRIPTION: Terrestrial perennial evergreen tree (5 to 33 feet in height with a crown up to 30 feet in width); the older bark is dark gray with orange beneath; the twigs are reddish; the leaves are dark green above with a pale green underside; the inconspicuous flowers are greenish, greenish-yellow, whitish, whitish-green or yellow; based on few flowering records examined, flowering generally takes place between early December to late July (flowering records: one for early January, two for late January, one for early February, one for late February, one for mid-March, one for mid-May, one for late July, one for early December and two for mid-December). HABITAT: Within the range of this species it has been reported from along and in mountains; canyons; canyon bottoms; ridges; ridgetops; hills; sandy slopes; bajadas; valley floors; along rivers; along and in washes; within drainages; edges of creeks; along fencelines; along ditches; riparian areas and disturbed areas growing in moist and dry sandy ground and sandy loam ground, occurring from sea level to 3,000 feet in elevation in the scrub, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant that poses a significant threat to our native biotic communities. This species was not located in the BONAP Database. *Rhus lancea* is native to southern Africa. *16 (recorded as *Rhus lancea* L.f.), 18 (recorded as *Rhus lancea*), 22 (color photograph), 26 (recorded as *Rhus lancea*, color photograph), 43 (050111), 44 (012912- Common Names listed under *Searsia lancea*), 63 (012912), 77 (recorded as *Rhus lancea* L.), 85 (012912 - color presentation), 106 (122208), 109, 124 (012912 - no record of species; genus record), **HR***

Toxicodendron radicans (see NOTES under *Toxicodendron rydbergii*)

Toxicodendron radicans var. *rydbergii* (see *Toxicodendron rydbergii*)

***Toxicodendron rydbergii* (J.K. Small ex P.A. Rydberg) E.L. Greene: Western Poison Ivy**

SYNONYMY: *Rhus radicans* C. Linnaeus var. *rydbergii* (J.K. Small) A. Rehder; *Toxicodendron radicans* C. Linnaeus var. *rydbergii* (J.K. Small ex P.A. Rydberg) D.S. Erskine. COMMON NAMES: Ayáal (Uto-Aztecan: Luiseño, Juaneño dialect)¹⁴⁰; Bemberecua (Tarascan: Purépecha)¹⁴⁰; Cechén (Mayan: Maya)¹⁴⁰; Eastern Poison-ivy (common name applied to *Rhus radicans*); Guaradalagua (Spanish)¹⁴⁰; Guau (Spanish)¹⁴⁰; Hiedra (Spanish); Hiedra <yedra> (“Ivy”, Spanish: New Mexico, Texas, Chihuahua, Durango, Sinaloa, Sonora, Nuevo León, Tamaulipas)¹⁴⁰; Hiedra Mala (‘Evil Ivy’, Spanish: Arizona, New Mexico, Michoacán, Sonora)¹⁴⁰; Hincha Huevos (‘Egg [Testes] Lifters, Spanish: Veracruz)¹⁴⁰; □íya-l (Uto-Aztecan: Cahuilla)¹⁴⁰; K’ishishjijízh <k’isishjijz, k’ishishjijzh> (Athapascan: Navajo)¹⁴⁰; Mala (Spanish); Kiñ-macho (Yuki: Yuki)¹⁴⁰; Mala Mujer (‘Bad Woman’, Spanish: Jalisco, San Luis Potosí, Veracruz)¹⁴⁰; Mexie <mexi, mexye, meye> (Oto-Manguan: Otomí)¹⁴⁰; Poison Ivy (a name also applied to the genus *Toxicodendron*); Poison Ivy [Oak] (English)¹⁴⁰; Poison Oak (a name also applied to the genus *Toxicodendron*); Poison-ivy (a name also applied to the genus *Toxicodendron*); Poison-oak (a name also applied to the genus *Toxicodendron*); Que Cáguare (Uto-Aztecan: Guarijio)¹⁴⁰; Rocky Mountain Poison Ivy; Rydberg’s Poison-ivy; Sumaque <zumaque> (Spanish: Mexico)¹⁴⁰; T’ycob (Uto-Aztecan: Mountain Pima)¹⁴⁰; Ta’dabi (Uto-Aztecan: Shoshoni)¹⁴⁰; Tumorag <tumuraga> (Uto-Aztecan: Mountain Pima)¹⁴⁰; Western Poison Ivy; Western Poison-ivy. DESCRIPTION: Terrestrial perennial deciduous herb, subshrub, vine or shrub (ascending and/or erect stems 8 inches to 10 feet in height or as climbing and/or sprawling vines (lacking aerial roots so they do not climb, much) which may reach a height of 13 to over 30 feet to possibly 100 feet or more in length with trunk diameters of up to 12 inches in width); the leaves (divided into 3 leaflets) may be bright shiny green or dark green; the flowers (¼ inch in diameter in loose clusters to 3 inches in length) may be green, greenish, greenish-white or yellow-green; flowering generally takes place between mid-April and late July (additional records: one for mid-August and one for mid-September; an early flowering taking place in May or June followed by a second flowering in August or September has been reported; flowering beginning in April and continuing through to September has also been reported); the fruits may be cream, white, whitish, yellow or yellowish-white. HABITAT: Within the range of this species it has been reported from mountains; rocky-sandy mesas; canyon rims; clayey-loamy cliffs; hanging gardens; bases of cliffs; along bouldery-rocky-gravelly canyons; canyon walls; bouldery and rocky canyon bottoms; rocky bases of canyon walls and gorges; talus slopes; crevices in boulders and rocks; sandy and chalky bluffs; bases of bluffs; rocky and gravelly-clayey buttes; ledges; bases of ledges; bouldery, rocky, rocky-shaley, rocky-gravelly, rocky-sandy and gravelly-sandy ridges; sandy-silty ridgetops; openings in forests; rocky meadows; gravelly-sandy hilltops; rocky hillsides; bouldery, rocky, rocky-clayey, rocky-clayey-silty, rocky-silty, stony, gravelly-clayey, sandy and clayey slopes; rocky outcrops; amongst rocks; boulder fields; silty-clayey rock beds; alcoves; sand dunes; sandy banks; breaks; shelves; silty-loamy prairies; flats; rocky-gravelly, clayey and silty-loamy uplands; gravelly-sandy roadbeds; roadcuts; along gravelly roadsides; along arroyos; rocky, rocky-gravelly-sandy, rocky-sandy and clayey draws; bottoms of draws; gulches; gullies; bottoms of gullies; rocky ravines; seeps; around springs; around spring runs; along streams; streambeds; in gravelly-loam, sandy-loam, sand and clay along creeks; along creekbeds; along rivers; sandy and clayey riverbeds; within rocky, rocky-clayey-silty, silty-loamy and silty-clayey drainages; marshes; swamps; depressions; swales; (rocky, clayey and silty) banks of draws, gullies, streams, creeks, rivers and sloughs; edges of seeps and marshes; along margins of creeks, ponds and lakes; sides of springs, streams and creeks; shores of lakes; mudflats; sand bars; benches; terraces; sandy, loamy-clayey and clayey bottomlands; bouldery-sandy floodplains; lowlands; ditches; ditch banks; bouldery and rocky-cobbly riparian areas, and disturbed areas growing in mucky and wet, moist, damp and dry bouldery, bouldery-rocky-gravelly, bouldery-sandy, rocky, rocky-shaley, rocky-cobbly, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, stony, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, sandy loam, clayey loam, silty loam and loam ground; rocky clay, gravelly clay, loamy clay, silty clay and clay ground; rocky silty, rocky-clayey silty, sandy silty and silty ground; humusy ground, and chalky ground generally preferring well-drained mesic soils (these plants appear to be intolerant of drought), occurring from 1,500 to 8,600 feet in elevation in the forest, woodland, scrub, grasslands, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America as a drug or medication. This plant, which requires considerable moisture, provides beautiful fall colors with the leaves turning yellow, orange and red. The flowers may be pollinated by ants, bees, beetles, butterflies, true bugs and wasps. The fruits are eaten and dispersed by many birds and mammals. Eastern and Western Poison-ivy are morphologically plastic and their geographic ranges overlap. **The oils found in Poison Ivy cause painful swelling and skin eruptions and the milky juice is poisonous when taken internally. An applicable saying “leaflets of three let it be”.** Firefighters should exercise caution when working fires in areas where Poison Ivy is known to occur because **the plant may not be recognizable. Smoke from the burning plants may carry with it a toxic substance (urushiol) that can cause serious rashes inside of the nose, throat and lungs. Never burn Poison Ivy.** This note was developed with the assistance of Phil Jenkins, who is a former Firefighter and Senior Assistant Curator of the Herbarium at the University of Arizona. *Toxicodendron rydbergii* is native to central and southern North America and coastal islands in the North Atlantic Ocean and Caribbean Sea. *5, 6, 13, 15, 18, 28 (recorded as *Rhus radicans* var. *rydbergii*, color photograph 838), 30, 42 (062413), 43 (062613), 44 (062613 - no record of species; genus record), 46 (recorded as *Rhus radicans* L. [Page 522] var. *rydbergii* (Small) Rehder, Page 523), 63 (062613 - color presentation), 80 (Poison Ivy and Poison Oak are listed as being a Rarely Poisonous and Suspected Poisonous Range Plant. Poisoning of livestock by this shrub is rare, but about 50% of all people are susceptible. Poisoning varies from mild dermatitis to death.), 85 (062613 - color presentation), 95 (personal communication dated November 28, 2005), 101 (color

photograph), 127, 140 (recorded as *Toxicodendron radicans* (C. Linnaeus) O. Kuntze [*Rhus radicans* Linnaeus], Pages 39-40 & 282), 85 (reported in Sabino Canyon at 32.322N x 110.809W ± 2km, and 32.32217 x 110.79086)

Apiaceae (Umbelliferae): The Carrot Family

***Bowlesia incana* H. Ruiz Lopez & J.A. Pavon: Hoary Bowlesia**

COMMON NAMES: American Bowlesia; Bowlesia (a name also applied to the genus *Bowlesia*); Hairy Bowlesia; Hairy Bowlesia (English)¹⁴⁰; Hoary Bowlesia; Miner's Lettuce (a name usually applied to another species, English: Arizona)¹⁴⁰. DESCRIPTION: Terrestrial annual forb/herb (creeping prostrate, decumbent and/or erect stems to 2 inches in height and 2 to 38 inches in length); the foliage is pale green or green; the inconspicuous flowers are green-whitish, greenish-white, pink, purple, white, white-green or yellowish-green; flowering generally takes place between late January and late May (additional records: one for mid-June and one for early July). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; plateaus; bases of cliffs; rocky canyons; rocky canyon bottoms; crevices in rocks; buttes; rocky ledges; rocky ridgetops; meadows; foothills; bouldery hills; clayey hilltops; bouldery hillsides; bouldery, rocky, gravelly, gravelly-sandy, sandy-loamy and clayey slopes; gravelly bajadas; rocky outcrops; amongst boulders and rocks; lava fields; shady banks; plains; rocky and gravelly flats; basins; valley floors; along roadsides; sandy arroyos; draws; along gullies; ravines; seeps; along streams; streambeds; along creeks; around creekbeds; along rivers; riverbeds; along and in rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-clayey washes; within rocky-clayey drainages; along and in drainage ways; swampy areas; swales; along (rocky and gravelly-sandy) banks of arroyos, creeks, rivers and washes; borders of washes; sandy benches; loamy bottomlands; floodplains; lowlands; bottoms of stock tanks; along canals; ditches; ditch banks; rocky and sandy riparian areas; waste places, and disturbed areas growing in wet, moist, damp and dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-clayey loam, sandy loam, humusy loam and loam ground; rocky clay, sandy clay and clay ground, and gravelly-sandy silty ground often in the shade of boulders, rocks, trees, shrubs and other vegetation, occurring from sea level to 6,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formation. NOTES: The Collard Peccary (*Peccari tajacu*) and a Tiger Moth, *Grammia geneura*, feed on the seeds. *Bowlesia incana* is native to southwest-central and southern North America, and South America. *5, 6, 15, 16, 43 (110209), 44 (012912 - color photograph), 46 (Page 609), 58, 63 (012912 - color presentation), 68, 77, 85 (012912 - color presentation), 106 (110209), 115 (color presentation), 124 (012912 - no record of species or genus), 140 (Pages 40-41, 43 & 282), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Daucus pusillus* A. Michaux: American Wild Carrot**

COMMON NAMES: American Carrot; American [Wild] Carrot (English)¹⁴⁰; Bikéghad Litsogi (Athapascan: Western Apache)¹⁴⁰; C□anahoria Silvestre ("Wild Carrot", Spanish)¹⁴⁰; Chaqsh't'ezhiitsoh ("Carrot" a name also applied to *Daucus carota*, Athapascan: Navajo)¹⁴⁰; Hierba de la Vibora <yerba de la víbora> ("Rattlesnake Herb" a name also applied to other species, Spanish: New Mexico, Mexico)¹⁴⁰; Little Wild Carrot; □□āṛṇáāg̃t̃j, Tónāci (Uto-Aztecan: Ute)¹⁴⁰; Rattlesnake Bite Cure; Rattlesnake Carrot; Rattlesnake Cure; Rattlesnake Weed (a name also applied to other species); Rattlesnake Weed (English: California, New Mexico)¹⁴⁰; Rattlesnake Wild Carrot; Rattlesnake-bite-cure; Rattlesnake-weed (a name also applied to other species); Rattlesnakeweed; Sanooria (Uto-Aztecan: Yaqui)¹⁴⁰; Seed Ticks (English)¹⁴⁰; Seedticks; Small Queen Anne's Lace; Small Queen Anne's-lace; Southwest Carrot; Southwest Wild Carrot; Southwestern Carrot; Southwestern Wild Carrot; Wild Carrot (a name also applied to other species and the genus *Daucus*); Yerba del Vibora (Spanish); Zanahoria Cimarrona (Spanish); Zanahoria Silvestre ("Wild Carrot", Spanish)¹⁴⁰. DESCRIPTION: Terrestrial annual forb/herb (erect stems 1 to 40 inches in height); the flowers may be cream, greenish-white, purplish, white or light yellow; flowering generally takes place between early March and late June (additional records: one for early September and one for mid-September); the seed heads are reddish. HABITAT: Within the range of this species it has been reported from bouldery and rocky mountains; rocky, rocky-sandy and sandy-clayey mesas; plateaus; rocky and stony canyons; rocky and sandy-loamy canyon bottoms; rocky talus slopes; bases of cliffs; bluffs; rocky knobs; clayey-loamy and silty-loamy ridges; bouldery ridgetops; rocky foothills; bouldery, rocky, rocky-clayey and clayey hills; bouldery hilltops; rocky, rocky-clayey and loamy hillsides; bouldery, bouldery-gravelly, rocky, rocky-gravelly-loamy, rocky-clayey, gravelly, gravelly-loamy, sandy, loamy, clayey and clayey-loamy slopes; rocky-sandy-loamy alluvial fan; bajadas; bouldery and rocky outcrops; amongst rocks; along shaded bases of rocks; cobbly and sandy plains; cobbly-sandy-loamy, cobbly-sandy-loamy-clayey, gravelly and sandy flats; basins; clayey valley bottoms; coastal marshes; gravelly edges of railroad beds; along rocky, gravelly and sandy roadsides; along bouldery arroyos; silty draws; gullies; ravines; around springs; moist sandy soil along streams; sandy streambeds; along rivers; riverbeds; along and in rocky, rocky-clayey, gravelly, gravelly-sandy and sandy washes; drainages; along and in drainage ways; clayey freshwater marshes; clayey depressions; gravelly-sandy and sandy banks of arroyos, streams and rivers; clayey edges of creeks and salt marshes; margins of washes; mudflats; along sandy benches; sandy terraces; sandy bottomlands; floodplains; canals; gravelly-sandy and sandy riparian areas, and disturbed areas growing in moist, damp and dry bouldery, rocky, rocky-sandy, stony, cobbly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-sandy loam, cobbly-sandy loam, gravelly loam, gravelly-clayey loam, sandy loam, clay loam, silty loam and loam ground; rocky clay, cobbly-sandy-loamy clay and clay ground, and silty ground, occurring from sea level to 7,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as

a drug or medication and as a talisman in gambling (a good luck charm). This plant may be confused with the False Carrot (*Yabea microcarpa*). *Daucus pusillus* is native to west-central, southeast-central and southern North America and central and southern South America. *5, 6, 16, 28 (color photograph 274), 43 (110309), 44 (012912 - color photograph), 46 (Page 612), 58, 63 (012912 - color presentation), 77, **85** (012912 - color presentation), 115 (color presentation), 124 (012912), 127, 140 (Pages 41-43 & 282)*

Apocynaceae: The Dogbane Family

Haplophyton cimidum (see *Haplophyton crooksii*)

Haplophyton cimidum var. *crooksii* (see *Haplophyton crooksii*)

***Haplophyton crooksii* (L.D. Benson) L.D. Benson: Cockroachplant**

SYNONYMY: *Haplophyton cimidum* auct. non A.L. de Candolle; *Haplophyton cimidum* A.L. de Candolle var. *crooksii* L.D. Benson. COMMON NAMES: Actimpatli; Atempatli; Arizona Cockroach Plant; Cockroachplant; Crooks Cockroachplant; Hierba-de-la-cucuracha (Hispanic). DESCRIPTION: Terrestrial perennial subshrub or shrub (stems 7 to 40 inches in height); the foliage is dark green; the flowers are cream-white, green-yellow or yellow; flowering generally take place between mid-July and mid-November (additional records: one for early March, two for mid-March, two for early April, one for mid-April, two for late April, one for late May and one for early December); the slender, smooth and elongate fruits are gray-green or green pods. HABITAT: Within the range of this species it has been reported from mountains; bases of cliffs; rocky canyons; canyon walls; canyon bottoms; rocky talus slopes; below rocky ledges; rocky ridges; foothills; rocky hills; rocky hillsides; bouldery, bouldery-rocky and rocky slopes; bouldery and rocky outcrops; amongst boulders and rocks; shade of boulders; valley bottoms; gulches; within rocky and gravelly drainages; within rocky drainage ways; (rocky) banks of creeks, drainages and drainage ways; floodplains, and riparian areas growing in dry bouldery, bouldery-rocky, rocky, gravelly and sandy ground and gravelly loam ground, occurring from 1,900 to 5,200 feet in elevation in the forest, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers open in the evening and close in the early morning, this plant is slow growing and may be drought deciduous, it may best be used planted with succulents in rock gardens. *Haplophyton crooksii* is native to southwest-central and southern North America. *5, 6, 13, 15, 16, 43 (110509), 44 (020112 - no record of species or genus), 46 (Page 651), 58, 63 (020112 - color presentation of seed), 77 (color photograph #4), **85** (020112 - color presentation), 115 (color presentation), 124 (020112 - no record of species or genus), 140 (Page 282), MBJ*

Aristolochiaceae: The Birthwort Family

***Aristolochia watsonii* E.O. Wooton & P.C. Standley: Watson's Dutchman's Pipe**

COMMON NAMES: Arizona Snakeroot; Birthwort (a name also applied to the genus *Aristolochia* and the Aristolochiaceae); Dutchman's Pipe (a name also applied to the genus *Aristolochia*); Dutchman's Pipevine (a name also applied to the genus *Aristolochia*); Guasena Jubiaria (Uto-Aztecan: Mayo)¹⁴⁰; Hatáast an Ihiit ("What Gets Between Your Teeth", Hoka: Seri)¹⁴⁰; Hierba <yerba> de[l] Indio ("Indian Herb", Spanish: Arizona, Baja California, Sonora)¹⁴⁰; Huaco <guaco> (a name also applied to other species, Spanish)¹⁴⁰; Indian Root; Indian-root (English: Arizona)¹⁴⁰; Indianroot; Pipevine (a name also applied to the genus *Aristolochia* and the Aristolochiaceae); Pipevine Flower; Raiz del Indio; [Arizona] Snake-root (English)¹⁴⁰; Snakeroot (a name also applied to the genus *Aristolochia*); Southwestern Pipevine; Watson's Dutchman's Pipe (English)¹⁴⁰; Watson Indian Root; Yermalind (Uto-Aztecan: Mountain Pima)¹⁴⁰. DESCRIPTION: Terrestrial perennial cold-deciduous forb/herb or vine (prostrate and/or procumbent stems 4 inches to 20 inches in length, stems reaching 5 feet in length have also been reported); the upper surface of the leaves may be blackish, dark brown-purple, dark green, maroon-brown, purple or purple-green with a pale dull green underside; the flowers may be blackish, brown with a yellow spotted throat, brownish, green and brown, green with maroon rim and dots in throat, green with purple spots, brownish-purple, purple, purple-brown, purple-green, purple-green-brown, reddish-brown or yellow-green-dark maroon with brown-purple spots; flowering generally takes place between early March and early October (additional records: one for mid-February, one for late November, one for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; cliffs; cliff faces; bases of cliffs; rocky canyons; canyon walls; canyon bottoms; crevices in boulders and rocks; pockets of sandy soil on ridges; rocky foothills; rocky hills; rocky, rocky-gravelly and gravelly hillsides; bases of hillsides; rocky, gravelly-loamy, sandy, sandy-loamy and loamy slopes; bajadas; rocky outcrops; amongst boulders and rocks; plains; gravelly, sandy, sandy-loamy and sandy-silty flats; loamy basins; shady hollows; valley floors; valley bottoms; along sandy roadsides; along and in gravelly, gravelly-sandy and sandy arroyos; bottoms of arroyos; gulches; sandy bottoms of ravines; along streams; streambeds; along creeks; creekbeds; along rivers; gravelly-sandy riverbeds; along and in rocky, gravelly and sandy washes; along drainages; along bouldery drainage ways; ciénegas; swamps; along (bedrock, gravelly and sandy) banks of creeks and washes; borders of washes; along edges of washes; benches; terraces; bottomlands; floodplains; mesquite bosques; bases of levees; around stock tanks; canals; gravelly riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground, gravelly loam, gravelly-sandy loam, sandy loam, sandy-clayey loam, silty loam and loam

ground; clay ground, and sandy silty ground often reported as growing in shaded to heavily shaded areas and less often in full sun., occurring from 100 to 5,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, consider using the Pipevine Flower as a ground cover in heavily shaded areas, note that the flowers might have a fetid or musty odor. The Pipevine Flower is a larval food plant of the Pipevine Swallowtail Butterfly (*Battus philenor*) and the flowers are pollinated by members of the Ceratopogonidae (The Biting Midge, Punkie and No-see-um Family). *Aristolochia watsonii* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (110609), 44 (050211 - no record of species; genus record), 46 (alternate spelling *Aristolochia watsoni*, Page 227), 58, 63 (020112), 77 (color photograph #59), **85** (020212 - color presentation), 106 (071708 - information relating to the Pipevine Swallowtail Butterfly), 115 (color presentation), 124 (050211 - no record of species; genus record), 140 (Pages 50-52 & 282)*

Asclepiadaceae: The Milkweed Family

***Asclepias linaria* A.J. Cavanilles: Pineneedle Milkweed**

COMMON NAMES: Algodoncillo (“Little Cotton” a name also applied to other species, Spanish: Durango)¹⁴⁰; Ali Okága (Uto-Aztec: Tarahumara)¹⁴⁰; Atu'sh-jiuátsi (en Mich); Ban Wi:bam (Uto-Aztec: Tohono O'odham)¹⁴⁰; Chiche de Burra (Hispanic); Chichivilla Cimarrona (Hispanic); Ch'il 'abee'e (Athapascan: Navajo)¹⁴⁰; Chucuipe (en Mich); Cinco Negritos (Hispanic); Cola de Gato (Hispanic); Dé'ichéhé Izee (Athapascan: Western Apache)¹⁴⁰; Guajito (Hispanic); Hierba de Cuervo (Hispanic); Hierba de Vibora (Hispanic); Hierba de la Puzada (“Puncture Herb”, Spanish: Durango)¹⁴⁰; Hierba de la Vibora (“Rattlesnake Herb” a name also applied to other species, Spanish: Sonora - Guarijío)¹⁴⁰; Hierba del Cuervo (“Raven Herb”, Spanish: Sonora)¹⁴⁰; Immortal (“Immortal” a name also applied to other species, Spanish: Mexico)¹⁴⁰; Kivat <kiyal> (Uto-Aztec: Cahuilla)¹⁴⁰; Lechestrenza (“Milk Braids”, Spanish: Mexico); Lechuguilla (“Little Lettuce” a name also applied to other species, Spanish: Mexico)¹⁴⁰; Lumu Turhipiti Xukurhi (en Mich); Na'ash□'iidáá' (Athapascan: Navajo)¹⁴⁰; Needle Leaf Milkweed; Needle-leaf Milkweed; Oreja de Liebre (Hispanic); Patito (Hispanic); Pine Leaf Milkweed; Pine Needle Butterfly Weed; Pine Needle Milkweed; Pine-leaf Milkweed; Pine-leaved Milkweed; Pine-needle Butterfly-weed; Pine-needle Milkweed (English)¹⁴⁰; Pineleaf Milkweed; Pineneedle Milkweed; Pinillo (“Little Pine”, Spanish: Edo. México, San Luis Potosí)¹⁴⁰; Plumerillo (“Little Feathery One”, Spanish: Aguascalientes)¹⁴⁰; Plumilla (Hispanic); Romerillo (“Little Rosemary”, Spanish: Edo. México)¹⁴⁰; Solimán (Spanish: Edo. México)¹⁴⁰; Ta□áma□ávi (Uto-Aztec: Ute)¹⁴⁰; Talayote de Coyote (Hispanic); Teperronero (Spanish: Mexico)¹⁴⁰; Terbisco <torovisco> (Spanish: Durango, Hidalgo)¹⁴⁰; Tezonpatli (Uto-Aztec: Náhuatl)¹⁴⁰; Thread Leaf Milkweed; Thread-leaf Milkweed; Threadleaf Milkweed; Tlalayote <tlalayotle> (Spanish: Mexico)¹⁴⁰; Tlalacxoyatl (Uto-Aztec: Náhuatl)¹⁴⁰; Tlalnóchtli (Uto-Aztec: Náhuatl)¹⁴⁰; Tlaloctli (Uto-Aztec: Náhuatl)¹⁴⁰; Tliish Izee' (Athapascan: Western Apache)¹⁴⁰; Tloibee (“Milk Plant”, Athapascan: Chiricahua and Mescalero Apache)¹⁴⁰; Torbisco (Hispanic); Venenillo (“Little Poisonous One” Spanish: Edo. México, San Luis Potosí)¹⁴⁰; Wi'is (Uto-Aztec: Southern Paiute)¹⁴⁰. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (ascending and/or erect stems 1 to 5 feet in height; plants were observed and described as being 2½ feet in height and 3½ feet in width); the needle-like leaves are green; the flowers may be cream, greenish or white; flowering generally takes place between mid-March and late October (additional records: two for mid-December; flowering beginning as early as February has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; rocky canyon rims; rocky cliffs; bases of cliffs; rock walls; rocky, gravelly and sandy canyons; canyonsides; canyon bottoms; crevices in bedrock; talus slopes; rocky ledges; foothills; hills; rocky and rocky-clayey hillsides; rocky, rocky-clayey, stony-clayey-loamy, gravelly, gravelly-loamy and sandy-loamy slopes; bedrock and rocky outcrops; amongst rocks; plains; along roadsides; draws; ravines; springs; along streams; within washes; rocky drainages; along watercourses; banks of ravines; rock and sand bars; rocky margins of reservoirs; around stock tanks; around reservoirs, and riparian areas growing in moist and dry rocky, rocky-gravelly, gravelly and sandy ground; stony-clayey loam, gravelly loam, sandy loam and sandy-clayey loam ground, and rocky clay ground, occurring from 700 to 9,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant has a milky sap. The Queen Butterfly (*Danaus gilippus*) sometimes visits the flowers. *Asclepias linaria* is native to southwest-central and southern North America. *5, 6, 15, 28 (color photograph 224), 30, 43 (071710), 44 (020212), **46** (species within this genus may contain a glucoside that is poisonous to livestock, especially to sheep; however, the plants are seldom eaten, Page 661), 63 (020212), **85** (020212 - color presentation), 115 (color presentation), 124 (020212 - no record of species; genus record), 140 (Pages 46-48 & 282)*

***Cynanchum arizonicum* (A. Gray) L.H. Shinnery: Arizona Swallow-wort**

SYNONYMY: *Metastelma arizonicum* A. Gray. COMMON NAMES: Arizona Milkweed Vine; Arizona Smallwort; Arizona Swallow-wort; Arizona Swallowwort; Milkweed Vine. DESCRIPTION: Terrestrial perennial forb/herb or vine (a twining vine with stems to 40 inches in length); the leaves are green; the small flowers are cream-white, white, whitish, pale yellow or yellowish; flowering generally takes place between mid-January and mid-December (with heaviest flowering reported as occurring between May and October). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky mesas; rocky crags; bases of cliffs; rocky canyons; rocky canyon bottoms; ridges; ridgetops; foothills; bouldery and rocky hills; rocky hilltops; rocky hillsides; rocky slopes; rocky outcrops; amongst boulders; valley floors; low sand dunes near beaches; arroyos; along sandy bottoms of arroyos; gulches, ravines, around seeping streams; creeks; along rocky washes; rocky drainages; rocky drainage ways, and riparian areas growing in dry bouldery, rocky and sandy ground, occurring

from sea level to 5,300 feet in elevation in the woodland, scrub, grassland and desertscrub ecological formations. NOTE: *Cynanchum arizonicum* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (110709), 44 (020312 - no record of species; genus record), 46 (recorded as *Metastelma arizonicum* Gray, Page 663), 58, 63 (020312), 77 (color photograph #61), **85** (020312 - color presentation of dried material), 124 (020312 - no record of species; genus record), 140 (Page 282)*

***Funastrum cynanchoides* (J. Decaisne) F.R. Schlechter subsp. *cynanchoides*: Fringed Twinevine**

SYNONYMY: *Sarcostemma cynanchoides* J. Decaisne. COMMON NAMES: Arroyo Twine Vine; Arroyo Twinevine; Climbing Milk Weed; Climbing Milkweed (a name also applied to other species); Climbing Milkweed (English)¹⁴⁰; Fringed Climbing Milkweed (a name also applied to the species); Fringed Twine-vine (a name also applied to the species); Fringed Twine-weed [vine] (Arizona, New Mexico)¹⁴⁰; Fringed Twinevine (a name also applied to the species); Güichire (Spanish)¹⁴⁰; Güirote Lechoso (“Milky ‘Vine’”, Spanish: Sinaloa, Sonora)¹⁴⁰; Hexe (Hokan: Seri)¹⁴⁰; Hierba Lechosa (“Milky Herb” a name also applied to other species, Spanish: Sonora)¹⁴⁰; Huichuri <huichoori> (Uto-Aztec: Mayo)¹⁴⁰; Mata Nene (“Baby Killer”, Spanish: Sonora)¹⁴⁰; Platanito (“Little Banana” [literally “flat one”], Spanish: Sonora)¹⁴⁰; Sandia de la Pasion (“Watermelon of the Crucifixion”, Spanish: Sonora)¹⁴⁰; Vi:bam <vi’ibgam> (Uto-Aztec: Hiá Ce□ O’odham)¹⁴⁰; Vibam (Uto-Aztec: Mountain Pima)¹⁴⁰; Viibam (“Milk It Has”, Uto-Aztec: Akimel O’odham)¹⁴⁰; Wibam <wi’ibgam> (Uto-Aztec: Tohono O’odham)¹⁴⁰. DESCRIPTION: Terrestrial perennial forb/herb or vine (clambering, climbing, sprawling, trailing and/or twining stems 40 inches to 20 feet in length); the leaves are dark green; the flowers may be brownish-white, cream, cream-white, pale green & white, green, green & maroon & white; greenish-white, maroon, pink, purplish, purplish-white, white, white & green, white & lilac, white & pink, whitish or off white-brownish-purple; flowering generally takes place between mid-March and early November (additional records: one for early February and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky and sandy canyons; rocky canyon walls; canyon bottoms; talus; crevices; rocky foothills; hills; hillsides; rocky and sandy slopes; bajadas; bouldery and rocky outcrops; amongst boulders; gravelly plains; sandy flats; along sandy roadsides; along arroyos; seeps; springs; along streams; bouldery and sandy streambeds; gravelly-sandy creeks; rocky-cobbly-sandy riverbeds; along and in bouldery, gravelly-sandy and sandy washes; drainages; within drainage ways; swamps; depressions; along banks of rivers and washes; (gravelly-silty) edges of draws; (sandy) shores of rivers; sandy beaches; benches; sandy terraces; sandy floodplains; mesquite bosques; along ditches; clayey-loamy ditch banks; fencelines; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-cobbly-sandy, gravelly-sandy and sandy ground; gravelly loam, clayey loam and loam ground; silty clay ground, and gravelly silty and silty ground, occurring from sea level to 6,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers may be fragrant. Bees, moths and other insects have been observed visiting the flowers. *Funastrum cynanchoides* subsp. *cynanchoides* is native to south-central and southern North America. *5, 6, 16 (recorded as *Sarcostemma cynanchoides* Decne. var. *cynanchoides*), 28 (color photograph), 43 (110709), 44 (020412 - no record of subspecies; species and genus records, with Common Names listed under var. *hartwegii* only), 46 (Page 664), 58 (recorded as *Sarcostemma cynanchoides* Decne. ssp. *cynanchoides*), 63 (020412 - color presentation), 68, 77 (recorded as *Sarcostemma cynanchoides* Decne. ssp. *cynanchoides*, color photograph labeled *Sarcostemma cynanchoides* #6), **85** (020412 - color presentation), 86 (color photograph), 115 (color presentation of species), 124 (050211), 140 (recorded as *Funastrum cynanchoides* (Decaisne) Schlechter [*Sarcostemma cynanchoides* Decaisne], Pages 48-49 & 283)*

***Funastrum cynanchoides* (J. Decaisne) F.R. Schlechter subsp. *heterophyllum* (G. Engelman ex J. Torrey) J.T. Kartesz: Hartweg’s Twinevine**

SYNONYMY: *Funastrum heterophyllum* (G. Engelman) P.C. Standley; *Sarcostemma cynanchoides* J. Decaisne subsp. *hartwegii* (A.M. Vail) R.W. Holm; *Sarcostemma cynanchoides* J. Decaisne var. *hartwegii* (A.M. Vail) L.H. Shinnors. COMMON NAMES: Climbing Milkweed (a name also applied to other species); Climbing Townula; Guirote Lechoso (Spanish); Hartweg Climbing Milkweed; Hartweg Climbing-milkweed; Hartweg Fringed Milkvine; Hartweg Milk-vine; Hartweg Milkvine; Hartweg Twine-vine; Hartweg Twinevine; Hartweg Twining Milkweed; Hartweg Vine-milkweed; Hartweg’s Climbing-milkweed; Hartweg’s Fringed Milkvine; Hartweg’s Milk-vine; Hartweg’s Milkvine; Hartweg’s Twine-vine; Hartweg’s Twinevine; Hartweg’s Twining Milkweed; Hartweg’s Vine-milkweed; Hexe (Seri); Purple Climbing-milkweed (a name also applied to the species). DESCRIPTION: Terrestrial perennial forb/herb or vine (clambering, climbing, sprawling, trailing and/or twining stems 20 inches to 20 feet in length); the leaves (3 to 4 times long as broad) are dark green; the flowers may be dull cream-white & maroon, cream-purple, cream-white & purple, greenish-white, greenish-white & purple, lilac-mauve, magenta-cream, maroon-cream, pinkish-white, purple, purple & cream, purplish, dull purplish & white, dull purplish-red & whitish, purplish-tan & white, violet-pink, white, white & brown, white & maroon, white & dull purple, white & purple or white & purple-maroon; flowering generally takes place between mid-March and early November (additional records: one for early February, one for mid-February, one for late November and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; bouldery-cobbly mesas; canyons; along rocky and gravelly-sandy canyon bottoms; ridges; clayey ridgetops; foothills; rocky and sandy hills; rocky hillsides; bouldery, rocky and gravelly slopes; bajadas; rocky outcrops; amongst rocks; lava flows; sand dunes; banks; bouldery-cobbly, cindery and sandy flats; bouldery basins; sandy valley floors; valley bottoms; coastal sand dunes; along sandy roadsides; along and in rocky and sandy arroyos; springs; along streams; along creeks; creekbeds; along rivers; riverbeds; along and in rocky, gravelly, gravelly-sandy, gravelly-sandy-silty, sandy and sandy-silty washes; drainages; drainage ways; waterholes (tinajas); playas; swampy areas; (rocky, gravelly-sandy and sandy) banks of arroyos, streams, rivers, washes and drainages; along (gravelly) margins of arroyos and washes; gravel and sand bars; sandy benches; terraces; bottomlands; sandy floodplains; mesquite bosques; fencelines; canal banks; along ditches; sandy riparian areas,

and disturbed areas growing in dry bouldery, bouldery-cobbly, rocky, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-clayey loam and gravelly loam ground; clay ground, and gravelly-sandy silty and sandy silty ground, occurring from sea level to 5,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Funastrum cynanchoides* subsp. *heterophyllum* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Sarcostemma cynanchoides* Decne. var. *hartwegii* (Vail) Shinnery), 16 (recorded as *Sarcostemma cynanchoides* Decne. var. *hartwegii* (Vail) Shinnery), 43 (110709 - *Funastrum cynanchoides* Schltr. subsp. *heterophyllum* (Engelm. ex J. Torr.) Kartesz), 44 (020412), 46 (recorded as *Funastrum heterophyllum* (Engelm.) Standl., Page 664), 58 (recorded as *Sarcostemma cynanchoides* Decne. ssp. *hartwegii* (Vail) R. Holm), 63 (020412 - color presentation), 68, 77 (recorded as *Sarcostemma cynanchoides* Decne. ssp. *hartwegii* (Vail) Holm), 85 (020412 - color presentation), 115 (color presentation of species), 124 (020412 - no record of subspecies or species; genus record), 140 (Page 49), **WTK** (August 4, 2005)*

Funastrum heterophyllum (see *Funastrum cynanchoides* subsp. *heterophyllum*)

Metastelma arizonicum (see *Cynanchum arizonicum*)

Sarcostemma cynanchoides (see *Funastrum cynanchoides* subsp. *cynanchoides*)

Sarcostemma cynanchoides subsp. *cynanchoides* (see footnotes 16 and 85 under *Funastrum cynanchoides* subsp. *cynanchoides*)

Sarcostemma cynanchoides subsp. *hartwegii* (see *Funastrum cynanchoides* subsp. *heterophyllum*)

Sarcostemma cynanchoides var. *cynanchoides* (see *Funastrum cynanchoides* subsp. *cynanchoides*)

Sarcostemma cynanchoides var. *hartwegii* (see *Funastrum cynanchoides* subsp. *heterophyllum*)

Asteraceae (Compositae): The Aster Family

***Acourtia nana* (A. Gray) J.L. Reveal & R.M. King: Dwarf Desertpeony**

SYNONYMY: *Perezia nana* A. Gray. COMMON NAMES: Ban Auppa-ga (Gila River Pima); Desert Holly (a name also applied to other species); Desert-holly; Dwarf Desertpeony. DESCRIPTION: Terrestrial perennial forb/herb (divaricately branching stems 2 to 12 inches in height; plants were observed and described as being 4 to 5 inches in height and 3 to 6 inches in width); the holly-like leaves are pale grayish-green or olive-green; the flower heads may be cream, pale lavender-pink, lavender, lavender-pink, maroon and white, pale pink-lavender, pink, pink-purple, purple, white or white-pink; flowering generally takes place between late March and early July (additional records: one for late January, one for late February, two for late July, one for early August, one for mid-August, one for late August, two for early September, three for late September, one for mid-October, one for mid-November and two for mid-December). HABITAT: Within the range of this species it has been reported from rocky mountains; sandy mesas; gravelly-loamy canyons; talus slopes; bedrock ridges; ridgetops; rocky foothills; rocky and gravelly hills; rocky and gravelly hillsides; bouldery, rocky, stony, gravelly, gravelly-sandy and sandy slopes; bajadas; amongst boulders and rocks; gravelly breaks; gravelly plains; rocky, gravelly, gravelly-sandy, sandy, sandy-loamy and clayey flats; basins; basin bottoms; rocky valley floors; valley bottoms; gravelly-loamy roadsides; arroyos; bottoms of arroyos; rocky gullies; gravelly-loamy creekbeds; riverbeds; within gravelly, gravelly-sandy and sandy-clayey washes; drainage ways; playas; sandy-loamy, sandy-clayey-loamy and clayey-loamy swales; (clayey-loamy) banks of washes; benches; gravelly and sandy terraces; floodplains; mesquite mosques; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-sandy, stony, gravelly, gravelly-sandy, pebbly and sandy ground; gravelly loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground; sandy clay and clay ground, and silty ground often in the shade of trees and shrubs, occurring from 1,200 to 7,100 feet (one record for 8,500 feet) in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Consider using Desert Holly as a ground cover under larger shrubs and trees. The flowers give off a fragrance similar to that of violets or lilacs. *Acourtia nana* is native to southwest-central and southern North America. *5, 6, 15, 16, 28 (color photograph 285), 43 (110809), 44 (020512 - no record of species; genus record), 46 (recorded as *Perezia nana* Gray, Page 957), 58, 63 (020512 - color presentation), 77, 85 (020512 - color presentation), 115 (color presentation), 124 (020512 - no record of species or genus), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Acourtia wrightii* (A. Gray) J.L. Reveal & R.M. King: Brownfoot**

SYNONYMY: *Perezia wrightii* A. Gray. COMMON NAMES: Brownfoot; Desert Holly (a name also applied to other species); *Perezia*; Pink *Perezia*; Pink *Perezia*; Wright's Desertpeony. DESCRIPTION: Terrestrial perennial forb/herb (1 to 5 feet in height; one plant was observed and described as being 1 foot in height with a crown 1 foot in width); the holly-like leaves are dark green; the flower heads may be lavender, dark lavender, pink, pink-brown, pink-lavender, pink-purple, light purple, purple, white, white & pink, whitish-maroon or white & purple; flowering generally takes place between early February and early

July and sometimes in autumn between early September and early November (additional records: one for mid-August, one for late November and one for early December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; plateaus; rock cliffs; bases of cliffs; rocky canyons; rocky canyon bottoms; talus slopes; along crevices in boulders and rocks; buttes; along ledges; ridges; ridgetops; crater walls; foothills; rocky, stony-gravelly and sandy hills; rocky and rocky-gravelly-loamy hillsides; bouldery-rocky, rocky, rocky-gravelly, shaley, shaley-gravelly, gravelly, gravelly-clayey and sandy slopes; sandy alluvial fans; gravelly and sandy bajadas; along bedrock and rocky outcrops; amongst boulders and rocks; around bases of boulders; in shaded alcoves; rocky plains; rocky and silty flats; railroad right-of-ways; rocky and gravelly-sandy-clayey-loamy roadsides; along rocky arroyos; rocky draws; gullies; ravines; seeps; rocky springs; along creeks; along rocky, gravelly and sandy washes; along drainage ways; (rocky) banks of ravines, streams and washes; borders of washes; edges of washes; mudflats; beaches; floodplains; mesquite bosques; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-gravelly, stony-gravelly, gravelly and sandy ground; rocky-gravelly loam, rocky silty loam, gravelly-sandy-clayey loam, sandy loam, silty-clayey loam and silty loam ground; gravelly clay ground, and silty ground, occurring from 700 to 7,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers are reported to be fragrant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Acourtia wrightii* is native to southwest-central and southern North America. *5, 6, 15, 16, 28 (color photograph 677), 43 (110809), 44 (050411 - no record of species; genus record), 46 (recorded as *Perezia wrightii* Gray, Page 957), 58, 63 (020512 - color presentation), 77, 85 (020612 - color presentation), 115 (color presentation), 124 (050411 - no record of species or genus), 127, 140 (Page 283)*

***Adenophyllum porophylloides* (A. Gray) J.L. Strother: San Felipe Dogweed**

SYNONYMY: *Dyssodia porophylloides* A. Gray. COMMON NAMES: San Felipe Adenophyllum; San Felipe Dogweed; San Felipe Dyssodia; San Felipe Fetid Marigold; Yerba del Venado. DESCRIPTION: Terrestrial perennial subshrub (erect stems 8 to 32 inches in height; one plant was described as being approximately 18 inches in height and 2 feet in width); the leaves are dark green; the disk florets may be golden-yellow, maroon, orange or yellow-orange; the ray florets may be pink, pink-maroon, red-orange, yellow (becoming red-orange), yellowish-brown or yellow-orange; flowering generally takes place between early February and early December. HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; mountainsides; mesas; rocky cliffs; bouldery and rocky canyons; canyon walls; rocky canyon bottoms; buttes; ridgetops; foothills; rocky-gravelly and stony-gravelly hills; rocky hillsides; bouldery, rocky, rocky-gravelly, shaley, gravelly and sandy slopes; alluvial fans; rocky-gravelly bajadas; bouldery and rocky outcrops; amongst boulders and rocks; boulder fields; plains; gravelly and sandy flats; valley floors; along roadsides; along the bottoms of rocky arroyos; gulches; ravines; streambeds; along creeks; along and in rocky, gravelly, gravelly-sandy and sandy washes; borders of washes; (rocky) edges of washes; benches; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, stony-gravelly, stony-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam and cobbly-gravelly loam ground, and sandy clay ground, occurring from sea level to 4,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The leaves give off a strong odor when bruised, reportedly similar to that of Deerweed (*Porophyllum gracile*). *Adenophyllum porophylloides* is native to southwest-central and southern North America. *5, 6, 13, 15 (recorded as *Dyssodia porophylloides* Gray), 16 (recorded as *Dyssodia porophylloides* Gray), 28 (recorded as *Dyssodia porophylloides*, color photograph 480), 43 (111009), 44 (020712), 46 (recorded as *Dyssodia porophylloides* Gray, Page 932), 63 (020712 - color presentation), 77 (recorded as *Dyssodia porophylloides* Gray), 85 (020812 - color presentation), 115 (color presentation), 124 (020712 - no record of species or genus), 140 (Page 283)*

***Ambrosia ambrosioides* (A.J. Cavanilles) W.W. Payne: Ambrosia Leaf Bur Ragweed**

SYNONYMY: *Franseria ambrosioides* A.J. Cavanilles. COMMON NAMES: Ambrosia Bursage; Ambrosia Leaf Bur Ragweed; Ambrosia Leaf Burr Ragweed; Ambrosia-leaf Burr Ragweed; Ambrosia-leaf Burr-ragweed; Ambrosia-leaf Bursage; Ambrosia-leaved Burbush; Big Bursage; Big Bur-sage; Burr Sage (a name also applied to the genus *Ambrosia*); Bur-sage (a name also applied to other species and the genus *Ambrosia*); Bursage (a name also applied to other species and the genus *Ambrosia*); Canyon Ambrosia; Canyon Ragweed; Canyon Ragweed Ambrosia; Chicura (Spanish); Giant Bursage; Leaf Burr Ragweed; Nu Nu Ju Its (Tohono O'odham); Tinkl (Seri). DESCRIPTION: Terrestrial perennial cold- and drought-deciduous subshrub or shrub (erect stems 1 to 7 feet in height, one plant was described as being 3 feet in height and 6 feet in width); the branches are reddish-brown with white hairs; the leaves are dull gray-green or green; the flower heads are yellowish or yellowish-green; flowering generally takes place between mid-February and early May (additional records: two for mid-January, one for late May, one for early June, one for mid-June, one for early July and one for mid-September), the fruits are burrs. HABITAT: Within the range of this species it has been reported from rocky mountains; rocky mountainsides; mesas; bases of cliffs; rocky canyons; canyon walls; rocky, gravelly and gravelly-sandy canyon bottoms; ridges; crevices in rocks; pockets of sandy soil in rocks; foothills; rocky hills; hilltops; rocky hillsides; rocky and sandy slopes; bajadas; rocky outcrops; amongst boulders; terraces; barrens; plains; flats; basins; silty valley floors; along coasts; coastal plains; along rocky-sandy roadsides; rocky, gravelly and sandy arroyos; rocky and gravelly bottoms of arroyos; along seeping streams; along streams; rocky and sandy streambeds; along creeks; creekbeds; along rivers; riverbeds; along and in rocky, gravelly, gravelly-sandy, gravelly-silty and sandy washes; along and in sandy drainages; along and in cobbly and sandy drainage ways; around waterholes; (rocky and sandy) banks of creeks and lakes; borders of washes; (sandy) edges of washes; (sandy) margins of arroyos; benches; bottomlands; floodplains; riparian areas, and disturbed areas growing in muddy (rarely reported) and dry bouldery, rocky, rocky-sandy, cobbly,

gravelly, gravelly-sandy and sandy ground; rocky loam and sandy-clayey loam ground, and gravelly silty and silty ground, occurring from sea level to 5,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat; however, its pollen may bring about an allergic reaction in some people. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Ambrosia ambrosioides* is native to southwest-central and southern North America. *5, 6, 13 (Pages 303-304), 15, 28 (color photographs 806 A&B), 43 (111009 - *Ambrosia ambrosioides* (Delpino) W.W. Payne), 44 (050411), 46 (recorded as *Franseria ambrosioides* Cav., Page 895), 63 (020812), 77 (color photograph #67), **85** (020912 - color presentation including habitat), 91 (Pages 75-77), 115 (color presentation), 124 (050411 - no record of species; genus record), 127, 140 (Page 283), **MBJ** (undated record which may include landscaped material that persists without maintenance), **WTK** (August 4, 2005)*

***Ambrosia confertiflora* A.P. de Candolle: Weakleaf Bur Ragweed**

SYNONYMY: *Franseria confertiflora* (A.P. de Candolle) P.A. Rydberg. COMMON NAMES: Altamisa de Playa; Altamisa [del Campo] (Spanish: Mexico)¹⁴⁰; Bur Ragweed (a name also applied to other species and the genus *Ambrosia*); Bursage (a name also applied to other species and the genus *Ambrosia*); Bur-weed (a name also applied to other species); Bursage [Field, Weak-leaf Burr] Ragweed (English: New Mexico)¹⁴⁰; Ch'íl Diwozh <c'íl dahwosi [dohwosi]> (Athapaskan: Navajo)¹⁴⁰; Chi'ichivo (Yaqui); Chichibo (Uto-Aztecan: Mayo)¹⁴⁰; Estafiate (a name also applied to other species, Spanish: Mountain Pima)¹⁴⁰; Estafijate (Mexico: Sonora); Field Ragweed; Istafiate (Mexico: northern Sinaloa); Mexican Ragweed; Mo'ó Ta□ <mo'ota□k, mo'otadk, mo'ostalk, mo'otari> ("To Stick Its Head Out", Uto-Aztecan: Tohono O'odham)¹⁴⁰; Mo'ó Ta□k Je:j ("Mother of Broom Rape", Uto-Aztecan: Akimel O'odham)¹⁴⁰; Mo'ostadk (Uto-Aztecan: Hiá Ce□ O'odham)¹⁴⁰; Mo'otak Juich (Gila River Pima); Musha (Uto-Aztecan: Mountain Pima)¹⁴⁰; Ñuñuwí Je:j ("Mother of Vultures", Uto-Aztecan: Tohono O'odham)¹⁴⁰; Pawya <pawiya> (Uto-Aztecan: Hopi)¹⁴⁰; Paxáaza (Hokan: Seri)¹⁴⁰; Ragweed (a name also applied to other species and the genus *Ambrosia*); Slender Ragweed; Slim-leaf [weak-leaf] Bursage (English)¹⁴⁰; Slim-leaf Ragweed; Slimleaf Bursage; Slimleaf Ragweed; Tat□agi <ta□shagi, tatshagi> (Uto-Aztecan - Tohono O'odham)¹⁴⁰; Tu'rosip (Uto-Aztecan: Shoshoni)¹⁴⁰; Waejoka (Kiowa Tanoan: Tewa)¹⁴⁰; Weakleaf Burbush; Weak-leaf Bur-ragweed; Weak-leaf Burr Ragweed; Weak-leaf Burr-ragweed; Weak-leaf Bur-sage; Weak-leaf Bursage; Weak-leaved Bur-sage; Weak-leaved Bursage; Weak-leaved Burweed; Weakleaf Bur Ragweed; Weakleaf Burr Ragweed; Weakleaf Bursage; Yerba del Sapo ("Toad Herb", Spanish: New Mexico)¹⁴⁰. DESCRIPTION: Terrestrial perennial forb/herb (procumbent (rarely observed) and/or erect stems 4 inches to 6 feet in height and up to 7 feet in width); the leaves may be gray, gray-green or whitish; the florets may be greenish, greenish-yellow, tan-yellow, white, yellow, yellow-brown or yellow-green; flowering generally takes place between late April and mid-December (additional records: one for early January, one for mid-March, one for late March and one for early April). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky mesas; bases of cliffs; rocky canyons; along rocky and sandy canyon bottoms; crevices in rock faces; knolls; ridges; rocky ridgetops; sandy meadows; foothills; rocky and rocky-gravelly-loamy hills; hilltops; rocky hillsides; rocky, rocky-loamy, rocky-clayey, gravelly, gravelly-loamy, gravelly-clayey, sandy, sandy-loamy and sandy-clayey slopes; bajadas; piedmonts; shaley-sandy outcrops; terraces; prairies; sandy-silty plains; gravelly, gravelly-sandy, sandy and clayey flats; rocky-silty, gravelly-sandy and sandy valley floors; valley bottoms; coastal plains; coastal beaches; along railroad right-of-ways; along clayey roadsides; along sandy arroyos; bottoms of arroyos; ravines; seeps; springs; along streams; streambeds; along rivers; sandy riverbeds; along and in gravelly, gravelly-sandy, gravelly-sandy-silty and sandy washes; along rocky drainages; within rocky drainage ways; around ponds; around lakes; (drying) lakebeds; playas; ciénegas; depressions; silty swales; along banks of creeks, rivers and washes; borders of washes; (gravelly-sandy) edges of washes and playas; margins of pools; beaches; rocky benches; terraces; bottomlands; floodplains; rocky mesquite bosques; fencerows; around stock tanks (represos); around reservoirs; canal banks; ditches; riparian areas; waste places, and disturbed areas growing in muddy (rarely reported) and moist and dry boulders, rocky, shaley-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, gravelly loam, sandy loam and sandy-clayey loam ground; rocky clay, gravelly clay and clay ground, and rocky silty, gravelly silty, gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 8,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The flowers are reported to be fragrant. *Ambrosia confertiflora* is native to south-central and southern North America. *5, 6, 15, 16, 43 (061309), 44 (033011), 46 (recorded as *Franseria confertiflora* (DC.) Rydb., Page 895), 58, 63 (020912), 68, 77, 85 (020912 - color presentation), 115 (color presentation), 124 (033011), 140 (Pages 53-54, 56 & 283), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Ambrosia deltoidea* (J. Torrey) W.W. Payne: Triangle Bur Ragweed**

SYNONYMY: *Franseria deltoidea* J. Torrey. COMMON NAMES: Ambrosia (a name also applied to other species and the genus *Ambrosia*, Spanish); Burrobush (a name also applied to other species); Bur-sage (a name also applied to other species and the genus *Ambrosia*); Chamizo Forrajero (Spanish); Chicurilla (a name also applied to other species, Spanish); Estafiate (a name also applied to other species, Spanish); Rabbit Bush; Kokomak Segoi (Pima); Shegoi (Pima); Todshag (Papago); Triangle Bur Ragweed; Triangle Burr Ragweed; Triangle Bursage; Triangle-leaf Bursage; Triangle-leaved Bursage; Triangle-leaf Burr Ragweed. DESCRIPTION: Terrestrial perennial evergreen (or drought-deciduous) subshrub or shrub (erect stems 1 to 4 feet in height; one plant was observed and described as being 2 feet in height and width); the leaves are gray, gray-green or green (turning gray with age); the flower heads may be greenish, greenish-yellow, purple, white or yellow; flowering generally takes place between early January and early May (additional records: three for late May; flowering ending as late as July has been reported). HABITAT: Within the range of this

species it has been reported from mountains; rocky mesas; cliffs; bases of cliffs; rocky canyons; canyon bottoms; buttes; ridges; crater floors; rocky foothills; rocky hills; rocky hillsides; bases of hills; rocky, rocky, gravelly and gravelly-clayey slopes; bases of slopes; sandy bajadas; lava flows; dunes; sandy plains; rocky, stony-chalky, gravelly and sandy flats; basins; rocky valley floors; along rocky-sandy roadsides; shallow arroyos; ravines; runnels; riverbeds; along and in stony-gravelly, gravelly, gravelly-sandy and sandy washes; within drainages; (rocky and sandy) banks of creeks and washes; edges of dry lakes (playas); margins of washes; gravelly terraces; bottomlands; floodplains; riparian areas, and disturbed areas growing in moist and dry desert pavement; rocky, rocky-gravelly, rocky-sandy, stony-gravelly, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam and loam ground; rocky clay, gravelly clay and sandy clay ground, and stony chalky ground, occurring from sea level to 4,000 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and may be useful in the restoration of disturbed habitat. It may live to be about 50 years of age. The Triangleleaf Bursage serves as a nurse plant for Saguaro (*Carnegiea gigantea*), Ocotillo (*Fouquieria splendens*), Foothill Paloverde (*Parkinsonia microphylla*) and other woody plants. The Triangleleaf Bursage is one of the first plants to colonize disturbed areas. *Ambrosia deltoidea* is native to southwest-central and southern North America. *5, 6, 13 (Pages 305-306), 15, 16, 28 (color photograph 807), 43 (070910), 44 (033011), 46 (recorded as *Franseria deltoidea* Torr., Page 896), 63 (021012 - color presentation), 77 (color photograph #68), 85 (021112 - color presentation including habitat), 91 (Pages 82-85, 115 (color presentation), 124 (033011 - no record of species; genus record), **MBJ** (undated record which may include landscaped material that persists without maintenance), **WTK** (August 4, 2005)*

Ambrosia monogyra (see *Hymenoclea monogyra*)

Ambrosia salsola (see *Hymenoclea salsola*)

***Antheropeas lanosum* (A. Gray) P.A. Rydberg: White Easterbonnets**

SYNONYMY: *Eriophyllum lanosum* (A. Gray) A. Gray. COMMON NAMES: Gray's Woollyleaf; Gray's Woollyleaf; White Easter Bonnets; White Easter-bonnets; White Easterbonnets; White Woolly Eriophyllum; White Woolly Daisy; White Woolly Sunflower; White Woolly Daisy; White Woolly-sunflower; White-flowered Woolly Daisy; Whoolly Daisy; Whoolly Daisy; Woolly Daisy (a name also applied to the genus *Eriophyllum*); Woolly-daisy (a name also applied to the genus *Eriophyllum*); Woolly Eriophyllum (a name also applied to other species); Woolly Fleabane. DESCRIPTION: Terrestrial annual forb/herb (decumbent, ascending and/or erect stems $\frac{3}{4}$ to 8 inches in height); the stems are reddish; the leaves are gray-green; the disk florets may be orange-yellow or yellow; the ray florets are white; flowering generally takes place between early February and mid-May (additional records: two for mid-June and one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; gravelly and pebbly-sandy-silty mesas; along gravelly canyons; talus slopes; bases of cliffs; bluffs; rocky and gravelly ridges; gravelly foothills; rocky, stony-gravelly and gravelly hills; hilltops; rocky hillsides; rocky, rocky-loamy, cobbly, gravelly, gravelly-sandy and gravelly-loamy slopes; bases of slopes; alluvial fans; bajadas; bouldery and rocky outcrops; amongst rocks; sand hills; gravelly and sandy plains; rocky, gravelly and sandy flats; basins; valley floors; silty valley bottoms; along gravelly, sandy and clayey roadsides; along and in gravelly and sandy arroyos; creekbeds; riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; along (muddy, gravelly-sandy and sandy) banks of arroyos and washes; shores of lakes; gravelly-sand bars; benches; terraces; sandy bottomlands, and disturbed areas growing in dry gravelly desert pavement; bouldery-rocky-gravelly, rocky, rocky-gravelly, rocky-sandy, stony, stony-gravelly, stony-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly-sandy loam, gravelly loam, sandy loam and silty loam ground; clay ground, and pebbly-sandy silty, powdery silty and silty ground, occurring from 500 to 6,800 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTE: *Antheropeas lanosum* is native to southwest-central and southern North America. *5, 6, 15, 16, 28 (recorded as *Eriophyllum lanosum*, color photograph 251), 43 (111109 - *Antheropeas lanosum* Rydb.), 44 (021412 - records located under *Eriophyllum lanosum*), 46 (recorded as *Eriophyllum lanosum* Gray, Page 921), 58, 63 (021412 - color presentation including habitat), 77 (recorded as *Eriophyllum lanosum*, color photograph #19), **85** (021412 - color presentation), 115 (color presentation), 124 (021412 - no record of species or genus), 140 (Page 284 - recorded as *Eriophyllum lanosum* A. Gray), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Aplopappus gracilis (see footnote 46 under *Machaeranthera gracilis*)

Aplopappus laricifolius (see footnote 46 under *Ericameria laricifolia*)

Aplopappus spinulosus var. *turbinellus* (see footnote 46 under *Machaeranthera pinnatifida* subsp. *pinnatifida*)

Aplopappus tenuisectus (see footnote 46 under *Isocoma tenuisecta*)

Arida arizonica (see footnote 85 under *Machaeranthera arida*)

Aster tagetinus (see *Machaeranthera tagetina*)

Aster tephrodes (see *Machaeranthera canescens* subsp. *canescens* var. *incana*)

Baccharis glutinosa (see *Baccharis salicifolia*)

***Baccharis salicifolia* (H. Ruiz Lopez & J.A. Pavon) C.H. Persoon: Mule-fat**

SYNONYMY: *Baccharis glutinosa* C.H. Persoon. COMMON NAMES: Azumiate (Hispanic); Ba'asham <baashoma> (Uto-Aztec: Mountain Pima)¹⁴⁰; Bacho'ma <bachomo> (Uto-Aztec: Mayo)¹⁴⁰; Bachomo (Hispanic); Baldag Shi (Hispanic); Bašam (Uto-Aztec: Onavas Pima)¹⁴⁰; Batamote (Spanish: Mexico, Sonora); Batamote [Guatamotie] (Spanish: Baja California, California, Sinaloa, Sonora)¹⁴⁰; Black Willow (a name also applied to other species, Santa Barbara County, California); Broom Baccharis; Caaōj (Hokan: Seri)¹⁴⁰; Čaguši <čagu'si> (Uto-Aztec: Tarahumara)¹⁴⁰; Chamiso (Hispanic); Chamiso del Rio (Hispanic); Chilca; Cucamoarisha (Cora); Cuerepillo (Hispanic); Dsea Miis Ro (Hispanic); Dsea Miis Tee (Hispanic); False Water Willow; False Water-motie; False Water-wally; False Willow (a name also applied to other species); Gila Water-motie; Gila Water-wally; Gila Water Willow; Gila Willow; Groundsel Tree (a name also applied to the genus *Baccharis*); Groundsel Tree (English)¹⁴⁰; Guachomó <uachama> (Uto-Aztec: mountain Guarijío)¹⁴⁰; Guagualuasi (Uto-Aztec: mountain Guarijío)¹⁴⁰; Guamate; Guatamote (Hispanic); Guatemote (Spanish); Guatarote (Hispanic); Hamaséiva (Yuman: Havasupai)¹⁴⁰; Ham□avil (Yuman: Walapai)¹⁴⁰; Hanta Veél (Yuman: Mohave and Yuma)¹⁴⁰; Hierba del Carbonero ("Charcoal Maker's Herb", Spanish: Valley of Mexico)¹⁴⁰; Hierba del Pasma (Spanish); Huamate; Jara ("Arrow", Spanish: Guanajuato, Texas)¹⁴⁰; Jara Amarilla (Hispanic); Jara Mexicana (Hispanic); Jaral (Spanish: Guanajuato, Tamaulipas)¹⁴⁰; Jarilla [Jarillo del Río] (Little [River] Arrow", Spanish: Chihuahua, Durango, Sinaloa, Sonora)¹⁴⁰; K'idzitso Bi'tsiin Ligai <k'ilcoi bicin lagai> (Athapascan: Navajo)¹⁴⁰; KáaW (Seri); Mb'axu (Oto-Manguean: Mazahua)¹⁴⁰; Mule Fat; Mule-fat; Mule's Fat (English: Arizona, New Mexico)¹⁴⁰; Mule's-fat; Mulefat; Mulefat Baccharis; Mulesfat; Ñehol ("Servant", Uto-Aztec: Tohono O'odham); Ñehol ("Servant", Uto-Aztec: Tohono O'odham)¹⁴⁰; Oágam ("Brains or Marrow", Uto-Aztec: Akimel O'odham)¹⁴⁰; Paq'ily <paki> (Uto-Aztec: Cahuilla)¹⁴⁰; Pogos□v□ (Uto-Aztec: Kawaiisu)¹⁴⁰; Romerello; Rosin Brush; Seep Willow (a name also applied to other species); Seep Willow Baccharis; Seep-willow (a name also applied to other species); Seep-willow (English)¹⁴⁰; Seep-willow Baccharis; Seepwillow (a name also applied to other species); Seepwillow Baccharis; Shu' (Chumash: Barbareño and Ineseño Chumash)¹⁴⁰; Sticky Baccharis; Sticky False-willow; Sticky Seep-willow; □u:□k Kuasī <š:šk, susk, kuagsig> (Uto-Aztec: Hiá Ce □ O'odham, Sonora)¹⁴⁰; □u□k Ku'agi <š:šk kuagsig> (Uto-Aztec: Tohono O'odham)¹⁴⁰; <tle> (Athapascan: Western Apache)¹⁴⁰; Tóeejí Bée'ditó <tó□i□'i keʔ'o> (Athapascan: Navajo)¹⁴⁰; Togzten (Hispanic); Tu Ta' Vi (Hispanic); Uachamo (Uto-Aztec: Mayo, Sonora)¹⁴⁰; Vara Dulce ("Sweet Bush", Spanish: Chihuahua)¹⁴⁰; Wa□lurúbisi <wa□erúgesi> (Uto-Aztec: Guarijío)¹⁴⁰; Water Motie; Water-motie; Water-motor; Water Wally; Water Willow (a name also applied to other species); [False, Gila] Water Willow [Water-motie, Water-Wally] (English)¹⁴⁰; Water-wally; Watermotie; Waterwally; Waterwillow; Willow Groundsel-tree; Willow Leafed Baccharis; Willow-leaf Baccharis; Willow-leaf False-willow; Willow-leafed Baccharis; Willow-leaved Baccharis; Wita' (Chumash: Ventureño Chumash)¹⁴⁰; Xa'tam Mual (Yuman: Paipai)¹⁴⁰; Xantavai,ly (Yuman: Maricopa)¹⁴⁰; Yerba del Pasma ("Herb for Pasma" a name also applied to other species, Spanish: Chihuahua)¹⁴⁰. DESCRIPTION: Terrestrial perennial deciduous shrub (clustered ascending and/or erect stems 1 to 15 feet in height; plants were observed and described as being 10 feet in height forming clones 6 to 13 feet in width); the bark is gray; the stems may be green to tan; the leaves may be gray, green or dark green; the disc florets (no ray florets) may be cream, cream-maroon, cream-maroon-purple, cream-white, grayish-white, off white, white, white-magenta, whitish-yellow or yellow; flowering generally takes place between mid-January and mid-November (additional record: one for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky and sandy mesas; bouldery-rocky, rocky and rocky-sandy canyons; sandy canyon bottoms; along rocky, sandy and sandy-silty canyon bottoms; chasms; talus; bases of cliffs; foothills; hills; rocky hillsides; rocky, gravelly, sandy, sandy-loamy, sandy-clayey-loamy clayey-loamy, loamy and clayey slopes; bajadas; amongst rocks; alcoves; sand dunes; plains; rocky-sandy, sandy and clayey flats; valley floors (bolsons); coastal dunes; along railroad right-of-ways; along gravelly-sandy, sandy and sandy-loamy roadsides; along and in rocky and sandy arroyos; clayey bottoms of arroyos; draws; gullies; ravines (barrancas); seeps; gravelly and sandy springs; seeping springs; silty soils along streams; in bouldery-rocky, rocky and sandy streambeds; along and in bouldery creeks; along and in sandy creekbeds; along rivers; along and in rocky, gravelly, sandy and silty riverbeds; along and in bouldery-sandy, rocky, cobbly, gravelly, gravelly-sandy, sandy and silty washes; along and in bouldery-rocky and rocky-clayey drainages; along and in sandy drainage ways; along watercourses; bases of waterfalls; rock tanks; around and in ponds; lakebeds; playas; ciénegas; freshwater and saltwater marshes; swampy areas; depressions; along (sandy) banks of arroyos, springs, streams, streambeds, creeks, rivers, washes and pools; borders of washes; along (sandy, sandy-silty and clayey) edges of springs, streams, creeks, rivers, washes, ponds, lakes, playas and saltmarshes; along (clayey-loamy) margins of streams, washes and lakes; (rocky-sandy and sandy) shores of rivers and lakes; mudflats; gravel and sand bars; sandbanks; shell-mantled beach ridges; rocky and sandy beaches; sandy benches; bouldery-gravelly-sandy terraces; gravelly and sandy bottomlands; sandy floodplains; lowlands; along dikes; along dam outlets; margins of stock tanks (charcos); reservoirs; along canals; along ditches; muddy, rocky-gravelly-sandy, rocky-sandy and sandy riparian areas, and disturbed areas growing in shallow water and wet, moist, damp and dry ground in bouldery, bouldery-rocky, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-gravelly-sandy, rocky-sandy, shaley, cobbly, cobbly-loamy, gravelly, gravelly-sandy and sandy ground; sandy loam, sandy-clayey loam, clayey loam and loam ground; rocky clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 7,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop; it was also noted as having been used as tools, as a drug or medication and as a commodity used in personal hygiene (the leaves were used in a hair wash solution to prevent baldness). Seep Willow is useful in controlling watercourse erosion and slowing stream flow. Bees and butterflies have

been observed visiting the flowers. *Baccharis salicifolia* is native to southwest-central and southern North America; Central America, and South America. *5, 6, 13 (recorded as *Baccharis glutinosa* Pers., Page 335), 15 (recorded as *Baccharis glutinosa* Pers.), 16, 28 (recorded as *Baccharis glutinosa*, color photograph 264), 30, 43 (111209), 44 (051111), 46 (recorded as *Baccharis glutinosa* Pers., Page 884), 48 (recorded as *Baccharis glutinosa*), 58 (recorded as *Baccharis glutinosa* Pers.), 63 (021512 - color presentation), 68, 77, 85 (021612 - color presentation), 115 (color presentation), 124 (051111), 127, 134, 140 (Pages 57-59, 60 & 283), **HR***

***Baccharis sarothroides* A. Gray: Desertbroom**

COMMON NAMES: A:n <'a:ñ> (Uto-Aztec: Tohono O'odham)¹⁴⁰; Amargo; Batamote <guatamate, huatemote> (Spanish: Mexico)¹⁴⁰; Broom Baccharis; Broom Seep Willow; Broom Seep-willow; Caasot Caocl (Seri); Casol Caacöl (Hokan: Seri)¹⁴⁰; Desert Broom; Desert Broom False Willow; Desert Broom False-willow; Desert-broom (English: Arizona, New Mexico)¹⁴⁰; Desert-broom False Willow; Desert-broom False-willow; Desertbroom; Desertbroom Baccharis; Escoba; Escoba Amarga ("Bitter Broom", Spanish: Baja California)¹⁴⁰; Grease-wood (a name also applied to other species); Grease-wood (English)¹⁴⁰; Greasewood (a name also applied to other species); Groundsel (a name also applied to other species and the genus *Baccharis*); Hierba del Pasma ("Herb for Pasma", Spanish: Baja California)¹⁴⁰; □I:x^wir (Yuman: Cocopa)¹⁴⁰; Mexican Broom; Romerillo ("Little Rosemary", Spanish: Sonora)¹⁴⁰; Rosin Brush; Rosin Bush (a name also applied to other species); Rosin-brush (a name also applied to other species); Rosinbrush (a name also applied to other species); Shooshk Vakch ("Wet Shoes", Pima); Shuushk Vakchk ("Wet Sandals/Shoes", Uto-Aztec: Akimel O'odham)¹⁴⁰; Soosk Vaks ("Wet Shoes", questionably Maricopa); □u□k Kuagī <su:sk, □u□k kuagig> (Uto-Aztec: Hiá Ce□ O'odham, Sonora)¹⁴⁰; □u□k Wakc <□uu□k wakchk, šu:šk uwakita> (Uto-Aztec: Tohono O'odham)¹⁴⁰; Wet Shoes. DESCRIPTION: Terrestrial perennial deciduous shrub (erect stems 3 to 13 feet in height; one plant was observed and described as being 40 inches in height and 40 inches in width, one plant was observed and described as being 7 feet in height and 8 feet in width); the foliage is green or yellow-green; the flower heads (dioecious) may be cream, golden, rust, white or yellow; flowering generally takes place between mid-September and late February (additional records: one for mid-March, two for late March, two for mid-April, one for late April, one for mid-July, one for early August and one for late August). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rocky canyons; canyon bottoms; chasms; ridges; foothills; silty-clayey hills; rocky hillsides; bouldery-gravelly, rocky, gravelly-loamy and loamy slopes; bajadas; debris fans; terraces; sandy plains; rocky and gravelly flats; rocky valley floors; coastal plains; along rocky, rocky-gravelly-sandy-clayey-loamy, rocky-gravelly-sandy-silty-clayey-loamy, gravelly-loamy and sandy roadsides; along sandy arroyos; along sandy and clayey bottoms of arroyos; draws; gulches; gullies; springs; along streams; streambeds; along gravelly-sandy creeks; gravelly and sandy creekbeds; along rivers; along bouldery-cobbly-sandy, rocky-sandy, gravelly and sandy riverbeds; along and in cobbly, gravelly and sandy washes; along drainages; along drainage ways; waterholes; playas; ciénegas; oases; along (gravelly and sandy) banks of arroyos, rivers and washes; borders of washes; edges of washes; sandy beaches; sandy benches; terraces; bottomlands; floodplains; lowlands; mesquite bosques; along canals; along ditches; muddy and sandy riparian areas, and disturbed areas growing in muddy and damp and dry bouldery-cobbly-sandy, bouldery-gravelly, rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy-clayey loam, rocky-gravelly-sandy-silty-clayey loam, gravelly loam and loam ground; silty clay and clay ground, and sandy silty ground, occurring from sea level to 6,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, consider planting only male plants to eliminate seed production. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial beverage and/or fiber crop; it was also noted as having been used in the making of weapons and as a drug or medication. The pollen produced by male plants of this species may cause an allergic reaction in some individuals. *Baccharis sarothroides* is native to southwest-central and southern North America. *5, 6, 13 (Pages 338, 339-340), 15, 16, 18, 26 (color photograph), 28 (color photograph 265), 43 (111209), 44 (033111), 46 (Page 883), 48, 58, 63 (021712), 77, 85 (021712 - color presentation including habitat), 115 (color presentation), 124 (033111 - no record of species; genus record), 127, 140 (Pages 59-60, 79, 87 & 283), **ADS** (Tuesday, January 10, 2012, "Broom nothing to sneeze at," page A1), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Baeria chrysostoma (see *Lasthenia californica* subsp. *californica*)

Baeria chrysostoma var. *gracilis* (see *Lasthenia californica* subsp. *californica*)

***Bahia absinthifolia* G. Bentham: Hairseed Bahia**

SYNONYMY: *Bahia absinthifolia* G. Bentham var. *absinthifolia*; *Bahia absinthifolia* G. Bentham var. *dealbata* (A. Gray) A. Gray. COMMON NAMES: Bahia (a name also applied to the genus *Bahia*); Dealbata's Bahia (*Bahia absinthifolia* var. *dealbata* - Not Accepted, *Bahia absinthifolia* - Accepted); Hairy-seed False Goldfields (*Bahia absinthifolia* var. *absinthifolia* - Not Accepted, *Bahia absinthifolia* - Accepted); Hairseed Bahia; Hairseed Bahia (*Bahia absinthifolia* var. *absinthifolia* - Not Accepted, *Bahia absinthifolia* - Accepted). DESCRIPTION: Terrestrial perennial forb/herb (erect stems 4 inches to 2 feet in height; plants were observed and described as being 12 to 18 inches in height and width); the herbage may be gray, gray-green, light green, silvery-gray-green or white woolly; the disk florets may be orange, orange-yellow or yellow; the ray florets are yellow; flowering generally takes place between mid-March and mid-November). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy mesas; sandy-loamy plateaus; cliff faces; rocky canyons; talus; shaley

ridges; rocky ridgetops; foothills; clayey hills; rocky hillsides; bouldery escarpments; bedrock, rocky, rocky-gravelly, rocky-loamy, gravelly, clayey and silty-clayey slopes; alluvial fans; gravelly and sandy bajadas; gravelly pediment fans; rocky outcrops; amongst creosote bushes; sand dunes; sandy banks; plains; gravelly and sandy flats; basins; rocky and sandy valley floors; along rocky and sandy roadsides; within arroyos; clayey bottoms of arroyos; draws; gullies; within gravelly and sandy washes; swales; banks of ravines; terraces; floodplains; lowlands; riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery, rocky, rocky-gravelly, shaley, gravelly and sandy ground; rocky loam and sandy loam ground; silty clay and clay ground, and sandy silty ground, occurring from 1,800 to 8,800 feet, in elevation in the woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Bahia absinthifolia* is native to southwest-central and southern North America. *5, 6, 16, 28 (color photograph 395), 42 (062713), 43 (062713 - no record for *Bahia absinthifolia* G. Bentham var. *absinthifolia*; *Bahia absinthifolia* var. *dealbata* A. Gray), 44 (051111 - no listing under Common Names), 46 (Page 925), 63 (062713 - recognizes varieties *absinthifolia* and *dealbata*, color presentation), 77 (color photograph #16), 85 (021712 - color presentation including habitat), 115 (color presentation), 124 (051111 - no record of species; genus record), 140 (recorded as *Bahia absinthifolia* var. *dealbata* (A. Gray) A. Gray, Page 283), **MBJ** (recorded as *Bahia absinthifolia* var. *dealbata*, undated record which may include landscaped material that persists without maintenance)*

Bahia absinthifolia var. *absinthifolia* (see *Bahia absinthifolia*)

Bahia absinthifolia var. *dealbata* (see *Bahia absinthifolia*)

***Baileya multiradiata* W.H. Harvey & A. Gray ex A. Gray: Desert Marigold**

SYNONYMY: *Baileya multiradiata* W.H. Harvey & A. Gray ex A. Gray var. *thurberi* (P.A. Rydberg) M.T. Kittell. COMMON NAMES: *Baileya* del Desierto; Cloth-of-gold; Desert *Baileya*; Desert Marigold (a name also applied to the genus *Baileya*); Desert-marigold (a name also applied to the genus *Baileya*); Hierba Amarilla (Spanish); Many-flowered Desert Marigold; Many-flowered Desert-marigold; Many-ray Desert-marigold; Many-rayed Desert-marigold; Paper Daisy (a name also applied to other species); Paper Flower Desert-marigold; Paper-flower Desert-marigold; Paperdaisy; Showy Desert Marigold; Showy Desert-marigold; Wild Desert-marigold; Wild Marigold (a name also applied to other species). DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb (ascending and/or erect stems 6 to 40 inches in height); the foliage may be gray-green, gray-white-green, grayish and woolly or silvery-green; the flower heads (1½ to 2 inches in width) may be lemon-yellow, orange, light yellow or yellow; flowering generally takes place between mid-January and late December but may continue year round under favorable conditions. HABITAT: Within the range of this species it has been reported from mountains; rocky and sandy mesas; rocky plateaus; rocky and sandy canyons; sandy pockets of soil in rocks; rocky bluffs; buttes; bedrock and sandy ridges; foothills; rocky, gravelly and gravelly-sandy hills; rocky, rocky-gravelly, sandy-clayey and clayey hillsides; rocky hilltops; rocky, stony-gravelly-sandy, cindery, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy and sandy-clayey slopes; rocky-sandy alluvial fans; bajadas; amongst rocks; sand hills; sand dunes; sandy embankments; bench tops; terraces; prairies; gravelly and sandy plains; gravelly, sandy and sandy-loamy flats; rocky bowls; valley floors; along gravelly, gravelly-sandy, sandy and sandy-loamy roadsides; within stony-gravelly-sandy arroyos; bottoms of arroyos; stony and gravelly draws; along streams; sandy streambeds; sandy creekbeds; along rivers; rocky riverbeds; within rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; depressions; swales; (sandy) banks of rivers and washes; borders of washes; (gravelly) edges of washes; benches; gravelly terraces; sandy and loamy bottomlands; floodplains; ditch banks; riparian areas, and disturbed areas growing in damp and dry rocky, rocky-gravelly, rocky-sandy, stony, stony-gravelly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam, sandy loam and loam ground, and gravelly clay, sandy clay and clay ground, occurring from sea level to 7,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fiber crop; it was also noted as being a commodity used in personal hygiene. The larva of the the Desert Marigold Moth (*Schinia minima*) uses the flower head in its development. Consider seeding Desert Marigold with native Lupines (*Lupinus* spp.) and Globemallows (*Sphaeralcea* spp.) for a late winter and early spring desert wildflower display. *Baileya multiradiata* is native to southwest-central and southern North America. *5, 6, 15, 16, 18, 28 (color photograph 397), 43 (111309), 44 (051111), 46 (“It is said that horses crop the heads, but fatal poisoning of sheep and goats eating this plant on overgrazed ranges has been reported.”, Page 915), 48, 58, 63 (021712 - color presentation including habitat), 68 (“Desert *Baileya*, either fresh or dried, is poisonous to sheep and goats, but not to horses or cattle. The plant is not palatable to sheep, but the showy flower heads are relished, however, the flowering and fruiting heads are nearly twice as poisonous as the green leaves. Goats evidently do not graze the plant under range conditions, but have been poisoned in experimental feeding. Sheep losses from Desert *Baileya* have occurred in Arizona when green forage is scarce.”), 77 (color photograph #17), 80 (This plant is listed as a Secondary Poisonous Range Plant. “The toxic principle is an unknown water-soluble compound. Plants are toxic to sheep on the range in both the green and dry state. ... Goats have been poisoned by experimental feeding but apparently do not eat the plant on the range. Both cattle and horses graze the plant on the range but no losses have been observed. Losses generally occur only when other feed is short or animals are trailed through dense stands.” See text for additional information.), 85 (021812 - “*Baileya multiradiata* is reportedly toxic to livestock, especially to sheep and goats, where losses as high as 25% have been reported on overgrazed rangeland in Texas (D. W. Hill et al. 1979, 1980). Cattle and horses seem to be unaffected, or at least poisoning of these animals has gone unreported. The chemical agent responsible is believed to be hymenoxon, a sesquiterpene lactone originally found in the

genus *Hymenoxys*, where it is also toxic.”, color presentation), 86 (color photograph), 115 (color presentation), 124 (051111 - no record of genus or species), 127, **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Brickellia californica* (J. Torrey & A. Gray) A. Gray (var. *californica* is the variety reported as occurring in Arizona): California Brickellbush**

COMMON NAMES: ‘Azee’ Dich’iizh <□aze□ dičičz> (Athapascan: Navajo)¹⁴⁰; Bił Háäch’i <bilha.zefˀn> (“Its Scent is Carried on the Breeze”, Athapascan: Navajo)¹⁴⁰; Brickellbush (a name also applied to the genus *Brickellia*); [California] Bricklebrush [Brickellbush] (English)¹⁴⁰; California Boneset; California Brickle-bush; California Brickelbush; California Brickell Bush; California Brickell-bush; California Brickellbush; California Brickellia; California Bricklebrush; California Tasseflower; Canyon Bricklebrush; False Boneset (a name also applied to the genus *Brickellia*); False Boneset (English)¹⁴⁰; Hamula (“Hooked”, Spanish: Mexico)¹⁴⁰; Hierba <yerba> de la Vaca (“Cow Herb”, Spanish: New Mexico, Mexico, Baja California)¹⁴⁰; Kwaq Impal (Yuman: Paipai)¹⁴⁰; Pachaba (Spanish: Arizona)¹⁴⁰; Patcavu (Uto-Aztecan: Hopi)¹⁴⁰; Prodigiosa (“Marvelous” a name also applied to other species, Spanish: Mexico)¹⁴⁰; Tségháá’ adisxas <cekˀi.n□alcizi> (Athapascan: Navajo)¹⁴⁰. DESCRIPTION: Terrestrial perennial subshrub or shrub (stems (branched from near base) 1 to 7 feet in height; plants were observed and described as being 28 inches in height and width, plants were observed and described as being 28 inches in height and 5 feet width, plants were observed and described as being 40 inches in height and width, plants were observed and described as being 40 inches in height and 80 inches in width); the branches may be gray or white; the leaves may be gray-green, dark green or green tinged with dark purple; the florets may be cream, cream-pink, cream-white, greenish, greenish-yellow, red-purple, white, yellow, pale yellow-green, yellow-green or pale yellowish; flowering generally takes place between early July and early December. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mountainsides; mesas; mesa rims; bases of mesas; plateaus; rocky rims; along rocky cliffs; hanging gardens; bases of cliffs; along bouldery-sandy, rocky and gravelly canyons; rocky-sandy canyonsides; rocky bases of canyon walls; along bouldery, rocky, rocky-gravelly and rocky-sandy-silty canyon bottoms; rock clefts; rocky gorges; bouldery and rocky talus slopes; (sandy) crevices in bedrock, boulders and rocks; along bluffs; buttes; rocky ledges; rocky and rocky-clayey ridges; sandy ridgetops; bouldery ridgelines; openings in forests and chaparral; rocky-sandy rims of craters; foothills; rocky hills; rocky and rocky-sandy hillsides; escarpments; rocky, rocky-clayey, rocky-clayey-loamy, shaley, stony-loamy, cindery, gravelly, gravelly-clayey, sandy, sandy-clayey, sandy-silty-loamy, loamy, clayey and clayey-loamy slopes; sandy alluvial fans; bajadas; bouldery and rocky outcrops; bases of rock outcrops; amongst boulders, rocks and cobbles; bases of rocks; lava flows; lava fields; lava beds; sand dunes; rocky banks; debris flows; rocky, cindery and sandy flats; valley floors; along rocky and rocky-shaley roadsides; along and in gravelly arroyos; rocky bottoms of arroyos; draws; rocky ravines; seeps; bouldery, gravelly, gravelly-sandy and sandy springs; along streams; along and in bouldery-rocky, rocky-cobbly and gravelly streambeds; along creeks; along and in rocky-sandy and sandy creekbeds; along rivers; in gravelly riverbeds; along and in rocky, rocky-sandy, cobbly, gravelly and sandy washes; bouldery drainages; along rocky drainage ways; bogs; ciénegas; (rocky) banks of arroyos, ravines, rivers and washes; borders of washes; along (gravelly-sandy) edges of rivers and washes; (sandy) margins of creeks; gravelly-sandy and sandy beaches; benches; terraces; floodplains; muddy, rocky, sandy and sandy-clayey riparian areas, and disturbed areas growing in muddy and damp and dry bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-shaley, rocky-cobbly, rocky-gravelly, rocky-sandy, shaley, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, stony loam, gravelly loam, sandy-silty loam, clayey loam and loam ground; rocky clay, gravelly clay, sandy clay and clay ground, and rocky-sandy silty ground, occurring from sea level to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food/beverage crop (the leaves were used as a substitute for tea); it was also noted as having been used as a drug or medication. *Brickellia californica* is native to southwest-central and southern North America. *5, 6, 13 (Pages 346-347), 15, 16, 43 (111409), 44 (021912 - color presentation), 46 (Page 849), 48 (genus), 58, 63 (021912 - color presentation), 77, **85** (012111 - color presentation), 124 (021912), 127, 140 (Pages 62-63 & 283)*

***Calycoseris wrightii* A. Gray: White Tackstem**

COMMON NAMES: Pale Tack Plant; Pale Tackplant; Tackstem (a name also applied to the genus *Calycoseris*); White Cup-fruit; White Cupfruit; White Tack Stem; White Tack-stem; White Tackstem; Wright Cup-fruit; Wright Tack-stem; Wright Tackstem; Wright’s Cup-fruit; Wright’s Tack-stem; Wright’s Tackstem. DESCRIPTION: Terrestrial annual forb/herb (erect stems 10 to 12 inches in height); the stems are green and covered with straw-colored glands; the leaves are gray-green; the disc florets may be creamy-yellow or whitish-yellow; the ray florets are white (with magenta stripes on underside) turning pinkish or purplish with age; flowering generally takes place between late January and mid-June. HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; rocky canyons; buttes; ridges; bouldery and rocky ridgetops; cinder cones; foothills; rocky and sandy hills; rocky hillsides; rocky, rocky-gravelly-loamy, rocky-sandy, stony, gravelly, gravelly-sandy and sandy slopes; rocky and gravelly alluvial fans; gravelly, gravelly-loamy and sandy bajadas; rocky outcrops; gravelly plains; gravelly, gravelly-clayey, sandy-clayey, sandy-clayey-loamy and loamy flats; sandy basins; valley floors; along rocky, gravelly, gravelly-sandy, gravelly-sandy-clayey-loamy, gravelly-loamy and sandy roadsides; within arroyos; along and in rocky, gravelly and sandy washes; along drainages; gravelly drainage ways; edges of ciénegas; sandy benches; terraces; canal banks; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, stony, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly loam, gravelly-sandy-clayey loam, sandy loam, sandy-

clayey loam and loam ground; gravelly clay and sandy clay ground, and gravelly-sandy silty ground, occurring from 400 to 7,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Calycoseris wrightii* is native to southwest-central and southern North America. *5, 6, 15, 16, 28 (color photograph 260), 43 (111409), 44 (021912 - color photograph), 46 (Page 964), 58, 63 (021912 - color presentation), 77, 85 (021912 - color presentation), 86 (note under *Rafinesquia neomexicana*), 115 (color presentation), 124 (021912 - no record of species or genus), **HR***

***Centaurea melitensis* C. Linnaeus: Maltese Star-thistle**

COMMON NAMES: Cardo (Spanish); Centáurea-estrela-de-malta (Portuguese: Brazil); Cockspur Thistle; Coix de Malte (French); Malta Centaurea; Malta Star Thistle; Malta Star-thistle; Malta Starthistle; Malta Thistle; Maltese Centaury; Maltese Cockspur; Maltese Star Thistle; Maltese Star-thistle; Maltese Starthistle; Maltese Thistle; Malteser Flockenblume (German); Napa Star Thistle; Napa Star-thistle; Napa Starthistle; Napa Thistle; Saucy Jack; Spotted Knapweed (a name also applied to other species); Star-thistle (a name also applied to the genus *Centaurea*); Tocalote; Tocolote. DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 4 to 40 inches in height); the foliage is blue-green or dull green; the flower heads are yellow; flowering generally takes place between early March and late July (additional records: one for mid-August, one for late August, one for early September and one for early October). HABITAT: Within the range of this species it has been reported from mountains; mesas; clayey cliffs; canyons; sandy and clayey canyon bottoms; rocky edges of bluffs; sandy-loamy ridges; clayey ridgetops; openings in forests and woodlands; meadows; hills; rocky and rocky-sandy hillsides; rocky, rocky-loamy-clayey, rocky-clayey, sandy-silty, loamy and clayey slopes; bajadas; sand hills; gravelly banks; plains; flats; valley floors; coastal marshes; railroad right-of-ways; along gravelly-sandy-loamy, gravelly-sandy-clayey-loamy, gravelly-clayey loam, sandy-loamy and clayey roadsides; along arroyos; draws; gulches; springs; along creeks; along rivers; riverbeds; along and in gravelly and sandy washes; salt marshes; depressions; banks of streams and lakes; along edges of washes and lagoons; sand bars; silty benches; sandy terraces; floodplains; dikes; along sandy edges of stock tanks (charcos and represos); ditches; along ditch banks; recently burned areas; riparian areas; waste places, and disturbed areas growing in muddy and wet, moist and dry rocky, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam, clayey loam, silty loam and loam ground; rocky-loamy clay and clay ground, and sandy silty and silty ground, occurring from sea level to 7,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant that poses a significant threat to native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Centaurea melitensis* is native to northern Africa and southern Europe and coastal islands in the North Atlantic Ocean and Mediterranean Sea. *5, 6, 15, 16, 22 (color photograph), 41 (color photograph), 43 (111409), 44 (051311 - color photograph), 46 (Page 955), 63 (051311), 68, 77, 85 (022012 - color presentation), 101 (note under *Centaurea solstitialis*), 115 (color presentation), 124 (051311 - no record of species; genus record), 127, **HR***

***Chaenactis stevioides* W.J. Hooker & G.A. Arnott: Esteve's Pincushion**

SYNONYMY: *Chaenactis stevioides* W.J. Hooker & G.A. Arnott var. *thornberi* W.P. Stockwell. COMMON NAMES: Broad Flower Pincushion; Broad-flower Pincushion; Broad Flowered Chaenactis; Broad-flowered Chaenactis; Broad-flowered Pincushion; Broad-leaved Chaenactis; Desert Pincushion (a name also applied to other species); Dusty Maiden (a name also applied to other species and the genus *Chaenactis*); Dustymaiden (a name also applied to other species and the genus *Chaenactis*); Esteve Dusty Maiden; Esteve Dusty-maiden; Esteve Dustymaiden; Esteve False Yarrow; Esteve Pincushion; Esteve-pincushion; Esteve's Dusty Maiden; Esteve's Dusty-maiden; Esteve's Dustymaiden; Esteve's Pincushion; False Yarrow (a name also applied to other species and the genus *Chaenactis*); Pincushion Flower (a name also applied to other species and the genus *Chaenactis*); Steve's (inaccurate) Dusty Maiden; Steve's (inaccurate: see Esteve's) Dusty-maiden; Steve's (inaccurate: see Esteve's) Dustymaiden; Steve's (inaccurate: see Esteve's) Pincushion; Stevia Chaenactus; Stevia Desert Chaenactus; Stevia Desert Pincushion; Stevia Dusty Maiden; Stevia Dusty-maiden; Stevia Dustymaiden; Stevia Pincushion; Stevia Pincushion Flower; Stevia Pincushion-flower; Stevia-pincushion. DESCRIPTION: Terrestrial annual forb/herb (erect stems 2 to 18 inches in height); the leaves are grayish-green; the flower heads may be cream, cream-white, pink, yellow, dull white, white, white-cream, whitish-yellow or pale yellow (rarely); flowering generally takes place between early February and mid-July (additional records: one for early January, one for mid-January and one for late November). HABITAT: Within the range of this species it has been reported from mountains; shaley mountaintops; mountainsides; mesas; plateaus; canyon rims; chalky cliffs; bouldery canyons; sandy canyon bottoms; clayey bluffs; buttes; rocky and clayey knolls; ledges; ridges; bedrock and shaley-clayey ridgetops; foothills; bouldery, rocky, rocky-clayey, gravelly, sandy and sandy-clayey hills; rocky hillsides; bedrock, bouldery, bouldery-gravelly, rocky, rocky-gravelly-loamy, rocky-sandy, rocky-sandy-loamy, rocky-clayey, shaley, cobbly-gravelly-sandy, cindery, gravelly, gravelly-sandy, sandy, sandy-loamy and sandy-clayey slopes; bouldery and sandy alluvial fans; gravelly, gravelly-sandy and silty bajadas; amongst boulders; lava fields; sand dunes; sand hummocks; wind-blown sand-ramps; blow-sand deposits; sand fields; pebbly-silty outwash areas; gravelly banks; sandy plains; gravelly, gravelly-sandy, sandy, clayey and silty flats; rocky-sandy-silty basins; sandy and silty valley floors; along gravelly-sandy, gravelly-clayey, gravelly-sandy-clayey-loamy, sandy, clayey and silty roadsides; rocky, rocky-gravelly, gravelly and sandy arroyos; springs; along streams; gravelly streambeds; in sand along creeks; riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and silty-clayey washes; drainages; drainage ways; sandy lakebeds; playas; marshes; silty swales; (gravelly-sandy and sandy) banks of washes; (sandy and sandy-silty) edges of ponds and lakes; mudflats; gravelly-sand bars; beaches; shaley benches; along terraces; sandy bottomlands; sandy floodplains; along canals; ditches; sandy-clayey banks of reservoirs; riparian areas, and disturbed areas growing in dry

desert pavement; bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, shaley, stony-sandy, cobbly-gravelly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-sandy loam, gravelly-sandy loam, gravelly-sandy-clayey loam and sandy loam ground; rocky clay, shaley clay, gravelly clay, sandy clay, silty clay and clay ground; rocky-sandy silty, gravelly-sandy silty, pebbly-silty, sandy silty and silty ground, and chalky ground, occurring from below sea level (-100 feet) to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication and the juice was used as a glue to mend ceremonial items. *Chaenactis stevioides* is native to southwest-central and southern North America. *5, 6, 15, 16, 28 (color photograph 269), 43 (111709), 44 (051411), 46 (Page 923), 58, 63 (111709 - color presentation), 77, 85 (051611 - color presentation), 86 (color photograph), 115 (color presentation), 124 (051411 - no record of genus or species), 127, 140 (Page 284), **MBJ** (correspondence dated May 13, 2013)*

Chaenactis stevioides var. *stevioides* (see *Chaenactis stevioides*)

Chaenactis stevioides var. *thornberi* (see *Chaenactis stevioides*)

***Cirsium neomexicanum* A. Gray: New Mexico Thistle**

COMMON NAMES: ‘Azee’ Dít’ooí <□aze’tít’oih> (Athapascan: Navajo)¹⁴⁰; ‘Azee’ Hókánii <□azé□ hukani> (“Round Medicine”, Athapascan: Navajo)¹⁴⁰; ‘Azee’ Yishdloh (Athapascan: Navajo); Cardillo (“Little Thistle”, Spanish: New Mexico)¹⁴⁰; Cardo (Spanish)¹⁴⁰; Cardo Santo (Spanish: Mexico, Sonora); Čiiyav□ (a name applied to other species in the genus *Cirsium*, Uto-Aztecan: Kawaiisu)¹⁴⁰; Cuna (Uto-Aztecan: Cupeño)¹⁴⁰; Cunala (Uto-Aztecan: Luiseño)¹⁴⁰; Desert Thistle; Gewel <gewihol> (Uto-Aztecan: Hiá Ce□ O’odham)¹⁴⁰; Gewul (Uto-Aztecan: Tohono O’odham)¹⁴⁰; Hosh Ikaz, K□’ Dahosh <goda hosh> (Athapascan: Western Apache)¹⁴⁰; Intermountain Thistle; Lavender Thistle; Mexican Thistle; New Mexico desert-thistle; New Mexico Thistle; Pa’bogo [Pa’bogwo] (Uto-Aztecan)¹⁴⁰; Thistle (a name also applied to other species and the genus *Cirsium*); [New Mexico, Yellow] Thistle (English)¹⁴⁰; Tłobindadatłidje (Athapascan: Chiricahua and Mescalero Apache)¹⁴⁰; Tsñ’ga (Uto-Aztecan: Shoshoni)¹⁴⁰; Tsininga <tcininga, ciniņa> (Uto-Aztecan: Hopi)¹⁴⁰; Yellow Thistle. DESCRIPTION: Terrestrial biennial or perennial forb/herb (erect stems 16 inches to 9½ feet in height); the leaves may be gray, gray-green, dark green or silvery; the flower heads (produced in the second and subsequent years) may be creamy-white, pale lavender, lavender, lavender-pink, pale pink, pink, pinkish-lavender, pink-purple, pink-violet, light purple, purple, rose, rose-purple, violet-purple, white, whitish-cream or white tinged with pink; flowering generally takes place between mid-February and late August (additional record: one for early January; flowering in September has also been reported). HABITAT: Within the range of this species it has been reported from mountains; bouldery mountaintops; rocky mountainsides; sandy mesas; rocky rims; cliff faces; hanging gardens; rocky and sandy-loamy canyons; canyon sides; bouldery-rocky-cobbly and rocky canyon bottoms; talus slopes; crevices in rocks; shallow pockets of soil in rocks; rocky ledges; rocky and shaley-clayey ridges; rocky-gravelly-sandy ridgetops; balsam glades; meadows; foothills; rocky and gravelly-clayey hills; rocky-gravelly-clayey hilltops; rocky, gravelly and silty hillsides; bouldery, rocky, rocky-gravelly, rocky-gravelly-clayey, rocky-silty, rocky-silty-clayey, shaley, stony, gravelly and clayey slopes; bajadas; rocky and gravelly-rocky outcrops; amongst boulders and rocks; sandy bases of rocks; sandy lava flows; sandflats; banks; sandy terraces; plains; along esplanades; rocky, sandy and clayey flats; uplands; valley floors; along rocky, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-silty and clayey roadsides; gravelly-sandy-clayey arroyos; gulches; seeps; around springs; along streams; gravelly streambeds; along creeks; along rivers; riverbeds; within rocky, gravelly, gravelly-sandy and sandy washes; within cobbly drainages; within rocky and sandy drainage ways; silty depressions; along (rocky, stony-gravelly and sandy) banks of streams and rivers; borders of washes; benches; sandy and loamy bottomlands; floodplains; margins of stock ponds; along canals; riparian areas, and disturbed areas growing in moist and dry cryptogamic soil; rimrock pavement; bouldery, bouldery-rocky-cobbly, rocky, rocky-gravelly, rocky-gravelly-sandy, shaley, stony, stony-gravelly, cobbly, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly loam, sandy loam and loam ground; rocky-gravelly clay, rocky-silty clay, shaley clay, gravelly clay, gravelly-sandy clay, sandy clay and clay ground, and rocky-silty, sandy-silty and silty ground, occurring from 300 to 9,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. This plant provides food for many types of insects including being a host plant for the Painted Lady Butterfly, *Vanessa cardui*. Hummingbirds have been observed visiting the flowers. Thistles (*Cirsium* spp.) provide pollen and nectar for bees, and goldfinches and other birds feed on the seeds. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop (the peeled stems were used for food); it was also noted as having been used as a drug or medication. This plant was reported to have been utilized by native peoples of North America; the stems were peeled and used for food. *Cirsium neomexicanum* is native to southwest-central and southern North America. *5, 6, 15, 16, 28 (color photograph), 43 (111809), 44 (051711 - color photograph), 46 (Page 952), 58, 63 (051711 - color presentation), 77, **85** (022412 - color presentation), 115 (color presentation), 124 (051711 - no record of species; genus record), 127, 134, 140 (Pages 63-64 & 284)*

Dieteria incana (see *Machaeranthera canescens* subsp. *canescens* var. *incana*)

Dyssodia pentachaeta (see *Thymophylla pentachaeta* var. *pentachaeta*)

Dyssodia porophylloides (see *Adenophyllum porophylloides*)

***Encelia farinosa* A. Gray ex J. Torrey: Brittlebush**

SYNONYMY: *Encelia farinosa* A. Gray ex J. Torrey var. *farinosa* A. Gray ex J. Torrey; *Encelia farinosa* A. Gray ex J. Torrey var. *phenicodonta* (S.F. Blake) I.M. Johnston; *Encelia farinosa* A. Gray ex J. Torrey var. *radians* T.S. Brandegees ex S.F. Blake. COMMON NAMES: Brittle Bush (a name also applied to the genus *Encelia*); Brittle-bush (a name also applied to the genus *Encelia*, Arizona); [White] Brittle-bush (English: Arizona, Sonora)¹⁴⁰; Brittlebush (a name also applied to the genus *Encelia*); Brittlebush Encelia; Brown-center Brittlebush (var. *phenicodonta*); Button Brittlebush; California Desert Brittlebush; Choyoguo (“Tar Bush”, Uto-Aztecan: Mayo, Sonora)¹⁴⁰; Common Brittle Bush; Common Brittle-bush; Common Brittlebush; Cotx (“Acrid Smell”, Hokan: Seri)¹⁴⁰; Desert Brittle Bush; Desert Brittle-bush; Desert Brittlebush; Farinose Brittlebush; Farinose Encelia; Farinose Goldenhills; Goldenhills (English: Arizona)¹⁴⁰; Hierba Cenisa, Hierba Ceniza (“Ashy Herb”, Spanish: Sonora)¹⁴⁰; Hierba de Gusano; Hierba de las Animas (“Soul Herb”, Spanish: Sonora)¹⁴⁰; Hierba del Bazo <vaso> (Enlarged Spleen Herb”, Spanish: Sonora)¹⁴⁰; Hierba del Gusano (Spanish: Sonora); Hierba del Vaso; Incienso (“Incense”, Spanish: Arizona, Baja California, California and New Mexico)¹⁴⁰; Incienso Brittle Bush; Incienso Brittle-bush; Incienso Brittlebush; Pa’akal (Uto-Aztecan: Cahuilla)¹⁴⁰; Palo Blanco (“White bush”, Spanish: Sonora)¹⁴⁰; Rama Blanca (“White Branch”, Spanish: Sonora)¹⁴⁰; Tahavis (Uto-Aztecan: Mountain Pima)¹⁴⁰; Tohaves (Uto-Aztecan: Hiá Ce□ O’odham)¹⁴⁰; Tohavs (Uto-Aztecan: Akimel O’odham)¹⁴⁰; Tohawes (Uto-Aztecan: Tohono O’odham)¹⁴⁰; White Brittle Bush; White Brittle-bush (Arizona); White Brittlebush; Yerba de la Vaca (“Cow Herb”, Spanish: Paipai)¹⁴⁰; Wóláchí’ Bitsijí’ Bił Nát’oh <wóláchí□bici□iči bił nát’oh> (Athapascan: Navajo)¹⁴⁰. DESCRIPTION: Terrestrial perennial evergreen (leaves will be shed under extreme drought conditions) subshrub or shrub (stems 1 to 6 feet in height, the relatively few branches located beneath a covering of leaves gives this plant a rounded appearance; one plant was observed and described as being 2 feet in height and width); the foliage may be dark green, pale gray-green, silvery-gray, silvery-gray-green, silvery-green, silvery or whitish; the disk florets are brown, brown-maroon, brown-purple, maroon-brown, orange-yellow, purple, dark purple or yellow; the ray florets may be yellow or yellow-orange (the flowers appear 6 to 12 inches above or beyond the end of the foliage); flowering generally takes place between early November and mid-June (additional records: three for early July, four for late August, one for early September, two for mid-October; the primary flowering period generally occurs February through May). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky and gravelly mesas; cliffs; bases of cliffs; rocky and shaley canyons; rocky canyon walls; rocky, rocky-sandy, gravelly and sandy canyon bottoms; talus slopes; bluffs; buttes; rocky ledges; along ridges; rocky ridgetops; sandy meadows; foothills; rocky and sandy hills; hilltops; bouldery, rocky, stony and cobbly hillsides; bedrock, bouldery-gravelly, rocky, rocky-sandy, rocky-loamy, stony, gravelly, gravelly-clayey, sandy, loamy and clayey slopes; bouldery-stony-gravelly-sandy, rocky and rocky-sandy-loamy alluvial fans; gravelly-sandy bajadas; gravelly pediments; bouldery and rocky outcrops; amongst boulders and rocks; lava flows; sand dunes; banks; cobbly, sandy and clayey plains; rocky-sandy, gravelly, gravelly-sandy and sandy flats; uplands; rocky and gravelly-sandy valley floors; coastal dunes; sandy coastal plains; coastal beaches; sandy railroad right-of-ways; along rocky, sandy and clayey roadsides; rocky and sandy arroyos; sandy-silty bottoms of arroyos; around springs; along creeks; creekbeds; along rivers; sandy riverbeds; along and in rocky, stony, gravelly, gravelly-sandy and sandy washes; within sandy drainages; drainage ways; along swales; borders of washes; edges of arroyos and washes; shores of rivers; sand bars; sandy beaches; gravelly benches; gravelly, rocky shelves; gravelly-sandy and sandy terraces; rocky-sandy floodplains; mesquite bosques; canal banks; riparian areas, and disturbed areas growing in moist and dry gravelly desert pavement; bouldery, bouldery-stony-gravelly-sandy, bouldery-gravelly, rocky, rocky-sandy, shaley, stony, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy loam and loam ground; gravelly clay, sandy clay and clay ground (where it reportedly does poorly), and sandy silty ground, occurring from sea level to 4,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, and has an estimated life span of 32 years. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food (candy), and/or paint (varnish) crop; it was also noted as having been used as fuel, as a tool and waterproofing agent and as a drug or medication. According to the Fire Effects Information System, Brittlebush competes strongly with Buffelgrass (*Pennisetum ciliare*); however, it may be top-killed or completely killed by fire, wind dispersed seed produced by plants located off site may quickly aid in the reestablishment of this plant on burned areas. It is an early colonizer of disturbed areas. Plants with yellow ray flowers and dark purple disk flowers have historically been referred to as variety *phenicodonta*, it has been observed growing with the typical plant (which has yellow disk flowers). The Brittle Bush is browsed by Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*) and Desert Mule Deer (*Odocoileus hemionus* subsp. *crooki*), and birds and rodents feed on the seeds. *Encelia farinosa* is native to southwest-central and southern North America. *5, 6, 13 (Pages 293-294, color photograph: Plate V., Page 407), 16, 18, 26 (color photograph), 28 (color photograph 403), 43 (112009), 44 (022912 - color photograph), 46 (Page 904), 48, 58, 63 (022912 - color presentation including habitat), 77 (recorded as *Encelia farinosa* A. Gray var. *farinosa*), **85** (022912 - color presentation), 86 (color photograph), 91 (Pages 188-192), 115 (color presentation), 124 (051911 - no record of species or genus), 127, 140 (Pages 67-68 & 284), **MBJ** (recorded as *Encelia farinosa* var. *farinosa*, undated record which may include landscaped material that persists without maintenance), **WTK** (August 4, 2005)*

Encelia farinosa var. *farinosa* (see *Encelia farinosa*)

Encelia farinosa var. *phenicodonta* (see *Encelia farinosa*)

Encelia farinosa var. *radians* (see *Encelia farinosa*)

***Encelia frutescens* (A. Gray) A. Gray: Button Brittlebush**

SYNONYMY: *Encelia frutescens* (A. Gray) A. Gray var. *frutescens* (A. Gray) A. Gray. COMMON NAMES: Brittlebush (a name also applied to the genus *Encelia*); Bush Encelia; Bush Brittle Bush; Bush Brittle-bush; Bush Brittlebush; Button Brittlebush; Button Encelia; Green Brittle Bush (a name also applied to other species); Green Brittlebush (a name also applied to other species); Rayless Brittlebush; Rayless Encelia; Shrubby Brittlebush; Shrubby Encelia. DESCRIPTION: Terrestrial perennial (drought-deciduous) shrub (ascending to erect stems 1 to 5 feet in height with a rounded crown, one plant was observed and described as being 20 inches in height and 24 inches in width); the leaves are green, dark green or gray-green and shiny on the upper surface; the disk flowers are yellow or yellow-orange; the ray flowers, if present, are yellow or dark yellow) flowering generally takes place between early January and early December). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; tops of cliffs; rimrock; canyons; bouldery and bouldery-gravelly-sandy canyon bottoms; talus; bluffs; buttes; knolls; cinder slopes; foothills; hills; hilltops; hillsides; bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy, gravelly-loamy and sandy slopes; alluvial fans; rocky-sandy and gravelly-sandy bajadas; sand dunes; blow-sand deposits; debris flows; plains; rocky, gravelly and sandy flats; sandy valley floors; valley bottoms; rocky-sandy and rocky-sandy-loamy roadsides; sandy arroyos; gulches; seeps; springs; along and in rocky, gravelly-sandy and sandy washes; drainages; rocky drainage ways; (sandy) banks of streams and washes; (rocky-gravelly-sandy and sandy) edges of washes; (gravelly-sandy and sandy) margins of creeks and washes; gravelly terraces floodplains; canal banks; riparian areas, and sandy disturbed areas growing in moist, damp and dry desert pavement; bouldery, bouldery-gravelly-sandy, rocky, rocky-gravelly-sandy, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam and rocky-sandy loam ground, and sandy silty ground, occurring from sea level to 6,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, and has an estimated life span of several decades. Button Brittlebush serves as cover for, and is an important browse plant for, the Desert Tortoise (*Gopherus agassizi*) during periods of drought. *Encelia frutescens* is native to southwest-central and southern North America. *5, 6, 13 (Pages 294-295, 15, 28 (color photograph 462), 43 (062610), 44 (062713), 46 (Page 904), 63 (062610 - color presentation), 77, 85 (062610 - color presentation), 91 (Pages 192-193), 115 (color presentation), 124 (111510 - no record of species or genus)*

Encelia frutescens var. *frutescens* (see *Encelia frutescens*)

***Ericameria laricifolia* (A. Gray) L.H. Shinnery: Turpentine Bush**

SYNONYMY: *Haplopappus laricifolius* A. Gray. COMMON NAMES: Ericameria (a name also applied to the genus *Ericameria*); Gold-brush (English)¹⁴⁰; Hierba del Pasmó (Herb of Pasmó, a name also applied to other species, Spanish)¹⁴⁰; Larch-leaf [Narrow-leaved] Golden-weed (English)¹⁴⁰; Larch-leaf Goldenweed; Narrow-leaved Golden-weed; Roundleaf Rabbitbrush; Turpentine Brush (a name also applied to other species); Turpentine Brush [Bush] (English)¹⁴⁰; Turpentine Bush (a name also applied to other species); Turpentine Golden-bush; Turpentine Goldenbush; Turpentine-brush (a name also applied to other species); Turpentine-brush Ericameria; Turpentine-bush (a name also applied to other species); Turpentine-bush Ericameria; Turpentinebush; Xal ShaB U (Yuman: Paipai)¹⁴⁰. DESCRIPTION: Terrestrial perennial subshrub or shrub (ascending to erect stems 10 to 50 inches in height; one plant was observed and described as being 1 foot in height and 2 to 3 feet in width, one plant was observed and described as being 16 inches in height and 40 inches in width, one plant was observed and described as being 40 inches in height and 40 inches in width); the young stems are green; the leaves may be gray, gray-green, gray-silver, green or yellow-green; the disk florets may be orange-yellow or yellow, the ray florets may be orange-yellow or yellow; flowering generally takes place between mid-August to late January (additional records: one for mid-February, one for late March, one for late April, two for early May, one for mid-May, four for late May, one for early July and one for late July); the fruits are white. HABITAT: Within the range of this species it has been reported from mountains; bouldery-gravelly mountainsides; mesas; plateaus; rock walls; bouldery bases of cliffs and walls; bouldery and rocky canyons; along bouldery and rocky-clayey canyon bottoms; rocky talus; crevices in rocks; rocky knolls; rocky ledges; rocky and gravelly ridges; stony ridgetops; ridgetops; clearings in woodlands; bouldery foothills; rocky hills; rocky and silty hillsides; bases of hills; bedrock, rocky, rocky-gravelly, gravelly, gravelly-loamy-silty sandy-loamy, loamy-clayey and clayey-loamy slopes; bouldery and rocky outcrops; amongst boulders and rocks; bases of boulders; bouldery coves; plains; gravelly and sandy flats; rocky basins; valley floors; along gravelly, gravelly-sandy, sandy and loamy roadsides; along arroyos; draws; gulches; rocky gullies; seeps; along streams; along streambeds; along creekbeds; bouldery-cobbly-sandy riverbeds; along and in bedrock, bouldery and sandy washes; drainage ways; borders of washes; (gravelly-sandy) edges of washes; margins of arroyos; gravelly terraces; floodplains; riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery, bouldery-cobbly-sandy, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy loam, gravelly-silty loam, clayey loam and loam ground; rocky clay and gravelly clay ground, and gravelly-loamy silty and silty ground, occurring from 1,000 to 8,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The flowers are visited by many types of insects. *Ericameria laricifolia* is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Haplopappus laricifolius* A. Gray, Pages 330-331), 15, 16, 28 (color photograph 481), 43 (112109), 44 (022912), 46 (recorded as *Aplopappus*

laricifolius Gray, Page 861), 58, 63 (022912 - color presentation including habitat), 77, **85** (022912 - color presentation), 115 (color presentation), 124 (022912 - no record of species; genus record), 140 (Pages 68-70, 87 & 284), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Erigeron divergens* J. Torrey & A. Gray: Spreading Fleabane**

SYNONYMY: *Erigeron divergens* J. Torrey & A. Gray var. *typicus* A.J. Cronquist. COMMON NAMES: Ats'os Níí'íinit <□acose ní□in'íi> (Athapascan: Navajo)¹⁴⁰; 'Azee' [Ch'il] Libá <aze'[c'il] labahi, laba□igi> (Athapascan: Navajo)¹⁴⁰; 'Azee' Ná'ooltádii <azee'ná'oltxátiih> (Athapascan: Navajo)¹⁴⁰. <c'os be'yi'c'ol, béyi.c'ol> ("Vein Spurter", Athapascan: Navajo)¹⁴⁰; Ch'íih 'Azee' <c'is □azé□> (Athapascan: Navajo)¹⁴⁰; Desert Fleabane (a name also applied to other species); Dibetsétah Ch'il <dibecetah ch'il> (Athapascan: Navajo)¹⁴⁰; Diffuse Daisy; Divergent Fleabane; Fleabane (a name also applied to other species and the genera *Conyza* and *Erigeron*); [Desert, Spreading] Fleabane (English)¹⁴⁰; Fleabane Daisy (a name also applied to other species and the genus *Erigeron*); Green Rabbit Bush; Hierba Pulguera ("Herb for Fleas", Spanish: Mexico)¹⁴⁰; K'aalógiidáá (Athapascan: Navajo)¹⁴⁰; Layered Daisy; Na'ashjé'iidáá' (Athapascan: Navajo)¹⁴⁰; Spreading Daisy (English: Utah)¹⁴⁰; Spreading Daisy Fleabane; Spreading Daisy-fleabane; Spreading Fleabane; Spreading Fleabane Daisy; Spreading Fleabane-daisy; Wóláchíí Dáá <wolaci□ da> (Athapascan: Navajo)¹⁴⁰. DESCRIPTION: Terrestrial biennial forb/herb (ascending and/or erect stems 2¾ to 28 inches in height; plants were observed and described as being 8 inches in height and 6 inches in width, plants were observed and described as being 12 inches in height and 16 inches in width); the stems may be reddish at base; the leaves are a dull gray-green or green; the disk florets may be orange-yellow or yellow; the ray florets may be blue, blue-lavender, blue-purple, pale lavender, lavender, lavender-blue, lavender-pink, lavender-purple, pale pink, pink, pinkish, pinkish-white, light purple, pale violet, white or white tinged with lavender or purple; flowering may take place throughout the year with flowering records for mid-January through late December. HABITAT: Within the range of this species it has been reported from mountains; rocky, gravelly-loamy and sandy mountaintops; rocky crags; mountainsides; rocky-gravelly and sandy mesas; rocky and sandy plateaus; rocky and sandy rims; rocky cliffs; bases of cliffs; rocky, gravelly, gravelly-loamy and sandy canyons; rocky canyon walls; along rocky, stony, sandy and sandy-silty canyon bottoms; talus slopes; sandy pockets of soil in rock; bluffs; shaley buttes; bases of hogbacks; rocky and sandy knolls; rocky ledges; bouldery and rocky ridges; rocky and gravelly ridgetops; sandy clearings in forests and woodlands; rocky, rocky-sandy, stony, gravelly, sandy and clayey meadows; margins of meadows; cinder cones; bases of cinder cones; rocky foothills; bouldery, bouldery-rocky and rocky hills; rocky hilltops; rocky, rocky-sandy and sandy hillsides; escarpments; bouldery, bouldery-rocky-gravelly, rocky, rocky-loamy, rocky-clayey, shaley, stony, cobbly, cobbly-sandy-clayey, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, gravelly-clayey, gravelly-silty-loamy, sandy, sandy-loamy, sandy-clayey, sandy-clayey-loamy, loamy, clayey, clayey-loamy, silty and silty-loamy slopes; bajadas; bedrock, bouldery, rocky and shaley outcrops; amongst boulders and rocks; lava flows; sand hills; sandy dunes; rocky-sandy ashflows; banks; sandy benchlands; steppes; stony, gravelly, gravelly-loamy, sandy, sandy-loamy, loamy, silty and silty-loamy prairies; rocky and sandy plains; muddy, bouldery-rocky-gravelly, bouldery-gravelly-sandy, rocky, gravelly, gravelly-sandy, gravelly-clayey-loamy, sandy, sandy-loamy, sandy-clayey, sandy-clayey-loamy, loamy, clayey, clayey-loamy and silty-loamy flats; rocky and clayey basins; glens; rocky and sandy valley floors; along railroad right-of-ways; along roadcuts; along rocky, gravelly, gravelly-clayey-loamy, sandy, sandy-clayey-loamy and clayey roadsides; along sandy arroyos; bottoms of arroyos; bouldery and rocky-sandy draws; bottoms of draws; gulches; stony and sandy ravines; within seeps; springs; along rivulets in silted beaver ponds; along streams; along rocky-gravelly, rocky-sandy and gravelly-loamy streambeds; in sand along creeks; along cobbly-loamy, gravelly-sandy and sandy creekbeds; gravelly and sandy soil along rivers; along sandy riverbeds; along and in bedrock, gravelly, gravelly-sandy, sandy and silty washes; along and in rocky and clayey drainages; along and in rocky, rocky-silty-clayey, sandy, silty-clayey and clayey drainage ways; within watercourses; along waterways; boggy areas; ciénegas; marshes; depressions; sinks; swales; (muddy and gravelly-sandy) banks of streams, creeks, rivers and ponds; borders of washes; (sandy-silty) edges of rivers, vernal pools and playas; margins of streams, creeks, rivers and lakes; along shores of lakes; mudflats; gravel, gravelly-sand and sand bars; beaches; sandy and silty-loamy benches; clayey shelves; sandy terraces; sandy bottomlands; sandy, sandy-silty, clayey and silty floodplains; clayey lowlands; mesquite bosques; sandy fencerows; along levees; edges of stock tanks; along sandy shores and rocky embankments of reservoirs; along and in sandy ditches; gravelly, gravelly-sandy and sandy riparian areas; sandy waste places; recently burned areas of forests, and disturbed areas growing in muddy and wet, moist, damp and dry cryptogamic soil; rimrock pavement and bouldery, bouldery-rocky, bouldery-rocky-gravelly, bouldery-gravelly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-sandy, stony, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, rocky-sandy loam, rocky-clayey loam, cobbly loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, gravelly-silty loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground; rocky clay, rocky-silty clay, cobbly-sandy clay, gravelly clay, sandy clay, silty clay, powdery clay and clay ground, and rocky silty, sandy silty and silty ground, occurring from 300 to 12,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication and the plants were used in the home as a good luck charm. The flowers may be visited by butterflies. *Erigeron divergens* is native to west-central and southern North America. *5, 6, 15, 16, 43 (112209), 44 (030212), 46 (Page 880), 48 (genus), 58, 63 (030212 - color presentation including habitat), 77, 85 (030312 - color presentation including habitat), 86 (color photograph), 115 (color presentation), 124 (030212), 127, 140 (Pages 70-71 & 284), **MBJ** (recorded as *Erigeron divergens* var. *divergens*, undated record which may include landscaped material that persists without maintenance)*

Erigeron divergens var. *typicus* (see *Erigeron divergens*)

Eriophyllum lanosum (see *Antheropeas lanosum*)

***Euryops multifidus* (C.P. Thunberg) A.P. de Candolle: Hawk's Eye**

SYNONYMY: *Euryops subcarnosus* A.P. de Candolle subsp. *vulgaris* R.B. Nordenstam. COMMON NAMES: Euryops; Hawk's Eye; Resin Bush; Sweet Resinbush. DESCRIPTION: Terrestrial perennial subshrub (3 to 4 feet in height; one plant was observed and described as being 40 inches in height and width, plants were observed and described as being 40 inches in height and 30 inches in width); the leaves are dark green; the flowers are yellow; based on few records located flowering generally takes place between late January and late April (additional records: one for late December and one for late May). HABITAT: Within the range of this species it has been reported from mountains; mesas; hillsides; rocky slopes; flats; along roadsides; sandy drainages; within washes, and (sandy) sides of washes growing in rocky and sandy ground and silty ground, occurring from 2,200 to 5,000 feet in elevation in the woodland, scrub, grassland and desertscrub ecological formations. NOTES: **EXOTIC** Invasive Plant that poses a significant threat to our native biotic communities. *Euryops multifidus* is native to southern Africa. *5, 6, 41, 42 (062713), 43 (062713 - *Euryops multifidus* DC., no record for *Euryops subcarnosus* subsp. *vulgaris*), 44 (062713 - no record of species or genus), 46 (Page 950), 63 (062713 - color presentation), **85** (062713 - color presentation)*

Euryops subcarnosus subsp. *vulgaris* (see *Euryops multifidus*)

Franseria ambrosioides (see *Ambrosia ambrosioides*)

Franseria confertiflora (see *Ambrosia confertiflora*)

Franseria deltoidea (see *Ambrosia deltoidea*)

Greenella arizonica (see *Gutierrezia arizonica*)

Gutierrezia M. Lagasca y Segura: Snakeweed

COMMON NAMES: Broom Weed; Brome-weed; Bromeweed; Gutierrezia; Snake-weed; Snakeweed. *43 (062310), 44 (010911), 46 (Pages 852-853), 63 (022207), 124 (103010), **WTK** (August 4, 2005)*

***Gutierrezia arizonica* (A. Gray) M.A. Lane: Arizona Snakeweed**

SYNONYMY: *Greenella arizonica* A. Gray. COMMON NAME: Arizona Snakeweed; Broomweed (a name also applied to the genus *Gutierrezia*); Matchweed; Snakeweed (a name also applied to the genus *Gutierrezia*). DESCRIPTION: Terrestrial annual or perennial forb/herb or subshrub (erect stems 5 to 12 inches in height); the disk florets are white or yellow; the ray florets are white (drying reddish or light yellow); flowering generally takes place between late February and mid-June (additional records: one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; gravelly mesas; rocky and sandy canyons; foothills; hillsides; slopes; bajadas; rocky-sandy, gravelly and sandy plains; gravelly flats; sandy valley floors; along roadsides; along washes; depressions; (sandy-loamy) margins of washes; floodplains; lowlands, and riparian areas growing in dry rocky, rocky-sandy, gravelly and sandy ground and sandy loam ground, occurring from 600 to 4,300 feet in elevation in the desertscrub ecological formation. NOTE: *Gutierrezia arizonica* is native to southwest-central and northern North America. *5, 6, 15, 16, 43 (112909), 44 (030412 - no record of species; genus record), 46 (recorded as *Greenella arizonica* Gray, Page 867), 63 (030412), 77, **85** (030412 - color presentation of dried material), 124 (0300412 - no record of species; genus record), 140 (Pages 74 & 284)*

Haplopappus gracilis (see *Machaeranthera gracilis*)

Haplopappus laricifolius (see *Ericameria laricifolia*)

Haplopappus tenuisectus (see *Isocoma tenuisecta*)

***Helianthus annuus* C. Linnaeus: Common Sunflower**

COMMON NAMES: Alizeti (Swahili); Annual Sunflower (a name also applied to other species); Chimalati (Mexico); Comb Flower (a name also applied to other species); Comb-flower (a name also applied to other species); Common Annual Sunflower; Common Garden Sunflower; Common Sunflower (a name also applied to other species); Common Western Sunflower; Common Wild Sunflower; Flor de Sol (Spanish); Garden Sunflower; Girasol (a name also applied to other species, Spanish); Girassol (Portuguese); Gold (a name also applied to other species); Golden (a name also applied to other species); Grand Soleil (French); Haebaragi (transcribed Korean); Himaawari (Japanese Rōmaji); Hopi Sunflower; Isoauringonkukka; Kansas Sunflower (a name also applied to other species); Kirik-tara-kata ("Yellow Eyes", Pawnee); Larea Ball; Larea-bell; Larrabell; Le Tournesol (French); Mira Sol (a name also applied to other species, New Mexico); Mirasol ("Looks at the Sun", Spanish); Omatts'aba (Zuni); Soleil; Sonnenblume (German); Solros (Swedish); Sunflower (a name also applied to other species, the genus *Helianthus* and to the Asteraceae); Tournesol (French); Wah'cha-zizi ("Yellow Flower", Dakota); Wallflower

(misapplied); Western Sunflower (a name also applied to other species); Wild Artichoke (a name also applied to other species); Wild Sun-flower (a name also applied to other species); Wild Sunflower (a name also applied to other species); Zha-zi (“Yellow Weed”, Omaha-Ponca). DESCRIPTION: Terrestrial annual forb/herb (erect stems 1 to 13 feet in height); the leaves are green; the disk florets may be black, brown, dark brown, brownish, maroon, purple, dark purple, dark purple-brown, reddish, reddish-brown, reddish-purple, rust-brown or yellow; the ray florets may be golden, orange-yellow, yellow or yellow with red-brown tips; the anthers are brownish to black; flowering generally takes place between early February and early November (additional records: one for mid-January, one for late November and two for late December). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; silty-loamy mesas; plateaus; cliffs; rocky walls; canyons; rocky and sandy canyon bottoms; talus slopes; bluffs; rocky, gravelly-sandy, gravelly-clayey, sandy-clayey and clayey buttes; clayey knolls; rocky ridges; gravelly-clayey ridgetops; rocky, sandy and loamy meadows; clayey foothills; rocky, stony and sandy hills; hilltops; bouldery, rocky and clayey hillsides; rocky-gravelly, shaley-silty, stony-gravelly, cobbly-sandy-clayey, gravelly, gravelly-loamy, gravelly-sandy, gravelly-loamy, gravelly-clayey, sandy, sandy-loamy, clayey, clayey-loamy, silty-loamy and silty-clayey slopes; bajadas; pediments; rocky outcrops; amongst rocks; sandy hummocks; sand bluffs; sand dunes; banks; steppes; rocky, sandy, clayey-loamy, silty-clayey and silty-clayey-loamy prairies; sandy, sandy-clayey and chalky plains; muddy, gravelly, gravelly-silty, sandy and clayey flats; clayey, clayey-loamy, silty-clayey and silty-clayey-loamy uplands; sandy valley floors; along gravelly railroad right-of-ways; shaley roadcuts; along muddy-clayey, rocky-gravelly, shaley, cindery, gravelly, gravelly-loamy, sandy, sandy-loamy, loamy-clayey and clayey roadsides; within sandy arroyos; bottoms of arroyos; within sandy, loamy and loamy-clayey draws; clayey bottoms of draws; within gullies; bottoms of gullies; ravines; seeps; springs; along streams; gravelly-clayey and clayey streambeds; along and in creeks; muddy, sandy and clayey creekbeds; along rivers; gravelly-sandy riverbeds; bouldery and bouldery-cobbly-sandy, stony, gravelly and sandy riverbeds; along and in rocky, rocky-sandy, sandy, clayey and silty washes; within rocky-clayey-silty, gravelly, sandy, clayey and silty-loamy drainages; along and in rocky drainage ways; watersheds; vernal pools; around ponds; around lakes; ciénegas; freshwater and saltwater marshes; blowout areas; sandy depressions; clay pans; swales; along (gravelly and sandy) banks of streams, creeks, creekbeds, rivers and lakes; along (silty) edges of streams, rivers, ponds and lakes; around and along (silty) margins of ponds and lakes; along and in (sandy, sandy-loamy, gravelly-clayey, clayey and clayey-loamy) shores of creeks, rivers, ponds, lakes and backwaters; stony-sand, cobbly-stony-gravel and gravel bars; stony-gravelly and loamy benches; gravelly-sandy and sandy bottomlands; mucky and clayey floodplains; gravelly lowlands; along sandy fencelines; around sandy-clayey stock tanks; along mucky-clayey-loamy margins and shores of reservoirs; canals; canal banks; along and in gravelly, sandy, sandy-loamy and silty ditches; along ditch banks; sandy and clayey riparian areas; waste places, and disturbed areas growing in mucky; muddy, and wet, moist, damp and dry bouldery, bouldery-cobbly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, stony-gravelly, stony-sandy, cobbly-stony-gravelly, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, gravelly loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground; rocky clay, cobbly-sandy clay, gravelly clay, sandy clay, loamy clay, silty clay and clay ground; rocky-clayey silty, shaley silty, gravelly-sandy silty, gravelly silty, sandy silty and silty ground, and chalky ground, occurring from sea level to 9,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, candy, cooking agent, fodder, fiber, and/or dye (red) crop; it was also noted as having been used for lighting, as a tool, as musical instruments, as a drug or medication, as ceremonial items, decorations and as a commodity used for personal hygiene. The flower heads follows the sun through the day. *Helianthus annuus* is native to northwest-central, south-central and southern North America. *5, 6, 15, 18, 28 (color photograph), 43 (061709), 44 (052611), 46 (Page 903), 48, 58, 63 (030612 - color presentation including habitat), 68, 77, 80 (The Common Sunflower is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. “This common, annual forb has been reported to accumulate toxic levels of nitrate.”), 85 (030712 - color presentation), 86 (color photograph), 101 (color photograph), 115 (color presentation), 124 (052611), 127*

Heterotheca psammophila (see *Heterotheca subaxillaris*)

***Heterotheca subaxillaris* (J.B. de Lamarck) N.L. Britton & H.H. Rusby: Camphorweed**

SYNONYMY: *Heterotheca psammophila* B.L. Wagenknecht. COMMON NAMES: Árnica (Spanish: Kickapoo in Cahuilla and others in Durango, Sonora)¹⁴⁰; Arniko (Uto-Aztecan: Mountain Pima)¹⁴⁰; Camphor Daisy; Camphor Weed; Camphor-daisy; Camphor-daisy [weed] (English: Arizona, New Mexico)¹⁴⁰; Camphor-weed; Camphor-weed Golden-aster; Camphorweed; Camphorweed Golden-aster; Camphorweed Goldenaster; Dune Camphorweed; False Arnica (a name which may also be applied to other species); False Arnica (English)¹⁴⁰; Golden Aster (a name also applied to other species); Golden [Gold] - aster (English)¹⁴⁰; Gordo Lobo (“Fat Wolf”, Spanish: Chihuahua, Sonora)¹⁴⁰; Gordolobo; Haramkulyi (Uto-Aztecan: Mountain Pima)¹⁴⁰; Heterotheca (a name also applied to the genus *Heterotheca*); Malamujer (“Bad Woman”, Spanish: Mountain Pima)¹⁴⁰; Telegraph Plant (a name also applied to other species); Telegraph Plant (English)¹⁴⁰; Wóláchíí’ Bi’ghá <wolaci□ be.ga> (Athapascan: Navajo)¹⁴⁰. DESCRIPTION: Terrestrial annual forb/herb (procumbent and/or erect stems 4 inches to 6½ feet in height); the leaves are light green; the disk florets may be orange or yellow; the ray florets may be yellow or yellow-orange; flowering generally takes place between mid-May and late December (additional records: two for late January, two for early March and two for early April). HABITAT: Within the range of this species it has been reported from mountains; mesas; bases of cliffs; bouldery and rocky canyons; canyon bottoms; sandy ridgetops; openings in woodlands; sandy meadows; sandy foothills; sandy hilltops; rocky hillsides; rocky, gravelly and gravelly-sandy slopes; alluvial fans; bajadas; amongst boulders; sand dunes; breaks; sandy prairies; rocky-loamy, gravelly, gravelly-sandy, sandy and clayey flats; basins; valley floors; along railroad

right-of-ways; along gravelly, gravelly-sandy, gravelly-sandy-clayey-loamy and sandy roadsides; along arroyos; ravines; along streams; streambeds; rocky creekbeds; rocky-gravelly-sandy and rocky-sandy creekbeds; riverbeds; along and in sandy and clayey washes; within drainages; around ponds; sandy depressions; within swales; along banks of rivers; edges of streams; along (gravelly and sandy-loamy) shores of ponds and lakes; benches; cobbly terraces; clayey bottomlands; floodplains; along and in sandy ditches; ditch banks; sandy riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam and sandy loam ground, and gravelly clay and clay ground, occurring from sea level to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The foliage is strongly scented with crushed leaves smelling like camphor. *Heterotheca subaxillaris* is native to south-central and southern North America. *5, 6, 15, 16, 28 (color photographs 414 A&B), 43 (061909), 44 (030812), 46 (Page 854, with an additional note on Page 1071 in the supplement), 58, 63 (030812 - color presentation), 68, 77, 85 (030812 - color presentation), 101 (color photograph), 115 (color presentation), 124 (030812), 140 (Pages 75-76 & 285)*

***Hymenoclea monogyra* J. Torrey & A. Gray: Singlewhorl Burrobrush**

SYNONYMY: *Ambrosia monogyra* (J. Torrey & A. Gray) J.L. Strother & B.G. Baldwin. COMMON NAMES: Arrow-wood (English)¹⁴⁰; Burro Brush (a name also applied to other species and the genus *Ambrosia*); [Single-whorl] Burrobrush [bush] (English)¹⁴⁰; Burrobrush (a name also applied to other species and the genus *Ambrosia*); Burrobrush (a name also applied to other species); Cheese-bush (a name also applied to other species); Cheese-bush (English)¹⁴⁰; Cheeseweed Burrobrush; Hécota <jécota, jejego> (Spanish: Guarijío, Mayo, Onavas Pima)¹⁴⁰; Hierba del Pasma (“Herb for Treating Pasma”, Spanish: Sonora)¹⁴⁰; ‘I:vadhod (Uto-Aztecan: Hiá Ce□ O’odham); I’ivdag <i’ivdad> (Uto-Aztecan: Onavas Pima)¹⁴⁰; iivdad (Pima Bajo); Iivdat (Gila Pima); Iivdhat (Uto-Aztecan: Akimel O’odham)¹⁴⁰; ‘I:wadh□ <‘i:wato□, i:watodh, iivadh□> (Uto-Aztecan: Tohono O’odham)¹⁴⁰; Jeco (Uto-Aztecan: Guarijío, Mayo)¹⁴⁰; Jécota (Spanish); Jejego (Spanish); Leafy Burrobrush; Leafy Burrobrush; O’gach (Yuman: Walapai)¹⁴⁰; Mono Burrobrush; Pañab (Uto-Aztecan: Southern Paiute)¹⁴⁰; Romerillo (a name also applied to other species, Spanish); Romerillo [Dulce] (“[Sweet] Little Rosemary”, Spanish: Baja California, Sinaloa, Sonora)¹⁴⁰; Single-whorl Burro-brush; Single-whorl Burrow-brush; Single-whorl Burro-bush; Single-whorl Cheesebush; Singlewhorl Burrobrush; Singlewhorl Burrobrush; Singlewhorl Cheesebush; Slender Burro Brush; Slender Burrow-brush; Slender Burrowbrush; <t̬el> (Athapascan: Western Apache)¹⁴⁰; White Burrobrush (a name also applied to other species); Winged Ragweed (English)¹⁴⁰. DESCRIPTION: Terrestrial perennial deciduous subshrub or shrub (erect stems 1 to 13 feet in height; plants were observed and described as being 71 inches in height and 79 inches in width); the foliage may be gray-green, green or olive-green; the flower heads may be cream, light green, greenish-white, white, yellow or yellow-cream; flowering generally takes place between early March and early June and again between early September and mid-December (additional records: two for mid-January, one for mid-March, one for early April, one for mid-May and two for late July; flowering in August has also been reported). HABITAT: Within the range of this species it has been reported from mountains; clayey mesas; bases of cliffs; rocky canyons; along rocky and sandy canyon bottoms; rocky-sandy buttes; foothills; bases of foothills; rocky hills; rocky hillsides; bouldery-gravelly, rocky, rocky-clayey and sandy slopes; sand dunes; plains; rocky and gravelly flats; basins; valley floors; valley bottoms; gravelly banks; sandy flats; valley floors; coastal sand dunes; coastal plains; along rocky, gravelly-sandy, gravelly-loamy, sandy-loamy and clayey roadsides; along and in rocky, gravelly and sandy arroyos; rocky, gravelly and sandy bottoms of arroyos; gulches; within sandy ravines; springs; along streams; along and in streambeds, along creeks; along and in gravelly-sandy and sandy creekbeds; along rivers; along and in cobbly-sandy, gravelly and sandy riverbeds; along and in rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy, sandy and sandy-clayey washes; along and in gravelly drainages; along watercourses; ciénegas; along (gravelly and gravelly-sandy) banks of rivers and washes; borders of washes; along edges of arroyos and rivers; margins of rivers and washes; (sandy) sides of rivers; gravel bars; gravelly-sandy benches; sandy terraces; bottomlands; sandy floodplains; mesquite bosques; within ditches; rocky edges of ditches; along canals; sandy riparian areas, and disturbed areas growing in damp and dry bouldery-gravelly, rocky, rocky-sandy, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam and sandy loam ground, and rocky clay, sandy clay and clay ground, occurring from sea level to 6,100 feet elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, and is useful in controlling erosion. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Burrowbrush is a host plant of the Burrobrush Leaf Beetle, *Leptinotarsa lineolata*; rodents, including the Merriam’s Kangaroo Rat (*Dipodomys merriami*), feed on the buds and sprouts. *Hymenoclea monogyra* is native to southwest-central and southern North America. *5, 6, 13 (Pages 301-302), 15, 43 (062009), 44 (030912 - recorded as *Ambrosia monogyra*), 46 (Page 894), 48 (genus), 58, 63 (030812 - color presentation), 85 (030912 - color presentation), 91 (Page 236), 124 (030812 - no record of species or genus; record of the genus *Ambrosia* L.), 127, 140 (recorded as *Ambrosia monogyra* (Torrey & A. Gray) Strother & B.G. Baldwin, Pages 55-56, 68,87 & 283), **HR***

***Hymenoclea salsola* J. Torrey & A. Gray ex A. Gray: Burrobrush**

SYNONYMY: *Ambrosia salsola* (J. Torrey & A. Gray) J.L. Strother & B.G. Baldwin. COMMON NAMES: Burro Brush, Burrobrush, Burrobrush, Cheesebush (a name also applied to other species), Cheeseweed, Desert Pearl, Ivdad (Pima), Jecota, Pearlbush, Romerillo (a name also applied to other species, White Burrobrush, White Burro-bush, White Burrobrush (a name also applied to other species), White Cheesebush. DESCRIPTION: Terrestrial perennial drought-deciduous subshrub (10 inches to 8 feet in height and possibly two to three times as wide, one plant was observed and reported to be 2 feet in height and 40 inches in width, one plant was observed and reported to be 3 feet in height and 2 feet in width, one plant was observed and

reported to be 3 feet in height and 5 feet in width with a trunk diameter of 2 inches, one plant was observed and reported to be 40 inches in height and 32 inches in width); the stems are green or yellow-green; the leaves are creamish-green, dark green or yellow-green; the flowers may be brown (male), cream, creamish-green, greenish-white (female), metallic gold, light pink, silvery, silvery-white, white, light yellow or yellow; flowering generally takes place between mid-January and early June (additional records: one for early October, flowering through June has been reported); the fruit has silvery-white wings. HABITAT: Within the range of this species it has been reported from mountains; sandy plateaus; rocky canyons; rocky canyon bottoms; sandy bases of cliffs; buttes; cinder cones; foothills; rocky, rocky-gravelly, sandy and clayey hills; rocky hillsides; bouldery, rocky, rocky-gravelly, rocky-sandy, cindery, gravelly and sandy slopes; rocky-sandy alluvial fans; sandy-silty bajadas; sand dunes; rocky-sandy outwash fans; rocky and rocky-gravelly banks; gravelly-sandy and sandy plains; gravelly-sandy, sandy and clayey flats; valley floors; along rocky, rocky-sandy and sandy roadsides; arroyos; bottoms of arroyos; gullies; gravelly-sandy ravines; along streams; streambeds; along rivers; sandy riverbeds; along and in rocky-sandy, gravelly, gravelly-sandy and sandy washes; within sandy drainages; around ponds; rocky-sandy edges of washes; margins of washes; gravelly-sandy shores of lakes; gravel and sand bars; bouldery beaches; benches; loamy bottomlands; floodplains; canal banks; recently burned areas in woodlands and desertscrub, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, stony, cindery, gravelly, gravelly-sandy and sandy ground; clayey loam and loam ground; clay ground, and sandy silty and silty ground, occurring from below sea level to 5,300 feet in elevation in the woodland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. White Cheesebush may be useful in the revegetation of disturbed sites. *Hymenoclea salsola* is native to southwest-central and southern North America. *5, 6, 13, 15, 28 (color photograph), 43 (052010 - *Hymenoclea salsola* Torr. & A. Gray), 46 (Page 893), 48 (genus), 63 (052010 - color presentation), 85 (052110 - color presentation, also recorded as *Ambrosia salsola* (J. Torrey & A. Gray) J.L. Strother & B.G. Baldwin), 91, 115 (color presentation), **WTK** (August 4, 2005)*

***Hymenothrix wislizeni* A. Gray: Trans-Pecos Thimblehead**

COMMON NAMES: Burro-brush (English)¹⁴⁰; Golden Ragweed; Thimblehead (a name also applied to the genus *Hymenothrix*); [Trans-Pecos] Thimblehead (English: Arizona, California, Texas)¹⁴⁰; Trans-Pecos Thimblehead; TransPecos Thimblehead; Wislizen's Burro-brush (English)¹⁴⁰; Wislizenus Beeflower; Yellow Thimblehead. DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 8 inches to 5 feet in height); the foliage is green; the disc florets may be creamish to bright yellow; the ray florets may be green-yellow or yellow; the anthers are yellowish; flowering generally takes place between early June and early December (additional record: one for late March). HABITAT: Within the range of this species it has been reported from mountains; mesas; clefts in cliffs; rocky canyons; crevices in lava; buttes; meadows; foothills; rocky and stony-gravelly hills; rocky and gravelly hillsides; escarpments; bouldery-rocky-sandy, rocky, rocky-stony, rocky-clayey-loamy, sandy, sandy-loamy and sandy-clayey slopes; alluvial fans; bajadas; amongst boulders; rocky lava beds; plains; gravelly, sandy and clayey flats; valley floors; valley bottoms; along gravelly, gravelly-sandy-clayey-loamy, gravelly-silty, sandy and sandy-clayey-loamy roadsides; along and in sandy arroyos; along sandy bottoms of arroyos; springs; sandy streambeds; along creeks; along rivers; sandy riverbeds; along and in rocky, gravelly, gravelly-sandy, sandy and clayey washes; drainages; (gravelly-sandy and sandy) banks of washes; (sandy) edges of washes; terraces; floodplains; mesquite bosques; around stock tanks, and disturbed areas growing in dry bouldery, bouldery-rocky-sandy, rocky, rocky-stony, rocky-sandy, stony-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly-sandy-clayey loam, sandy loam, sandy-clayey loam and loam ground; gravelly clay, sandy clay and clay ground, and gravelly silty ground, occurring from 1,300 to 7,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Javelina (*Peccari tajacu*) may browse this plant. Leaf-cutting Ants (*Acromyrmex* spp.) and Lesser Goldfinch (*Carduelis psaltria*), House Finch (*Carpodacus mexicanus*) and other birds feed on the seed. *Hymenothrix wislizeni* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (062009), 44 (052811 - no species record; genus record), 46 (Page 920), 58, 63 (030912), 77, **85** (030912 - color presentation), 115 (color presentation), 124 (052811 - no record of species or genus), 140 (Pages 76-78 & 285), **WTK** (August 4, 2005)*

***Isocoma coronopifolia* (A. Gray) E.L. Greene: Common Goldenbush**

COMMON NAMES: Burroweed (a name also applied to other species); Common Goldenbush; Common Goldenweed; Common Jimmyweed; Goldenaster; Goldenbush (a name also applied to other species); Goldenweed (a name also applied to other species); Hierba del Burro (a name also applied to other species, Spanish). DESCRIPTION: Terrestrial perennial subshrub (erect stems 8 inches to 2 feet in height); the flower heads are gold-yellow; based on few flowering records located, flowering generally takes place between early July and mid-October (flowering records: two for early July, one for late July, three for late September and two for mid-October; flowering beginning as early as May and June has been reported). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; rocky-sandy canyon walls; foothills; rocky and sandy slopes; gravelly bajadas; plains; gravelly-sandy flats; basins; along roadsides; draws; within sandy-clayey washes; (sandy) edges of marshy areas; floodplains; ditch banks, and disturbed areas growing in dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-clayey loam ground; sandy clay ground, and sandy silty ground, occurring from sea level to 5,600 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTE: *Isocoma coronopifolia* is native to southwest-central and southern North America. *5, 6, 43 (120209 - *Isocoma coronopifolia* Greene), 44 (052811 - no record of species; genus record), 46 (no record of species), 63 (052811 - this species is not recognized as being present in Arizona), **85** (030912), 124 (052811 - no record of species or genus), 140 (Page 285)*

***Isocoma tenuisecta* E.L. Greene: Burroweed**

SYNONYMY: *Haplopappus tenuisectus* (E.L. Greene) S.F. Blake. COMMON NAMES: Bitter-weed (English)¹⁴⁰; Burro Weed; Burro-weed (a name also applied to other species); Burro-weed (English)¹⁴⁰; Burrow Golden-bush; Golden-bush (English)¹⁴⁰; Goldenweed; Burroweed (a name also applied to other species); Goldenweed (a name also applied to other species); Hierba del Burrow (a name also applied to other species); Shrine Golden-weed (English)¹⁴⁰; Shrine Jimmy-weed (English)¹⁴⁰; Shrine Jimmyweed; Tat□agī <ta□shagi, tatshagi> (Uto-Aztecans: Tohono O'odham, Arizona)¹⁴⁰; Turpentine Bush (a name also applied to other species); Turpentine-bush (English)¹⁴⁰. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (erect stems 6 to 40 inches in height and 12 to 40 inches in width); the bark is gray or whitish; the leaves may be gray, green, silvery or yellow-green; the flower heads may be cream, tawny-yellow or yellow; flowering generally takes place between late July and mid-November (additional records: three for late June, one for early July, three for early December and two for late December). HABITAT: Within the range of this species it has been reported from rocky mountains; mountainsides; mesas; canyons; along canyon bottoms; ridges; rocky-loamy foothills; rocky hills; rocky and gravelly hillsides; rocky, gravelly, sandy and sandy-clayey slopes; bajadas; rocky outcrops; amongst rocks; rocky-clayey plains; gravelly, gravelly-clayey, sandy and clayey flats; valley floors; along gravelly roadsides; sandy arroyos; draws; gulches; sandy bottoms of ravines; around streams; along and in sandy and sandy-silty washes; drainages; within clayey drainage ways; clayey playas; (rocky, gravelly-sandy and sandy) banks of arroyos and washes; borders of washes; sides of washes; mudflats; alluvial terraces; gravelly floodplains; mesquite bosques; ditch banks; gravelly-sandy and sandy riparian areas; waste places, and disturbed areas growing in dry rocky, gravelly, gravelly-sandy and sandy ground; rocky loam and gravelly-sandy loam ground; rocky clay, gravelly clay, sandy clay and clay ground, and sandy silty ground, occurring from 2,000 to 7,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and may live to be from 7 to 20 years of age. The fruits are gathered by a Leaf-cutting Ant (*Acromyrmex* sp.). *Isocoma tenuisecta* is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Haplopappus tenuisectus* (Greene) Blake Pages 327-328) 15, 16, 28 (note under *Isocoma wrightii*), 43 (062009), 44 (031012 - no record of species; genus record), 46 (recorded as *Aplopappus tenuisectus* (Greene) Blake, Page 862), 58, 63 (031012), 68, 77, 80 (This species is listed as a Major Poisonous Range Plant. "The poisonous principle of burroweed is the alcohol, tremetol. All parts of the plant are poisonous, although the dried flowers are most often eaten. ... Burroweed produces the affliction called "trembles." Poisoned animals tremble violently when exercised and usually lie down in the normal position. Upon arising, the trembling recurs. Appetite is markedly depressed, and the severely poisoned animal eventually stays down until it dies. Acetonemia, characterized by the odor of acetone in the urine and on the breath, is also a product of burroweed poisoning. ... Burroweed is generally low in palatability, but is eaten in quite large amounts when better forage is not available. Special precautions must be taken with new animals brought into burroweed-infested areas as they are more likely to graze the plants. Native livestock apparently become sickened from eating the plant and tend to avoid it. An adequate supply of good feed during harsh times when livestock might be more prone to consume burroweed, may reduce its consumption." See text for additional information.), 85 (031012 - color presentation), 115 (color presentation), 124 (031012 - no record of species or genus), 140 (Pages 78-79 & 285), MBJ (undated record which may include landscaped material that persists without maintenance), WTK (August 4, 2005)*

***Lasthenia californica* A.P. de Candolle ex J. Lindley subsp. *californica*: California Goldfields**

SYNONYMY: *Baeria chrysostoma* F.E. von Fischer & C.A. von Meyer; *Baeria chrysostoma* F.E. von Fischer & C.A. von Meyer var. *gracilis* (A.P. de Candolle) H.M. Hall; *Lasthenia chrysostoma* (F.E. von Fischer & C.A. von Meyer) E.L. Greene. COMMON NAMES: California Gold Fields (a name also applied to the species); California Gold-fields (a name also applied to the species); California Goldfield (a name also applied to the species); California Goldfields (a name also applied to the species); California Goldenfields (a name also applied to the species); California Goldfield (a name also applied to the species); California Goldfields (a name also applied to the species); Coast Gold Fields (a name also applied to the species); Coast Gold-fields (a name also applied to the species); Coast Goldfield (a name also applied to the species); Coast Goldfields (a name also applied to the species); Dwarf Goldfields (a name also applied to the species); Gold-fields (a name also applied to the species and the genus *Lasthenia*); Goldfields (a name also applied to the species and the genus *Lasthenia*). DESCRIPTION: Terrestrial annual forb/herb (decumbent [cespitose], ascending and/or erect stems 3 to 16 inches in height); the foliage is green; the disc florets may be orange or yellow; the ray florets may be golden-yellow, yellow or yellow-orange; flowering generally takes place between late January and mid-June. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; gravelly mesas; plateaus; rocky canyons; canyon bottoms; bluffs; ridges; ridgetops; meadows; foothills; rocky hills; rocky hillsides; rocky, gravelly and stony-loamy slopes; bajadas; amongst boulders and rocks; clayey-loamy plains; gravelly flats; sandy basins; valley floors; along roadsides; sandy draws; seeps; along streams; bouldery-gravelly streambeds; sandy riverbeds; along and in rocky and sandy washes; clayey lakebeds; banks of washes; edges of creeks and rivers; gravelly and sandy-loamy terraces; bottomlands; floodplains; gravelly-sandy riparian areas, and disturbed areas growing in dry bouldery, bouldery-gravelly, rocky, rocky-gravelly-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, stony loam, sandy loam and clayey loam ground, and clay ground, occurring from sea level to 5,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The flowers are reportedly fragrant. The species, *Lasthenia californica*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Lasthenia californica* subsp. *californica* is native to southwest-central and southern North America. *5, 6, 15, 28 (recorded as *Lasthenia chrysostoma*, color photograph 418), 43 (120409), 44 (060211), 46 (recorded as *Baeria chrysostoma* Fisch. & Mey. var. *gracilis* (DC.) Hall, reports that variety *gracillis* is the only form occurring in Arizona, Pages 917-918), 63 (031712 - color presentation including habitat), 77, 85 (031712 - color presentation), 86 (recorded as *Lasthenia chrysostoma* - color photograph), 124 (053111 - no record of

subspecies, species or genus), 127 (species), 140 (recorded as *Lasthenia californica* DeCandolle ex Lindley [*Lasthenia chrysostoma* (Fischer & C.A. Meyer) Greene], Page 285)*

Lasthenia chrysostoma (see *Lasthenia californica* subsp. *californica*)

***Machaeranthera arida* B.L. Turner & D.B. Horne: Arid Tansyaster**

SYNONYMY: *Arida arizonica* (R.C. Jackson & R.R. Johnson) D.R. Morgan & R.L. Hartman; *Machaeranthera coulteri* (A. Gray) B.L. Turner & D.B. Horne var. *arida* (B.L. Turner & D.B. Horne) B.L. Turner; *Psilactis coulteri* auct. non A. Gray. p.p. COMMON NAMES: Arid Machaeranthera; Arid Spiny Daisy; Arid Tansyaster; Silver Lake Daisy. DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 2 to 16 inches in height); the disk florets may be gold or yellow; the ray florets may be blue, bluish-lavender, lavender, lavender-blue, pale lavender-pink, lavender-white, pink, purple, pale violet, violet, white or whitish; flowering generally takes place between early March and early September (additional records: one for late September, three for early October, one for mid-October, one for early November, two for late November and one for early December). HABITAT: Within the range of this species it has been reported from mountains; mesas; crater walls; hills; hilltops; hillsides; rocky and gravelly slopes; gypsum outcrops; sand dunes; blowout areas between dunes; banks; sandy breaks; sandy plains; gravelly and sandy flats; basins; gravelly-sandy and sandy-clayey-loamy valley floors; coastal plains; along railroad right-of-ways; along rocky, sandy and sandy-loamy roadsides; along sandy arroyos; springs; gravelly-sandy and sandy-silty riverbeds; along and in gravelly and sandy washes; drainages; around pools; silty lakebeds; depressions; alkali sinks; banks of rivers; edges of seeps and playas; shores of lakes; sandy islands in riverbeds; gravelly benches; along gravelly-sandy-silty and clayey floodplains; along and in ditches; ditch banks, and disturbed areas growing in wet, moist and dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam and sandy-clayey loam ground; clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 4,800 feet in elevation in the scrub, desertscrub and wetland ecological formations. NOTE: *Machaeranthera arida* is native to southwest-central and southern North America. *5, 6, 43 (082112), 44 (031712 - no listing under Common Names; genus listing), 46 (recorded as *Psilactis coulteri* Gray, Page 867), 63 (031712), 80 (Species of the genus *Machaeranthera* (*Aster* sp.) are listed as Rarely Poisonous and Suspected Poisonous Range Plants. "Species of this genus are secondary or facultative selenium absorbers and can be dangerous to livestock."), 85 (031712 - color presentation of dried material), 124 (031712 - no record of species; genus record)*

***Machaeranthera canescens* (F.T. Pursh) A. Gray subsp. *canescens* var. *incana* (J. Lindley) A. Gray: Hoary Tansyaster**

SYNONYMY: *Aster tephrodes* (A. Gray) S.F. Blake; *Dieteria incana* (J. Lindley) J. Torrey & A. Gray; *Machaeranthera incana* (J. Lindley) E.L. Greene; *Machaeranthera tephrodes* (A. Gray) E.L. Greene. COMMON NAMES: Aster (a name also applied to other species, the genus *Machaeranthera* and to the Aster Family); Cutleaf Goldenweed; Fall Tansyaster; Hoary Aster (a name also applied to the species); Hoary Tansyaster (a name also applied to the species); New Mexico Tansy-aster (a name also applied to other species); New Mexico Tansyaster (a name also applied to other species); Purple Aster. DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb (ascending and/or erect stems 6 to 40 inches in height); the disk florets are yellow; the ray florets may be lavender, purple, purple-blue, violet-blue, white or white tinged with lavender; flowering generally takes place between mid-February and early November. HABITAT: Within the range of this species it has been reported from mountains; plateaus; canyons; sandy ridges; sandy-loamy hills; cindery-loamy slopes; amongst rocks; rocky alcoves; sand dunes; blow-sand deposits; flats; along sandy roadsides; gullies; rivers; along and in sandy washes; (rocky and sandy) edges of streams; sandy terraces; floodplains; sandy fencelines, and riparian areas growing in dry rocky, rocky-sandy and sandy ground; cindery loam, sandy loam and sandy-clayey loam ground, and sandy silty ground, occurring from 100 to 8,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Machaeranthera canescens* subsp. *canescens* var. *incana* is native to west-central and southern (Baja California) North America. *5, 6, 43 (031812), 44 (031812 - no listings recorded under Common Names for var. *incana* or for the species; genus record), 46 (recorded as *Aster tephrodes* (Gray) Blake, Page 874), 58 (recorded as *Machaeranthera tephrodes* (Gray) Greene), 63 (031812 - mapping does not show this plant as being native to or as occurring in Arizona), 80 (Species of the genus *Machaeranthera* (*Aster* sp.) are listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "Species of this genus are secondary or facultative selenium absorbers and can be dangerous to livestock."), 85 (031812 - color presentation), 101 (species, recorded as *Machaeranthera canescens*, (Pursh) Gray, color photograph), 124 (031812 - no record of var. *incana* or subspecies *canescens*; species and genus records), **MBJ** (recorded as *Machaeranthera tephrodes*, undated record which may include landscaped material that persists without maintenance)*

Machaeranthera coulteri var. *arida* (see *Machaeranthera arida*)

***Machaeranthera gracilis* (T. Nuttall) L.H. Shinnars: Slender Goldenweed**

SYNONYMY: *Haplopappus gracilis* (T. Nuttall) A. Gray. COMMON NAMES: Goldenweed (a name also applied to other species); Slender Goldenweed; Slender Spine-aster (New Mexico); Tabacote (Spanish); Yellow Daisy; Yellow Spiny Daisy. DESCRIPTION: Terrestrial annual forb/herb (decumbent, ascending and/or erect stems 4 to 28 inches in height); the foliage may be gray-green or yellow-green; the disk florets may be gold, yellow or yellow-orange; the ray florets may be gold, yellow or yellow-orange; flowering generally takes place between mid-March and mid-November (additional records: one for early January, two for early February and three for early December). HABITAT: Within the range of this species it has been

reported from mountains; mountain summits; mountainsides; bases of mountains; mesas; sandy bases of cliffs; rocky canyons; sandy canyon bottoms; bouldery and sandy ridges; rocky ridgetops; clearings in forests and woodlands; sandy meadows; foothills; rocky, stony and sandy hills; rocky, gravelly-clayey, sandy-clayey and clayey hillsides; rocky, rocky-stony, rocky-silty, gravelly, gravelly-loamy, silty-loamy, sandy and clayey slopes; bajadas; amongst boulders; sand dunes; plains; rocky, sandy and clayey flats; valley floors; valley bottoms; along railroad right-of-ways; along rocky, gravelly-sandy, sandy and clayey roadsides; arroyos; draws; along streams; streambeds; along gravelly-sandy creeks; rocky creekbeds; along rivers; bouldery-cobbly-sandy and sandy riverbeds; along and in bouldery, rocky, stony, gravelly, gravelly-sandy, sandy and clayey washes; drainages; bouldery and gravelly-sandy-loamy drainage ways; within swales; along lakes; bog-like areas; (sandy and silty) banks of streams, creeks and lakes; shores of lakes; beaches; sandy benches; sandy and loamy bottomlands; sandy floodplains; lowlands; around and in stock tanks; along ditches; gravelly and sandy riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, bouldery-cobbly-sandy, rocky, rocky-stony, rocky-sandy, stony, cindery, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly loam, gravelly-sandy loam, sandy loam, silty loam and loam ground; gravelly clay, sandy clay and clay ground, and rocky silty and powdery silty ground, occurring from 1,100 to 8,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. *Machaeranthera gracilis* is native to south-central and southern North America. *5, 6, 15, 16, 28 (color photograph 419), 43 (062009), 44 (022711 - no listings under Common Names; genus record), 46 (recorded as *Aplopappus gracilis* (Nutt.) Gray, Page 860), 58, 63 (031812 - color presentation), 77, 80 (Species of the genus *Machaeranthera* (*Aster* sp.) are listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "Species of this genus are secondary or facultative selenium absorbers and can be dangerous to livestock."), 85 (031912 - color presentation), 124 (031812 - no record of species; genus record), 127, 140 (Page 285)*

Machaeranthera incana (see *Machaeranthera canescens* subsp. *canescens* var. *incana*)

***Machaeranthera pinnatifida* (W.J. Hooker) L.H. Shoiners subsp. *pinnatifida*: Lacy Tansyaster**

COMMON NAMES: Cutleaf Goldenweed, Cutleaf Ironplant, Lacy Tansy-aster, Lacy Tansyaster, Pinnate Machaeranthera, Spiny Goldenweed, Spiny Haplopappus Yellow Spiny Daisy. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (6 to 20 inches in height); the foliage is gray-green; the disk and ray flowers are yellow; flowering generally takes place between mid-February and mid-December. HABITAT: Within the range of this species it has been reported from mountains; mesas; along rocky-sandy rims of craters; cliffs; canyon bluffs; talus slopes; bouldery hillsides; sandy escarpments; rocky slopes; gravelly bajadas; amongst boulders; gravelly, gravelly, sandy and sandy-clayey flats; along roadsides; arroyos; sandy-silty draws; streambeds; banks of rivers; beaches; sandy benches; dry bottoms of stock tanks (charcos), and disturbed areas growing in dry bouldery, rocky, rocky-sandy, gravelly and sandy ground; sandy clay and clay ground, and sandy silty ground, occurring from 1,500 to 7,200 feet in elevation in the woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Machaeranthera pinnatifida* subsp. *pinnatifida* is native to central and southern North America. *5, 6, 43 (062109), 46 (recorded as *Aplopappus spinulosus* (Pursh) DC., Page 860 and *Aplopappus spinulosus* (Pursh) DC. var. *turbinellus* (Rydb.) Blake, Page 860), 58, 63 (120609), 80 (Species of the genus *Machaeranthera* (*Aster* sp.) are listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "Species of this genus are secondary or facultative selenium absorbers and can be dangerous to livestock."), 85 (120609 - color presentation), 86 (color photograph - (*Machaeranthera pinnatifida* subsp. *pinnatifida* var. *pinnatifida*), *Haplopappus spinulosus*), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Machaeranthera tagetina* E.L. Greene: Mesa Tansyaster**

SYNONYMY: *Aster tagetinus* (E.L. Greene) S.F. Blake. COMMON NAMES: Flor de Capita (Spanish); Mesa Tansy-aster; Mesa Tansyaster; Tansyleaf Spine Aster. DESCRIPTION: Terrestrial annual forb/herb (erect stems 2 to 40 inches in height; one plant was observed and described as being 10 inches in height and width); the foliage is gray-green; the disk florets are yellow, the ray florets may be blue, dark blue, blue-purple, blue-violet, lavender, dark lavender, purple, purple-blue, purple-indigo or violet; flowering generally takes place between early July and mid-December (additional records: one for mid-March and one for mid-April). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; canyon bottoms; bases of cliffs; ridges; ridgetops; foothills; hills; rocky and rocky-clayey hillsides; rocky, gravelly, gravelly-sandy-loamy and sandy-loamy slopes; alluvial fans; bajadas; rocky-loamy, gravelly, gravelly-sandy and clayey flats; basins; valley floors; gravelly roadbeds; along rocky roadsides; bottoms of arroyos; springs; along streams; streambeds; along creeks; sandy creekbeds; along and in rocky washes; rocky drainages; within drainage ways; ciénegas; banks of rivers; benches; terraces; floodplains; rocky mesquite bosques; ditch banks; riparian areas, and disturbed areas growing in dry rocky, stony-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly-sandy loam, sandy loam and clayey loam ground, and rocky clay, sandy clay and clay ground, occurring from 300 to 8,100 feet elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Machaeranthera tagetina* is native to southwest-central and southern North America. *5, 6, 16, 43 (062109), 44 (060611 - no record of species; genus record), 46 (recorded as *Aster tagetinus* (Greene) Blake, Page 873), 58, 63 (032512), 77, 80 (Species of the genus *Machaeranthera* (*Aster* sp.) are listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "Species of this genus are secondary or facultative selenium absorbers and can be dangerous to livestock."), 85 (032512 - color presentation), 124 (060611 -

no record of species; genus record), 140 (Page 285), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Machaeranthera tephrodes (see *Machaeranthera canescens* subsp. *canescens* var. *incana*)

***Microseris lindleyi* (A.P. de Candolle) A. Gray: Lindley's Silverpuffs**

SYNONYMY: *Microseris linearifolia* (T. Nuttall) C.H. Schultz; *Uropappus lindleyi* (A.P. de Candolle) T. Nuttall; *Uropappus linearifolius* T. Nuttall. COMMON NAMES: Lindley False Silverpuffs; Lindley Microseris; Lindley Silver Puff; Lindley Silver Puffs; Lindley Silver-puffs; Lindley Silverpuffs; Lindley Uropappus; Lindley's False Silverpuffs; Lindley's Microseris; Lindley's Silver Puff; Lindley's Silver Puffs; Lindley's Silver-puffs; Lindley's Silverpuffs; Lindley's Uropappus; Linear-leaf Microseris; Linearleaf Microseris; Narrowleaf Microseris; Narrow-leaved Microseris; Silver Puffs (a name also applied to other species); Starpoint. DESCRIPTION: Terrestrial annual forb/herb (erect stems 2 to 20 inches in height); the foliage is gray-green or green with the leaves located in a basal rosette; the ray florets may be greenish, straw-yellow, white, pale yellow or yellow; flowering generally takes place between mid-January and mid-June (additional record: one for early September). HABITAT: Within the range of this species it has been reported from mountains; rocky-clayey mountaintops; mesas; canyon rims; bases of cliffs; rocky, gravelly-sandy and sandy canyons; along rocky, rocky-sandy and sandy canyon bottoms; chasms; gorges; rocky knobs; knolls; rocky and rocky-stony ledges; rocky promontories; along ridges; bedrock and rocky ridgetops; openings in woodlands; rocky-sandy meadows; sandy foothills; bouldery, rocky, cobbly-sandy-loamy, gravelly and gravelly-sandy hills; hilltops; rocky and clayey hillsides; along rocky, rocky-gravelly-loamy, rocky-sandy, rocky-clayey, gravelly, gravelly-sandy, gravelly-loamy, sandy-loamy, sandy-clayey-loam, clayey, clayey-loamy, loamy and silty slopes; gravelly bajadas; bouldery and rocky outcrops; amongst boulders and rocks; lava flows; sand dunes; sandy plains; rocky and sandy flats; basins; sandy and clayey valley floors; along gravelly, gravelly-sandy and sandy roadsides; along bottoms of arroyos; around streams; bouldery and gravelly-clayey-loamy streambeds; creeks; sandy creekbeds; riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; along and in sandy drainages; in cobbly drainage ways; playas; sandy and clayey depressions; along (sandy) banks of arroyos, rivers and washes; edges of streams and creeks; (sandy) margins of creeks; benches; shelves; sandy terraces; sandy and loamy bottomlands; floodplains; mesquite bosques; along fencelines; ditches; sandy riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, rocky-stony, rocky-sandy, cobbly, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, cobbly-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; rocky-loamy clay, rocky clay and clay ground, and silty ground, occurring from sea level to 7,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant has a milky sap. *Microseris lindleyi* is native to west-central and southern North America and coastal islands in the North Pacific Ocean. *5, 6, 15, 16 (recorded as *Microseris linearifolia* (DC.) Schultz Bip.), 28 (recorded as *Microseris lindleyi* and *Microseris linearifolia*, color photographs 452 & 453), 43 (120809 - *Microseris lindleyi* A.Gray), 44 (033112 - no listings under Common Names; records located under *Uropappus lindleyi*, color photograph, 46 (recorded as *Microseris linearifolia* (DC.) Schultz Bip., Page 959), 58, 63 (033112 - color presentation), 77 (recorded as *Microseris linearifolia* (DC.) Schultz Bip., color photograph #20), **85** (033112 - color presentation), 115 (color presentation), 124 (033112 - no record of species or genus), 140 (Page 286 - recorded as *Uropappus lindleyi* (DeCandolle) Nuttall), **MBJ** (recorded as *Microseris linearifolia*, undated record which may include landscaped material that persists without maintenance)*

Microseris linearifolia (see *Microseris lindleyi*)

***Parthenice mollis* A. Gray: Annual Monsterwort**

COMMON NAME: Annual Monsterwort. DESCRIPTION: Terrestrial annual forb/herb (erect stem 20 inches to 8 feet in height); the foliage is pale green or green; the flower heads may be green or greenish-white; flowering generally takes place between mid-August and late October (additional records: one for late March, one for early April, one for late April, one for late June and one for early July, flowering ending as late as December has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky cliffs; sandy canyons; canyon bottoms; foothills; rocky hills; rocky hillsides; rocky and silty-loamy slopes; bajadas; amongst rocks; banks; flats; rocky and gravelly roadsides; ravines; seeps; along streams; along streambeds; along and in sandy washes; in rocky drainages; banks of washes and lakes; along edges of washes; benches; floodplains; riparian areas, and disturbed areas growing in dry rocky and sandy ground and silty loam ground, occurring from 400 to 6,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Parthenice mollis* is native to southwest-central and southern North America. *5, 6, 15, 43 (120909), 44 (060611 - no record of species or genus), 46 (Page 891), 58, 63 (033112), **85** (033112 - color presentation), 124 (060611 - no record of species or genus), 140 (Page 285)*

***Parthenium incanum* K.S. Kunth: Mariola**

COMMON NAMES: Crowded Rayweed; Hierba Ceniza (Spanish); Hierba del Guayule (Spanish); Mariola (Spanish). DESCRIPTION: Terrestrial perennial shrub (1 to 4 feet in height; plants were observed and described as being 8 inches in height and width, one plant was observed and described as being 30 inches in height and 40 inches in width); the foliage may be gray, gray-green or white; the flower heads may be cream, cream-white, cream-yellow, green, greenish-white, greenish-yellow, white, whitish-green, yellow, pale yellow-white or yellow-cream; flowering generally takes place between late May and mid-December (additional records: two for early January, three for mid-January, one for late February, one for mid-March, one for mid-April,

one for late April and one for early May). HABITAT: Within the range of this species it has been range reported from mountains; mountainsides; rocky and sandy mesas; plateaus; cliffs; rocky and gravelly-loamy canyons; gorges; talus slopes; crevices in rock; hogbacks; knolls; ledges; ridges; rocky ridgetops; sandy foothills; rocky hills; rocky, sandy and sandy-loamy hillsides; bouldery escarpments; bedrock, bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-gravelly-loamy, rocky-sandy-clayey-loamy, rocky-loamy, rocky-silty-loamy, stony, gravelly, sandy, sandy-loamy, sandy-clayey, sandy-silty-clayey, clayey and chalky slopes; gravelly bajadas; rocky and clayey-loamy-gypsum outcrops; amongst rocks; lava flows; breaks; terraces; plains; gravelly and sandy flats; sandy esplanades; basins; valley floors; along rocky-sandy and gravelly-loamy roadsides; within rocky arroyos; ravines; springs; along rivers; along and in rocky, rocky-gravelly and gravelly washes; along drainages; drainage ways; clayey depressions; (sandy) banks of creeks; (rocky-sandy) borders of washes; shores of lakes; floodplains; lowlands; riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, shaley, stony, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, rocky-sandy-clayey loam, rocky-silty loam, sandy loam and clayey loam ground; sandy clay, sandy-silty clay and clay ground, and chalky ground, often growing on limestone soils, occurring from 900 to 7,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers are reported to be fragrant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial crop. *Parthenium incanum* is native to southwest-central and southern North America. *5, 6, 13, 15, 16, 43 (120909), 44 (033112 - no record of species or genus), 46 (Page 891), 63 (040112 - color presentation including habitat), 77, 85 (040112 - color presentation including habitat), 124 (033112), 127, **HR***

***Pectis papposa* W.H. Harvey & A. Gray var. *papposa*: Manybristle Chinchweed**

COMMON NAMES: Chinchweed (a name also applied to the species and genus *Pectis*), typical Cinchweed Fetid-marigold; typical Cinchweed Fetidmarigold; typical Common Chinchweed; typical Desert Chinchweed; typical Desert Cinchweed; typical Dissected Chinchweed; Fetid Marigold (a name also applied to the species and other species); Fetid-marigold (a name also applied to the species and other species); Limoncillo (a name also applied to other species, Spanish); typical Many Bristle Cinchweed; typical Many-bristle Cinchweed; typical Many-bristle Fetid-marigold; typical Many-bristled Cinch-weed; typical Many-bristled Cinchweed; typical Manybristle Chinchweed; typical Manybristle Cinchweed; typical Manzanilla Coyote; Manzanilla de Coyote (a name also applied to the species and other species, Spanish). DESCRIPTION: Terrestrial annual forb/herb (ascending stems ½ to 8 inches in height and up to 2 to 12 inches in width, plants were described as being 2 inches in height and 2 to 4 inches in width); the foliage may be green or yellow; the disk florets are yellow; the ray florets are yellow; flowering generally takes place between mid-July and late December (additional records: one for late May and two for early June). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; buttes; sandy ridges; crater floors; rocky foothills; rocky hillsides; rocky, rocky-loamy, gravelly and sandy slopes; bajadas; sand hills; sand dunes; sand hummocks; gravelly and gravelly-sandy plains; bouldery-sandy, rocky-sandy, gravelly, sandy and sandy-loamy flats; sandy valley floors; coastal dunes; coastal flats; gravelly roadsides; sandy arroyos; sandy bottoms of arroyos; sandy bottoms of ravines; along streams; along streambeds; sandy riverbeds; along and in cobbly, gravelly-sandy, sandy and silty washes; gravelly drainages; depressions; (sandy) banks of rivers and washes; (sandy) baysides; terraces; floodplains; lowlands; sandy riparian areas; waste areas, and disturbed areas growing in dry desert pavement; bouldery-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, gravelly loam, sandy loam, silty loam and loam ground; clay ground, and gravelly-sandy silty and silty ground, occurring from below sea level to 5,900 feet in elevation in the scrub, grassland, desertscrub ecological formation. NOTES: This plant may be an attractive component of a restored native habitat, and has been reported to be pleasantly aromatic (one record reported that it has a pungent aroma somewhat like that of a lemon). The species, *Pectis papposa*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or spice crop; it was also noted as having been used as a drug or medication and as a ceremonial item. This plant is a host of the Beet Leaf Hopper. *Pectis papposa* var. *papposa* is native to southwest-central and southern North America. *5, 6, 15, 43 (121009), 44 (040312), 46 (species, Page 935), 63 (040312), **85** (040312 - color presentation of dried material), 86 (color photograph of species), 124 (040112 - no record of species; genus record), 127 (species)*

Perezia nana (see *Acourtia nana*)

Perezia wrightii (see *Acourtia wrightii*)

***Porophyllum gracile* G. Bentham: Slender Poreleaf**

COMMON NAMES: Deerweed (a name also applied to other species); Hierba del Venado (“Herb of the Deer” a name also applied to other species, Spanish); Odora; Poreleaf (a name also applied to other species and the genus *Porophyllum*); Slender Pore Leaf; Slender Pore-leaf; Slender Poreleaf; Yerba de Venado (a name also applied to other species); Yerba del Vernada; Yerba del Vernada. DESCRIPTION: Terrestrial perennial subshrub (spreading and/or erect stems 4 inches to 5 feet in height; one plant was observed and described as being 8 inches in height and 12 inches in width, one plant was described as being 16 inches in height and 20 inches in width); the foliage may be bluish, blue-gray, gray, gray-green, green or purple-gray; the disk florets may be cream, cream-maroon, cream-purple, cream-white, flesh, grayish-white, maroon, maroon-cream, pinkish, pinkish-white, purple, purple-white, purplish, purplish-white, white, whitish, white tinged with purple, yellow or yellow-white; flowering generally takes place between mid-February and late December (additional records: one for early January and one for mid-

January). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky-gravelly, stony and gravelly mesas; cliffs; bouldery bases of cliffs; in rocks along walls; bouldery, rocky and stony canyons; rocky and sandy canyon bottoms; scree; talus slopes; crevices in boulders and rocks; rocky bluffs; ledges; rocky ridges; rocky ridgetops; meadows; foothills; rocky and rocky-sandy hills; along bouldery hilltops; rocky hillsides; bedrock, bouldery, rocky, rocky-gravelly, rocky-loamy, rocky-clayey, gravelly and sandy slopes; alluvial fans; rocky and gravelly bajadas; rocky outcrops; amongst boulders and rocks; gravelly bases of boulders; sandy lava beds; sand dunes; sandy hummocks; sandy plains; rocky-sandy, gravelly and sandy flats; basins; valley floors; sea-bluffs; sandy coastal dune ridges; along gravelly roadsides; along rocky and sandy arroyos; rocky arroyo walls; rocky bottoms of arroyos; draws; along gullies; seeps; around springs; along streams; along creeks; sandy creekbeds; along rivers; rocky riverbeds; along and in rocky, rocky-clayey, gravelly, gravelly-sandy and sandy washes; drainages; within drainage ways; (rocky, cobbly and sandy) banks of arroyos, rivers and washes; borders of washes; (rocky) edges of arroyos; along shores; beaches; gravelly terraces; floodplains; riparian areas, and recently burned areas of chaparral growing in wet and dry gravelly desert pavement; bouldery, bouldery-gravelly, rocky, rocky-gravelly, shaley, shaley-pebbly, stony, cobbly, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam and rocky-gravelly loam ground, and rocky clay and clay ground, occurring from sea level to 6,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Slender Poreleaf emits a pungent odor when bruised. This plant was reported to have been utilized by native peoples of North America crop; it was noted as having been used as a drug or medication. Deer browse this plant. *Porophyllum gracile* is native to southwest-central and southern North America. *5, 6, 13 (Page 311), 15, 16, 28 (color photograph 733), 43 (121109), 44 (040512), 46 (Pages 933-934), 58, 63 (040512 - color presentation), 77, **85** (040512 - color presentation), 115 (color presentation), 124 (040512 - no record of species or genus), 127, 140 (Page 285)*

Psilactis coulteri (see *Machaeranthera arida*)

***Psilostrophe cooperi* (A. Gray) E.L. Greene: Whitestem Paperflower**

SYNONYMY: *Riddellia cooperi* A Gray. COMMON NAMES: Cooper Paper Daisy; Cooper Paper Flower; Cooper Paper-daisy; Cooper Paper-flower; Cooper Paperflower; Cooper's Paper Daisy; Cooper's Paper Flower; Cooper's Paper-daisy; Cooper's Paper-flower; Coopers Paperflower; Paper Daisy; Paper Flower (a name also applied to the genus *Psilostrophe*); Paper-daisy; Paper-flower (a name also applied to the genus *Psilostrophe*); Paperflower (a name also applied to the genus *Psilostrophe*); White Stem Paperflower; White-stem Paper-flower; White-stem Paperflower; Whitestem Paperflower; Yellow Paper Daisy. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (erect stems 4 to 32 inches in height; one plant was observed and described as being 32 inches in height and 40 inches in width); the stems are white; the leaves may be blue-green, gray, gray-green, green, greenish-gray or white; the disk florets are yellow, the ray florets are lemon-yellow, pale yellow or yellow fading to cream or white and remaining on the plants when dry; flowering generally takes place between early January and early December. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky mesas; bouldery, bouldery-gravelly and rocky canyons; along canyon bottoms; buttes; rocky and chalky ridges; ridgelines; foothills; rocky, stony-gravelly, cobbly-gravelly-loamy and clayey hills; rocky and gravelly hillsides; bouldery, rocky, rocky-gravelly-clayey, stony, gravelly-sandy-silty, gravelly-clayey, sandy-loamy and sandy-silty slopes; sandy bajadas; rocky outcrops; amongst boulders and rocks; lava fields; sand dunes; rocky banks; plains; gravelly, sandy and clayey-loamy flats; basins; sandy valley floors; roadbeds; along rocky-sandy-loamy, gravelly-sandy, sandy and clayey roadsides; arroyos; along streams; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; sandy along rocky drainage ways; sandy depressions; along (sandy) banks of arroyos, rivers and washes; borders of washes; (gravelly-silty) edges of draws; mudflats; rocky benches; gravelly terraces; sandy bottomlands; floodplains; sandy riparian areas, and disturbed areas growing in moist and dry desert pavement; bouldery, bouldery-gravelly, rocky, rocky-sandy, stony, stony-gravelly, cindery, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, cobbly-gravelly loam, sandy-clayey loam, sandy-silty loam and clayey loam ground; rocky clay, rocky-gravelly clay, gravelly clay and clay ground; gravelly silty, gravelly-sandy silty and sandy silty ground, and chalky ground, occurring from 500 to 6,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Psilostrophe cooperi* is native to southwest-central and southern North America. *5, 6, 13 (Page 309, color photograph: Plate W., Page 408), 15, 16, 18, 28 (color photograph 421), 43 (040912 - *Psilostrophe cooperi* Greene), 44 (060611), 46 (Page 914), **48** (genus), 63 (040912 - color presentation), 77, **80** (This species is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "This showy, low-growing shrub is widespread in Arizona. No losses have been documented, but it may cause some poisoning similar to the other paperflowers."), **85** (060811 - color presentation), **86** (color photograph), 115 (color presentation), 124 (060611 - no record of species; genus record), 140 (Page 286), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Rafinesquia californica* T. Nuttall: California Plumeseed**

COMMON NAMES: California Chicory; California Plumeseed. DESCRIPTION: Terrestrial annual forb/herb (erect stem 8 inches to 5 feet in height); the ray flowers are cream, cream-white with a pinkish tint, cream-yellow or white possibly tinged with rose; flowering generally takes place between mid-February and late June (flowering ending as late as July has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; plateaus; rocky canyons; along canyon floors; bases of cliffs; pockets of soil in boulders; clayey-loamy ridges; ridgetops; openings in chaparrals; rocky-sandy meadows; rocky hills; hilltops; rocky and cobbly-loamy hillsides; bouldery-gravelly, rocky, rocky-gravelly-loamy,

rocky-loamy-clayey, cobbly-sandy-loamy and clayey slopes; amongst rocks; rocky banks; clay lenses; silty flats; along rocky and gravelly roadsides; gulches; along streams; in streambeds; in rocky-gravelly creekbeds; along and in rocky and sandy washes; drainages; rocky-sandy bases of waterfalls; gravelly banks of streams; gravelly-sandy riparian areas; recently burned areas of pinyon-juniper woodland, grassland, chaparral and coastal sage scrub, and disturbed areas growing in wet, moist and dry bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, cobbly loam, cobbly-sandy loam, clayey loam and silty loam ground; rocky-loamy clay and clay ground, and silty ground, occurring from 600 to 6,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Rafinesquia californica* is native to southwest-central and southern North America. *5, 6, 15, 43 (071710), 46 (Page 961), 63 (071710), 77, 80 (Listed as a Rarely Poisonous and Suspected Poisonous Range Plant, this annual forb has been reported to accumulate toxic levels of nitrate.), 85 (073110 - color presentation), 140 (Pages 83 & 286)*

***Rafinesquia neomexicana* A. Gray: New Mexico Plumeseed**

COMMON NAMES: Desert Chickory (a name also applied to other species); Desert Chicory (a name also applied to other species); Desert Chicory (English)¹⁴⁰; Desert-chicory (a name also applied to other species); Desert Dandelion (a name also applied to other species); Goatsbeard; Mexican Plumeseed; New Mexico Chicory; New Mexico Desert Chicory; New Mexico Desert-chicory; New Mexico Plume-seed; New Mexico Plume-seeded Chicory; New Mexico Plumeseed; Plume-seed (a name also applied to the genus *Rafinesquia*); [New Mexico] Plume-seed (English: Arizona, New Mexico, Texas)¹⁴⁰; Plumeseed (a name also applied to the genus *Rafinesquia*); Sí□ (Uto-Aztecan: Southern Paiute)¹⁴⁰. DESCRIPTION: Terrestrial annual forb/herb (ascending or erect stems 4 to 24 inches in height); the foliage may be bluish-gray-green or gray; the flowering heads (to 2 inches in width) may be cream, cream-white, white, white with lavender or pink stripes, yellow or yellow-cream; flowering generally takes place between early January and late May (additional record: one for mid-July). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy-silty mesas, along rocky cliffs; bases of cliffs; rocky canyons; sandy and sandy-loamy canyon bottoms; knobs; ridges; ridgetops; foothills; rolling hills; rocky and sandy hillsides; bases of hills; rocky escarpments; bouldery-sandy-clayey, rocky, rocky-gravelly-loamy, rocky-sandy, rocky-silty-clayey, rocky-powdery, stony, cobbly-gravelly-sandy, cobbly-sandy loam, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey, gravelly-clayey-loamy, sandy, sandy-loamy and silty slopes; alluvial fans; rocky-sandy and gravelly bajadas; amongst rocks; lava fields; sand dunes; sand flats; blow-sand deposits; terraces; bouldery-pebbly and sandy plains; rocky, cindery-sandy, gravelly, sandy, sandy-loamy, sandy-silty silty flats; rocky uplands; gravelly and sandy valley floors; coastlines; along rocky-sandy, gravelly, gravelly-sandy-clayey-loamy and sandy roadsides; rocky and sandy arroyos; draws; along gullies; along and in rocky, gravelly, gravelly-sandy and sandy washes; drainages; cobbly drainage ways; silty lakebeds; sandy and silty depressions; alkaline sinks; (gravelly-sandy and sandy) banks of washes; (sandy) edges of washes and lakes; margins of washes; shores of lakes; gravelly-sandy benches; terraces; floodplains; ditches; sandy riparian areas and disturbed areas growing in dry desert pavement; bouldery-pebbly, bouldery-sandy, rocky, rocky-sandy, stony, cobbly, cobbly-gravelly-sandy, cindery, cindery-sandy, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; rocky-gravelly loam, cobbly-sandy loam, gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam and sandy loam ground; bouldery-sandy clay, rocky-silty clay, gravelly clay, sandy clay, silty clay and clay ground; sandy silty and silty ground, and rocky powdery ground, occurring from sea level to 5,800 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The flowers “close” for the night and then re-open in the morning. It is often found growing up through the crowns of and supported by Triangleleaf Bursage (*Ambrosia deltoidea*) and other small low shrubs. *Rafinesquia neomexicana* is native to southwest-central and southern North America. *5, 6, 16, 28 (color photograph 261), 43 (121209), 44 (040912 - color photograph, 46 (Page 961), 58, 63 (040912 - color presentation), 77 (color photograph #22), 85 (041012 - color presentation), 86 (color photograph), 115 (color presentation), 124 (040912 - no record of species or genus), 140 (Pages 82-83 & 286), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Senecio lemmonii* A. Gray: Lemmon’s Ragwort**

COMMON NAMES: Groundsel (a name also applied to the genus *Senecio*); Lemmon Butterweed; Lemmon Groundsel; Lemmon Ragwort; Lemmon’s Butterweed; Lemmon’s Ragwort. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (stems 4 inches to 5 feet in height); the stems are reddish; the foliage is purple beneath and green above; the disk florets are golden-yellow, orange-yellow or yellow, the ray florets may be buttery-yellow, green-yellow or yellow, flowering generally takes place between early February and mid-May (additional records: one for early January, one for mid-January, one for early February, one for early June, one for late June, two for mid-November and four for late November). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky peaks; rocky mountainsides; mesas; canyon rims; rocky cliffs; rocky cliff faces; bases of cliffs; along rocky canyons; crevices in boulders and rocks; buttes; rocky ridges; foothills; rolling hills; rocky, shaley, gravelly and gravelly-silty hillsides; bouldery, bouldery-rocky and rocky slopes; bajadas; rocky outcrops; amongst boulders and rocks; bases of boulders and rocks; valley floors; along arroyos; draws; around seeps; along streams; rocky streambeds; along creeks; along and in rocky, rocky-sandy, gravelly and sandy washes; banks of streams and washes; borders of washes, and riparian areas growing in dry bouldery, rocky, rocky-sandy, shaley, gravelly and sandy ground; gravelly loam ground; clay ground, and gravelly silty ground, occurring from 300 to 4,700 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Senecio lemmonii* is native to southwest-central and southern North America. *5, 6, 15, 16, 28 (color photograph), 43 (121509), 44 (041612 - no record of species; genus record), 46 (recorded

as *Senecio lemmoni* Gray, Page 949), 58, 63 (041612), 77, **85** (041712 - color presentation), 115 (color presentation), 124 (041612 - no record of species; genus record), 140 (Page 286)*

***Sonchus asper* (C. Linnaeus) J. Hill: Spiny Sowthistle**

SYNONYMY: *Sonchus asper* (C. Linnaeus) J. Hill subsp. *asper* (C. Linnaeus) J. Hill. COMMON NAMES: Achicoria [Chicoria] Dulce (“Sweet Chickory”, Spanish: Arizona, Texas, Sonora)¹⁴⁰; ‘Azee’ Hókánii Libáhígíí <azee’xokhánii’lipáhikiih> (Athapaskan: Navajo)¹⁴⁰; Annual Sow-thistle (a name also applied to other species); Cardo Lechero (“Milky Thistle”, Spanish: Spain)¹⁴⁰; Cerraja (“a saw”, Spanish: Chihuahua, Durango)¹⁴⁰; Chinita (Spanish: Arizona, Sonora)¹⁴⁰; Čínaka <china-ri> (Uto-Aztecan: Tarahumara)¹⁴⁰; Ho’idkam ‘I:vaki (“Spiny Greens”, Uto-Aztecan: Hiá Ce□ O’odham); Ho’idkam ‘I:vakī (“Eaten Greens”, Uto-Aztecan: Hiá Ce□ O’odham)¹⁴⁰; Hoi’idkham ‘I:waki (Spanish); Kee Tá Ha (Yuman: Mohave)¹⁴⁰; Laiteron Rude (French); Letchiterna (“Soft and Milky”, Spanish: Spain)¹⁴⁰; Lyonsheart; Ma:xškál’y [Ma:škál’y] (Yuman: Cocopa)¹⁴⁰; Mu’tcigip [Mo’tcigip, Mu’tcigi, Mo’tcigi] (Uto-Aztecan: Shoshoni)¹⁴⁰; Perennial Sowthistle (a name also applied to other species); Prickly [Spiny] Sow Thistle (English)¹⁴⁰; Prickly Sow-thistle; Prickly Sowthistle; Prickly-leaved Sow Thistle; Raue Gänsedistel (German); Rough Milk Thistle; Rough Sow Thistle; Rough Sow-thistle; Rough Sowthistle; S-ho’idag Shaipag <shaipuk> (Uto-Aztecan: Tohono O’odham)¹⁴⁰; S-ho’idkam Iivagi (“Spiny Eaten Greens”, Uto-Aztecan: Akimel O’odham)¹⁴⁰; Serralha-comum (Portuguese: Brazil); Shá’inalaḥ <sá□inalaḥ> (Athapaskan: Navajo)¹⁴⁰; Si’imel Iivagi (“Lactating Eaten Greens”, Uto-Aztecan: Akimel O’odham)¹⁴⁰; Sharp Fringe Sow-thistle; Sharp-fringe Sow-thistle; Sharp-fringed Sow Thistle; Sharp-fringed Sow-thistle; Sow Thistle (a name also applied to other species and the genus *Sonchus*); Sow-thistle (a name also applied to other species and the genus *Sonchus*); Sowthistle (a name also applied to other species and the genus *Sonchus*); Spiny Leaved Sow Thistle; Spiny Sow Thistle; Spiny Sow-thistle; Spiny Sowthistle; Spiny-leaf Sow Thistle; Spiny-leaf Sow-thistle; Spiny-leaf Sowthistle; Spiney-leaf Sow Thistle; Spiney-leaved Sow Thistle; Spiny-leaved Sow Thistle; Spiny-leaved Sow-thistle; Spiny-leaved Sowthistle; Spinyleaf Sow Thistle; Spinyleaf Sow-thistle; Spinyleaf Sowthistle; Spinyleaved Sow Thistle; Svimmelke (Swedish). DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 inches to 7 feet in height); the leaves may be green, purplish and/or purple-green; the flower heads are yellow; flowering generally takes place between late January and mid-October (additional records: one for early January and one for mid-November; flowering year round has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky-clayey mountaintops; plateaus; hanging gardens; rocky and sandy canyons; rocky canyonsides; bouldery-gravelly-sandy and sandy canyon bottoms; talus slopes; crevices in rocks; gravelly-sandy bluffs; ridges; meadows; hills; rocky hillsides; rocky, rocky-clayey-loamy and sandy slopes; bajadas; amongst rocks; volcanic plugs; banks; plains; flats; valleys; along railroad right-of-ways; roadsides; bottoms of arroyos; draws; bottoms of draws; gulches; ravines; around and on muddy seeps; in sand around springs; sandy spring-seeps; along streams; sandy streambeds; along sandy creeks; creekbeds; along gravelly-sandy rivers; riverbeds; along and in stony-gravelly, gravelly-sandy and sandy washes; sandy-loamy and clayey-loamy drainages; drainage ways; waterholes; lakebeds; ciénegas; marshes; depressions; (sandy and sandy-silty) banks of springs, streams, creeks, rivers and washes; (sandy) edges of streams, ponds, lakes and freshwater and saltwater marshes; margins of washes, drainages, poolbeds, lakes and marshes; shores of lakes; along sand bars; sandy beaches; sandy benches; terraces; bottomlands; floodplains; along fencelines; margins of stock tanks; along canals; along gravelly-clayey canal banks; sandy channels; along ditches; along ditch banks; bouldery-sandy, rocky and sandy riparian areas; waste places, and disturbed areas growing in shallow water; muddy, and wet, moist, damp and dry bouldery-gravelly-sandy, bouldery-sandy, rocky, stony-gravelly, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, sandy loam, sandy-silty loam, clayey loam, silty loam and loam ground; rocky clay, gravelly clay and clay ground, sandy silty and silty ground, occurring from sea level to 8,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food and as a drug or medication. *Sonchus asper* may be native to northern, middle, eastern and southern Europe; Asia, and Africa and coastal islands in the Indian Ocean; however, the exact native range is obscure. *5, 6, 15, 28 (note), 43 (121709), 44 (060811 - color photograph), 46 (Page 965), 30, 58, 63 (041812 - color presentation), 68, 77, **80** (Species of the genus *Sonchus* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. “Species of this genus (*Sonchus*) have been reported to accumulate dangerous levels of nitrates.”), 85 (041812 - color presentation), 101 (color photograph), 115 (color presentation), 124 (060811), 127, 140 (Pages 83-84 & 286), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Sonchus asper subsp. *asper* (see *Sonchus asper*)

***Stylocline micropoides* A. Gray: Woollyhead Neststraw**

COMMON NAMES: Desert Fanbract; Desert Nest Straw; Desert Nest-straw; Desert Neststraw; Woolly Head Neststraw; Woolly Neststraw; Woolly Stylocline; Woolly-head Cottonweed; Woolly-head Fanbract; Woolly-head Neststraw; Woolly-head Stylocline; Woollyhead Fanbract; Woollyhead Neststraw; Woollyhead Stylocline. DESCRIPTION: Terrestrial annual forb/herb (erect stems 1 to 8 inches in height); the herbage is light grayish; the flower heads are white; flowering generally takes place between mid-February and mid-May (additional records: flowering ending as late as August has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; pebbly-sandy-silty mesas; rocky canyon rims; canyons; talus slopes; pockets of soil in cobbles; along ridges; rocky and clayey hills; hilltops; rocky hillsides; rocky, rocky-cobbly-sandy, rocky-gravelly, gravelly, gravelly-sandy, gravelly-clayey and sandy-loamy slopes; gravelly and sandy bajadas; gravelly pediments; amongst rocks; lava flows; lava fields; dunes; plains; rocky, gravelly, gravelly-sandy and sandy flats; along gravelly roadsides; arroyos; along draws; rocky gullies; along streams; along and in rocky, gravelly, gravelly-

sandy and sandy washes; sandy drainage ways; depressions; (rocky) banks of arroyos and washes; (rocky-gravelly) edges of washes; margins of washes; (silty-clayey) shores of lakes; beaches; loamy bottomlands; floodplains; riparian areas, and disturbed areas growing in dry desert pavement; rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; sandy loam and clayey loam ground; gravelly clay, silty clay and clay ground, and pebbly-sandy silty and sandy silty ground, occurring from 100 to 5,300 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Stylocline micropoides* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (121909), 44 (042012), 46 (Page 885), 63 (042012), 77, **85** (042012 - color presentation), 124 (042012 - no record of species or genus)*

***Thymophylla pentachaeta* (A.P. de Candolle) J.K. Small var. *pentachaeta*: Fiveneedle Pricklyleaf**

SYNONYMY: *Dyssodia pentachaeta* (A.P. de Candolle) B.L. Robinson. COMMON NAMES: Common Dogweed; Dogweed; Five-needle Fetid Marigold; Five-needle Pricklyleaf; Fiveneedle Pricklyleaf; Golden Dogweed; Golden *Dyssodia*; Parralena; Parvalena; Scale Glandbush. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (spreading and/or erect stems 4 inches to 2 feet in height); the foliage has been described as being grayish to green to dark green; the disk florets are yellow; the ray florets may be orange-yellow or yellow; flowering generally takes place between mid-March and mid-December (additional records: two for mid-January, one for mid-February and one for late February). HABITAT: Within the range of this species it has been reported from mountains; rocky-sandy and gravelly mesas; rims of canyons; canyons; rocky canyon bottoms; gorges; gravelly bases of cliffs; crevices in boulders; sandy bluffs; shelving sandstone; bouldery-rocky-sandy and rocky ledges; ridges; ridgetops; foothills; rocky and rocky-gravelly hills; cobbly hilltops; rocky and gravelly hillsides; rocky and rocky-sandy slopes; rocky alluvial fans; bajadas; rock outcrops; rocky and gravelly plains; rocky and gravelly flats; basins, rocky valley floors; along rocky, cindery, gravelly-sandy, sandy and sandy-loamy roadsides; rocky gullies; along creeks; along washes; sandy drainages; clayey swales; banks of rivers; edges of washes; beaches; benches; floodplains; riparian areas; waste places and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, cobbly; cindery, gravelly, gravelly-sandy and sandy ground; sandy loam ground; sandy-silty clay, silty clay, chalky clay and clay ground, and sandy silty ground, occurring from 100 to 6,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant is a larval food plant of the Dainty Sulfur (*Nathalis iole*). *Thymophylla pentachaeta* var. *pentachaeta* is native to southwest-central and southern North America. *5, 6, 16 (recorded as *Dyssodia pentachaeta* (DC.) Robins.), 18, 28 (recorded as *Dyssodia pentachaeta*, color photograph 402), 43 (122209), 44 (050612 - no record of variety or species; genus record), 46 (recorded as *Dyssodia pentachaeta* (DC.) Robins., Page 933), 58 (recorded as *Dyssodia pentachaeta* (DC.) Robins.), 63 (050612 - this variety has not been mapped as being present in Arizona), 77 (recorded as *Dyssodia pentachaeta* (DC.) Rob., color photograph #16), 82, 85 (050612 - color presentation), 86 (recorded as *Dyssodia pentachaeta*, color photograph), 115 (color presentation of species), 124 (050612 - no record of variety, species or genus), 140 (Page 286 - recorded as *Thymophylla pentachaeta* (De Candolle) Small var. *pentachaeta* [*Dyssodia pentachaeta* (De Candolle) B.L. Robinson subsp. *pentachaeta*]), **MBJ** (recorded as *Dyssodia pentachaeta* var. *pentachaeta*, undated record which may include landscaped material that persists without maintenance)*

***Trixis californica* A. Kellogg: American Threefold**

SYNONYMY: *Trixis californica* A. Kellogg var. *californica*. COMMON NAMES: American Threefold; American [California] *Trixis* (English)¹⁴⁰; Arizona Green Plant; Cachano (Spanish: New Mexico, Chiricahua, Coahuila)¹⁴⁰; California Threefold; California *Trixis*; Cocazn-ootixz (“Rattlesnake’s Foreskin”, Hokan: Seri)¹⁴⁰; Hebai Sa’igar <j’bai sa’igar> (Athapaskan: Mountain Pima)¹⁴⁰; Hierba de Aire (“Air Herb”, Spanish: Sonora)¹⁴⁰; Hierba de Pasma (“Herb for Pasma”, Spanish: Sonora)¹⁴⁰; Ruina (“Ruin”, Spanish: Sonora)¹⁴⁰; Santa Lucia (Spanish); *Trixis* (a name also applied to the genus *Trixis*). DESCRIPTION: Terrestrial perennial (leaves are cold and drought deciduous) subshrub or shrub (10 inches to 6 feet in height); the stems are gray, the leaves are green, dark green or yellow-green; the disk flowers may be yellow; the ray flowers are white or yellow; flowering generally takes place between mid-January and late December; the seeds have straw-colored bristles. HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; mountainsides; rocky mesas; rocky cliffs; cliff faces; bases of cliffs; along rocky canyons; canyon walls; canyon bottoms; rocky gorges; talus slopes; crevices in rocks; gravelly and sandy knolls; rocky ledges; bouldery and rocky ridges; bouldery ridgetops; bouldery and rocky foothills; rocky hills; rocky hilltops; rocky and gravelly hillsides; bedrock, bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy-clayey, gravelly and loamy slopes; alluvial fans; sandy bajadas; bouldery and rocky outcrops; amongst boulders and rocks; bases of boulders; sandy boulder fields; shady coves; plains; sandy and sandy-clayey-loamy flats; valley floors; along gravelly roadsides; within sandy arroyos; bottoms of arroyos; draws; bottoms of rocky gullies; within ravines; around springs; around seeping streams; along creeks; creekbeds; riverbeds; along and in bouldery, bouldery-gravelly-sandy, rocky, rocky-sandy, stony, gravelly, pebbly and sandy washes; within rocky-bedrock drainage ways; rocky bowls; along banks of arroyos, streams, creeks, rivers, washes and drainages; borders of washes; (rocky) edges of arroyos and washes; sandy beaches; floodplains; riparian areas, and disturbed areas growing in moist and dry bouldery, bouldery-rocky, bouldery-gravelly, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony, gravelly, gravelly-sandy, pebbly and sandy ground; sandy-clayey loam and loam ground, and rocky-sandy clay ground often in the shade of rocks and larger shrubs and trees, occurring from sea level to 7,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and may live to be 40 years of age. This plant is occasionally browsed by Mule Deer (*Odocoileus hemionus*). *Trixis californica* is native to southwest-central and southern North America. *5, 6, 13 (Page 356), 15, 16, 28 (color photograph 472), 43 (122309), 44 (061411 - color presentation), 46 (Page 958),

58, 63 (050612 - color presentation), 77, **85** (050712 - color presentation), 86 (color photograph), 91 (Pages 391-392), 106 (122309 - color presentation), 115 (color presentation), 124 (061211 - no record of species or genus), 140 (Pages 86-87 & 286), **HR***

Trixis californica var. *californica* (see *Trixis californica*)

Uropappus lindleyi (see *Microseris lindleyi*)

Uropappus linearifolius (see *Microseris lindleyi*)

***Verbesina encelioides* (A.J. Cavanilles) G. Bentham & J.D. Hooker f. ex A. Gray (subsp. *exauriculata* (B.L. Robinson & J.M. Greenman) J.R. Coleman is the subspecies reported as occurring in Arizona): Golden Crownbeard**

SYNONYMY: (for subsp. *exauriculata*: *Verbesina encelioides* (A.J. Cavanilles) G. Bentham & J.D. Hooker f. ex A. Gray var. *exauriculata* B.L. Robinson & J.M. Greenman). COMMON NAMES: American Dogweed; Butter Daisy; Butter-daisy; Cow Pasture Daisy; Cow Pen Daisy; Cow-pasture Daisy; Cow-pen Daisy; Cowpen Crownbeard; Cowpen Daisy; Crown Beard Daisy; Crown-beard (a name also applied to the genus *Verbesina*); Crown-beard Daisy; Crownbeard (a name also applied to the genus *Verbesina*); Crownbeard Daisy; Dog-weed (a name also applied to other species); Dogweed (a name also applied to other species); Girasolillo; Golden Crown Beard; Golden Crown-beard; Golden Crownbeard; Hierba de la Bruja; Skunk Daisy Skunk-daisy; Sore-eye; South African Daisy; Wild Sunflower; Yellow Top; Yellow-top; Yellow-top Daisy. DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 inches to 6½ feet in height; plants were observed and recorded as being 8 inches in height and 12 inches in width); the foliage may be bluish-green, gray, gray-green, green, silvery or silvery-green; the disk florets may be gold, deep orange, green-orange, orange-yellow or yellow; the ray florets may be gold, deep orange, orange-yellow, yellow or yellow-orange; flowering generally takes place between early March and mid-December (additional records: two for late January and one for mid-February). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky, rocky-gravelly and sandy mesas; rocky and sandy canyons; rocky, gravelly and sandy canyon bottoms; talus slopes; bouldery knobs; sandy ridges; sandy ridgetops; openings in woodlands; sandy meadows; crater floors; foothills; stony and clayey hills; hilltops; rocky-sandy hillsides; sandy escarpments; bouldery, rocky, cindery, sandy, sandy-loamy, sandy-clayey-loamy, loamy, clayey-loamy, silty-loamy and silty-clayey slopes; within alluvial fans; gravelly bajadas; rocky outcrops; sand dunes; sandy hummocks; banks; steppes; sandy-loamy, silty and silty-loamy prairies; plains; rocky-gravelly, cindery, gravelly, gravelly-sandy-loamy, gravelly-clayey, sandy, sandy-clayey-loamy, loamy, clayey-loamy, clayey and silty flats; uplands; basin bottoms; valley floors; valley bottoms; sandy coastal dunes; sandy roadbeds; along bouldery, bouldery-gravelly, rocky, cindery, gravelly, gravelly-sandy, gravelly-sandy-clayey-loamy, gravelly-loamy, gravelly-clayey-loamy, sandy, sandy-loamy and sandy-clayey-loamy roadsides; arroyos; along and in gravelly draws; sandy streambeds; along creeks; gravelly creekbeds; along gravelly-sandy rivers; along and in sandy, sandy-loamy and silty riverbeds; along and in rocky-sandy, stony, gravelly-sandy, sandy and clayey washes; along sandy drainages; within drainage ways; around ponds and lakes; playas; boggy areas; loamy ciénegas; depressions; sandy swales; (sandy and silty) banks of rivers; along (rocky and gravelly-sandy) edges of washes and swales; around margins of playas; marshy areas; shorelines of lakes; along sandy beaches; terraces; sandy bottomlands; gravelly and sandy floodplains; lowlands; mesquite bosques; around stock tanks; dry beds of stock tanks; dry beds of reservoirs; along and in ditches; ditch banks; sandy riparian areas; clayey-loamy waste places, and disturbed areas growing in wet, moist, damp and dry bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground; gravelly clay, sandy clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 10,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant has a rank odor. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop (subsp. *exauriculata*); it was also noted as having been used as a drug or medication, insecticide (subsp. *exauriculata*), protection (subsp. *exauriculata*), ceremonial items (subsp. *exauriculata*) and as a commodity used in personal hygiene (subsp. *exauriculata*). *Verbesina encelioides* is native to south-central and southern North America and coastal islands in the Caribbean Sea, and western and southern South America. *5, 6, 16, 28 (color photograph 438), 43 (062409), 44 (050712), 46 (Page 907), 58, 63 (050712 - color presentation), 68 (*Verbesina encelioides* var. *exauriculata* is reported to be an exotic and native to the Old World; however, no other source used reported it as being an exotic.), 77, **80** (This plant is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. This annual forb has been reported to accumulate toxic levels of nitrate.), **85** (0508712 - color presentation), 86 (color photograph), 115 (color presentation), 124 (050712), 127, **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Verbesina encelioides var. *exauriculata* (see *Verbesina encelioides* subsp. *exauriculata*)

Viguiera deltoidea var. *parishii* (see *Viguiera parishii*)

***Viguiera parishii* E.L. Greene: Parish's Goldeneye**

SYNONYMY: *Viguiera deltoidea* A. Gray var. *parishii* (E.L. Greene) G. Vasey & J.N. Rose. COMMON NAMES: Ariosa, Golden Eye, Parish Goldeneye, Parish's Goldeneye, Parish Viguiera. DESCRIPTION: Terrestrial perennial subshrub or shrub (16 inches to 8¼ feet in height with a rounded crown one plant was observed and describe as being 24 inches in height and 4 feet in width, one plant was observed and describe as being 28 inches in height and 4 feet in width); the stems are whitish; the leaves are gray-green, green or dark green; the disk flowers are brownish, golden-yellow, orange or yellow; the ray flowers are golden-yellow, yellow or dark yellow; flowering generally takes place between mid-September and early June (additional records: one for mid-august and two for late august). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky chutes; bouldery and rocky canyons; rocky canyon bottoms; bluffs; buttes; bases of buttes; ledges; rocky ridges; bouldery ridgetops; bouldery-rocky ridgelines; foothills; bouldery and rocky hills; bouldery-rocky, rocky and shaley hillsides; bouldery, rocky, rocky-gravelly, rocky-loamy, gravelly and sandy slopes; alluvial fans; bajadas; amongst boulders and rocks; bajadas; blow-sand deposits; gravelly and sandy plains; rocky-sandy and sandy flats; valley floors; rocky railroad right-of-ways; along rocky, gravelly and gravelly-sandy roadsides; arroyos; draws; seeps; springs; along streambeds; along and in rocky, gravelly and sandy washes; within drainages; along silty banks of arroyos and washes; edges of washes; margins of washes; shores of lakes; gravelly benches; loamy bottomlands; sandy floodplains, and riparian areas growing in moist and dry bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, shaley, gravelly and sandy ground; rocky loam, gravelly loam and loam ground, and silty ground, occurring from sea level to 5,400 feet in elevation in the woodland, scrub, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Viguiera deltoidea* var. *parishii* is native to southwest-central and southern North America. *5, 6, 13, 28 (recorded as *Viguiera deltoidea* var. *parishii*, color photograph), 43 (071810), 46 (recorded as *Viguiera deltoidea* var. *parishii* (Greene) Vasey & Rose, Page 901), 63 (071810), 85 (073110 - color presentation), 91*

Xanthium canadense (see *Xanthium strumarium* var. *canadense*)

Xanthium commune (see *Xanthium strumarium* var. *canadense*)

Xanthium saccharatum (see *Xanthium strumarium* var. *canadense*)

***Xanthium strumarium* C. Linnaeus (var. *canadense* (P. Miller) J. Torrey & A. Gray is the variety reported as occurring in Arizona): Rough Cocklebur**

SYNONYMY: (for *X.s.* var. *canadense*: *Xanthium californicum* E.L. Greene; *Xanthium canadense* P. Miller; *Xanthium commune* N.L. Britton; *Xanthium saccharatum* C.F. Wallroth). COMMON NAMES: Abrojo ("Bur", Spanish: Arizona to Texas, Tabasco)¹⁴⁰; 'Alta'neets'ehii <'alxa'niits'ehiih, ta'neets'ehii> (Athapascan: Navajo)¹⁴⁰; American Cocklebur (var. *canadense* and *glabratum*); Atsiánwádova (Uto-Aztecan)¹⁴⁰; Atsiogopapa (Uto-Aztecan: Northern Paiute)¹⁴⁰; Bachapo'or (Uto-Aztecan: Mountain Pima)¹⁴⁰; Beach Clotbur (var. *canadense*); Beach Cocklebur (var. *canadense*); Broad Bur-weed; Broad Burweed; Broad Cocklebur; Bur Thistle Burdock; Burr Thistle; Bur Weed; Bur-weed (a name also applied to var. *canadense* and other species); Burweed (a name also applied to var. *canadense*, other species and the genus *Xanthium*); Button-bur (var. *canadense*); Buttonbur (English)¹⁴⁰; Cadio (var. *canadense*); Cadillo ("Bur", Spanish: Arizona, New Mexico, Sonora)¹⁴⁰; Cadillos (Hispanic); California Bur (a name also applied to var. *canadense* and other species); California Burr (var. *canadense*); California-bur (as *X. orientale*); Californian Burr (var. *canadense*); Canada Cocklebur (var. *canadense*); Canada Cockleburr (var. *canadense*); Canadian Canadian Bur (a name also applied to var. *canadense*); Cang Er (transcribed Chinese); Cocklebur (var. *canadense*); Carrapicho-de-carneiro (Portuguese: Brazil); Carrapicho-grande (Portuguese: Brazil); Chayotillo (Hispanic); Clot-bur (a name also applied to var. *canadense* and to other species); Clotbur (a name also applied to var. *canadense*, other species and the genus *Xanthium*); Clotbur [Clotbur] ("Ball-bur", English: England, Texas)¹⁴⁰; Clote-bur (a name also applied to the genus *Xanthium*); Clott Bur (a name also applied to other species); Clott-bur (a name also applied to other species); Cocklebur (a name also applied to var. *canadense*, other species and the genus *Xanthium*); Cockleburr; Common Clotbur; Common Cockle Bur; Common Cockle-bur (var. *canadense*); Common Cockle-burr; Common [Spiny] Cocklebur (a name also applied to other species (English)¹⁴⁰); Common Cocklebur (var. *canadense*); Common Cuckelbur; Common Cucklebur; Cözazni Caacöl ("Large Sandbur", Hoka: Seri)¹⁴⁰; Cucklebur (a name also applied to var. *canadense* and the genus *Xanthium*); Cuckle Bur (var. *canadense*); Cuckold Burs; Dike-but; Ditch Bur; Ditch-bur; Ditchbur (English)¹⁴⁰; Gewöhnliche Spitzklette (German); Glandular Clot-bur (var. *canadense*); Glandular Clotbur (var. *canadense*); Glandular Cocklebur (var. *canadense*); Great Clotbur (var. *canadense*); Great Cocklebur (a name also applied to var. *canadense* and other species); Gullfrö (Swedish); Heartleaf Cocklebur; Hedge-hog Bur-weed; Hedge-hog-bur-weed (var. *canadense*); Hedgehog Burweed (var. *canadense*); Hedgehog-burweed; Huichapole <güichapol, güichapori, guachapore, guacaporo, huichaori, huachapore> (Spanish: California, Sonora to Puebla)¹⁴⁰; Italian Cocklebur (var. *canadense*); Izee Inlwozh <izee inkozee> (Athapascan: Western Apache)¹⁴⁰; Kámuknivü (Uto-Aztecan: Ute)¹⁴⁰; Kmn^ya (Yuman: Cocopah)¹⁴⁰; Kankerroos (Afrikaans); Kropfklette (German); Kwĩ'tcëmbogop ("Bison Fruit", Uto-Aztecan: Shoshoni)¹⁴⁰; Lampourde (French); Lampourde Glouteron (French); Large Cockle Bur; Large Cockle-bur; Large Cockle-burr; Large Cocklebur; Large-leaf Cocklebur; Lesser Burdock (var. *canadense*); Lesser Clot-bur; Lesser Clotbur; Louse-bur; Louse-burr; Lousebur; Mo'kiachipa (Language Isolate: Zuni)¹⁴⁰; Mo'kiyatchipba ("Round Stickers", Zuni); Mokoksh (Chumash: Ineseño Chumash)¹⁴⁰; Noogoora-bur (as *X. pungens*); □waejoka (Kiowa Tanoan: Tewa)¹⁴⁰; O-namomi (Japanese Rōmaji); Paatso <pá:taco, pa:toótco> (Uto-Aztecan: Hopi)¹⁴⁰; Pennsylvania Clotbur (var. *canadense*); Petit Glouteron (French); Qum Nah (Yuman: Paipai)¹⁴⁰; Rough Cockle-bur; Rough Cocklebur; Rough Cockle-burr; Rough Cockleburr; Sea Burdock; Sea-burdock; Sea Cocklebur (var. *canadense*); Sea Cucklebur (var. *canadense*); Sheep-bur (a name also applied to other species);

Sheepbur (a name also applied to other species); Sheepbur (English)¹⁴⁰; Sheepburr (a name also applied to other species); Sho'moy <shomoy> (Chumash: Barbareño Chumash)¹⁴⁰; Siberian Cocklebur (for *X. sibericum*); Small Burdock (var. *canadense*); Small Cocklebur (var. *canadense*); Spitzklette (German); Strumarium; Ta'neets'ehí Ntsxaaz <□dtani-c'ehí □ca-gi> (Athapascan: Navajo)¹⁴⁰; Vaiwa <vaiva, váiva> (Uto-Aztecan: Akimel O'odham, Hiá Ce□ O'odham)¹⁴⁰; Waiwel <vaivul> (Uto-Aztecan: Tohono O'odham)¹⁴⁰; Wisapole (Yuman: Paipai)¹⁴⁰. DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 inches to 6½ feet in height; plants were observed and described as being 2 to 3 feet in height and 3 to 4 feet in width); the foliage is green, yellowish-green or yellow; the flower heads may be green, greenish-yellow or yellow-green; flowering generally takes place between early May and early November (additional record: one for early January, one for mid-February, one for early April and one for early December); the fruits are green, green-yellow or yellow-green with yellow spines turning to brown prickly burs. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; cliffs; bases of cliffs; rocky canyons; rock walls of canyons; along sandy canyon bottoms; gorges; shaley bluffs; sandy knolls; clearings in woodlands; meadows; foothills; clayey hills; rocky hillsides; sandy-loamy and clayey slopes; bajadas; sand dunes; benches; shaley breaks; clayey prairies; plains; mud, gravelly, sandy, clayey and silty flats; uplands; basins; sandy and clayey valley floors; valley bottoms; in coastal saltwater marshes; railroad right-of-ways; abandoned roadbeds; sandy roadcuts; along rocky, shaley, gravelly-loamy, sandy, sandy-loamy, sandy-clayey and loamy roadsides; along rocky-sandy arroyos; gravelly and sandy bottoms of arroyos; within rocky, shaley-silty and silty draws; clayey bottoms of draws; gulches; gullies; rocky and sandy ravines; shaley bottoms of ravines; seeps; springs; along streams; along and in rocky and sandy streambeds; along creeks; along and in gravelly-sandy and sandy creekbeds; along rivers; along and in rocky, sandy, sandy-clayey and clayey riverbeds; along and in rocky, rocky-gravelly, gravelly and sandy washes; along and in clayey drainages; sandy-clayey drainage ways; around waterholes; vernal pools; in clayey-loamy poolbeds; around ponds; pondbeds; lakebeds; playas; sandy bogs; sandy areas around and in marshes; swamps; dried mud puddles; depressions; clayey-loamy swales; along (shaley, sandy, sandy-silty, clayey and silty) banks of springs, streams, creeks, creekbeds, rivers, riverbeds and washes; (sandy) edges of seeps, streams, clayey creeks, rivers, ponds, lakes, marshes and lagoons; (muddy) margins of streams, rivers, ponds and lakes; (rocky-sandy, sandy, sandy-loamy, sandy-clayey and clayey) shorelines of creeks, rivers, ponds and lakes; muddy areas of drawdown; rocky-sandy, gravelly, gravelly-sandy, sandy, sandy-clayey, sandy-silty and silty sand bars; gravelly-sandy and sandy beaches; cobbly-sandy and sandy benches; sandy terraces; sandy-loamy, loamy and clayey bottomlands; along stony, gravelly-sandy, gravelly-silty-clayey, sandy, sandy-silty and clayey floodplains; lowlands; sandy fencerows; stock ponds; dry beds of stock tanks; around and in sandy-silty, loamy, loamy-clayey, clayey and clayey-loamy reservoirs; sandy-clayey dry beds of reservoirs; along rocky, sandy and loamy-clayey banks and shores of reservoirs; around and in stock tanks; dams; levees; canals; canal banks; along sandy and loamy ditches; along ditch banks; along bouldery-cobbly-sandy, gravelly and sandy riparian areas; sandy waste places, and disturbed areas growing in mucky, muddy and wet, moist, damp and dry (most often vernal or seasonally wet) bouldery-cobbly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, clayey loam and loam ground; gravelly-clayey, gravelly-silty clay, sandy clay, loamy clay and clay ground, and shaley silty, sandy silty and silty ground, occurring from sea level to 8,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **Exotic?** *Xanthium commune* Britton was listed under Miscellaneous Introduced Species as a Long-lived Annual by J.J. Thornber in the "Vegetation Groups of the Desert Laboratory Domain. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food (*X.s.* var. *canadense*), as cooking tools (*X.s.* var. *canadense*), paint (seed powder used as a blue paint for the mask dancers (*X.s.* var. *canadense*)) and as a drug or medication. USDA Forest Service Fire Effects Information System reports that "Common Cocklebur seeds and cotyledon leaves are poisonous to all classes of livestock. Beyond the cotyledon stage, plants are not poisonous." Elk (*Cervus elaphus*) browse the plants and Mourning Doves (*Zenaida macroura*) feed on the seeds. *Xanthium strumarium* is native to eastern, middle and southern Europe including islands in the Mediterranean Sea; Asia and islands in the North Pacific Ocean; northwestern, central and southern North America, and northern South America. *5, 6, 15, 28 (color photograph 810) 30, 43 (062509), 44 (061411 - color presentation), 46 (recorded as *Xanthium saccharatum* Wallr., "The seeds and seedlings contain a glucoside, xanthostrumarin, that is poisonous to livestock, especially to swine and poultry." If ingested, the spiny burs may cause the death of young animals by irritating or clogging the intestinal tract.), 63 (050912 - color presentation), 68, 77, 80 (This species (*Xanthium saccharatum*) is listed as a Major Poisonous Range Plant. "Although the toxic principle in cocklebur has been attributed to a glycoside isolated from seeds, the poisonous principle in *Xanthium strumarium* has been identified as hydroquinone. ... The seeds, enclosed in prickly burs, contain the toxic substance, but are rarely ever eaten. Upon germination, the toxic principle is distributed to the seedling and remains through the cotyledon stage. The concentration of the toxic substance drops rapidly as the first true leaves develop. ... Because cocklebur is an annual and a prolific seed producer, every effort should be made to prevent its producing seed." See text for additional information.), 85 (0050912 - color presentation), 101 (color photograph), 115 (color presentation), 124 (012211), 127, 140 (Pages 87-88 & 286)*

***Zinnia acerosa* (A.P. de Candolle) A. Gray: Desert Zinnia**

SYNONYMY: *Zinnia pumila* A. Gray. COMMON NAMES: Cmajític Ihásaquim ("What Women Brush Their Hair With", Hokan: Seri)¹⁴⁰; Desert Zinnia; Desert [White] Zinnia (English)¹⁴⁰; Hierba del Burro (Spanish); Mojépe Ihásaquim Cmaam ("Female Saguaro Hairbrush", Hokan: Seri)¹⁴⁰; Saapom Ipémt ("What Purple Prickly-pear is Rubbed With", Hokan: Seri)¹⁴⁰; Spinyleaf Zinnia; White Zinnia; Wild Zinnia; Zinia (a name also applied to other species, Spanish); Zinia del Desierto ("Desert Zinnia", Spanish: Sonora)¹⁴⁰. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (stems 3 to 20 inches in height and up to 2 feet in width with a flat or rounded crown); the stems may be gray or greenish; the leaves may be gray or gray-green; the disk florets may be green-yellow, yellow or yellow-orange; the ray florets may be cream, cream-white, white, white-

cream, pale yellow, yellow or yellow-white; flowering generally takes place between early March and early November (additional records: three for early December). HABITAT: Within the range of this species it has been reported from mountains; sandy and sandy-loamy mesas; sandy-loamy plateaus; canyons; canyon bottoms; crevices in bedrock; along rocky and stony ridges; rocky ridgetops; foothills; rocky hills; rocky and gravelly hillsides; bedrock, bouldery, rocky, rocky-gravelly-sandy, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, sandy, sandy-loamy and loamy slopes; rocky, gravelly, gravelly-sandy, sandy and clayey bajadas; rocky outcrops; stony and sand hills; sand dunes; plains; rocky-gravelly-sandy, rocky-sandy, gravelly and gravelly-sandy-clayey flats; rocky valley floors; gravelly-silty and gravelly-silty-loamy valley bottoms; along gravelly-sandy-clayey-loamy roadsides; arroyos; sandy bottoms of arroyos; washes; sandy drainages; along ponds; (gravelly-sandy) banks of washes; edges of swales; sandy benches; terraces; floodplains; lowlands; riparian areas; waste places, and disturbed areas growing in damp and dry desert pavement; bouldery, rocky, rocky-gravelly-sandy, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-silty loam, sandy loam and loam ground; gravelly-sandy clay and clay ground, gravelly silty ground, and chalky ground, occurring from 1,500 to 6,300 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Zinnia acerosa* is native to southwest-central and southern North America. *5, 6, 13 (Page 297), 15, 16, 18, 28 (color photograph 257), 43 (062609 - *Zinnia acerosa* A. Gray), 44 (050912 - no record of species or genus), 46 (recorded as *Zinnia pumila* Gray, Page 897), 48 (genus), 58, 63 (050912 - color presentation), 77 (color photograph #71), **85** (050912 - color presentation), 115 (color presentation), 124 (050912 - no record of species; genus record), 127, 140 (Pages 88-90 & 286), **MBJ** (undated record which may include landscaped material that persists without maintenance), **WTK** (August 4, 2005)*

***Zinnia grandiflora* T. Nuttall: Rocky Mountain Zinnia**

COMMON NAMES: Desert Zinnia; Little Golden Zinnia; Great Plains Zinnia; Paper Daisy; Plains Zinnia; Prairie Zinnia; Rocky Mountain Zinnia; Texas Zinnia; Wild Zinnia; Zacate Pastor, Zinia (a name also applied to other species, Spanish). DESCRIPTION: Terrestrial perennial forb/herb or subshrub (stems 2 to 12 inches in height with a flat or rounded crown; plants were observed and described as being 2 inches in height and 8 inches in width, plants were observed and described as being 4¼ inches in height and 3 inches in width, plants were observed and described as being 8 inches in height and width); the stems are greenish; the leaves may be grayish-green or greenish; the disk florets may be brown, greenish, orange, orange-red, orange-yellow, reddish, reddish-brown, yellow or yellow-orange; the ray florets may be golden-yellow, orange, orange-yellow, yellow or yellow-orange; flowering generally takes place between late April and late October. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky and sandy-silty mesas; canyon rims; along cliffs; rocky canyons; canyon floors; bluffs; sandy knolls; shaley tops of knolls; stony-sandy and gravelly-sandy ridges; ridgetops; openings in woodlands; clayey-loamy meadows; foothills; rocky hills; hilltops; rocky, rocky-loamy and gravelly-sandy hillsides; sandy bases of escarpments; bouldery, rocky-sandy hillocks; bouldery, rocky, rocky-stony, rocky-loamy, shaley, stony, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy and clayey-loamy slopes; bajadas; rocky outcrops; rocky benches; rocky steppes; sandy prairies; sandy and clayey-loamy plains; rocky fields; gravelly, gravelly-loamy and sandy flats; basins; sandy valley floors; along sandy railroad right-of-ways; along rocky, stony, gravelly-sandy-clayey-loamy, gravelly-loamy, sandy, sandy, loamy, clayey-loamy and silty-loamy roadsides; within sandy arroyos; sandy bottoms of arroyos; draws; gravelly streambeds; along creeks; creekbeds; washes; rocky-sandy drainages; along drainage ways; sandy depressions; banks of arroyos, rivers and washes; shores of lakes; benches; alluvial terraces; sandy bottomlands; floodplains; lowlands; along and in ditches; rocky-sandy riparian areas, and disturbed areas growing in damp and dry bouldery, rocky, rocky-stony, rocky-sandy, stony, shaley, shaley-sandy, stony, stony-sandy, cindery, cindery-gravelly, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam, clayey loam and silty loam ground; gravelly clay and sandy clay ground, and rocky silty, sandy silty and silty ground, occurring from 1,900 to 9,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The flowers of this plant were reported to have been used by native peoples of North America and could be investigated to determine its value as a home garden or commercial dye or paint crop; it was also noted as having been used as a drug or medication. *Zinnia grandiflora* is native to southwest-central and southern North America. *5, 6, 18, 28 (color photograph 445), 43 (062609), 44 (050912 - no record of species or genus), 46 (Page 897), 48 (genus), 63 (050912 - color presentation), **85** (122609 - color presentation), 86 (color photograph), 124 (050912), 127*

Zinnia pumila (see *Zinnia acerosa*)

Bignoniaceae: The Trumpet-creeper Family

***Chilopsis linearis* (A.J. Cavanilles) R. Sweet subsp. *arcuata* (F.R. Fosberg) J.S. Henrickson: Desert Willow**

SYNONYMY: *Chilopsis linearis* (A.J. Cavanilles) R. Sweet var. *arcuata* F.R. Fosberg. COMMON NAMES: Bow Willow (a name also applied to the species); Catalpa Willow (a name also applied to the species, Texas); Desert Catalpa (a name also applied to the species); Desert Willow (a name also applied to the species and to other species); Desert-willow (a name also applied to the species and the genus *Chilopsis*); Desertwillow (a name also applied to the species and the genus *Chilopsis*); False-willow (a name also applied to the species and to other species); Flor de Mimbre (a name also applied to the species and to other

species); Flowering Willow (a name also applied to the species); Flowering-willow (a name also applied to the species); Jano (a name also applied to the species, Spanish); Mimbres (a name also applied to the species, Spanish); Texas Desert Willow (a name also applied to the species); Western Desert Willow; Western Desert-willow; Western Desertwillow; Willow-leaved Catalpa (a name also applied to the species); Willowleaf Catalpa (a name also applied to the species). DESCRIPTION: Terrestrial perennial (cold deciduous) shrub or tree (5 to 33 feet in height; one plant was observed and described as being 13 feet in height with a crown 13 feet in width); the leaves are curved and roughly 3 to 5½ in length and 1/8 to 1/4 inch in width; the flowers may be pale pink, pink, purple, violet with yellow markings, white, white with maroon-purple or yellow & magenta lines or whitish tinged with lavender and yellow; flowering generally takes place between mid-April and early October (additional record: one for late October); the seeds are dispersed from slender pods (4 to 12 inches in length). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; foothills; bedrock, rocky, rocky-sandy, gravelly-sandy and sandy-silty-loamy slopes; sandy bajadas; amongst rocks; breaks; plains; flats; valley floors; along sandy-loamy roadsides; arroyos; draws; along streams; along sandy streambeds; along rocky creeks, along and in rocky, gravelly, gravelly-sandy and sandy washes; drainages; (sandy) banks of water courses; margins of washes; sand bars; floodplains, and riparian areas growing in dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground and rocky-gravelly loam, sandy loam and sandy-silty loam ground, occurring from sea level to 6,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Chilopsis linearis*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fiber crop. The Desert Willow may be useful in controlling erosion. The bee, *Bombus sonorus*, is a pollinator, and hummingbirds are attracted to the flowers and feed on the nectar. *Chilopsis linearis* subsp. *arcuata* is native to south-central and southern North America. *5, 6, 13 (Page 215, color photograph: Plate P.2., Page 402; “The desert willows have been used widely as ornamentals. They are prized for their graceful habit and large, attractive, sweet-scented flowers.”), 18 (species), 26 (species, color photographs of species), 28 (species, color photograph 55), 43 (062609), 44 (061411 - color photograph), 46 (Page 794), 48 (species), 52 (species, color photograph of species), 53, 58, 63 (050912 - color presentation), 74 (species), 85 (051012 - color presentation of dried material), 86 (species, color photograph of species), 91 (species, Pages 160-163), 115 (color presentation of species), 124 (061211 - no record of subspecies; species record), 127 (species), **HR***

Chilopsis linearis var. *arcuata* (see *Chilopsis linearis* subsp. *arcuata*)

Boraginaceae: The Borage Family

Amsinckia echinata (see *Amsinckia menziesii* var. *intermedia*)

Amsinckia intermedia (see *Amsinckia menziesii* var. *intermedia*)

Amsinckia intermedia var. *echinata* (see *Amsinckia menziesii* var. *intermedia*)

***Amsinckia menziesii* (J.G. Lehmann) A. Nelson & J.F. Macbride var. *intermedia* (F.E. von Fischer & C.A. Meyer) F.R. Ganders: Common Fiddleneck**

SYNONYMY: *Amsinckia echinata* A. Gray; *Amsinckia intermedia* F.E. von Fischer & C.A. Meyer; *Amsinckia intermedia* F.E. von Fischer & C.A. Meyer var. *echinata* (A. Gray) I.L. Wiggins. COMMON NAMES: Cedkam (a name also applied to other species, Uto-Aztec: Hiá Ce□ O’odham)¹⁴⁰; Cetkom <chetkom> (Uto-Aztec: Tohono O’odham)¹⁴⁰; Chedkoadag <tcí-itkatak, djeh-t-ka-tak> (Uto-Aztec: Akimel O’odham)¹⁴⁰; Coast Buckthorn; Coast Fiddleneck (a name also applied to other species); Common Fiddleneck; Common Rancher’s Fireweed; Common Rancher’s-fireweed; Common Ranchers Fireweed; Devil’s Lettuce (English)¹⁴⁰; Fiddle Neck (a name also applied to the genus *Amsinckia*); Fiddleneck (a name also applied to the genus *Amsinckia* and to the family Boraginaceae); [Fireweed] Fiddleneck (English)¹⁴⁰; Finger Weed; Fireweed Fiddleneck; Intermediate Fiddleneck; Intermediate Rancher’s Fireweed; Kacú:l N’mpa^y (Yuman: Cocopa)¹⁴⁰; Kuniroúmp (Uto-Aztec: Shoshoni)¹⁴⁰; Kurttukeltalemikki; Menzies Fiddleneck; Orange-flowered Menzies Fiddleneck; Orange-flowered Menzies’s Fiddleneck; Orange-flowered Menzies’ Fiddleneck; Ranchers Fireweed; Sacate Gordo; Sacoto Gordo; Tarweed (a name also applied to other species and the genus *Amsinckia*); Yellow Burnweed; Yellow Burweed; Yellow Burrweed (a name also applied to other species); Yellow Forget Me Not (a name also applied to other species); Yellow Tarweed (a name also applied to other species). DESCRIPTION: Terrestrial annual forb/herb (erect stems 2 inches to 4 feet in height); the flowers are golden-yellow, orange, orange-yellow, yellow or yellow-orange; flowering generally takes place between late January and late May (additional records: one for mid-June, one for late June, one for late November and one for early December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy mesas; plateaus; bases of cliffs; silty canyons; rocky canyon bottoms; sandy-clayey pockets in rocks; hogbacks; clayey ridges; ridgetops; meadows; foothills; rocky and silty hills; clayey hilltops; bouldery, rocky and rocky-sandy hillsides; bouldery, rocky, rocky-loamy-clayey, shaley-clayey-loamy, cobbly-sandy-loamy, gravelly-sandy, gravelly-loamy and clayey slopes; rocky-sandy alluvial fans; bajadas; rocky outcrops; amongst boulders and rocks; boulderfields; along boulders; sand dunes; sand sheets; blow-sand deposits; gravelly, gravelly-sandy, sandy, sandy-clayey and clayey flats; sandy uplands; basins; rocky valley floors; coastal terraces; along roadsides; along arroyos; along bottoms of arroyos; draws; seeps; in clay around springs; along streams; along creeks; along creekbeds; along rivers; riverbeds; along and in rocky-sandy, gravelly-sandy, sandy and sandy-loamy washes; within sandy

drainages; sandy drainage ways; around ponds; marshes; clayey-loamy depressions; swales; (sandy) banks of streams and lakes; edges of washes; margins of washes; mudflats; benches; rocky and gravelly and sandy terraces; loamy bottomlands; silty floodplains; silty impoundments; edges of stock tanks; edges of ditches; riparian areas; recently burned areas of oak woodland and chaparral, and disturbed areas growing in moist and dry bouldery, bouldery-sandy, rocky, rocky-sandy, cindery-sandy, gravelly, gravelly-sandy and sandy ground; shaley-clayey loam, cobbly-sandy loam, gravelly loam, sandy loam, clayey loam and loam ground; rocky-loamy clay, sandy clay and clay ground, and gravelly-silty and silty ground, occurring from sea level to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Amsinckia menziesii* var. *intermedia* is native to west-central and southern North America. *5, 6, 15 (reported as *Amsinckia intermedia* Fisch. & Mey.), 16 (reported as *Amsinckia intermedia* Fisch. & Mey.), 28 (reported as *Amsinckia intermedia*, color photograph 380), 43 (052412 - no record for *Amsinckia menziesii* var. *intermedia*), 44 (061511), 46 (reported as *Amsinckia intermedia* Fisch. & Meyer, Page 723), 58 (reported as *Amsinckia intermedia* Fisch. & Meyer), 63 (051012 - color presentation), 68 (“The mature seeds have been demonstrated to cause hepatic cirrhosis, known as “hard liver disease” of cattle and swine, and the “walking disease” of horses. Sheep are either immune or highly resistant to the poison. The disease is common in the Pacific Northwest, but not in Arizona. This plant also may cause nitrate poisoning.”), 77 (reported as *Amsinckia intermedia* F. & M., color photograph labeled *Amsinckia intermedia* #7), 80 (This plant (*Amsinckia intermedia* and others) is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. “Cattle, horses and swine may be poisoned by an unknown liver toxin from eating large amounts of the seeds of this desert annual. Also plants may cause nitrate poisoning.”), 85 (061511 - color presentation), 101, 115 (color presentation), 124 (061511), 140 (recorded as *Amsinckia menziesii* (Lehmann) A. Nelson & J.F. Macbride var. *intermedia* (Fischer & C.A. Meyer) Ganders [*Amsinckia intermedia* C.F. Fischer & C.A. Meyer], Pages 91-92 & 287), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Amsinckia tessellata* A. Gray (var. *tessellata* is the variety reported as occurring in Arizona): Bristly Fiddleneck**

COMMON NAMES: Bristly Fiddle-neck; Bristly Fiddleneck; Cedkam (a name also applied to other species, Uto-Aztec: Hiá Ce□ O’odham); Checker Fiddle-neck; Checker Fiddleneck; Checkered Fiddleneck; Cobblestone Fiddleneck; Devil’s Fiddleneck; Devil’s Lettuce; Devil’s-lettuce; Fiddleneck (a name also applied to other species, the genus *Amsinckia* and to the family Boraginaceae); Tessellate Fiddle Neck; Tessellate Fiddle-neck; Tessellate Fiddleneck; Tiva□n□b□ (Uto-Aztec: Kawaiisu)¹⁴⁰; Tso’hamp [Tso’nap] (Uto-Aztec: Shoshoni)¹⁴⁰; Tu’karûmp (Uto-Aztec: Ute)¹⁴⁰; Western Fiddleneck. DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 inches to 4 feet height); the foliage is green; the flowers may be golden, golden-yellow, orange, orange-yellow, yellow, dark yellow or yellow-orange; flowering generally takes place between early January and late June (additional records: one for early September, one for late November and one for early December). HABITAT: Within the range of this species it has been reported from mountains; clayey mountaintops; mountainsides; pebbly-sandy-silty and sandy-clayey-loamy mesas; stony bases of cliffs; rocky, rocky-silty, gravelly and sandy canyons; gravelly, gravelly-sandy and sandy canyon bottoms; talus slopes; rocky knolls; ledges; rocky and sandy ridges; gravelly-sandy and sandy ridgetops; meadows; foothills; bouldery, rocky, rocky-stony, loamy and clayey hills; rocky, rocky-sandy-loamy, shaley and clayey hillsides; rocky, stony, cobbly-sandy, cobbly-loamy, gravelly, sandy, sandy-loamy and sandy-clayey-loamy slopes; alluvial fans; gravelly and silty bajadas; rocky outcrops; gravelly bases of rock outcrops; amongst boulders and rocks; around rocks; sand dunes; sloping sand sheets; sandy edges of dunes; plains; gravelly, pebbly-sandy-silty and sandy flats; valley floors; valley bottoms; along rocky, rocky-sandy, rocky-silty, gravelly, gravelly-sandy, sandy and loamy roadsides; arroyos; gullies; sandy bottoms of ravines; seeps; clay soil along creeks; along and in rocky, rocky-sandy, cobbly-gravelly-sandy, gravelly, gravelly-sandy, sandy and sandy-loamy washes; within gravelly and sandy drainages; along and in drainage ways; depressions; silty lakebeds; banks of arroyos and rivers; sandy edges of washes and lakes; along margins of washes; silty-clayey shores of lakes and lakebeds; beaches; gravelly and sandy benches; terraces; mesquite bosques; margins of stock tanks; riparian areas; waste places, and disturbed areas growing in moist, damp and dry desert pavement; bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-stony, rocky-sandy, shaley, stony, cobbly-gravelly-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; bouldery-gravelly-sandy-clayey loam, rocky-sandy loam, cobbly loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam, sandy-clayey loam, sandy-silty loam and loam ground; rocky clay, sandy clay, silty clay and clay ground, and rocky-silty, gravelly silty and pebbly-sandy silty ground, occurring from 100 to 8,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Amsinckia tessellata* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (122709), 44 (061611 - color photograph), 46 (Page 723), 63 (051012 - color presentation), 77, 80 (The plant *Amsinckia intermedia* and others are listed as a Rarely Poisonous and Suspected Poisonous Range Plant. “Cattle, horses and swine may be poisoned by an unknown liver toxin from eating large amounts of the seeds of this desert annual. Also plants may cause nitrate poisoning.”), 85 (051012 - color presentation of dried material), 124 (061611 - no record of species; genus record), 127, 140 (Page 91)*

Coldenia canescens (see *Tiquilia canescens* var. *canescens*)

***Cryptantha angustifolia* (J. Torrey) E.L. Greene: Panamint Cryptantha**

COMMON NAMES: Bristlelobe Cryptantha; Cat’s-eye Panamint; Creosote-bush Cat’s-eye; Desert Cryptantha (a name also applied to other species); Forget-me-not (a name also applied to the family Boraginaceae); Hehe Ksatx (Seri); Narrow-leaf Cryptantha; Narrow-leaf Forget-me-not; Narrow-leaf Nievitas; Narrow-leaf Pick-me-not; Narrow-leaf Popcorn Flower;

Narrow-leaf Popcorn-flower; Narrow-leaf Popcornflower; Narrow-leaved Cryptantha; Narrow-leaved Forget-me-not; Narrow-leaved Nievitas; Narrow-leaved Popcorn Flower; Narrow-leaved Popcorn-flower; Narrow-leaved Popcornflower; Narrowleaf Cryptanth; Narrowleaf Cryptantha; Narrowleaf Nievitas; Narrowleaf Pick-me-not; Nievitas (a name also applied to other species, Spanish); Panamint Catseye (a name also applied to other species); Panamint Cryptantha (a name also applied to other species); Peluda (a name also applied to other species, Spanish). DESCRIPTION: Terrestrial annual forb/herb (stems 2 to 12 inches in height); the foliage may be gray-green, grayish or greenish; the flowers may be white, whitish or white with a yellow throat; flowering generally takes place between early January and mid-July (additional record: one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy-silty mesas; rocky canyons; bouldery and sandy canyon bottoms; scree; talus slopes; sandy and clayey ridges; sandy cinder cones; foothills; rocky, gravelly and sandy hills; bouldery-sandy and rocky hillsides; rocky, rocky-sandy, stony-sandy, cobbly-gravelly, cobbly-gravelly-sandy, gravelly, gravelly-sandy and sandy slopes; rocky and gravelly alluvial fans; gravelly and gravelly-sandy bajadas; gravelly-sandy pediments; about and in rocky outcrops; sandy lava flows; sandy lava fields; sand hills; sand dunes; sandy hummocks; blow-sand deposits; gravelly-sandy-loamy and sandy plains; gravelly, gravelly-sandy, sandy and silty flats; basins; gravelly and sandy valley floors; sandy coastal plains; sandy coastal flats; hilly beach gravels; sandy coastal flats; along sandy, sandy-loamy and loamy roadsides; arroyos; sandy draws; in gravel along streams; along gravelly-sandy creeks; sandy riverbeds; along and in bouldery, rocky-sandy, stony-sandy, cobbly-gravelly-sandy, cobbly-pebbly-sandy, gravelly, gravelly-sandy and sandy washes; in drainages; drainage ways; sandy-silty bottoms of playas; sandy and silty depressions; along (muddy, gravelly-sandy and sandy) banks of arroyos, rivers and washes; (sandy) edges of washes, lakes and playas; margins of washes; mudflats; gravel and sand bars; shelves; gravelly-sandy-silty terraces; sandy bottomland; floodplains; canal banks; riparian areas, and disturbed areas growing in muddy, and moist and dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-sandy, cobbly-gravelly, cobbly-gravelly-sandy, cobbly-pebbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam; gravelly-sandy-clayey loam, sandy loam and loam ground; clay ground, and gravelly-sandy silty, sandy-silty and silty ground, occurring from sea level to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: One record included the observation that the taproot contained a purplish dye. *Cryptantha angustifolia* is native to southwest-central and southern North America. *5, 6, 15, 16, 28 (color photograph 229), 43 (122709 - *Cryptantha angustifolia* Greene), 44 (061611), 46 (Page 719), 58, 63 (051112 - color presentation), 77, 85 (061611 - color presentation), 124 (061611 - no record of species; genus record), 140 (Page 287), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Cryptantha barbiger* (A. Gray) E.L. Greene: Bearded Cryptantha**

COMMON NAMES: Bearded Cat's Eye; Bearded Cat's-eye; Bearded Catseye; Bearded Cryptanth; Bearded Cryptantha; Bearded Forget-me-not; Bearded Nievitas; Narrowleaf Nievitas (a name also applied to other species, Spanish); Peluda (a name also applied to other species, Spanish). DESCRIPTION: Terrestrial annual forb/herb (stems 4 to 16 inches in height; one plant was observed and described as being 4 inches in height and 20 inches in length, one plant was observed and described as being 5 inches in height and 12 inches in width, one plant was observed and described as being 12 inches in height and 10 inches in width); the foliage is deep green; the flowers may be cream, white or white with a yellow throat; flowering generally takes place between mid-January and mid-June (additional records: two for late November and one for late December). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; rim rock; cliffs; bases of cliffs; rocky canyons; bases of canyon walls; along rocky and sandy canyon bottoms; rocky spurs; scree; bouldery talus slopes; rocky ledges; ridges; ridgetops; sandy meadows; crater floors; gravelly, gravelly-sandy and sandy foothills; bouldery, rocky and rocky-gravelly hills; rocky hillsides; bedrock, bouldery, bouldery-rocky-sandy, rocky, rocky-gravelly, rocky-sandy, stony-sandy, cobbly-gravelly-sandy, cindery, gravelly, gravelly-loamy, sandy, sandy-loamy, clayey and clayey-loamy slopes; bases of slopes; rocky alluvial fans; bajadas; bouldery and rocky outcrops; amongst boulders and rocks; sand hills; sand dunes; sandy edges of dunes; blow-sand deposits; plains; rocky-gravelly, cindery, gravelly, sandy and clayey-loamy flats; basins; sandy valley floors; railroad right-of-ways; along gravelly, sandy and clayey roadsides; arroyos; bottoms of arroyos; draws; within rocky gullies; ravines; springs; along streams; rocky-sandy and gravelly streambeds; beside creeks; creekbeds; along rivers; sandy riverbeds; along and in bedrock, bouldery, bouldery-gravelly, rocky, rocky-sandy, cobbly-gravelly-sandy, gravelly, gravelly-sandy, sandy and silty washes; along gravelly drainages; sandy bottoms of waterholes; marshes; banks of rivers; (rocky) edges of arroyos and washes; margins of washes; mudflats; sandy benches; shelves; gravelly terraces; loamy bottomlands; sandy floodplains; riparian areas, and disturbed areas growing in moist and dry desert pavement; bouldery, bouldery-rocky-sandy, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly-sandy, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; bouldery-sandy-clayey loam, gravelly-sandy loam, gravelly loam, sandy loam, clayey loam and loam ground; gravelly clay and clay ground, and sandy silty and silty ground, occurring from sea level to 7,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: One record included an observation that the taproot contained a purplish dye. *Cryptantha barbiger* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (122809 - *Cryptantha barbiger* Greene), 44 (061611), 46 (Page 721), 58, 63 (051112 - color presentation), 77, 85 (051112 - color presentation), 124 (061611 - no record of species; genus record), 140 (Page 287), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Cryptantha nevadensis* A. Nelson & P.B. Kennedy: Nevada Cryptantha**

COMMON NAMES: Nevada Cat's Eye; Nevada Cat's-eye; Nevada Catseye; Nevada Cryptanth; Nevada Cryptantha; Nevada Forget-me-not; Nevada Nievitas; Nievitas (a name also applied to other species, Spanish); Peluda (a name also applied to other species, Spanish); Wild Forget-me-not. DESCRIPTION: Terrestrial annual forb/herb (erect stems 2 inches to 2 feet in

height); the flowers are white; flowering generally takes place between late February and early July (additional record: one for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; rocky mesas; rocky canyons; sandy canyon bottoms; talus slopes; mud-stone knolls; ledges; rocky ridges; rocky meadows; foothills; rocky, cobbly-gravelly-loamy, gravelly, gravelly-sandy and sandy hills; rocky, rocky-cobbly and clayey hillsides; bouldery, bouldery-gravelly, rocky, rocky-gravelly, cobbly, cobbly-gravelly-sandy, cobbly-sandy-loamy, gravelly, gravelly-loamy and sandy slopes; sandy bajadas; bouldery, rocky, rocky-gravelly, cobbly, cobbly-gravelly-sandy, cobbly-sandy-loamy, gravelly, gravelly-loamy and sandy boulders; along and amongst boulders and rocks; sand hills; rocky, rocky-sandy, gravelly and sandy outwash fans; gravelly, sandy, sandy-loamy and sandy-clayey flats; rocky-gravelly-sandy and gravelly valley floors; along gravelly roadsides; within gravelly-loamy arroyos; gulches; within bouldery-rocky and rocky-gravelly gullies; seeps; rocky streambeds; along rivers; along and in gravelly, gravelly-sandy and sandy washes; within sandy drainages; drainage ways; lakebeds; playas; (gravelly and sandy) banks of creeks, rivers and washes; (rocky-gravelly) edges of washes; (cobbly-gravelly) margins of washes; benches; gravelly terraces; floodplains; gravelly, gravelly-sandy and sandy riparian areas; recently burned areas in woodlands, and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, stony-sandy, cobbly, cobbly-gravelly, cobbly-gravelly-sandy, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; cobbly-gravelly loam, cobbly-sandy loam, gravelly loam and sandy loam ground; sandy clay and clay ground, and silty ground, occurring from 700 to 7,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Cryptantha nevadensis* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (122909), 44 (051212 - color picture), 46 (Page 721), 58, 63 (051212), 77, **85** (051212 - color presentation), 124 (051212 - no record of species; genus record)*

Cryptantha pterocarya* (J. Torrey) E.L. Greene: Wingnut *Cryptantha

COMMON NAMES: Nievitas (a name also applied to other species, Spanish); Peluda (a name also applied to other species, Spanish); Wing Nut Cat's Eye; Wing Nut Cryptanth; Wing Nut Cryptantha; Wing-fruited Forget-me-not; Wing-nut Cat's-eye; Wing-nut Cryptanth; Wing-nut Cryptantha; Wing-nut Forget-me-not; Wing-seed Forget-me-not; Winged Pick-me-not; Winged-nut Cryptantha; Winged-nut Forget-me-not; Winged-seed Cryptantha; Wingnut Cat's-eye; Wingnut Catseye; Wingnut Cryptanth; Wingnut Cryptantha; Wingnut Nievitas; Wingseed Forget Me Not; Wingseed Forget-me-not. DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 to 20 inches in height); the foliage may be pale grayish, dark green or yellow-green; the flowers may be cream, bright white or white (sometimes with a pink tinge) with a yellow throat; flowering generally takes place between early January and late June (additional records: one for late July and one for late November); the winged fruits are green. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mountainsides; rocky and rocky-sandy mountainsides; pebbly-sandy-silty and silty mesas; rocky plateaus; canyon rims; cliffs; rocky and sandy bases of cliffs and rock faces; sandy-clayey canyons; along canyon walls; along rocky-sandy, gravelly, gravelly-sandy and sandy canyon bottoms; talus slopes; protected clefts in boulders; sandy crevices in rocks; bluffs; rocky ledges; rocky-silty ridges; rocky ridgetops; sandy cinder cones; foothills; bouldery, rocky and sandy-clayey-loamy hills; hilltops; rocky, rocky-stony, stony, sandy and loamy hillsides; escarpments; bouldery, rocky, rocky-stony, rocky-gravelly, rocky-sandy, stony, cindery, gravelly, gravelly-sandy, gravelly-clayey, sandy and clayey slopes; gravelly-sandy and sandy alluvial fans; gravelly-sandy bajadas; cobbly pediments; rocky outcrops; amongst boulders and rocks; boulderfields; sandy lava flows; sand hills; sand dunes; sandy edges of sand hills and dunes; sand hummocks; sand sheets; blow-sand deposits; gravelly and silty outwash fans; alcoves; gravelly banks; benches; gravelly breaks; sandy plains; rocky, gravelly, sandy and sandy-clayey flats; valley floors; along rocky, gravelly, sandy and sandy-silty roadsides; rocky arroyos; along gravelly and sandy draws; gulches; rocky gullies; along springs; beside streams; along creeks; along rivers; sandy riverbeds; along and in rocky, rocky-gravelly-sandy, rocky-sandy, gravelly, gravelly-sandy and sandy washes; within drainage ways; (gravelly-sandy) banks of washes; (gravelly and sandy) edges of washes; (rocky-gravelly-sandy and cobbly-gravelly) margins of washes; gravelly-sand bars; sandy beaches; gravelly benches; shelves; sandy margins of reservoirs; gravelly-sandy and sandy riparian areas; recently burned areas in woodlands, chaparral and desertscrub, and disturbed areas growing in moist and dry cryptogamic; rimrock and desert pavements, and bouldery, bouldery-rocky, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-stony, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, stony, stony-sandy, cobbly, cobbly-gravelly, cobbly-sandy, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, sandy-clayey loam, silty loam and loam ground; gravelly-sandy clay, sandy clay, silty clay and clay ground, and rocky silty, pebbly-sandy silty, sandy silty and silty ground, occurring from 500 to 8,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Cryptantha pterocarya* is native to southwest-central and southern North America. *5, 6, 16, 43 (122909 - *Cryptantha pterocarya* Greene), 44 (051212 - color photograph), 46 (Page 720), 58, 63 (051212 - color presentation), 77, **85** (051312 - color presentation), 115 (color presentation), 124 (051212 - no record of species; genus record), 140 (Page 287)*

Cryptantha pterocarya* (J. Torrey) E.L. Greene var. *cycloptera* (E.L. Greene) J.F. Macbride: Wingnut *Cryptantha

COMMON NAMES: Nievitas (a name also applied to the species and other species, Spanish); Peluda (a name also applied to the species and other species, Spanish); Tucson Cryptantha; Wingnut Cat's-eye (a name also applied to the species); Wingnut Cryptantha (a name also applied to the species); Wingnut Nievitas (a name also applied to the species). DESCRIPTION: Terrestrial annual forb/herb (erect stems 6 to 14 inches in height); the foliage may be dark green or yellow-green; the flowers are bright white; flowering generally takes place between mid-January and early June (additional record: one for mid-June); the winged fruits are green. HABITAT: Within the range of this species it has been reported from mountains;

rocky mountainsides; mesas; sandy canyons; canyon walls; rocky and sandy canyon bottoms; talus slopes; sandy foothills; rocky and gravelly-sandy hills; hilltops; rocky hillsides; bouldery-gravelly, rocky, gravelly and sandy slopes; rocky and sandy alluvial fans; gravelly and sandy bajadas; amongst boulders and rocks; rocky-sandy coves; sand dunes; sandy edges of dunes; sand hummocks; blow-sand deposits; rocky, gravelly and sandy flats; basins; bowls; valley floors; rocky roadsides; within rocky and clayey arroyos; along draws; beside streams; along creeks; along and in rocky-sandy, gravelly and sandy washes; sandy beaches; rocky benches; terraces; riparian areas, and disturbed areas growing in moist and dry bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy-clayey loam and gravelly-sandy loam ground, and gravelly-sandy silty ground, occurring from 800 to 6,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Cryptantha pterocarya* var. *cycloptera* is native to southwest-central and southern North America. *5, 6, 15, 43 (122909 - *Cryptantha pterocarya* var. *cycloptera* J.F. Macbride), 44 (051212), 46 (Page 720), 63 (051212), **85** (051312), 115 (color presentation of species), 124 (051212 - no record of variety or species; genus record)*

***Harpagonella palmeri* A. Gray: Palmer's Grapplinghook**

COMMON NAMES: Arizona Harpagonella (var. *arizonica*); Arizona Grapplinghook (var. *arizonica*); Grappling Hook (a name also applied to the genus *Harpagonella*); Palmer Grappling Hook; Palmer Grappling-hook; Palmer Grapplinghook; Palmer's Grappling Hook; Palmer's Grappling-hook; Palmer's Grapplinghook. DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 1 to 12 inches in height); the foliage is gray-green; the flowers are white; flowering generally takes place between mid-January and early June. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; bases of cliffs; canyons; sandy-loamy canyon bottoms; gravelly knolls; ledges; clayey ridges; clayey ridgetops; clayey patches in chaparral; clayey openings in scrub and grasslands; foothills; rocky, rocky-clayey, stony-clayey, cobbly-clayey and clayey hills; rocky and clayey hillsides; clayey escarpments; bouldery, rocky, rocky-loamy-clayey, stony-clayey, cobbly-clayey, gravelly and clayey slopes; gravelly bajadas; amongst rocks; clayey lenses; stony, gravelly and clayey flats; uplands; clayey valley floors; sea bluffs; coastal plains; along gravelly roadsides; along streams; creeks; creekbeds; along riverbeds; washes; drainage ways; clayey depressions; clayey benches; cobbly-clayey terraces, and disturbed areas growing in dry bouldery, rocky, rocky-sandy, stony and gravelly ground; rocky loam, sandy loam and loam ground, and rocky-loamy clay, rocky clay, stony clay, cobbly clay and clay ground, occurring from sea level to 4,700 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Harpagonella palmeri* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (123009), 44 (051312 - color picture), 46 (Page 711), 63 (051312 - color presentation), 77, **85** (051312 - color presentation), 124 (051312 - no record of species or genus)*

***Lappula occidentalis* (S. Watson) E.L. Greene: Flatspine Stickseed**

COMMON NAMES: Beggar's Tick (a name also applied to other species); Bluebur; Crowned Stickseed (var. *cupulata*); Cup-seed Stickseed (var. *cupulata*); Cupped Redowski Stickseed (var. *cupulata*); Cupped Redowski's Stickseed (var. *cupulata*); Cupseed Stickseed (var. *cupulata*); Cupped Stickseed (var. *cupulata*); Desert Stickseed (var. *occidentalis*); Flat Spine Sheepburr (var. *occidentalis*); Flat-spine Sheepbur (var. *occidentalis*); Flat-spine Sheepburr (var. *occidentalis*); Flat-spine Stickseed (var. *occidentalis*); Flat-spine Stickweed (var. *occidentalis*); Flatspine Sheep-burr (var. *occidentalis*); Flatspine Stickseed (var. *occidentalis* and var. *cupulata*); Flatspine Stickweed (var. *occidentalis*); Hairy Stick Seed (var. *occidentalis*); Hairy Stickseed (var. *occidentalis*); Hairy Sticktight (var. *occidentalis*); Redowski Stickseed (var. *occidentalis*); Redowski Stickweed (var. *occidentalis*); Redowski's Stickseed (var. *occidentalis*); Redowski's Stickweed (var. *occidentalis*); Spiny Sheepbur; Stick-seed (a name also applied to other species); Stickseed (a name also applied to other species and to the genus *Lappula*); Western Blue Bur (a name also applied to the genus *Lappula*); Western Bluebur (a name also applied to the genus *Lappula*); Western Beggar's Lice (a name also applied to the genus *Lappula*); Western Beggar's-lice (a name also applied to the genus *Lappula*); Western Stickseed (a name also applied to other species); Western Sticktight; Western Stickweed (var. *occidentalis*); White Stickseed (var. *occidentalis*). DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 4 to 32 inches in height); the foliage may be gray-green, grayish-green or dark green; the flowers may be pale blue, pale blue-white, blue, light pink, light purple, purple, sky blue, white, white-bluish-pinkish, whitish or yellow; flowering generally takes place between mid-January and late September (additional records: four for mid-October). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky mountainsides; gravelly-clayey mountain flanks; gravelly, gravelly-sandy, sandy and sandy-loamy mesas; rocky-sandy plateaus; palisades; cliffs; bouldery and silty bases of cliffs; along rocky, shaley, gravelly-loamy and sandy canyons; gravelly-sandy and sandy canyon bottoms; bouldery-gravelly-sandy and sandy gorges; talus; sandy bluffs; rocky, rocky-gravelly-clayey, gravelly, gravelly-sandy and gravelly-silty-loamy buttes; bedrock knolls; rocky and rocky-gravelly-silty ledges; rocky, rocky-shaley, shaley, shaley-gravelly, sandy and sandy-clayey ridges; rocky, sandy and loamy ridgetops; gravelly-clayey edges of ridgetops; rocky clearings in forests and woodlands; around and in rocky, stony, gravelly-sandy, sandy, loamy-clayey, silty-clayey and humusy meadows; foothills; rocky, rocky-sandy-silty, shaley, stony-clayey, cobbly-clayey, gravelly, gravelly-sandy, sandy and sandy-loamy hills; cindery (scoria) hilltops; rocky, rocky-gravelly-sandy, rocky-sandy, rocky-loamy, gravelly-sandy and sandy hillsides; escarpments; along bouldery, bouldery-rocky-gravelly, bouldery-sandy, rocky, rocky-shaley, rocky-stony, rocky-gravelly, rocky-sandy, rocky-sandy-clayey-loamy, rocky-silty-clayey, shaley, shaley-silty, stony, stony-sandy, cobbly-loamy, cindery, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-clayey, sandy, sandy-loamy, sandy-clayey, sandy-clayey-loamy, loamy, loamy-clayey, clayey, clayey-loamy, silty, silty-loamy and silty-clayey slopes; sandy bajadas; rocky outcrops; gravelly-sandy bases of outcrops; amongst boulders and rocks; sandy bases of rocks; alcoves; sheltered rock coves; sandy lava

flows; lava fields; sand bluffs; sandy dunes; blow-sand deposits; rocky outwash; gravelly, gravelly-sandy and loamy-clayey banks; gravelly benches; breaks; sandy and sandy-clayey barrens; steppes; gravelly-sandy and silty-loamy prairies; stony, sandy and clayey-loamy plains; bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy, sandy, sandy-loamy, sandy-clayey, loamy and clayey flats; rocky, rocky-sandy and sandy uplands; basins; basin bottoms; loamy valley floors; along railroad right-of-ways; railroad beds; in gravelly-sandy roadbeds; along rocky, rocky-sandy, shaley, gravelly, gravelly-loamy and sandy roadsides; rocky and sandy arroyos; sandy-silty bottoms of arroyos; rocky, stony and sandy draws; bottoms of draws; gulches; rocky gullies; within ravines; springs; in clay along streams; sandy streambeds; along creeks; clayey creekbeds; in sand along rivers; sandy and clayey riverbeds; along and in rocky, gravelly, gravelly-sandy, gravelly-sandy-silty and sandy washes; within gravelly, sandy and clayey drainages; within gravelly drainage ways; in rocks around ponds; around lakes; boggy areas; clayey depressions; clayey swales; sumps; along (shaley, gravelly, sandy, clayey and silty-clayey) banks of arroyos, draws, streams, creeks, rivers, washes and drainages; (sandy-loamy) edges of gulches, lakebeds and swales; margins of rivers; shores of lakes; mudflats; gravel bars; sandy beaches; rocky and sandy benches; rocky terraces; cobbly-loamy, sandy and loamy bottomlands; rocky-sandy-clayey, sandy and clayey floodplains; sandy deltas; mesquite bosques; along fencelines; beaver ponds; edges of stock tanks; canal banks; within ditches; gravelly-sandy, gravelly-sandy-loamy and sandy riparian areas; clayey-loamy waste places, and disturbed areas growing in wet, moist and dry desert pavement; bouldery, bouldery-rocky-gravelly, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-shaley, rocky-stony, rocky-gravelly, rocky-sandy, rocky-gravelly-sandy, rocky-pebbly, shaley, shaley-gravelly, stony, stony-sandy, cobbly, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly-sandy-clayey loam, rocky-sandy-clayey loam, cobbly loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, gravelly-silty loam, sandy loam, sandy-clayey loam, sandy-silty loam, clayey loam, silty loam and loam ground; rocky clay, rocky-gravelly clay, rocky-sandy clay, rocky-silty clay, stony clay, cobbly clay, gravelly clay, sandy clay, loamy clay, silty clay and clay ground; rocky-gravelly-silty, rocky-sandy silty, shaley silty, gravelly-sandy silty, sandy silty and silty ground; humusy ground, and gravelly-sandy chalky ground, occurring from 300 to 10,500 feet in elevation in the tundra, forest, woodland, scrub, grassland, deserts scrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fodder (*L.o.* var. *occidentalis*) crop; it was also noted as having been used as a drug or medication. *Lappula occidentalis* is native to northwestern, northern, west-central and southern North America. *5, 6, 43 (010110), 44 (051412 - no records listed under Common Names for species; genus record, records listed under *Lappula redowskii*), 46 (*Lappula texana* (Scheele) Britton, Page 712; *Lappula texana* (Scheele) Britton var. *coronata* (Greene) Nels. & Macbr., Page 712, and *Lappula redowskii* (Hornem.) Greene, Page 713), 63 (051412 - color presentation), 85 (051512 - color presentation), 101 (color photograph), 115 (color presentation), 124 (051312), 127*

***Lappula occidentalis* var. *occidentalis* (S. Watson) E.L. Greene: Flatspine Stickseed**

SYNONYMY: *Lappula redowski* auct. non (J.W. Hornemann) E.L. Greene; *Lappula redowskii* (J.W. Hornemann) E.L. Greene var. *desertorum* (E.L. Greene) I.M. Johnston; *Lappula redowskii* (J.W. Hornemann) E.L. Greene var. *occidentalis* (S. Watson) P.A. Rydberg; *Lappula redowskii* (J.W. Hornemann) E.L. Greene var. *redowskii*. COMMON NAMES: Beggar's Tick (a name also applied to the species and other species); Bluebur (a name also applied to the species); Desert Stickseed; Flat Spine Sheepburr; Flat-spine Sheepbur; Flat-spine Sheepburr; Flat-spine Stickseed; Flat-spine Stickweed; Flatspine Sheep-burr; Flatspine Stickseed (a name also applied to var. *cupulata* and the species); Flatspine Stickweed; Hairy Stick Seed; Hairy Stickseed; Hairy Sticktight; Redowski Stickseed; Redowski Stickweed; Redowski's Stickseed; Redowski's Stickweed; Small Beggar's-lice (Kansas); Spiny Sheepbur (a name also applied to the species); Stickseed (a name also applied to the genus *Lappula*); Stick-tight (a name also applied to the species, other species and to the genus *Lappula*); Sticktight (a name also applied to other species and the genus *Lappula*); Western Blue Bur; Western Blue-bur; Western Bluebur; Western Beggar's Lice; Western Beggar's-lice; Western Stickseed (a name also applied to the species and to other species); Western Sticktight; Western Stickweed; White Stickseed. DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 4 to 32 inches in height); the foliage is gray-green; the flowers may be pale blue, pale blue-white, blue, light pink, purple, sky blue, white or yellow; flowering generally takes place between mid-February and mid-September (additional records: five for mid-January and four for mid-October). HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; mountainsides; gravelly, gravelly-sandy and sandy mesas; plateaus; cliffs; bouldery bases of cliffs; along rocky, gravelly-loamy and sandy canyons; sandy canyon bottoms; bouldery-gravelly-sandy gorges; talus; sandy bluffs; rocky, rocky-gravelly-clayey, gravelly, gravelly-sandy and gravelly-silty-loamy buttes; bedrock knolls; rocky-gravelly-silty ledges; rocky, rocky-shaley, shaley-gravelly, gravelly, sandy and sandy-clayey ridges; rocky, sandy and loamy ridgetops; gravelly-clayey edges of ridgetops; rocky clearings in forests and woodlands; around and in rocky, stony, gravelly-sandy, sandy, loamy-clayey, silty-clayey and humusy meadows; foothills; rocky, gravelly, gravelly-sandy, sandy and sandy-loamy hills; cindery (scoria) hilltops; rocky, rocky-sandy and rocky-loamy hillsides; along bouldery-rocky-gravelly, bouldery-sandy, rocky, rocky-shaley, rocky-sandy, rocky-silty-clayey, shaley, shaley-silty, stony, stony-sandy, cobbly-loamy, cindery, gravelly, gravelly-sandy, gravelly-sandy-loamy, sandy, sandy-loamy, sandy-clayey, sandy-clayey-loamy, loamy, loamy-clayey, clayey, clayey-loamy, silty, silty-loamy and silty-clayey slopes; bajadas; rocky outcrops; gravelly-sandy bases of outcrops; amongst boulders and rocks; sandy bases of rocks; clayey rock beds; alcoves; sheltered rock coves; lava flows; lava fields; sand bluffs; sandy dunes; rocky outwash; gravelly-sandy and loamy-clayey banks; breaks; steppes; gravelly-sandy and silty-loamy prairies; plains; rocky, gravelly, gravelly-sandy, sandy, sandy-loamy, sandy-clayey, loamy and clayey flats; rocky, rocky-sandy and sandy uplands; basins; basin bottoms; loamy valley floors; along railroad right-of-ways; railroad beds; gravelly-sandy roadbeds; along rocky, rocky-sandy, gravelly, gravelly-loamy and sandy roadsides; rocky and sandy arroyos; bottoms of arroyos; rocky draws; bottoms of draws; gulches; within ravines; springs; sandy

streambeds; along creeks; creekbeds; in sand along rivers; sandy and clayey riverbeds; along and in rocky, gravelly, gravelly-sandy-silty and sandy washes; within gravelly, sandy and clayey drainages; in rocks around ponds; boggy areas; depressions; clayey swales; along (shaley, sandy and silty-clayey) banks of arroyos, draws, streams, creeks, rivers and drainages; (sandy-loamy) edges of gulches and swales; mudflats; gravel bars; beaches; sandy benches; cobbly-loamy, sandy and loamy bottomlands; rocky-sandy-clayey, sandy and clayey floodplains; along fencelines; edges of stock tanks; canal banks; within ditches; gravelly-sandy-loamy and sandy riparian areas; clayey-loamy waste places, and disturbed areas growing in wet, moist and dry desert pavement; bouldery, bouldery-rocky-gravelly, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-shaley, rocky-gravelly, rocky-sandy, shaley, shaley-gravelly, stony, stony-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly-sandy-clayey loam, rocky-sandy-clayey loam, cobbly loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, gravelly-silty loam, sandy loam, sandy-clayey loam, sandy-silty loam, clayey loam, silty loam and loam ground; rocky clay, rocky-gravelly clay, rocky-sandy clay, rocky-silty clay, gravelly clay, sandy clay, loamy clay, silty clay and clay ground; rocky-gravelly silty, shaley silty, gravelly-sandy silty and silty ground; humusy ground, and gravelly-sandy chalky ground, occurring from 700 to 10,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fodder crop; it was also noted as having been used as a drug or medication. *Lappula occidentalis* var. *occidentalis* is native to northwestern, northern, west-central and southern North America. *5, 6, 15 (recorded as *Lappula redowskii* (Hornem.) Greene var. *redowskii*), 16 (recorded as *Lappula redowskii* (Hornem.) Greene var. *redowskii*), 43 (010110 - *Lappula redowskii* Greene var. *desertorum* (Greene) I.M. Johnst., *Lappula redowskii* (Hornem.) Greene var. *occidentalis* Å. Löve & D. Löve), 44 (051412 - no records listed under Common Names for variety or species; genus record, records listed under *Lappula redowskii* and *Lappula redowskii* var. *redowskii*, color picture), 46 (recorded as *Lappula redowskii* (Hornem.) Greene, Page 713), 58 (recorded as *Lappula redowskii* (Hornem.) Greene), 63 (051412 - color presentation), 77 (recorded as *Lappula redowskii* (Hornem.) Greene), **85** (051512 - color presentation), 101 (color photograph), 115 (color presentation of species), 124 (051312), 127, **MBJ** (recorded as *Lappula redowskii* var. *redowskii*, undated record which may include landscaped material that persists without maintenance)*

Lappula redowskii (see *Lappula occidentalis* var. *occidentalis*)

Lappula redowskii var. *desertorum* (see *Lappula occidentalis* var. *occidentalis*)

Lappula redowskii var. *occidentalis* (see *Lappula occidentalis* var. *occidentalis*)

Lappula redowskii var. *redowskii* (see *Lappula occidentalis* var. *occidentalis*)

***Pectocarya heterocarpa* (I.M. Johnston) I.M. Johnston: Chuckwalla Combseed**

SYNONYMY: *Pectocarya penicillata* (W.J. Hooker & G.A. Arnott) A.P. de Candolle var. *heterocarpa* I.M. Johnston. COMMON NAMES: Chuckwalla Combbur; Chuckwalla Combseed; Chuckwalla Pectocarya; Hairyleaf Combbur (a name also applied to other species); Hairy-leaved Combbur (a name also applied to other species); Mixed-nut Comb-bur; Mixed-nut Combseed; Mixed-nut Pectocarya; Two-faced Pectocarya; Unequal Combseed. DESCRIPTION: Terrestrial annual forb/herb (spreading prostrate stems 2 to 8 inches in height); the flowers may be pale lavender or white; flowering generally takes place between mid-February and early June (additional records: four for mid-January, one for late June and one for early November). HABITAT: Within the range of this species it has been reported from mountains; rocky and pebbly-sandy-silty mesas; hanging gardens; rims of canyons; rocky canyons; talus; crevices in rocks; along ridges; openings in Joshua-tree woodlands and creosote-bush scrub; foothills; rocky hills; rocky hillsides; rocky, rocky-sandy, stony-sandy, cobbly-gravelly, cobbly-gravelly-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy slopes; rocky and gravelly-sandy alluvial fans; rocky, gravelly and gravelly-sandy bajadas; amongst boulders; sand dunes; sandy edges of dunes; blow-sand deposits; rocky, gravelly, gravelly-sandy and sandy flats; rocky upland; sandy valley floors; sandy roadsides; draws; creekbeds; along rivers; riverbeds; along and in rocky, rocky-sandy, gravelly and sandy washes; sandy-silty, clayey and silty depressions; (gravelly-sandy and sandy) banks of washes; (sandy and silty-clayey) edges of lakebeds; margins of washes; shorelines; gravel, gravelly-sand and sand bars; sandy beaches; rocky benches; floodplains; at stock tanks; canal walls; riparian areas, and disturbed areas growing in moist and dry desert pavement; bouldery, rocky, rocky-sandy, stony-sandy, cobbly-gravelly, cobbly-gravelly-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; cobbly-silty loam, gravelly-sandy loam, gravelly-clayey-silty loam and sandy-clayey loam ground; clay ground, and gravelly-sandy silty, pebbly-sandy silty, sandy silty and silty ground, occurring from sea level to 4,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Pectocarya heterocarpa* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (051512 - *Pectocarya penicillata* var. *heterocarpa* I.M. Johnst.), 44 (051512), 46 (Page 712), 58, 63 (051512 - color presentation), 77, **85** (051512 - color presentation), 124 (051512 - no record of species or genus), 140 (Page 287), **MBJ** (recorded as *Lappula redowskii* var. *redowskii*, undated record which may include landscaped material that persists without maintenance)*

Pectocarya linearis var. *platycarpa* (see *Pectocarya platycarpa*)

Pectocarya penicillata var. *heterocarpa* (see *Pectocarya heterocarpa*)

***Pectocarya platycarpa* (P.A. Munz & I.M. Johnston) P.A. Munz & I.M. Johnston: Broadfruit Combseed**

SYNONYMY: *Pectocarya linearis* (H.R. López & J.A. Pavón) A.P. de Candolle var. *platycarpa* (P.A. Munz & I.M. Johnston) A.J. Cronquist. COMMON NAMES: Broad Fruit Combseed; Broad Nut Comb-bur; Broad-fruit Comb-seed; Broad-fruit Combseed; Broad-fruited Combseed; Broad-fruited Pectocarya; Broad-nut Comb-bur; Broad-nutted Comb Bur; Broad-nutted Comb-bur; Broad-nutted Combbur; Broad-wing Comb-bur; Broad-winged Pectocarya; Broadfruit Combseed; Broadnut Combbur; Broadnut Combseed; Flattened Combseed; Stickweed; Wide-toothed Pectocarya. DESCRIPTION: Terrestrial annual forb/herb (prostrate, ascending and/or erect stems 2 to 10 inches in height); the flowers are white; flowering generally takes place between early February and late May (additional record: one for late June). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; pebbly-sandy-silty mesas; canyons; sandy canyon bottoms; talus slopes; ledges; ridges; foothills; rocky, gravelly and sandy hills; sandy hillsides; rocky, rocky-gravelly-sandy, rocky-powdery, cobbly-gravelly-sandy, cobbly-sandy, gravelly, gravelly-sandy, sandy and sandy-loamy slopes; rocky alluvial fans; gravelly and gravelly-sandy bajadas; amongst boulders and rocks; rocky-sandy lava fields; sand dunes; sand sheets; blow-sand deposits; shelves; plains; rocky, gravelly, gravelly-sandy and sandy flats; rocky upland; gravelly and sandy valley floors; along gravelly roadsides; rocky-sandy runnels; along streams; along creeks; creekbeds; along rivers; along and in rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, gravelly, gravelly-sandy and sandy washes; sandy drainages; silty depressions; (gravelly-sandy and sandy) banks of washes; (rocky and silty-clayey) edges of washes and lakebeds; margins of washes; mudflats; beaches; gravelly benches; shelves; terraces; sandy and loamy bottomlands; sandy and silty floodplains; gravelly-sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-gravelly, rocky, rocky-cobbly, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, stony-sandy, cobbly-gravelly-sandy, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, sandy loam, sandy-clayey loam and loam ground; stony-sandy clay and silty clay ground; pebbly-sandy silty and silty ground, and rocky powdery ground, occurring from sea level to 7,800 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Pectocarya platycarpa* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (051512 - *Pectocarya linearis* var. *platycarpa* (Munz & I.M. Johnston) Cronquist 10210), 44 (051512), 46 (Page 712), 58, 63 (051512), 77, 85 (051512 - color presentation), 124 (051512 - no record of species or genus)*

***Pectocarya recurvata* I.M. Johnston: Curvenut Combseed**

COMMON NAMES: Arch-nutted Comb Bur; Arch-nutted Comb-bur; Arch-nutted Combbur; Arched Bomb-bur (possibly a spelling error); Arched Comb-bur; Archnut Combbur; Bent Combseed; Combbur (a name also applied to the genus *Pectocarya*); Curve-nut Combseed; Curved Combseed; Curvenut Combseed; Curvenut Pectocarya; Desert Combbur; Recurve Combseed; Recurved Pectocarya. DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 2 to 8¼ inches in height); the flowers are white (sometimes reported with a yellow throat); flowering generally takes place between mid-January and late May (additional record: one for late November). HABITAT: Within the range of this species it has been reported from mountains; clayey mountaintops; rocky mountainsides; rocky mesas; rocky canyons; sandy canyon bottoms; ledges; clayey ridgetops; rocky foothills; rocky hills; bouldery-rocky, rocky and gravelly hillsides; rocky, rocky-cobbly-sandy, rocky-gravelly, rocky-gravelly-sandy, rocky-gravelly-loamy, stony, stony-sandy, cobbly-gravelly, cobbly-gravelly-sandy, cobbly-sandy-loamy, gravelly, gravelly-sandy, sandy and clayey slopes; bouldery-gravelly and rocky-sandy alluvial fans; bajadas; bouldery and rocky outcrops; amongst boulders and rocks; sandy lava fields; dunes; plains; gravelly, sandy, sandy-clayey and clayey flats; valley bottoms; along sandy roadsides; arroyos; rocky gullies; sandy springs; along sandy streams; along creeks; along creekbeds; along and in bouldery-gravelly, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; rocky drainage ways; clayey depressions; (rocky-gravelly-sandy and gravelly) edges of rivers and washes; (rocky-gravelly-sandy) margins of washes; shores of lakes; gravelly and clayey benches; terraces; loamy bottomlands; sandy floodplains; mesquite woodlands; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky, bouldery-gravelly, bouldery-sandy, rocky, rocky-cobbly-sandy, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, stony, stony-sandy, cobbly-gravelly, cobbly-gravelly-sandy, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, cobbly-sandy loam, cobbly-silty loam, gravelly-clayey loam, silty loam and loam ground, and sandy clay and clay ground, occurring from sea level to 5,300 feet (one record at 9,000 feet) in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Pectocarya recurvata* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (010210), 44 (061711), 46 (Page 712), 58, 63 (051512 - color presentation), 77, 85 (051512 - color presentation), 124 (061711 - no record of species or genus), 140 (Page 287)*

***Plagiobothrys arizonicus* (A. Gray) E.L. Greene ex A. Gray: Arizona Popcornflower**

COMMON NAMES: Arizona Popcorn Flower; Arizona Popcorn-flower; Arizona Popcornflower; Arizona Blood Weed; Arizona Blood-weed; Arizona Bloodweed; Blood Weed (a name also applied to other species); Blood-weed (a name also applied to other species); Bloodweed (a name also applied to other species); Lipstick Plant; Lipstick Weed; Pop Corn Flower; Popcorn Flower (a name that is also applied to other species, Popcorn-flower is a name applied to the genus *Plagiobothrys*); Stain Plant; Stain-plant; Stainplant. DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 2 to 16 inches in height); the leaves are dark green with reddish veins; the flowers are white or white with a yellow throat; flowering generally takes place between mid-February and mid-June (additional records: one for late January, one for late June and one for early October). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; rocky plateaus; rocky canyons; rocky, gravelly and sandy-loamy canyon bottoms; rocky bases of cliffs; knolls; gravelly ridges; rocky ridgetops; rocky-sandy meadows; rocky foothills; rocky, stony-loamy, gravelly, sandy and loamy hills; hilltops; rocky hillsides; bouldery,

bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, rocky-loamy, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey, gravelly-silty, sandy, sandy-clayey, clayey-loamy and silty-clayey slopes; bases of slopes; gravelly-sandy and sandy alluvial fans; gravelly bajadas; bouldery and rocky outcrops; amongst boulders and rocks; steppes; sandy plains; gravelly berms; rocky-gravelly, gravelly, gravelly-sandy, sandy and sandy-loamy flats; basins; sandy-loamy valley floors; sandy-loamy valley bottoms; along bouldery and sandy roadsides; arroyos; along rocky-gravelly draws; ravines; around springs; rocky and sandy streambeds; along creeks; sandy creekbeds; along rivers; riverbeds; along and in bouldery, bouldery-rocky, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along and in gravelly drainages; within drainage ways; (gravelly-sandy and sandy) banks of springs, rivers and washes; gravelly-sand bars; benches; gravelly terraces; loamy bottomlands; sandy floodplains; sandy-silty edges of stock tanks (charcos); sandy riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, stony loam, gravelly loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; gravelly clay, sandy clay, silty clay and clay ground, and silty ground, occurring from 1,100 to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Records included observations that parts of this plant (roots, stems and leaf veins) contain a purple, red or reddish-purple sap. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial pigment or dye crop. *Plagiobothrys arizonicus* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (010210), 46 (Page 722), 58, 63 (051512), 77, **80** (*Plagiobothrys* sp. - Species of the genus *Plagiobothrys* have been listed as Rarely Poisonous and Suspected Poisonous Range Plants. "Members of this genus have been reported to accumulate toxic levels of nitrate."), **85** (051512 - color presentation), 115 (color presentation), 124 (051512 - no record of species; genus record), 127, 140 (Page 287), **MBJ** (recorded as *Lappula redowskii* var. *redowskii*, undated record which may include landscaped material that persists without maintenance)*

***Tiquilia canescens* (A.P. de Candolle) A.T. Richardson: Woody Crinkleemat**

COMMON NAMES: Crinkle Mats (a name also applied to the genus *Tiquilia*); Gray Coldenia; Gray Tiquilia; Hierba de la Virgin; Oreja del Perro; Ratar Coldenia; Shrubby Coldenia; Woody Crinkleemat; Woody Tiquilia; Woolly Crinkleemat; Wooly Crinkleemat. DESCRIPTION: Terrestrial perennial subshrub (4 to 8 inches in height; however, plants up to 2 feet in height were reported; plants were observed and recorded as being 4 inches in height and width); the leaves may be gray, grayish or gray-green; the flowers may be pale lavender, lavender, lavender-pink, lavender-whitish, light pink, pink, light pink-lavender, pale purple, purple, rose-lilac, violet or white with a yellow floral tube; flowering generally takes place between late March and mid-June (additional records: one for early March, two for early July, one for late July, two for early August, one for mid-August, one for early September, two for mid-September, one for late September and two for early October). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; bases of mountains; mesas; cliffs; escarpments; bouldery and rocky and gravelly canyons; canyon bottoms; gorges; rocky talus slopes; crevices in rocks; gravelly-sandy bluffs; buttes; rocky ledges; along bedrock, rocky, gravelly and chalky ridges; ridgetops; openings in forests; rocky and gravelly-sandy hills; rocky hillsides; along bedrock, bouldery, rocky, rocky-gravelly, gravelly, gravelly-shaley and gravelly-sandy slopes; gravelly and gravelly-sandy bajadas; shaley and rocky outcrops; amongst boulders and rocks; sand dunes; gravelly-silty banks; benches; sandy plains; rocky, gravelly and sandy flats; valley floors; roadbeds; rocky-gravelly-loamy, gravelly and gravelly-loamy roadsides; arroyos; gullies; rocky ravines; along and in stony, gravelly, gravelly-sandy and sandy washes; rocky drainages; borders of washes; gravelly terraces; floodplains; along fence lines; sandy riparian areas; waste places, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-shaley, rocky-gravelly, rocky-sandy, stony, shaley-gravelly, stony, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly loam and gravelly-sandy loam ground; rocky clay, shaley clay and clay ground; gravelly silty ground, and chalky ground, occurring from 100 to 8,300 feet in elevation in the forest, woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant is browsed by Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*). *Tiquilia canescens* is native to southwest-central and southern North America. *5, 6, 15, 16, 28 (color photograph 611), 43 (010310), 44 (051512 - color picture of var. *canescens*), 46 (recorded as *Coldenia canescens* DC. including the typical plant and variety *pulchella* Johnst., Page 709), 63 (051512 - color presentation), 77, 85 (051612 - color presentation), 115 (color presentation), 124 (051512 - no record of species or genus), 140 (Page 287), **MBJ** (recorded as *Lappula redowskii* var. *redowskii*, undated record which may include landscaped material that persists without maintenance)*

***Tiquilia canescens* (A.P. de Candolle) A.T. Richardson var. *canescens*: Woody Crinkleemat**

SYNONYMY: *Coldenia canescens* A.P. de Candolle. COMMON NAMES: Crinkle Mats (a name also applied to the species and the genus *Tiquilia*); Crinkleemat (a name also applied to the genus *Tiquilia*); Gray Coldenia (a name also applied to the species); Hierba de la Virgin (a name also applied to the species, Spanish); Oreja del Perro (a name also applied to the species, Spanish); Shrubby Coldenia (a name also applied to the species); Typical Gray Tiquilia; Typical Ratar Coldenia; Typical Woody Crinkleemat; Typical Woody Tiquilia; Typical Woolly Crinkleemat; Typical Wooly Crinkleemat. DESCRIPTION: Terrestrial perennial subshrub (4 to 8 inches in height; plants were observed and described as being 2 to 4 inches in height and 16 inches in width); the leaves may be gray or gray-green; the flowers may be lavender, lavender-pink, lavender-whitish, light pink-lavender, pink, purple or white with a yellow floral tube; flowering generally takes place between late March and late May (additional records: two for mid-February, one for mid-June, two for mid-July, two for late August, two for late September, two for early October). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; bases of mountains; mesas; canyons; ridges; ridgetops; foothills; hills; rocky and rocky-gravelly slopes; gravelly bajadas; stony plains; gravelly flats; rocky roadsides; arroyos; within gravelly and sandy washes; sandy riparian areas; waste places, and disturbed areas

growing in dry rocky, rocky-gravelly, stony, gravelly and sandy ground, occurring from 600 to 8,100 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant is browsed by Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*). *Tiquilia canescens* var. *canescens* is native to southwest-central and southern North America. *5, 6, 28 (color photograph 611), 42, 43 (010310), 44 (051512 - color picture), 46 (recorded as *Coldenia canescens* DC., Page 709), 63 (051512), 85 (051612), 115 (color presentation of species), 124 (051512 - no record of variety, species or genus)*

Brassicaceae (Cruciferae): The Mustard Family

Arabis eremophila (see *Arabis perennans*)

***Arabis perennans* S. Watson: Perennial Rockcress**

SYNONYMY: *Arabis eremophila* E.L. Greene; *Boechea perennans* (S. Watson) W.A. Weber. COMMON NAMES: Arábide (Spanish: Mexico)¹⁴⁰; 'Atsé 'Álts'óózi <[□osce□] y'osce □a.lc'ozgi> ("Slender First One", Athapascan: Navajo)¹⁴⁰; 'Azee' Naneeshtl'iizh <□azé□ na'ne'sdizi> (Athapascan: Navajo)¹⁴⁰; 'Iníziin Ch'it' <'i'lyizin c'il> (Athapascan: Navajo)¹⁴⁰; Perennial Rockcress; Qta'komav (Uto-Aztecan: Ute)¹⁴⁰; Rock Cress (a name also applied to the genus *Arabis*); [Perennial] Rock Cress (English)¹⁴⁰; Stiff-arm Rock Cress; Stiffarm Rock Cress. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (ascending and/or erect stems 4 to 40 inches in height; plants were observed and described as being 8 to 12 inches in height and 6 to 17 inches in width); the leaves are gray-green; the flowers may be pale blue-lavender, bluish-purple, cream, lavender, pink, pink-lavender, pinkish-purple, dull mauve, pale purple, purple, purple-magenta, purplish, purplish-pink, purplish-rose, reddish-violet, rose-magenta, violet-lavender, white & lavender or white-purple; flowering generally takes place between early February and early July (additional records: one for early January, one for mid-January, one for early August, two for late August, one for early October and one for early December). HABITAT: Within the range of this species it has been reported from mountains; along shaley mountaintops; rocky mountainsides; sandy mesas; sandy plateaus; rocky cliffs; rock faces; rock walls; along sandy bases of cliffs and rock walls; bouldery, rocky, rocky-sandy and sandy canyons; rocky and shaley-sandy canyon walls; bedrock, rocky, gravelly-sandy and sandy canyon bottoms; bouldery-cobbly-humusy and rocky talus slopes; crevices in boulders and rocks; bluffs; rocky knobs; summits of laccoliths; rocky ledges; rocky and sandy ridges; ridgetops; rocky openings in forests and woodlands; meadows; rocky-gravelly foothills; rocky, stony and clayey hills; bouldery and rocky hillsides; escarpments; sandy bases of escarpments; bedrock, bouldery, bouldery-gravelly, bouldery-sandy, rocky, rocky-shaley, rocky-gravelly, rocky-sandy, rocky-loamy, cobbly-sandy, cobbly-loamy, cindery, gravelly, gravelly-silty, sandy, sandy-loamy, loamy and clayey-loamy slopes; bajadas; rocky outcrops; amongst boulders and rocks; bases of boulders; lava flows; sand dunes; rocky mounds; benchlands; flats; basins; along sandy valley floors; along roadbeds; along gravelly and sandy roadsides; two-tracks; rocky walls of arroyos; along and in draws; gulches; bouldery-sandy and rocky ravines; seeps; springs; along streams; bouldery and gravelly streambeds; along creeks; along rivers; along and in rocky, rocky-gravelly, gravelly and sandy washes; within drainages; bouldery-cobbly drainage ways; marshes; (rocky) banks of gullies, streams and washes; borders of washes; (rocky-loamy and gravelly) edges of arroyos, streams and washes; rocky beaches; benches; gravelly terraces; rocky and gravelly-sandy riparian areas, and disturbed areas growing in moist and dry cryptogamic; bouldery, bouldery-cobbly, bouldery-gravelly, bouldery-sandy, rocky, rocky-shaley, rocky-gravelly, rocky-sandy, shaley, shaley-sandy, stony, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy loam, cobbly loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; sandy clay and clay ground; gravelly silty and silty ground, and bouldery-cobbly humusy ground, occurring from 600 to 11,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Arabis perennans* is native to southwest-central and southern North America. *5, 6, 15, 16, 28 (color photograph), 43 (010310), 44 (051612 - no records listed under Common Names for species; genus record, color photograph), 46 (Page 353), 58, 63 (051612 - color presentation), 77, 85 (051612 - color presentation), 115 (color presentation), 124 (051612 - no record of species; genus record), 127, 140 (recorded as *Boechea perennans* (S. Watson) W.A. Weber, Pages 92-93 & 287)*

Boechea perennans (see *Arabis perennans*)

***Brassica tournefortii* A. Gouan: Asian Mustard**

COMMON NAMES: African Mustard (a name also applied to other species); Asian Mustard (a name also applied to other species); Desert Mustard (a name also applied to other species); Long Fruited Wild Turnip; Long-fruited Turnip; Long-fruited Wild Turnip; Mediterranean Mustard (a name also applied to other species); Mediterranean Turnip; Moroccan Mustard; Mostaza ("Mustard" a name applied to mustards, Spanish); Mostaza Africana; Mostaza del Desierto (Spanish); Mostaza del Sahara (Spanish); Mustard (a name applied to other species and the genus *Brassica*); Pale Cabbage; Prickly Turnip; Qarras (Arabic); Sahara Mustard; Saharan Mustard; Shiltam (Arabic); Tournefort Birdrape; Tournefort Mustard; Tournefort's Birdrape; Tournefort's Mustard; Turnip Weed (a name also applied to other species); Wild Turnip (a name also applied to other species). DESCRIPTION: Terrestrial annual forb/herb (stems 1 to 4 feet in height; one plant was observed and described as being 22 inches in height and 40 inches in width; plants were observed and described as being 24 to 30 inches in height and 18 inches in width at the base); the large and serrated green leaves form in a basal rosette clasping on the stem; the flowers may be green-

white, ivory, white, pale yellow, yellow or yellow-cream; flowering generally takes place between mid-January and late May (additional records: one for mid-November, three for early December and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy mesas; bases of cliffs; clayey canyons; bouldery and rocky canyon bottoms; bluffs; rocky and rocky-clayey ridgetops; rocky hills; bouldery hillsides; bouldery, rocky, gravelly-sandy, gravelly-sandy-loamy, pebbly-sandy and sandy slopes; alluvial fans; gravelly bajadas; amongst boulders; volcanic dikes and plugs; lava flows; sand hills; sand shelves; sand dunes; sand hummocks; blow-sand deposits; sand sheets; rocky-sandy outwash fans; gravelly-sandy-loamy and silty plains; gravelly-sandy, sandy and silty flats; sandy and silty valley floors; along rocky-clayey, gravelly, gravelly-sandy-loamy and sandy roadsides; sandy arroyos; gullies; about springs; creekbeds; along rivers; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along drainages; within sandy drainage ways; depressions; (gravelly-sandy) banks of rivers and washes; borders of washes; (sandy) edges of arroyos, rivers, washes and playas; (sandy) margins of washes and ponds; sandy beaches; benches; rocky strands; sandy terraces; loamy bottomlands; floodplains; sandy levees; canal banks; along ditches; recently burned areas of coastal sage scrub; bouldery-cobbly-sandy, gravelly-sandy and sandy riparian areas; waste places, and disturbed areas growing in dry desert pavement; bouldery, bouldery-cobbly-sandy, bouldery-sandy, rocky, rocky-sandy, shaley, cindery-sandy, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; gravelly-sandy loam, sandy loam and loam ground; rocky clay and clay ground, and silty ground, occurring from sea level to 6,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant that poses a significant threat to our native biotic communities. Sahara Mustard is usually a very large and robust plant. This plant was first reported in Arizona in 1959. *Brassica tournefortii* is native to southern Europe; western, central and southern Asia, and northern Africa. *5, 6, 15, 16, 22, 28, 43 (010410), 44 (052212), 46 (Supplement Page 1051), 63 (052212 - color presentation), 77, 80 (The genus *Brassica* is listed as both a Rarely Poisonous and Suspected Poisonous Range Plant “Mustards, both native and escaped, may cause several diseases including goiter and gastroenteritis.” and a Poisonous Cropland and Garden Plant “Cultivated mustards may cause numerous diseases including gastroenteritis, blindness, goiter, emphysema, redwater disease, nitrate poisoning, anemia, and photosensitization.”), 85 (052212 - color presentation), 115 (color presentation), 124 (061811 - no record of species; genus record), **MBJ** (correspondence dated May 13, 2013)*

***Descurainia pinnata* (T. Walter) N.L. Britton: Western Tansymustard**

COMMON NAMES: Aasa <asa, a:sá, □asa> (Uto-Aztec: Hopi)¹⁴⁰; Aasam (Yaqui); Ai’yaho (Language Isolate: Zuni)¹⁴⁰; Akav (Yuman: Mohave)¹⁴⁰; Atsa’ <acá> (“Red”, Uto-Aztec: Paiute)¹⁴⁰; ‘Atsé <□osce□> (“First One”, Athapaskan: Navajo)¹⁴⁰; ‘Akav□ (Uto-Aztec: Kawaiisu)¹⁴⁰; Atsé ‘Álts’ Óózi <□osce□ ‘a.lc’ozigi> (“Slender First One”, Athapaskan: Navajo)¹⁴⁰; ‘Atsé Ts’oh <□osce□ coh> (“Big First One”, Athapaskan: Navajo)¹⁴⁰; ‘Awae (Kiowa Tanoan: Hano Tewa)¹⁴⁰; Chooyn ‘Azee’ <co’in □azé□> (Athapaskan: Navajo)¹⁴⁰; Da:pk (“smooth/slippery”, Uto-Aztec: Tohono O’odham)¹⁴⁰; □□i-la <asil, asily> (Uto-Aztec: Cahuilla)¹⁴⁰; Green Tansy Mustard; Green Tansy-mustard; Green Tansymustard; Hahck (Uto-Aztec: Southern Paiute)¹⁴⁰; Hasá <jasá> (Uto-Aztec: Guarijío)¹⁴⁰; Huy Aasum (Yaqui); Ívagi (Uto-Aztec: Northern Tepehuan)¹⁴⁰; Ka SiB (Yuman: Paipai)¹⁴⁰; Kosen (Yuman: Cocopa)¹⁴⁰; Kse.v Ilokwak (Yuman: Maricopa)¹⁴⁰; Moutarde Tanaisie (French); Northern Tansy-mustard; Palmita (Spanish); Pamita [Palmita, Pamitón] (Spanish: Baja California, Sonora)¹⁴⁰; Pamitón (Spanish); Pinnate Tansy Mustard; Pinnate Tansy-mustard; Pinnate Tansymustard; Shortfruit Tansymustard; Shuu’uvad <rú-u-what, show-ou-wat> (Uto-Aztec: Akimel O’odham, Arizona)¹⁴⁰; Sinapismo (Spanish)¹⁴⁰; Sirolitutilli; Su’uvad (Uto-Aztec: Hiá Ce□ O’odham)¹⁴⁰; □u:wa□ <shu’awat> (Uto-Aztec: Onavas Pima)¹⁴⁰; Suavoli (Uto-Aztec: Northern Tepehuan)¹⁴⁰; Tansy Mustard (a name also applied to the genus *Descurainia*); [Pinnate, Western, Yellow] Tansy Mustard (English)¹⁴⁰; Tansymustard (a name also applied to the genus *Descurainia*); Tansymustard (a name also applied to the genus *Descurainia*); Toloache (Mexico: Sonora); Western Tansy Mustard; Western Tansy-mustard; Western Tansymustard; Yellow Tansy Mustard; Yellow Tansy-mustard; Yellow Tansymustard. DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb (erect stems ¾ to 40 inches in height); the foliage may be gray-green, greenish, purplish or reddish; the flowers may be cream, greenish-white, greenish-yellow, purplish, white, white tinged with mauve, whitish, dull yellow, pale yellow, yellow, yellow-green or yellowish-green; flowering generally takes place between mid-January and mid-September (additional record: one for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; along sandy bases of mountains; sandy mesas; plateaus; along sandy rims of canyons; rocky cliffs; sandy bases of cliffs; rocky and sandy canyons; sandy canyon sides; along bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and silty canyon bottoms; scree; bluffs; buttes; hogbacks; rocky ledges; rocky ridges; rocky ridgetops; rocky-sandy meadows; cinder cones; rocky tops of cinder cones; rims of craters foothills; bouldery and rocky hills; rocky hilltops; bouldery-sandy, rocky, rocky-stony, rocky-loamy, clayey, gravelly-sandy and silty-loamy hillsides; sandy bases of escarpments; bedrock, rocky, rocky-stony, rocky-cobbly, rocky-cobbly-sandy, rocky-sandy, cobbly-gravelly-sandy, cobbly-loamy, cindery, gravelly, gravelly-sandy, gravelly-loamy, gravelly-silty-loamy, sandy, sandy-loamy, sandy-clayey, loamy, clayey-loamy and silty-clayey slopes; rocky-sandy alluvial fans; gravelly-sandy bajadas; rocky outcrops; sandy bases of rock outcrops; amongst boulders and rocks; sheltered rocky coves; volcanic dikes and plugs; sand hills; sand dunes; sand sheets; blow-sand deposits; rocky outwash fans; banks; barrens; loamy steppes; sandy prairies; cobbly and sandy plains; gravelly, gravelly-sandy, gravelly-clayey-loamy, sandy, sandy-clayey, loamy and silty-loamy flats; basins; basin bottoms; shaley and sandy valley floors; gravelly-sandy valley bottoms; coastal plains; sandy coastal strands; along railroad right-of-way; along rocky, gravelly, gravelly-clayey, sandy and sandy-loamy roadsides; along sandy arroyos; draws; within sandy ravines; seeps; rocks areas around springs; along streams; along streambeds; in sand along creeks; along rivers; bouldery and bouldery-rocky-gravelly riverbeds; along and in bouldery, rocky, rocky-sandy, cobbly, cobbly-gravelly-sandy, gravelly, gravelly-sandy, sandy, sandy-loamy, sandy-clayey and clayey washes; within gravelly drainages; drainage ways; waterholes; depressions; banks of creeks and rivers; borders of washes; along edges of streams, creeks and washes; margins of

marshy areas; (sandy) sides of rivers; shorelines of lakes; sand bars; beaches; sandy terraces; loamy bottomlands; clayey and silty floodplains; sandy lowlands; mesquite bosques; clayey catchments; in dry stock tanks; muddy and rocky shores of reservoirs; along canals; on top of and within ditches; sandy riparian areas; waste places; recently burned areas of woodland and desertscrub, and disturbed areas growing in mucky ground; muddy ground, and wet, moist, damp and dry desert pavement; bouldery, bouldery-rocky-gravelly, bouldery-sandy, rocky, rocky-stony, rocky-cobbly, rocky-cobbly-sandy, rocky-gravelly-sandy, rocky-sandy, shaley, cobbly, cobbly-gravelly-sandy, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, cobbly loam, cobbly-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, gravelly-silty loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground; gravelly clay, sandy clay, silty clay and clay ground, and silty ground, occurring from sea level to 11,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or spice crop; it was also noted as having been used as a preservative (subsp. *halictorum*), fertilizer (subsp. *halictorum*), paint for pottery decoration (flowers mixed with dark iron pigment, subsp. *pinnata*) and as a drug or medication. This plant is a larval food plant of the Desert Orangetip Butterfly (*Anthocharis cethura*) and is sometimes planted in butterfly gardens to attract Orangetip, Checkered White and White Cabbage Butterflies. Black-tailed Jack Rabbits (*Lepus californicus*), Pronghorn (*Antilocapra americana*) and Rocky Mountain Mule Deer (*Odocoileus hemionus hemionus*) feed on this plant, and the Ord's Kangaroo Rat (*Dipodomys ordii*), Spotted Ground Squirrel (*Spermophilus spilosoma*), Townsend Ground Squirrel (*Spermophilus townsendii*) and Northern Grasshopper Mice (*Onychomys leucogaster*) feed on the seeds. *Descurainia pinnata* is native to northern, central and southern North America. *5, 6, 15, 16, 43 (010510), 44 (061811), 46 (Page 349), 63 (052712 - color presentation), 68, 77, 80 (This species is listed as a Secondary Poisonous Range Plant. "Symptoms of poisoning are similar to the "blind staggers" disease caused by selenium, but the principle is unknown. Large quantities of the plant must be eaten for a considerably long time before symptoms appear. Consumption of toxic amounts is most likely to occur during the blossoming period in the spring. Poisoned cattle become partially or completely blind and wander aimlessly about until exhausted, or stand pushing against some solid object for hours. Animals lose their ability to use their tongue in swallowing and cannot eat or drink. They eventually die if neglected. As a result a popular term for the disease is "paralyzed tongue". ... Analysis of plants in Arizona shows that tansy mustard also may accumulate toxic levels of nitrate. Poisoning may be prevented by deferring heavily infested pastures during the spring-growth period, or by providing more desirable forage to reduce mustard consumption." See text for additional information.), 85 (052712 - color presentation), 101 (note), 124 (061811), 127, 140 (Pages 94-95 & 287), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Draba cuneifolia* T. Nuttall ex J. Torrey & A. Gray: Wedgeleaf Draba**

COMMON NAMES: Desert Whitlow; *Draba* Primavera ("Spring *Draba*", Spanish: Mexico)¹⁴⁰; Gasa (Spanish: Mexico)¹⁴⁰; Sanguinaria Menor ("Little Bloody One", Spanish: Mexico)¹⁴⁰; Sonora *Draba* (for *D.c.* var. *sonorae*); Spring Whitlow-grass; Wedge Leaf Whitlow Grass; Wedge-leaf *Draba* (English)¹⁴⁰; Wedge-leaf Whitlow-grass; Wedgeleaf *Draba*; Wedgeleaf Whitlow Grass; Wedgeleaf Whitlow-grass; Wedgeleaf Whitlowgrass; Wedgeleaf Whitlow-wort; Wedge-leaved *Draba*; Wedge-leaved Whitlow Grass; Wedge-leaved Whitlow-grass; Wedge-leaved Whitlowwort; Whitlow Grass (a name also applied to the genus *Draba*); Whitlow-grass (a name also applied to the genus *Draba*); [Wedge-leaf] Whitlow-grass (English)¹⁴⁰; Whitlow-wort (a name also applied to other species and the genus *Draba*). DESCRIPTION: Terrestrial annual forb/herb (erect stems 1½ to 12 inches in height); the leaves are gray-green; the flowers are cream, white or yellow; flowering generally takes place between late December and late May (additional records: one for mid-July, one for mid-September, three for early December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; plateaus; canyon rims; cliffs; soil pockets on shaded cliff walls; gravelly bases of cliffs; rocky canyons; canyonsides; rocky, rocky-sandy, sandy and loamy canyon bottoms; sandy talus slopes; sandy crevices in rocks; sandy pockets; buttes; knolls; rocky and stony ledges; ridges; rocky, gravelly, sandy and clayey hills; rocky, gravelly and sandy hillsides; along bedrock, bouldery-gravelly, rocky, rocky-sandy, rocky-clayey, rocky-clayey-loamy, cindery, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy, clayey, clayey-loamy and silty-clayey slopes; alluvial fans; gravelly bajadas; bouldery and rocky outcrops; amongst boulders, rocks and stones; boulder fields; lava flows; along pebbly-silty and sandy outwash; terraces; rocky-sandy and pebbly plains; rocky, stony-gravelly-clayey, gravelly and sandy flats; along gravelly and sandy roadsides; along gravelly and sandy arroyos; seeps, springs; arroyos; sandy bottoms of arroyos; draws; gulches; seeps; in clay around springs; along streams; bouldery and sandy streambeds; along creeks; along creekbeds; along rivers; sandy riverbeds; along and in bedrock, rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and silty washes; along drainage ways; palm oases; gravelly-sandy bowls; (gravelly-sandy, sandy, sandy-silty and silty) banks of washes; borders of washes; edges of washes and drainages; along (sandy) shorelines of rivers; gravelly and silty sand bars; bouldery-sandy beaches; cobbly and gravelly benches; shelves; cobbly-sandy terraces; sandy and loamy bottomlands; floodplains; dry stock tanks; gravelly-sandy riparian areas; recently burned areas of woodland and wetland, and disturbed areas growing in wet, moist and dry cryptogamic soils; rimrock pavement; bouldery, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, cobbly, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam and loam ground; rocky clay, stony clay, stony-gravelly clay, silty clay and clay ground, pebbly silty and silty ground, occurring from sea level to 12,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Draba cuneifolia* is native to south-central and southern North America. *5, 6, 16, 43 (010710), 44 (052812 - color presentation), 46 (Pages 347-348), 63 (052812 - color presentation), 77, 85 (052912 - color presentation), 115 (color presentation), 124 (052812), 140 (Pages 95-96 & 287 - recorded as *Draba cuneifolia* Nuttall ex Torrey & A. Gray [*Draba cuneifolia* Nuttall ex Torrey & A. Gray var.

integrifolia S. Watson, *Draba cuneifolia* Nuttall ex Torrey & A. Gray var. *platycarpa* (Torrey & A. Gray) S. Watson, *Draba platycarpa* (Torrey & A. Gray)*

***Draba cuneifolia* T. Nuttall ex J. Torrey & A. Gray var. *cuneifolia*: Wedgeleaf Draba**

SYNONYMY: *Draba cuneifolia* T. Nuttall ex J. Torrey & A. Gray var. *typica* C.L. Hitchcock. COMMON NAMES: Gasa, Spring Whitlow-grass, Wedge-leaf Draba, Wedgeleaf Draba, Wedge-leaf Whitlow-grass, Wedgeleaf Whitlow Grass, Wedge-leaved Whitlow-grass, Whitlow-grass, Whitlow-wort. DESCRIPTION: Terrestrial annual forb/herb (erect stems 1½ to 5 inches in height, plants 4 inches in height and width were reported); the flowers are white; flowering generally takes place between early February and late May (additional record: one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; mesas; sandy canyons; rocky canyon bottoms; along mouths of canyons; gorges; buttes; rocky ledges; rocky hills; hillsides; rocky, cindery, gravelly, gravelly-sandy, sandy and sandy-clayey slopes; bajadas; amongst boulders; rocky, gravelly and sandy flats; valley floors; along roadsides; sandy arroyos; rocky bottoms of arroyos; gulches; ravines; seeps; along sandy washes; drainages; sandy banks of lakes; riparian areas, and disturbed areas growing in damp and dry bouldery, rocky, stony, cindery, gravelly, gravelly-sandy and sandy ground; rocky-clay loam and gravelly loam ground, and cobbly clay and sandy clay ground, occurring from 1,000 to 8,300 feet in elevation in the forest, woodland, scrub; grassland, desertscrub and wetland ecological formations. NOTE: *Draba cuneifolia* var. *cuneifolia* is native to south-central and southern North America. *5, 6, 43 (010710), 46 (*Draba cuneifolia* Nutt. var. *typica* C.L. Hitchc., (Pages 347-348), 63 (010710), 85 (010810), 115 (color presentation of species), 140 (Pages 95-96 & 287)*

***Draba cuneifolia* T. Nuttall ex J. Torrey & A. Gray var. *integrifolia* S. Watson: Wedgeleaf Draba**

COMMON NAMES: *Draba* Primavera ("Spring Draba", Spanish: Mexico)¹⁴⁰; Gasa (Spanish: Mexico)¹⁴⁰; Sanguinaria Menor ("Little Bloody One", Spanish: Mexico)¹⁴⁰; Wedge-leaf Draba (a name also applied to the species); Wedgeleaf Whitlow Grass (English)¹⁴⁰; Wedgeleaf Draba (a name also applied to the species); Wedgeleaf Whitlow Grass (a name also applied to the species); Whitlow Grass (a name also applied to the species and the genus *Draba*); Whitlow-grass (a name also applied to the species and the genus *Draba*); [Wedge-leaf] Whitlow-grass (English)¹⁴⁰; Whitlow-wort (a name also applied to the species, other species and to the genus *Draba*). DESCRIPTION: Terrestrial annual forb/herb (erect stems 1½ to 5 inches in height; one plant was observed and described as being 1¼ to 2¾ inches in height and 1¼ to 1½ inches in width was reported); the flowers are white; flowering generally takes place between mid-January and late April (additional records: one for mid-May, one for late May, one for early December and one for late December). HABITAT: Within the range of this species it has been reported from mountains; cliffs; cliff walls; rocky canyons; rocky canyon bottoms; bases of cliffs; ledges; openings in chaparral; sandy hills; rocky-gravelly hillsides; rocky, rocky-gravelly-sandy, rocky-sandy, gravelly, gravelly and silty-clayey slopes; sandy bajadas; bouldery and rocky outcrops; amongst rocks; in the shade of rocks and shrubs; lava flows; rocky, gravelly, sandy and clayey flats; basins; sandy coastal flats; roadsides; along arroyos; draws; seeps; along streams; along creekbeds; along rivers; along and in rocky-sandy, gravelly-sandy and sandy washes; (gravelly-sandy, sandy and silty) banks of washes; borders of washes; edges of washes and drainages; bars; gravelly benches; loamy bottomlands; floodplains; riparian areas; recently burned areas in woodlands, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, rocky-clayey loam, gravelly-sandy loam and loam ground; silty clay ground, and silty ground, occurring from sea level to 7,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Draba cuneifolia* var. *integrifolia* is native to southwest-central and southern North America. *5, 6, 15, 43 (010710), 44 (052812 - no listings under Common Names; species and genus records), 46 (Pages 347-348), 63 (052812 - color presentation), 85 (052912 - color presentation of dried material), 115 (color presentation of species), 124 (052812 - no record of variety; genus and species records), 140 (Pages 95, 96 & 287 - recorded as *Draba cuneifolia* Nuttall ex Torrey & A. Gray [*Draba cuneifolia* Nuttall ex Torrey & A. Gray var. *integrifolia* S. Watson, *Draba cuneifolia* Nuttall ex Torrey & A. Gray var. *platycarpa* (Torrey & A. Gray) S. Watson, *Draba platycarpa* (Torrey & A. Gray)]*)

Draba cuneifolia var. *typica* (see *Draba cuneifolia* var. *cuneifolia*)

***Dryopetalon runcinatum* A. Gray: Rockmustard**

COMMON NAMES: *Dryopetalon* (a name also applied to the genus *Dryopetalon*); Rock-mustard; Rockmustard. DESCRIPTION: Terrestrial biennial or perennial forb/herb (erect stems 8 to 32 inches in height); the foliage is dark green; the flowers are lavender, pink, pale violet, purplish, white or white with a purplish tinge; flowering generally takes place between early February and early June (additional records: one for early July and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; rock cliffs; cliff faces; bases of cliffs; rocky canyons; bouldery canyon bottoms; talus slopes; crevices in and under boulders and rocks; rocky ledges; rims of craters; foothills; hills; hillsides; bouldery, bouldery-gravelly and rocky slopes; rocky outcrops; amongst boulders and rocks; coastal plains; along sandy roadsides; within rocky and sandy arroyos; rocky draws; springs; in rocks along streams; along and in rocky streambeds; along creeks; along rivers; along washes; within drainages; (rocky) banks of arroyos and creeks, and riparian areas growing in moist, damp and dry bouldery, bouldery-gravelly, rocky and sandy ground often in shaded areas, occurring from 100 to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetlands ecological formations. NOTE: *Dryopetalon runcinatum* is native to southwest-central and southern North America. *5, 6, 15, 16, 28 (color photograph 155), 43 (010910), 44

(052912 - no record of species or genus), 46 (Page 339), 58, 63 (052912 - color presentation), 77 (color photograph #73), 85 (052912 - color presentation), 115 (color presentation), 124 (052912 - no record of species or genus), 140 (Pages 96 & 287)*

***Lepidium lasiocarpum* T. Nuttall: Shaggyfruit Pepperweed**

COMMON NAMES: Cucharita (Spanish); Cucharitas (Spanish); Hairy Pod Pepper-grass; Hairy-pod Pepper-grass; Hairy-pod Peppergrass; Hairy-pod Pepperweed; Hairy-pod Pepperwort; Hairy-podded Pepper-grass; Hairy-podded Peppergrass; Hairypod *Lepidium* (var. *wrightii*); Hairypod Pepperweed; Hispid Cress; Hispid-cress; Hispidcress; Isnsáap Ic Is (“Whose Fruit is on One Side” a name also applied to other species, Hokan: Seri)¹⁴⁰; Ka:kowani (Uto-Aztecan: Hiá Ce□ O’odham)¹⁴⁰; Ka:kowañi <ka:cowani> (Uto-Aztecan: Tohono O’odham)¹⁴⁰; Lentejilla (Spanish); Lipasote (Spanish); Pasote (Spanish); Pepper Grass (a name also applied to the genus *Lepidium*); Peppergrass (a name also applied to the genus *Lepidium*); Pepperweed (a name also applied to the genus *Lepidium*); Queeto Oohit (“What Aldebaran Eats” Hokan: Seri)¹⁴⁰; Sand Pepper Grass; Sand Pepper-grass; Sand Peppergrass; Sand Pepperweed; Shaggy-fruit Pepperweed; Shaggyfruit Pepperweed; Soowiid□b□ (Uto-Aztecan: Kawaiisu)¹⁴⁰; Wright Pepperweed (var. *wrightii*); Wright’s Pepperweed (var. *wrightii*). DESCRIPTION: Terrestrial annual or biennial forb/herb (stems 4 to 15 inches in height); the foliage is grayish; the flowers may be cream, green, greenish-yellow, white or yellow-green; flowering generally takes place between late December and late June (additional records: one for late August and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; plateaus; rocky chutes; along rocky and shaley canyons; rocky, gravelly and sandy canyon bottoms; rocky talus slopes; bases of cliffs; buttes; rocky and sandy ledges; sandy ridges; rocky ridgetops; foothills; bouldery, rocky-sandy and sandy hills; hilltops; rocky hillsides; rocky, rocky-sandy, cobbly-gravelly-sandy, gravelly, gravelly-clayey, gravelly-clayey-loamy, sandy, sandy-loamy, sandy-clayey and clayey-loamy slopes; rocky, rocky-sandy and gravelly alluvial fans; gravelly, gravelly-sandy and sandy bajadas; clayey benches; terraces; rocky outcrops; amongst boulders and rocks; lava flows; lava beds; sand dunes; sand sheets; sand flats; along rocky-sandy and sandy outwash fans; banks; gravelly-sandy-loamy and sandy-loamy plains; rocky, gravelly, sandy, sandy-loamy, clayey-loamy and silty flats; sandy basins; sandy and clayey valley floors; coastal bluffs; coastal dunes; coastal plains; tidal shores; along sandy roadsides; along and in gravelly and sandy arroyos; bottoms of arroyos; gulches; springs; around seeping streams; along creeks; sandy creekbeds; along rivers; sandy riverbeds; along and in bedrock, rocky, rocky-sandy, shaley, gravelly, gravelly-sandy, sandy and sandy-loamy washes; rocky-sandy drainages; along drainage ways; silty playas; silty depressions; raised areas in saltmarshes; along (muddy, gravelly-sandy and sandy) banks of rivers and washes; borders of washes; along (stony-sandy and sandy) edges of arroyos, washes, lakebeds and tanques; around margins of washes and marshes; shores of lakes; mudflats; gravel, gravelly-sand and sand bars; sandy beaches; bouldery benches; gravelly terraces; sandy, loamy and clayey bottomlands; sandy and silty floodplains; lowlands; along gravelly-sandy and sandy edges of stock tanks; canal banks; gravelly and sandy riparian areas; waste places; recently burned areas in woodlands and desertscrub, and disturbed areas growing in moist and dry cryptogamic soil; rimrock pavement; desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, stony, stony-sandy, shaley, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; gravelly clay, sandy clay, silty clay and clay ground, and gravelly-sandy silty, sandy-silty and silty ground, occurring from sea level to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. *Lepidium lasiocarpum* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (011010), 44 (062512), 46 (Page 334), 63 (062612 - color presentation), 68, 77, 85 (062612 - color presentation), 124 (062512 - no record of species; genus record), 127, 140 (Pages 97 & 287), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Lepidium lasiocarpum var. *georginum* (see *Lepidium lasiocarpum* var. *lasiocarpum*)

***Lepidium lasiocarpum* T. Nuttall var. *lasiocarpum*: Shaggyfruit Pepperweed**

SYNONYMY: *Lepidium lasiocarpum* T. Nuttall var. *georginum* (P.A. Rydberg) C.L. Hitchcock; *Lepidium lasiocarpum* T. Nuttall var. *typicum* C.L. Hitchcock. COMMON NAMES: Typical Hairy Pod Pepper-grass; Typical Hairy-pod Pepper-grass; Typical Hairy-pod Peppergrass; Typical Hairy-pod Pepperweed; Typical Hairy-pod Pepperwort; Typical Hairy-podded Pepper-grass; Typical Hairy-podded Peppergrass; Typical Hairypod Pepperweed; Typical Hispid Cress; Typical Hispid-cress; Typical Hispidcress; Typical Sand Pepper Grass; Typical Sand Pepper-grass; Typical Sand Peppergrass; Typical Sand Pepperweed; Typical Shaggy-fruit Pepperweed; Typical Shaggyfruit Pepperweed. DESCRIPTION: Terrestrial annual or biennial forb/herb (stems 8 to 15 inches in height); the foliage may be reddish-purple; the flowers are cream or white; flowering generally takes place between early February and early June (additional records: two for mid-January and one for late June). HABITAT: Within the range of this species it has been reported from mountains; bases of cliffs; rocky canyons; sandy canyon bottoms; talus slopes; rocky ledges; ridges; meadows; rocky and sandy hills; rocky hillsides; rocky, rocky-sandy, gravelly-clayey-loamy, sandy and sandy-clayey slopes; banks; clayey benches; rocky outcrops; amongst rocks; sand dunes; along sandy outwash fans; plains; gravelly, sandy, sandy-clayey and silty flats; valley floors; along gravelly and loamy roadsides; arroyos; bottoms of arroyos; gulches; along streams; along creeks; along sandy creekbeds; riverbeds; along and in rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; (gravelly-sandy) banks of washes; gravelly-sand and sand bars; benches; floodplains; along ditches; gravelly riparian areas, and disturbed area growing in dry cryptogamic soil; rimrock pavement; desert pavement; rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, cobbly-silty loam, gravelly-clayey loam,

clayey loam and loam ground; sandy clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 7,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Lepidium lasiocarpum*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. *Lepidium lasiocarpum* var. *lasiocarpum* is native to southwest-central and southern North America. *5, 6, 43 (011010 - *Lepidium lasiocarpum* var. *georginum* C.L. Hitchc.), 44 (062612 - no record for variety; records for genus and species; records located under subsp. *lasiocarpum*), 46 (recorded as *Lepidium lasiocarpum* var. *typicum* C.L. Hitchcock, Page 334), 58, 63 (062612), 85 (062612 - color presentation of dried material), 124 (062512 - no record of variety or species; genus record), 127 (species)*

Lepidium lasiocarpum var. *typicum* (see *Lepidium lasiocarpum* var. *lasiocarpum*)

***Lepidium oblongum* J.K. Small (var. *oblongum* is the variety reported as occurring in Arizona): Veiny Pepperweed**

COMMON NAMES: Oblong Pepper Grass; Oblong Pepper-grass; Oblong Peppergrass; Pepper Grass (a name also applied to other species and the genus *Lepidium*); Pepper-grass (a name also applied to other species and the genus *Lepidium*, Oklahoma); Peppergrass (a name also applied to other species and the genus *Lepidium*); South American Pepper-grass; Veiny Peppergrass (a name also applied to other species); Veiny Pepperweed; Veiny Pepperwort; Wayside Peppergrass (a name also applied to other species); Wayside Pepperweed (var. *oblongum*). DESCRIPTION: Terrestrial annual or biennial forb/herb (prostrate, decumbent, ascending and/or erect stems 2 to 13 inches in height; specimens of var. *insularae* were reported as forming sprawling mounds 1 foot in height and 2 feet in width); the flowers are white; flowering generally takes place between mid-January and mid-May (additional records: one for early June and one for late October). HABITAT: Within the range of this species it has been reported from mountains; mesas; bases of cliffs; bluffs; canyon bottoms; hills; grassy hillsides; clayey-loamy slopes; alluvial terraces; bajadas; rocky outcrops; dunes; prairies; llanos; cobbly plains; valley floors; valley bottoms; coastal plains; sandy coasts; along rocky, cindery and sandy roadsides; springs; along streams; along sandy streambeds; in sand along rivers; sandy riverbeds; along washes; clayey playas; marshes; (loamy) banks of rivers; edges of rivers and ciénegas; terraces; floodplains; sandy margins of reservoirs; along ditches; gravelly-sandy-loamy riparian areas; waste places, and disturbed areas growing in moist and dry rocky, cobbly, cindery, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly-sandy loam, clayey loam and loam ground; clay ground, and silty ground, occurring from sea level to 7,700 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be food for both quail and bighorn. *Lepidium oblongum* is native to southwest-central and southern North America and Central America. *5, 6, 16, 43 (011210), 44 (061911), 46 (Page 334), 63 (062612 - color presentation of seed), 85 (062612 - color presentation), 106 (061911 - color presentation of dried material), 124 (062612), 140 (Page 287), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Lesquerella gordonii* (A. Gray) S. Watson (var. *gordonii* is the variety reported as occurring in Arizona): Gordon's Bladderpod**

SYNONYMY: (for var. *gordonii*: *Physaria gordonii* (A. Gray) S.L. O'Kane & I.A. Al-Shehbaz). COMMON NAMES: Arizona Bladderpod Mustard; Bead-pod; Bladder Pod; Bladder-pod; Bladderpod; Bladderpod Mustard; Gordon Bladder Pod; Gordon Bladder-pod; Gordon Bladderpod; Gordon's Bladder-pod; Gordon's Bladderpod; Yellow Bladderpod. DESCRIPTION: Terrestrial annual, biennial or perennial [short-lived] forb/herb (prostrate, decumbent and/or erect stems 3 inches to 2 feet in height); the foliage is green; the flowers are yellow; flowering generally takes place between early February and mid-May (additional records: one for mid-January, one for early June, two for early June, one for late June, one for early September and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; plateaus; rocky canyons; rocky and gravelly canyon bottoms; ledges; rocky ridges; foothills; rocky hills; hilltops; rocky, rocky-gravelly and stony hillsides; rocky, rocky-gravelly, gravelly, gravelly-loamy and clayey-loamy slopes; bajadas; rocky outcrops; rocky-sandy alluvial fans; sandy bajadas; rocky, sandy, sandy-loamy, sandy-clayey and clayey-loamy plains; fields; rocky, gravelly, sandy and clayey-loamy flats; basins; valley floors; roadcuts; along rocky, gravelly, gravelly-loamy and sandy roadsides; bottoms of arroyos; draws; rocky ravines; streambeds; sandy creekbeds; along rivers; gravelly riverbeds; along and in bedrock-bouldery, gravelly, sandy and silty washes; along and in drainage ways; banks of creeks and washes; margins of washes; sandy beaches; benches; terraces; bottomlands; sandy floodplains; lowlands; mesquite bosques; along ditches; gravelly-sandy riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and clayey loam ground; sandy clay and clay ground; silty ground, and chalky ground, occurring from 100 to 7,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Lesquerella gordonii* is native to southwest-central and southern North America. *5, 6, 15, 16, 28 (color photograph 327), 34 (genus), 43 (011310), 44 (062712 - no listings under Common Names for either species or genus), 46 (Page 343), 48 (genus), 58, 63 (062712 - color presentation), 68, 77, 85 (062712 - color presentation), 86 (note under Fendler's Bladderpod), 115 (color presentation), 124 (062712), 140 (recorded as *Physaria gordonii* (A. Gray) O'Kane & Al-Shehbaz [*Lesquerella gordonii* (A. Gray) S. Watson var. *gordonii*, *Lesquerella tenella* A. Nelson], Page 287), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Lesquerella purpurea* (A. Gray) S. Watson: Rose Bladderpod**

COMMON NAMES: Bladder-pod (a name also applied to other species and the genus *Lesquerella*); Purple Bladderpod; Rose Bladderpod; White Bladderpod. DESCRIPTION: Terrestrial perennial forb/herb (sprawling prostrate, decumbent, weakly ascending to nearly erect stems 6 inches to 2 feet in height); the stems may be dark green; the leaves are bluish-green, gray-green or silvery-green; the flowers (to 3/8 inch diameter) may be blue, lavender-white, purple, purplish, white (fading to pink or purplish), white tinged with lavender, white-purple, white-violet or whitish-lavender; flowering generally takes place between late January and late May (additional records: one for late June, one for late August, one for early September and two for mid-November). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; cliffs; bases of cliffs; rocky canyons; rocky canyon bottoms; chasms; talus slopes; ledges; bedrock ridges; rocky foothills; rocky hills; rocky hillsides; along bedrock, rocky, gravelly, gravelly-sandy and sandy-silty slopes; bajadas; sandy bases of rocky outcrops; amongst boulders and rocks; gravelly bases of boulders and rocks; flats; bottoms of arroyos; draws; along creeks; along and in gravelly-sandy-silty washes; drainages; (stony-clayey and sandy) banks of creeks and rivers; borders of washes, and bouldery-cobbly-sandy and bouldery-gravelly riparian areas growing in wet, moist and dry bouldery, bouldery-cobbly-sandy, bouldery-gravelly, rocky, gravelly-sandy and sandy ground; stony clay ground, and rocky-gravelly silty, gravelly-sandy silty and sandy silty ground, occurring from 1,500 to 6,300 feet in elevation in the woodland, scrub, grassland, deserts scrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Lesquerella purpurea* is native to southwest-central and southern North America. *5, 6, 15, 28 (color photograph 158), 34 (genus), 43 (071810), 44 (062712 - no listings under Common Names for either species or genus), 46 (Page 343), 48 (genus), 63 (062712 - color presentation), 77 (color photograph #26), **85** (062712 - color presentation), 115 (color presentation), 124 (061911 - no record of species; genus record)*

Physaria gordonii (see *Lesquerella gordonii* var. *gordonii*)

***Sisymbrium irio* C. Linnaeus: London Rocket**

COMMON NAMES: Ban Cen□añig (“Coyote’s Mouth”, Uto-Aztecan: Hiá Ce□ O’odham, Sonora)¹⁴⁰; Ban Ciñi□añ <ban cini□ani> (“Coyote’s Mouth”, Uto-Aztecan: Tohono O’odham)¹⁴⁰; Cocóol (Hokan: Seri)¹⁴⁰; Glanz-Rauke (German); Haskahl’ <has káhl> (Yuman: Mohave)¹⁴⁰; London Mustard; London Rocket; London Rocket (English)¹⁴⁰; London-rocket; Londonrocket; Mostaza (Spanish)⁸⁵; Mostaza [Silvestre] (“[Wild] Mustard”, Spanish: Sonora)¹⁴⁰; Pamit (Uto-Aztecan: Ópata)¹⁴⁰; Pamita (Spanish)⁸⁵; Pamita (Spanish: Sonora)¹⁴⁰; Pamitón (Uto-Aztecan: Mayo)¹⁴⁰; Rocket Mustard (English)¹⁴⁰; Rocket-mustard; Rocketmustard; Shuu’uva□ (Uto-Aztecan: Akimel O’odham)¹⁴⁰; Tumble Mustard (a name also applied to other species and the genus *Sisymbrium*); Vallsenap (Swedish). DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 inches to 5 feet in height; plants were observed and described as being 8 inches in height and 6 inches in width); the flowers may be golden-yellow, white, pale yellow or yellow; the anthers are cream; flowering generally takes place between mid-December and mid-June (additional records: one for early July, one for late July, one for early August, one for mid-August, two for late August, one for mid-September, one for late September, one for early October, one for mid-October, one for early November, one for mid-November and four for late November). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy mesas; plateaus; rocky canyons; along bouldery-gravelly-sandy and sandy canyon bottoms; rocky buttes; rock ledges; ridges; ridgetops; clayey meadows; foothills; rocky hills; rocky hillsides; bouldery, rocky, rocky-sandy, gravelly-sandy, sandy and sandy-loamy slopes; rocky alluvial fans; bajadas; rocky outcrops; amongst boulders and rocks; sandy lava flows; sand dunes; banks; berms; cobbly plains; rocky, gravelly, sandy and sandy-silty flats; basins; valley floors; loamy valley bottoms; railroad right-of-ways; gravelly-sandy roadbeds; cindery, gravelly, sandy and clayey roadsides; within rocky and sandy arroyos; along bottoms of arroyos; bottoms of ravines; seeps; springs; along streams; streambeds; along creeks; bouldery-rocky and rocky creekbeds; along rivers; rocky and rocky-cobbly-sandy riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-loamy washes; within sandy drainage ways; silty lakebeds; bogs; sandy-loamy and silty depressions; along (cobbly-sandy, gravelly-sandy and sandy) banks of streams, creeks, rivers and washes; borders of washes; (rocky) edges of springs, streams, creeks, washes and ponds; margins of washes; sandy beaches; sandy benches; terraces; sandy and loamy bottomlands; floodplains; mesquite bosques; margins of stock tanks; canal edges and walls; along ditches; riparian areas; waste places; recently burned areas of woodland and deserts scrub, and disturbed areas growing in muddy and wet, moist, damp and dry bouldery, bouldery-gravelly-sandy, rocky, rocky-cobbly; rocky-cobbly-sandy, rocky-sandy, cobbly, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly-sandy loam, sandy loam and loam ground; sandy clay and clay ground, and sandy silty ground, occurring from sea level to 10,300 feet in elevation in the forest, woodland, scrub, grassland, deserts scrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant that poses a significant threat to our native biotic communities, this plant was first reported as occurring in Arizona, in Phoenix, in 1909. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a food and beverage and as a drug or medication. *Sisymbrium irio* is native to central and southern Europe and islands in the Mediterranean Sea; western, central, eastern and southern Asia, and northern Africa. *5, 6, 15, 16, 22, 28 (color photograph), 43 (011410), 44 (033111), 46 (Page 336), 58, 63 (062812 - color presentation), 68, 77, **85** (062812 - color presentation), 101 (color photograph), 115 (color presentation), 124 (033111), 127, 140 (Pages 98-99 & 287), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Sisymbrium orientale* C. Linnaeus: Indian Hedgemustard**

COMMON NAMES: Eastern Rocket; Eastern Tumble Mustard; Eastern Tumble-mustard; Indian Hedge Mustard; Indian Hedge-mustard; Indian Hedgemustard; Mostaza (Spanish); Oriental Hedge Mustard; Oriental Hedge-mustard; Oriental Hedgemustard; Oriental Mustard (a name also applied to other species); Oriental Rocket; Oriental Sisymbrium; Orientalische Rauke (German); Orientsenap (Swedish); Tumble Mustard (a name also applied to other species and the genus *Sisymbrium*); Wild Mustard (a name also applied to other species). DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 inches to 5 feet in height); the flowers may be purple (one record), dull yellow, light yellow or yellow; flowering generally takes place between early February and late June (additional records: one for mid-July and one for late July, flowering ending as late as August has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy mesas; rocky canyons; bouldery-gravelly-sandy, rocky, rocky-sandy and gravelly-sandy canyon bottoms; gorges; talus; along ridges; ridgetops; openings in chaparral; foothills; sandy-clayey hilltops; cobbly-sandy-loamy hillsides; rocky, cobbly-sandy-loamy and sandy slopes; rocky-sandy and sandy bajadas; rocky outcrops; amongst rocks; lava fields; sandy flats; sandy ruts in roadbeds; rocky, rocky-loamy-clayey, gravelly and clayey-loamy roadsides; along arroyos; along bottoms of arroyos; draws; seeps; springs; along streams; along rocky stream courses; riverbeds; along and in rocky-sandy and sandy washes; within drainages; banks of streambeds and rivers; along (sandy) edges of washes and freshwater marshes; along (stony-sandy) margins of washes; along bouldery benches; sandy terraces; along fencelines; riparian areas; waste places; recently burned areas of woodland and chaparral, and disturbed areas growing in moist and dry bouldery, bouldery-gravelly-sandy, rocky, rocky-sandy, stony-sandy, gravelly, gravelly-sandy and sandy ground; cobbly-sandy loam, clayey loam and loam ground, and rocky-loamy clay, rocky clay and sandy clay ground, occurring from sea level to 7,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant that poses a significant threat to our native biotic communities. A plant in fruit was collected on April 22, 1977, by Casey Hamilton at Milepost 210 on Interstate 10 at Eloy that was recorded as being a new record for this species for Arizona. *Sisymbrium orientale* is native to eastern and southern Europe and islands in the Mediterranean Sea; western, central and southern Asia, and northern Africa. *5, 6, 43 (011510), 44 (062912), 63 (062912), 77, 85 (062912 - color presentation), 124 (061911 - no record of species; genus record), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Streptanthus arizonicus (see *Streptanthus carinatus* subsp. *arizonicus*)

***Streptanthus carinatus* C. Wright ex A. Gray: Lyreleaf Jewelflower**

COMMON NAMES: Lyreleaf Jewelflower, Lyreleaf Twistflower, Lyre-leaved Twistflower, Pecos Twist Flower, Silver Bells, Twist Flower, Twistflower (a name also applied to the genus *Streptanthus*). DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 6 to 42 inches in height); the foliage is bluish-green or grayish-green; the flowers may be cream, creamy-white, cream-yellow, bright golden-yellow, greenish, lemon-yellow, pinkish-cream, purple, purple with yellowish or white margins, red, dark red, red-violet, pale violet, violet, white with purple veins, pale yellow, yellow or deep yellow tipped with maroon or red; flowering generally takes place between mid-February and early May (additional records: one for late May, flowering beginning as early as January has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; cliffs; rocky bases of cliffs; rocky canyons; along rocky canyon bottoms; talus slopes; crevices in rocks; bluffs; rocky ridges; foothills; rocky and gravelly hills; rocky hillsides; bouldery, rocky, rocky-gravelly-loamy and gravelly slopes; gravelly and sandy bajadas; rocky outcrops; amongst boulders and rocks; sandy lava flows; gravelly-sandy banks; rocky, stony-gravelly-clayey and gravelly flats; bowls; along rocky, gravelly, gravelly-clayey-loamy and sandy roadsides; rocky arroyos; along draws; ravines; cobbly-sandy riverbeds; along and in sandy washes; drainages; (gravelly) edges of arroyos; margins of rivers; bottomlands; floodplains, and disturbed areas growing in moist and dry bouldery, rocky, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly loam, gravelly-sandy-clayey loam and gravelly-clayey loam ground, and stony-gravelly clay ground, occurring from 1,500 to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Streptanthus carinatus* is native to southwest-central and southern North America. *5, 6, 28 (color photograph of *Streptanthus arizonicus* 160), 43 (063009), 44 (062912 - no record of species; genus record), 46 (Pages 331-332), 63 (062912 - color presentation), 77 (color photograph #74), **85** (062912 - color presentation), 86 (note, color photograph of subspecies *arizonicus*), 115 (color presentation), 124 (062912 - no record of species; genus record)*

***Streptanthus carinatus* C. Wright ex A. Gray subsp. *arizonicus* (S. Watson) A.R. Kruckeberg, J.E. Rodman & R.D. Worthington: Lyreleaf Jewelflower**

SYNONYMY: *Streptanthus arizonicus* S. Watson. COMMON NAMES: Arizona Jewel Flower; Arizona Twist Flower; Lyreleaf Jewelflower; Lyreleaf Twistflower (a name also applied to the species); Lyre-leaved Twistflower (a name also applied to the species); Silver Bells (a name also applied to the species); Twist Flower (a name also applied to the species); Twistflower (a name also applied to the species and the genus *Streptanthus*). DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 6 to 42 inches in height; one plant was observed and described as being 10 inches in height with a crown 5 inches in width); the foliage is bluish-green or grayish-green; the flowers may be brownish, cream, cream-white, cream-yellow, bright golden-yellow, lemon-yellow, pinkish-cream, white, pale yellow, yellow or deep yellow tipped with red; flowering generally takes place between mid-February and early May (additional record: one for late May, flowering beginning as early as January has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; cliffs; rocky bases of cliffs; rocky canyons; canyon bottoms; talus slopes; ridges; foothills; gravelly hills; rocky slopes; gravelly bajadas; rocky outcrops; sandy lava flows; rocky and gravelly flats; sandy roadsides; rocky arroyos; along

draws; cobbly-sandy riverbeds; along and in sandy washes; drainages; (gravelly) edges of arroyos; margins of rivers and washes; bottomlands, and floodplains growing in dry rocky, cobbly-sandy, gravelly and sandy ground and gravelly loam ground, occurring from 1,500 to 7,000 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTE: *Streptanthus carinatus* subsp. *arizonicus* is native to southwest-central and southern North America. *5, 6, 15, 16 (*Streptanthus arizonicus* Wats.), 28 (recorded as *Streptanthus arizonicus*, color photograph 160), 43 (063009), 44 (062912 - no record of species or subspecies; genus record), 46 (*Streptanthus arizonicus* Wats., Pages 331-332), 63 (062912 - color presentation), 85 (062912 - color presentation), 86 (color photograph of *Streptanthus arizonicus*), 115 (color presentation of species), 124 (062912 - no record of species or subspecies; genus record), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Thysanocarpus amplexans (see *Thysanocarpus curvipes*)

***Thysanocarpus curvipes* W.J. Hooker: Sand Fringepod**

SYNONYMY: *Thysanocarpus amplexans* E.L. Greene; *Thysanocarpus curvipes* W.J. Hooker var. *elegans* (F.E. von Fischer & C.A. von Meyer) B.L. Robinson; *Thysanocarpus curvipes* W.J. Hooker var. *eradiatus* W.L. Jepson; *Thysanocarpus elegans* F.E. von Fischer & C.A. von Meyer. COMMON NAMES: Common Fringe Pod; Common Fringe-pod; Common Fringed-pod; Common Fringepod; [Common, Sand] Fringe [fringed]-pod (English)¹⁴⁰; Hairy Fringe Pod; Hairy Fringe-pod; Hairy Fringepod; Hairy Lace Pod; Hairy Lace-pod; Hairy Lacepod; [Hairy, Sand] Lace Pod [Lacepod, Lacepod Mustard] (English)¹⁴⁰; Lace Pod Mustard; Lace-pod (a name also applied to the genus *Thysanocarpus*); Lace-pod Mustard; Lacepod (a name also applied to the genus *Thysanocarpus*); Lacepod Mustard; Sand Fringe Pod; Sand Fringe-pod; Sand Fringe-pod (English)¹⁴⁰; Sand Fringed-pod; Sand Fringepod; Sand Lace Pod; Sand Lace-pod; Sand Lacepod. DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 to 32 inches in height; one plant was observed and described as being 10 inches in height with a crown 2 inches in width, plants were observed and described as being 16 to 22 inches in height and 4 to 8 inches in width); the foliage is pale gray-green; the flowers may be cream, pale pink, pink, purple, purplish, white or white with green midribs; flowering generally takes place between early January and mid-June. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rocky cliffs; rock faces and walls; rocky canyons; canyon walls; bouldery, rocky and sandy canyon bottoms; talus; bases of cliffs; crevices in bedrock and boulders; buttes; ledges; ridges; rocky ridgetops; meadows; foothills; bouldery, rocky and sandy hills; hilltops; bouldery, rocky, rocky-cobbly-gravelly, stony and loamy hillsides; bases of hills; bouldery; bouldery-gravelly, rocky, rocky-gravelly, rocky-clayey-loamy, rocky-silty-loamy, cobbly, cobbly-clayey, gravelly, gravelly-loamy, sandy, sandy-loamy, loamy and clayey slopes; sandy bajadas; rocky outcrops; amongst boulders and rocks; bases of rocks; lava flows; sand dunes; rocky banks; breaks; rocky, shaley, gravelly and sandy flats; sandy valley floors; railroad right-of-ways; along roadsides; arroyos; draws; rocky chutes; gulches; seeps; along streams; edges of streambeds; along creeks; creekbeds; rocky riverbeds; along and in rocky-sandy, gravelly-sandy, sandy, sandy-loamy and loamy washes; along and in drainages; along and in sandy drainage ways; around pools; rocky and (sandy) banks of draws, creeks and rivers; (cobbly) edges of streambeds and washes; margins of washes; shores of lakes; bouldery and rocky benches; rocky-gravelly and sandy terraces; loamy bottomlands; floodplains; along sandy margins of reservoirs; ditches; rocky and sandy riparian areas; recently burned areas in woodlands and chaparral, and disturbed areas growing in moist and dry bouldery, bouldery-rocky-sandy, bouldery-gravelly, rocky, rocky-cobbly-gravelly, rocky-gravelly, rocky-sandy, shaley, stony, cobbly, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy loam, rocky-clayey loam, rocky-silty loam, cobbly-gravelly loam, gravelly loam, sandy loam and loam ground; rocky clay, stony clay, cobbly clay, gravelly clay, sandy clay and clay ground, and silty ground often having been reported as growing in shade and amongst grasses, occurring from sea level to 7,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. *Thysanocarpus curvipes* is native to west-central and southern North America. *5, 6, 15 (recorded as *Thysanocarpus elegans* Fisch. & Mey.), 16, 43 (011610), 44 (062912 - color photograph), 46 (recorded as *Thysanocarpus amplexans* Greene, Page 348), 58 (recorded as *Thysanocarpus curvipes* Hook. var. *elegans* (Fisch. & Meyer) Robins.), 63 (062912 - color presentation), 77 (recorded as *Thysanocarpus curvipes* Hook. var. *elegans* (F. and M.) Robins.), 85 (063012 - color presentation), 115 (color presentation), 124 (062912 - no record of species or genus), 127, 140 (Pages 99-100 & 287)*

Thysanocarpus curvipes var. *elegans* (see *Thysanocarpus curvipes*)

Thysanocarpus curvipes var. *eradiatus* (see *Thysanocarpus curvipes*)

Thysanocarpus elegans (see *Thysanocarpus curvipes*)

Cactaceae: The Cactus Family

Cactus grahamii (see *Mammillaria grahamii*)

***Carnegiea gigantea* (G. Engelmann) N.L. Britton & J.N. Rose: Saguaro**

SYNONYMY: *Cereus giganteus* G. Engelmann. COMMON NAMES: □A:□á (Yuman: Cocopa)¹⁴⁰; A'a' (plant and fruit, Yuman: Maricopa)¹⁴⁰; A'á'íl'íla (Yuman: Walapai, fruit a'á')¹⁴⁰; Bahidaj (the fruit, Uto-Aztecan: Hiá Ce□ O'odham and Tohono O'odham, Arizona)¹⁴⁰; Giant Cactus; Giant Cereus; Giant Saguara; Giant Saguara Cactus; Giant Saguaro; Giant Saguaro Cactus; Giant Sahuara; Giant Sahuara Cactus; Giant Sahuaro; Giant Sahuaro Cactus; Giant Suwarro Cactus; Ha Shun (Pima); Ha:sañ (Uto-Aztecan: Hiá Ce□ O'odham, Sonora)¹⁴⁰; Ha:sañ (Uto-Aztecan: Tohono O'odham)¹⁴⁰; Haashan <ha:canyi, hahshani> (Uto-Aztecan: Akimel O'odham, Arizona)¹⁴⁰; Hosh 'Aditshaii <xwoctitshaiih> (Athapascan: Navajo)¹⁴⁰; Mashad (Tohono O'odham); Mojépe <moxéppe> (Hokan: Seri)¹⁴⁰; Nanolzheegé [Nanolzheegi] (Athapascan: Western Apache)¹⁴⁰; Pitahaya (Spanish Conquistadors); Riesenaktus (German); Sage of the Desert; Sage-of-the-desert; Saguara; Saguara Cactus; Saguaro (a name also applied to the genus *Carnegiea*); Saguaro (English)¹⁴⁰; Saguaro Cactus; Saguarakaktus (Swedish); Saguo <sauguo> (Uto-Aztecan: Mayo); Sahuara; Sahuara Cactus; Sahuaro (Spanish)¹⁴⁰; Sauwo (Uto-Aztecan: Yaqui)¹⁴⁰; Suwarro; Tudhua (Uto-Aztecan: Ópata)¹⁴⁰; Xucntsai ("Large Cactus", Athapascan: Chiricahua and Mescalero Apache)¹⁴⁰.

DESCRIPTION: Terrestrial perennial stem-succulent tree (erect stems 5 to 60 feet in height and 6 to 30 inches in diameter); the plants are green; the spines are yellow or reddish-brown aging to gray or gray-black; the flowers (2 to 3 inches in diameter) are a waxy creamy-white opening at about 8 p.m. and closing at about 5 p.m. the next day with around four blooms opening per day over a 30 day period; the anthers are cream-white; the stigma lobes are cream-white; flowering generally takes place between late April and mid-June (additional records: one for late March, one for early July, one for mid-July, two for early September and one for early October), the ripe fruits (2¼ to 3 inches in length and 1 to 1½ inches in diameter) split into 2 to 6 segments that curl back to reveal the red inner lining of the rinds which are sometimes mistakenly thought to be red flowers. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; cliffs; rocky canyons; canyon walls; rocky canyon bottoms; buttes; ridges; ridgelines; rocky foothills; rocky and gravelly hills; rocky hilltops; rocky hillsides; rocky, gravelly, gravelly-loamy and sandy-clayey-loamy slopes; rocky and gravelly bajadas; rocky outcrops; amongst and on boulders and rocks; stabilized sandy and sandy-powdery dunes; plains; cindery, gravelly, gravelly-sandy and sandy flats; valley floors; along and in rocky and sandy arroyos; rocky bottoms of arroyos; streambeds; along and in riverbeds; within sandy washes; borders of washes; drainages; bottomlands; floodplains; mesquite bosques, and on rocks in riparian areas growing in dry desert pavement; bouldery, rocky, cindery-sandy, gravelly, sandy and sandy-powdery ground, and gravelly loam and sandy-clayey loam ground, occurring from sea level to 5,100 feet in elevation in the scrub, grassland and desertscrub ecological formations.

NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder (seeds), beverage and/or fiber crop; it was also noted as having been used as tools, for ceremonial items and musical instruments, and as an indicator of the changing of the seasons (with the Saguaro harvest marking the beginning of a new year). Saguaros are very slow to establish, a 5 year old plant may be no more than ¼ to ½ inch in height. The growth rate of Saguaros is extremely variable. William G. McGinnies in his book "Discovering the Desert" reports that a plant 36 inches in height may be from 20 to 50 years of age, he also presents a table of typical growth rates reporting the following: 4 inches - 8.0 years, 8 inches - 12.5 years, 16 inches - 19.1 years, 32 inches - 27.3 years, 3.3 feet - 30.3 years, 6.6 feet - 40.5 years, 10 feet - 47.5 years, 13 feet - 54 years, 16 feet - 60.0 years, 18 feet - 74.0 years, 20 feet - 83.0 years, 25 feet - 107.0 years, 30 feet - 131.0 years, and 35 feet - 157.0 years. The growth rate of propagated and cultivated saguaros is much faster. One of the largest known saguaros, located in Saguaro National Monument, was reported to be 52 feet in height, had 52 arms, weighed an estimated 10 tons and was thought to be 235 years of age. Cristate forms have been reported. The Broad-billed Hummingbird (*Cyanthus latirostris*), Broad-tailed Hummingbird (*Selasphorus platycercus*), Costa's Hummingbird (*Calypte costae*), Curved-billed Thrasher (*Toxostoma curvirostre*), Lesser Long-nosed Bat (*Leptonycteris curasoae* subsp. *yerbabuena*), Rufous Hummingbird (*Selasphorus rufus*) and White-winged Dove (*Zenaida asiatica*) have been observed visiting the flowers. Coyotes (*Canis latrans*), Desert Mule Deer (*Odocoileus hemionus* subsp. *crooki*), Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*), Javelina (*Peccari tajacu*) and White-winged Doves (*Zenaida asiatica*) as well as other animals and birds feed on the saguaro fruit and seeds. the Gila Woodpecker (*Melanerpes uropygialis*) and Gilded Flicker (*Colaptes chrysoides*) make holes in this plant for their nests which are later utilized by the Ash-throated Flycatcher (*Myiarchus cinerascens*), Cactus Wren (*Campylorhynchus brunneicapillus*), Elf Owl (*Micrathene whitneyi*), House Finch (*Carpodacus mexicanus*), Lucy's Warbler (*Vermivora luciae*), Purple Martin (*Progne subis*) and Cactus Wren (*Campylorhynchus brunneicapillus*). Red-tailed Hawks (*Buteo jamaicensis*), White-winged Doves (*Zenaida asiatica*) and other birds nest on the arms of the plant. *Carnegiea gigantea* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Cereus giganteus* Engelm., Pages 108-111: Frontispiece (color photograph including habitat with associated species), Page ii, Plate 2.1, Page 109 and Plate 2.5, Page 112), 13 (color photographs including habitat with associated species: Plates C.2., Page 391 and D.3, Page 392), 15 (color photograph including habitat and associated species, Page 7), 16, 18, 26 (color photograph), 27 (recorded as *Cereus giganteus*, Pages 64-65; color photographs: Plates 39, 39A & 39B, Page 102), 28 (recorded as *Cereus giganteus*, color photographs 109 A,B&C), 38 (color photograph), 43 (011610), 44 (040111), 45 (color photograph), 46 (Page 569), 48 (recorded as *Cereus giganteus*), 52 (recorded as *Cereus giganteus*, color photograph), 53 (recorded as *Cereus giganteus* Engelm.), 58 (recorded as *Cereus giganteus* Engelm.), 63 (070112 - color presentation), 77 (color photograph #63), 85 (070112 - color presentation, reduced recovery), 86 (recorded as *Cereus gigantea*, color photograph), 91 (Pages 146-149), 107, 115 (color presentation), 119, 124 (040111 - no record of species or genus), 127, 134, 140 (Pages 100-102 & 288), ADS (Friday, April 20, 2012, Page A1&4: Saguaros, emblems of the desert, now claim higher ground), MBJ (undated record which may include landscaped material that persists without maintenance), WTK (August 4, 2005)*

Cereus giganteus (see *Carnegiea gigantea*)

Cereus greggii (see *Peniocereus greggii*)

***Cylindropuntia arbuscula* (G. Engelmann) F.M. Knuth: Arizona Pencil Cholla**

SYNONYMY: *Opuntia arbuscula* G. Engelmann. COMMON NAMES: Arizona Pencil Cholla; Bush Pencil Cholla; Clavellina (Spanish); Pencil Cholla; Siviri (Spanish); Wipnoi. DESCRIPTION: Terrestrial perennial stem-succulent shrub (erect stems 20 inches to 12 feet in height; one plant observed and described as being 5 feet in height with a crown 5 feet in width, one plant was observed and described as being 78 inches in height with a crown 102 inches in width, one plant was observed and described as being 7 feet in height with a crown 66 inches in width); the trunk may be dark gray; the stems may be blue-green, gray-green, dull green, green or yellow-green and sometimes tinged with purple; the spines may be pale yellow or red-brown turning black with age; the glochids are pale yellow; the flowers ($\frac{3}{4}$ to $1\frac{1}{2}$ inches in diameter) may be dark bronze, brown, green, greenish-yellow tinged with red, orange-bronze, orange-yellow, red, terra cotta, pale yellow-green or yellow-green; the anthers are yellow; the stigma lobes may be pale green or greenish; flowering generally takes place between early April and early June (additional record: one for late July); the spineless fleshy pear-shaped fruits ($\frac{1}{2}$ to $\frac{7}{8}$ inch in diameter and 1 to $1\frac{1}{4}$ inches in length) are green with a pink blush, green tinged with purple or red or yellow-green. HABITAT: Within the range of this species it has been reported from rocky canyon bottoms; hills; rocky hillsides; rocky, gravelly, sandy and silty-loamy slopes; rocky and gravelly bajadas; plains; gravelly, sandy, sandy-loamy and silty flats; basins; valley floors; coastal plains; coastal beaches; along gravelly roadsides; along arroyos; within gullies; riverbeds; along gravelly, gravelly-sandy and sandy washes; along drainages; borders of washes; floodplains; mesquite bosques; around represos, and disturbed areas growing in damp and dry desert pavement; rocky, gravelly, gravelly-sandy and sandy ground; sandy loam and silty loam ground, and silty ground, occurring from sea level to 5,600 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The fruit is eaten by browsing animals including the Javelina (*Peccari tajacu* subsp. *sonoriensis*). *Cylindropuntia arbuscula* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia arbuscula* Engelm., Pages 58-59), 15 (recorded as *Opuntia arbuscula* Engelm.), 26 (genus, recorded as recorded as *Opuntia*), 27 (Page 3; color photograph: Plate 3, Page 94), 28 (recorded as *Opuntia arbuscula*, color photograph 114), 43 (011710), 44 (112910 - no record of species; genus record), 45 (color photograph), 46 (recorded as *Opuntia arbuscula* Engelm., Page 584), 48 (genus, recorded as recorded as *Opuntia*), 58 (recorded as *Opuntia arbuscula* Engelm.), 63 (070212 - color presentation), 77 (recorded as *Opuntia arbuscula* Engelm.), 85 (070212 - color presentation, reduced recovery), 91, 115 (color presentation), 119 (recorded as *Opuntia arbuscula* Engelm.), 124 (111210 - no record of species or genus, "chollas" are included under the genus *Opuntia*), 127, 140 (Pages 103 & 288), **HR***

***Cylindropuntia bigelovii* (G. Engelmann) F.M. Knuth: Teddybear Cholla**

SYNONYMY: *Opuntia bigelovii* G. Engelmann. COMMON NAMES: Arizona Jumping Cactus; "Ball" Cholla; Bigelow Cholla; Bigelow's Cholla; Bigelow Cholla Cactus; Bigelow's Cholla Cactus; Cholla Guera; Choya Guera; Golden-spined Jumping Cholla; Go'te (Seri); Jumping Cactus (a name also applied to other species); Jumping Cholla (a name also applied to other species); Jumping Teddy-bear Cholla; Jumping Teddybear Cholla; Jumping Teddybear Cholla Cactus; Silver Cholla (a name also applied to other species); Teddybear Cactus; Teddy Bear Cholla; Teddy-bear Cholla; Teddy-bear Cholla Cactus; Teddy-bear Jumping Cholla; Teddybear Cactus; Teddybear Cholla; Teddybear Cholla Cactus; Teddy-bear Jumping Cholla. DESCRIPTION: Terrestrial perennial stem-succulent subshrub or shrub (erect stem 20 inches to 10 feet in height; one plant was observed and described as being just over 8 feet in height and 40 inches in width with 2 to 3 main trunks); the central trunk may be black or dark brown; older branches are dark-brown; the stems (3 to 10 inches in length and $\frac{1}{4}$ to $\frac{2}{2}$ inches in diameter) may be bluish, light green, green or bluish-green; the spines may be golden, silvery, tan, pale yellow or yellow aging to dark brown; the glochids are yellow; the flowers (1 to $1\frac{1}{2}$ inches in diameter) may be chartreuse-yellow, cream tinged with rose, green, green-yellow, greenish-yellow, magenta, pink, white-yellow, yellow tinged with red-purple or white tinged with lavender; the anthers may be orange-yellow, yellow, deep yellow, yellow-orange or deep yellow-orange; the stigma lobes may be cream, dark chartreuse-green, green, dark green or olive green; flowering generally takes place between early March and mid-June (additional records: one for late January, one for early February, one for early September, one for mid-November, two for late November and one for early December); the ripe fruits ($\frac{1}{2}$ to $\frac{3}{4}$ inch in length and $\frac{1}{2}$ to $\frac{3}{4}$ inch in diameter) are fleshy, nearly spineless and may be greenish-yellow, yellow or yellow-green possibly tinged with purple-red. HABITAT: Within the range of this species it has been reported from mountains; rocky and sandy mountainsides; cliffs; canyons; canyon bottoms; talus slopes; bluffs; rocky ridges; rocky ridgetops; rocky foothills; rocky and sandy hills; rocky hillsides; rocky, rocky-gravelly, rocky-sandy, gravelly and sandy slopes; rocky alluvial fans; rocky-gravelly and gravelly-loamy bajadas; plains; cobbly-silty, gravelly, sandy and silty flats; basins; valley floors; along roadsides; arroyos; along and in rocky, gravelly and sandy washes; sandy drainages; benches; bouldery-rocky terraces; lowlands, and disturbed areas growing in dry desert pavement; bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, gravelly and sandy ground; gravelly loam and silty loam ground; clay ground, and cobbly-silty and silty ground, occurring from sea level to 4,400 feet in elevation in the scrub and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. This is the spiniest of the cholla cacti in Arizona. Thomas Kearney and Robert Peebles in their book Arizona Flora had this to say about the Teddybear Cholla: "The combination of barbed spines and densely armed, easily detached joints has earned profound respect for this formidable cholla." Teddy-bear Chollas may live to be 60 or more years of age. The Teddybear Cholla is a preferred nesting site of the Cactus Wren (*Campylorhynchus brunneicapillus*). Pack Rats (*Neotoma* sp.) use the joints of this plant in the

construction of their nests. *Cylindropuntia bigelovii* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia bigelovii* Engelm., Pages 50, 52 & 54-55), 15 (recorded as *Opuntia bigelovii* Engelm., color photograph on Page 77 includes habitat and associated species), 18, 26 (genus, recorded as *Opuntia*), 27 (Page 5; color photographs including habitat: Plates 5 & 5A, Page 94), 28 (recorded as *Opuntia bigelovii*, color photograph 115 A&B), 43 (052110), 44 (061911), 45 (color photograph), 46 (recorded as *Opuntia bigelovii* Engelm., Page 584), 48, 63 (052110 - color presentation including habitat), 77 (recorded as *Opuntia bigelovii* Engelm., color photograph #13), 85 (062011 - color presentation), 86 (color photograph), 91 (recorded as *Opuntia bigelovii* Engelm.), 115 (color presentation), 119 (recorded as *Opuntia bigelovii* Engelm.), 124 (061911 - no record of species or genus, "chollas" are included under the genus *Opuntia*), 127, **WTK** (August 4, 2005)*

***Cylindropuntia fulgida* (G. Engelmann) F.M. Knuth: Jumping Cholla**

COMMON NAMES: Boxing-glove Cactus (var. *mamillata* forma *monstrosa*); Boxing-glove Cholla (var. *mamillata* forma *monstrosa*); Brincadora (Spanish); Chain Cholla; Chain-fruit Cholla; Cholla (a name also applied to the genus *Cylindropuntia*); Cholla Brincadora; Choya (Spanish: a name also applied to the genus *Cylindropuntia*); Club Cactus; Jumping Chain-fruit Cholla; Jumping Cholla; Roseakaktus (Afrikaans); Smooth Chain-fruit Cholla (var. *mamillata*); Sonora Jumping Cholla; Sonoran Jumping Cholla; Roseakaktus (Afrikaans); Straw Cactus; Velas de Ccoyote. DESCRIPTION: Terrestrial perennial stem-succulent shrub or tree (erect stems 3 to 15 feet in height; one plant was observed and described as being 5 feet in height with a crown 5 feet in width; one plant was observed and described as being 79 inches in height with a crown 16½ feet in width); the stems may be gray-green, drab green or green; the spines may be golden-yellow, pink, pale pinkish, reddish-brown or yellow to brown; the glochids are yellow; the flowers (¾ to 1 inch in diameter) may be magenta, pink or white streaked with lavender; the anthers may be cream or white; the stigma lobes are whitish to pale yellow; flowering generally takes place between mid-April and late September (additional records: one for early November and one for early December), the smooth fleshy fruits (¾ to 2 inches in length and ¾ to 1 inch in diameter) may be gray-green, green or purple forming clusters or pendulant "chains". HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; rocky canyons; ledges; rocky ridgetops; foothills; rocky hills; rocky hillsides; rocky, gravelly and sandy slopes; gravelly, gravelly-sandy and sandy bajadas; terraces; plains; gravelly, sandy and sandy-silty flats; valleys; gravelly and sandy arroyos; sandy bottoms of arroyos; along creeks; sandy riverbeds; along and in washes; banks of creeks and washes; borders of washes; along margins of arroyos; benches; alluvial terraces; floodplains, and mesquite bosques growing in dry desert pavement; rocky, rocky-gravelly, cindery-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam and silty-clayey loam ground, and sandy silty ground, occurring from sea level to 4,100 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The plant, *Opuntia fulgida*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Each year, following flowering, additional fruits may be added to the end of the chains. Chain-fruit Cholla may live to be from 40 to 80 years of age. Cristate forms have been reported. The Chain-fruit Cholla is a preferred nesting site of the Cactus Wren (*Campylorhynchus brunneicapillus*). The Costa's Hummingbird (*Calypte costae*) has been observed visiting the flowers. Deer and Javelina feed on the fruits. *Cylindropuntia fulgida* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia fulgida* Engelm., Pages 48-52), 26 (genus, recorded as *Opuntia*), 27 (Pages 10-11; color photograph: Plate 10, Page 96), 28 (recorded as *Opuntia fulgida*, color photograph 116 A&B), 43 (011810), 44 (070312 - no record of species; genus record), 45 (color photograph), 46 (recorded as *Opuntia fulgida* Engelm., Page 585), 48 (genus, recorded as *Opuntia*), 52 (recorded as *Opuntia fulgida*), 53 (recorded as *Opuntia fulgida* Engelm.), 63 (070312), 85 (070312 - color presentation, reduced recovery), 91 (recorded as *Opuntia fulgida* Engelm., Pages 293-294), 115 (color presentation), 119 (recorded as *Opuntia fulgida* Engelm.), 124 (070312 - no record of species or genus; record found under *Opuntia fulgida*), 127, 140 (Pages 103 & 288), **WTK** (August 4, 2005)*

***Cylindropuntia fulgida* (G. Engelmann) F.M. Knuth var. *fulgida*: Jumping Cholla**

SYNONYMY: *Opuntia fulgida* G. Engelmann; *Opuntia fulgida* G. Engelmann var. *fulgida*. COMMON NAMES: Brincadora (Spanish: a name also applied to the species); Chain Cholla (a name also applied to the species); Chain-fruit Cholla (a name also applied to the species); Cholla (a name also applied to the species, other species and to the genus *Cylindropuntia*); Cholla Brincadora (a name also applied to the species); Choya (Spanish: a name also applied to the species, other species and to the genus *Cylindropuntia*); Jumping Chain-fruit Cholla (a name also applied to the species); Jumping Cholla (a name also applied to the species); Sonora Jumping Cholla (a name also applied to the species); Velas de Ccoyote (a name also applied to the species). DESCRIPTION: Terrestrial perennial stem-succulent shrub or tree (erect stems 3 to 15 feet in height; one plant was observed and described as being 4¼ feet in height with a crown 40 inches in width, one plant was observed and described as being 4¼ feet in height with a crown 8¼ feet in width, one plant was observed and described as being 6½ feet in height with a crown 5 feet in width, one plant was observed and described as being 10 feet in height with a crown 13 feet in width); the stems may be green or purple; the spines are golden-yellow, yellow or pale pinkish aging to brown; the glochids are yellow; the flowers (¾ to 1 inch in diameter) may be cream-yellow, pink, pink-purple, purple, purple-pink, red-purple, rose-pink or yellow tinged with pink; the anthers may be cream or white; the stigma lobes are whitish to pale yellow; flowering generally takes place between mid-April and mid-September (additional records: one for late March, one for early December); the smooth fleshy fruits (¾ to 2 inches in length and ¾ to 1 inch in diameter) may be gray-green, green or purple forming clusters or pendulant "chains". HABITAT: Within the range of this species it has been reported from mountains; bases of mountains; mesas; canyons; ledges; ridges; hills; bases of hills; hillsides; rocky, gravelly-loamy and sandy slopes; gravelly bajadas; plains; rocky-gravelly, gravelly, sandy and sandy-silty flats; along valley floors; coastal plains; along rocky-gravelly and sandy roadsides; along creeks; along and

in washes; banks of streams, creeks and washes; edges of washes; terraces, and floodplains growing in dry desert pavement; rocky, rocky-gravelly, gravelly and sandy ground; gravelly loam and silty-clayey loam ground; clay ground, and sandy silty ground, occurring from 600 to 4,100 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Each year, following flowering, additional fruits are added to the end of the chains. Chain-fruit Chollas may live to be from 40 to 80 years of age. The Chain-fruit Cholla is a preferred nesting site of the Cactus Wren (*Campylorhynchus brunneicapillus*). The Costa's Hummingbird (*Calypte costae*) has been observed visiting the flowers. Deer and Javelina feed on the fruits. *Cylindropuntia fulgida* var. *fulgida* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia fulgida* Engelm. var. *fulgida*, Pages 49-52), 15 (recorded as *Opuntia fulgida* Engelm. var. *fulgida*), 16 (recorded as *Opuntia fulgida* Engelm.), 26 (genus, recorded as *Opuntia*), 27 (species, Pages 10-11; color photograph: Plate 10, Page 96), 28 (recorded as *Opuntia fulgida*, color photographs 116 A&B), 43 (011810), 44 (070312 - no record of variety or species; genus record), 45 (species, color photograph of species), 46 (recorded as *Opuntia fulgida* Engelm., Page 585), 48 (genus, recorded as *Opuntia*), 52 (recorded as *Opuntia fulgida*, color photograph), 53 (recorded as *Opuntia fulgida* Engelm.), 63 (070312 - color presentation), 77 (recorded as *Opuntia fulgida* Engelm. var. *fulgida*), 85 (070312 - color presentation, reduced recovery), 91 (recorded as *Opuntia fulgida* Engelm. var. *fulgida*, Pages 293-294), 115 (color presentation of species), 119 (recorded as *Opuntia fulgida* Engelm.; genus record: the chollas are included under the genus *Opuntia*), 124 (070312 - no record of species or genus; species record found under *Opuntia fulgida*), 127, 140 (Page 288), **MBJ** (undated record which may include landscaped material that persists without maintenance), **WTK** (August 4, 2005)*

***Cylindropuntia fulgida* (G. Engelmann) F.M. Knuth var. *mamillata* (A.C. Schott ex G. Engelmann) C. Backeberg: Jumping Cholla**

SYNONYMY: *Opuntia fulgida* G. Engelmann var. *mamillata* (A.C. Schott ex G. Engelmann) J.M. Coulter; *Opuntia fulgida* G. Engelmann var. *mamillata* (A.C. Schott ex G. Engelmann) J.M. Coulter forma *monstrosa* J.M. Coulter; *Opuntia mamillata* A.C. Schott ex G. Engelmann. COMMON NAMES: Boxing-glove Cactus (forma *monstrosa*); Boxing-glove Cholla (forma *monstrosa*); Brincadora (Spanish: a name also applied to the species); Chain [-fruit] Cholla¹⁴⁰; Chain-fruit Cholla (a name also applied to the species); Cholla Brincadora (a name also applied to the species); Cholla (a name also applied to the species, other species and to the genus *Cylindropuntia*); Choya (Spanish: a name also applied to the species, other species and to the genus *Cylindropuntia*); Club Cactus (a name also applied to the species); Jumping Cholla (a name also applied to the species); Smooth Chain-fruit Cholla; Velas de Coyote (a name also applied to the species). DESCRIPTION: Terrestrial perennial stem-succulent shrub or tree (erect stems 2 to 9 feet in height; one plant was observed and described as being 6 feet in height with a crown 4 feet in width, one plant was observed and described as being 8 feet in height with a crown 8 feet in width); the stems may be drab green or green; the flowers (¾ to 1 inch in diameter) may be cream tinged with magenta, light pink, pink, pink-purple, rose-pink or violet; the anthers may be cream or white; the stigma lobes are whitish to pale yellow; flowering generally takes place between late May and mid-September (additional records: one for mid-April and one for late April; flowering as late as October has been reported); the smooth fleshy fruits (¾ to 2 inches in length and ¾ to 1 inch in diameter) may be gray-green or green forming pendulant "chains". HABITAT: Within the range of this species it has been reported from mountains; mesas; ledges; ridges; rocky ridgetops; foothills; hills; rocky hillsides; rocky slopes; bajadas; lava plains; sand dunes; plains; gravelly and sandy flats; roadsides; sandy arroyos; along washes; rocky-sandy benches; floodplains, and disturbed areas growing in dry rocky, rocky-sandy, gravelly and sandy ground, occurring from sea level to 3,900 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The plant, *Opuntia fulgida*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Each year, following flowering, additional fruits may be added to the end of the chains. Chain-fruit Cholla may live to be from 40 to 80 years of age. Cristate forms (forma *monstrosa* J.M. Coulter) have been reported. The Chain-fruit Cholla is a preferred nesting site of the Cactus Wren (*Campylorhynchus brunneicapillus*). The Costa's Hummingbird (*Calypte costae*) has been observed visiting the flowers. Deer and Javelina feed on the fruits. *Cylindropuntia fulgida* var. *mamillata* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia fulgida* Engelm. var. *mammillata* (Schott) Coulter, Pages 50 & 52), 15 (recorded as *Opuntia fulgida* var. *mammillata* (Schott) Coult.), 26 (genus, recorded as *Opuntia*), 27 (Pages 12 & 13 (forma *monstrosa*); color photograph: Plate 11, Page 96), 43 (011810 - recorded as *Opuntia fulgida* Engelm. var. *mamillata* (A. Schott) J.M. Coult., no record for *Opuntia fulgida* var. *mamillata* forma *monstrosa*), 44 (070312 - no record of variety or species; genus record), 45 (species, color photograph of species), 46 (recorded as *Opuntia fulgida* Engelm. var. *mammillata* (Schott) Coult., Page 585), 48 (genus, recorded as *Opuntia*), 53 (recorded as *Opuntia fulgida* Engelm. var. *mammillata* (Schott) Coult.), 58 (recorded as *Opuntia fulgida* Engelm. var. *mammillata* (Schott) Coult.), 63 (070312), 77 (recorded as *Opuntia fulgida* Engelm. var. *mammillata* (Schott) Coult.), 85 (062011 - color presentation, reduced recovery), 91 (recorded as *Opuntia fulgida* Engelm. var. *mammillata* (Schott) Coult., Pages 293-294), 115 (color presentation of species), 124 (070312 - no record of species or genus; species record found under *Opuntia fulgida*), 127, 140 (Pages 103, 105 & 288), **WTK** (August 4, 2005)*

Cylindropuntia fulgida var. *mamillata* forma *monstrosa* (see NOTES under *Cylindropuntia fulgida* var. *mamillata*)

***Cylindropuntia leptocaulis* (A.P. de Candolle) F.M. Knuth: Christmas Cactus**

SYNONYMY: *Opuntia leptocaulis* A.P. de Candolle. COMMON NAMES: Agujilla; Alfilerillo (Spanish); Catalineria (Spanish); Christmas Cactus; Christmas Cholla; Darning Needle Cactus; Desert Christmas Cactus; Desert Christmas Cholla; Diamond Cactus; Holycross Cholla; Naf (or Nav?, Gila River Pima); Pencil Cactus (a name also applied to other species); Pencil Cholla (a name also applied to other species); Pencil-joint Cholla; Pennopuntia (Swedish); Pipestem Cactus; Rat-tail Cactus; Rattail Cactus; Slender-stem Cactus; Tajasilla; Tasajilla (Hispanic); Tasajillo¹⁴⁰; Tasajillo (Spanish, Texas); Tasajo (Spanish); Tesajo (Hispanic); Tesajo Cactus (Christmastree Cacti); Tassajilla (Oklahoma); Tassijilla; Wipnoi¹⁴⁰. DESCRIPTION: Terrestrial perennial stem-succulent shrub (trailing (rarely), sub-erect (rarely) and/or erect stems 1 to 6 feet in height (sometimes becoming vine-like and growing upwards 8 to 15 feet in height with support); plants were observed and described as being 20 inches in height with crowns 20 inches in width, one plant was observed and described as being 20 inches in height with a crown 40 inches in width, one plant was observed and described as being 20 inches in height with a crown 6½ feet in width, one plant was observed and described as being 2 feet in height with a crown 2 feet in width, one plant was observed and described as being 30 inches in height with a crown 5 feet in width, plants were observed and described as being to 40 inches in height with crowns 40 inches in width, one plant was observed and described as being 40 inches in height with a crown 5 feet in width, one plant was observed and described as being 4 feet in height with a crown 8 feet in width, one plant was observed and described as being 5 feet in height with a crown 8¼ feet in width); the stems may be gray-green, dark gray-green, green, purplish or yellow-green; the spines gray-brown, purple-brown, red-brown or yellow-brown often being paler toward the tip; the glochids may be reddish-brown or yellow; the anthers are yellow; the stigma lobes are greenish-yellow; the flowers (3/8 to 3/4 inch in diameter) are bronze, cream, light green-cream, cream-yellow, green, green-yellow, greenish-cream, greenish-yellow, pale yellow, yellow or whitish; flowering generally takes place between late March and late June (additional records: two for mid-July, one for late July, one for early August, one for early October, one for mid-October and one for late October); the spineless (with glochids) fleshy fruits (1/2 to 3/4 inch in length and 1/4 to 7/16 inch in diameter) may be coral, green (rarely, sometimes tinged with scarlet), pale green-yellow, orange, orange-red, red, reddish-orange, scarlet, scarlet-red or yellow (rarely) when mature. HABITAT: Within the range of this species it has been reported from mountains; sandy mountainsides; rocky-sandy, gravelly and silty mesas; along cliffs; rocky canyons; bases of canyon walls; rocky canyon bottoms; rocky talus slopes; rocky ledges; bedrock and gravelly ridges; foothills; rocky and rocky-gravelly hills; hilltops; rocky hillsides; bedrock, rocky, gravelly, gravelly-sandy-loamy, sandy and silty-loamy slopes; clayey-loamy alluvial fans; rocky, gravelly, gravelly-silty and sandy bajadas; rocky and gypsum outcrops; amongst cobbles; sandy lava flows; lava beds; sand hills; sand dunes; breaks; sandy and clayey-loamy plains; rocky-sandy, gravelly, gravelly-sandy and sandy flats; basins; rocky-gravelly valley floors; gravelly and gravelly-sandy roadsides; within gravelly and sandy arroyos; bottoms of arroyos; along ravines; along rivers; riverbeds; along and in rocky, gravelly and sandy washes; along sandy drainages; along (cobble-sandy) banks of rivers and drainages; borders of washes; edges of arroyos, ravines and washes; rocky and sandy benches; terraces; bottomlands; floodplains; along fencelines; along ditches; riparian areas, and disturbed areas growing in dry desert pavement; rocky, rocky-gravelly, rocky-sandy, cobble-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, clayey loam, silty loam and loam ground; rocky-sandy clay and loamy clay ground, and gravelly silty and silty ground often found growing within grasses, shrubs or trees, occurring from sea level to 6,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The Desert Christmas Cactus is believed to have a life span of about 50 years. A high mortality rate is to be expected with plants coming into contact with fire. Hummingbirds have been observed visiting the flowers; the fruits are eaten by birds and small mammals, and Cochineal Scale (*Dactylophius coccus*) has been observed growing on this plant. *Cylindropuntia leptocaulis* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia leptocaulis* DC., Pages 56-58), 15 (recorded as *Opuntia leptocaulis* DC.), 16 (recorded as *Opuntia leptocaulis* DC.), 18, 26 (genus, recorded as *Opuntia*), 27 (Page 2; color photograph: Plate 2, Page 94), 28 (recorded as *Opuntia leptocaulis*, color photograph 129), 43 (011910), 44 (070312 - no record of species; genus record), 45 (color photograph), 46 (recorded as *Opuntia leptocaulis* DC., Page), 48 (genus, recorded as *Opuntia*), 58 (recorded as *Opuntia leptocaulis* DC.), 63 (070412 - color presentation), 77 (recorded as *Opuntia leptocaulis* DC.), 85 (070312 - color presentation, reduced recovery), 86 (recorded as *Opuntia leptocaulis*, color photograph), 91 (recorded as *Opuntia leptocaulis* DC.), 115 (color presentation), 119 (recorded as *Opuntia leptocaulis* DC.), 124 (070312 - no record of species or genus, recorded as *Opuntia leptocaulis*), 127, 140 (Pages 103 & 288), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Cylindropuntia spinosior* (G. Engelmann) F.M. Knuth: Walkingstick Cactus**

SYNONYMY: *Opuntia spinosior* (G. Engelmann) J.W. Toumey. COMMON NAMES: Atáta (Yuman: Havasupai); Atót (Yuman: Maricopa); Cac Q^w□:š (Yuman: Cocopa); Cane Cholla; Cane [Handlegrip] Cholla <choya> (“Cholla” is Spanish for “skull” or “head” in allusion to the fruits ..., English)¹⁴⁰; Cardenche; Ceolim <ciolim, cialim, tei’orim> (Uto-Aztec: Tohono O’odham)¹⁴⁰; ‘Chi’odima’ (Uto-Aztec: Hiá Ce□ O’odham)¹⁴⁰; Choa (Uto-Aztec: Yaqui)¹⁴⁰; □aqwi:s (Yuman: Walapai); Hanam <hánam> (Uto-Aztec: Tohono O’odham)¹⁴⁰; Handgrip Cholla; Handlegrip Cholla; Hosh ‘Aditsahiitsoh <hosh ‘aditsahii, xwoctítshahiih> (Athapascan: Navajo)¹⁴⁰; Hosh Nchaagi <k’ints□□ze> (Athapascan: Western Apache)¹⁴⁰; Spiny Cholla; Ösö <□öso, □s□’> (Uto-Aztec: Hopi)¹⁴⁰; Siviri <sivili> (Uto-Aztec: Cahita)¹⁴⁰; Tasajo (Spanish: Arizona, New Mexico, Chihuahua, Sonora)¹⁴⁰; Tourney-cane Cholla (Arizona); Ušil <□usi-l> (Uto-Aztec: Tübatulabal)¹⁴⁰; Úunvat (Uto-Aztec: Luiseño, Juaneño dialect)¹⁴⁰; Walking-stick Cactus (English: New Mexico)¹⁴⁰; Walkingstick Cactus; Walking Stick Cholla; Wehcábori [Wehcápó] (Uto-Aztec: Guarijio)¹⁴⁰; Wiyattampü (Uto-Aztec: Panamint)¹⁴⁰. DESCRIPTION: Terrestrial perennial stem-succulent shrub (erect stems 16 inches to 10 feet in height; one plant was observed and described as being 6½ feet

in height with a crown 5 to 6½ feet in width, one plant was observed and described as being 6½ feet in height with a crown 10 feet in width); the stems may be brown-green, dark gray-green, grayish-maroon, grayish-purple, green, dark green, purple or purplish-green; the spines may be brown, gray, pale pink, pink, pinkish, purplish-gray, red-brown, reddish-gray, pale tan, tan or yellowish; the glochids may be tan, yellow or yellowish-white aging to gray; the flowers (1¼ to 2 inches in diameter) may be bronze-purple, brown, greenish-yellow, magenta, magenta-red, maroon, orange, pink, dark pink, light purple, purple, purple-pink, red, dark red, red-purple, red & yellow, saffron, salmon-pink, terra-cotta, white or yellow; the anthers are pale yellow or yellow; the stigma lobes are cream to white; flowering generally takes place between early April and early August (additional records: three for early January, two for early February and one for late September); the fleshy ripe fruits (1 to 1¼ inches in length and ¾ to 1 inch in diameter) may be bright lemon-yellow, pale yellow, yellow, yellow-green or yellowish-green sometimes with a purple-brown, red, reddish or purple cast. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mountainsides; mesas; cliffs; rocky canyons; rocky canyon bottoms; talus, bedrock ridges; rocky ridgetops; ridgetines; foothills; rocky hills; rocky hillsides; along bedrock, rocky, rocky-sandy, gravelly and sandy slopes; bajadas; rock outcrops; amongst rocks; plains; gravelly, gravelly-sandy and silty flats; silty valley floors; roadsides; arroyos; bottoms of arroyos; rocky draws; springs; along creeks; creekbeds; along sandy washes; drainages; along drainage ways; banks of washes; sandy flood channels; terraces; floodplains; mesquite bosques; riparian areas, and disturbed areas growing in dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; silty-clayey loam, silty loam and loam ground, and silty ground, occurring from 900 to 7,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The Cactus Wren (*Campylorhynchus brunneicapillus*) nests in the branches. *Cylindropuntia spinosior* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia spinosior* (Engelm.) Toumey, Pages 39-43; color photograph: Plate 1.17, Page 43), 15 (recorded as *Opuntia spinosior* (Engelm.) Toumey), 16 (recorded as *Opuntia spinosior* (Engelm.) Toumey), 26 (genus, recorded as *Opuntia*), 27 (Page 14, color photograph: Plate 12, Page 96), 28 (color photograph 117), 43 (063009), 44 (040111 - no record of species; genus record), 45 (color photographs), 46 (recorded as *Opuntia spinosior* (Engelm. & Bigel.) Toumey, Page 585), 48 (genus, recorded as *Opuntia*), 53, 58 (recorded as *Opuntia spinosior* (Engelm.) Toumey), 63 (070412 - color presentation), 77 (recorded as *Opuntia spinosior* (Engelm.) Toumey), 85 (070512 - color presentation, reduced recovery), 115 (color presentation), 119, 124 (070512 - no record of species or genus, "chollas" are included under the genus *Opuntia*), 127, 140 (Pages 102-103 & 288), **MBJ** (undated record which may include landscaped material that persists without maintenance), **WTK** (August 4, 2005)*

***Cylindropuntia* x *tetracantha* (J.W. Toumey) F.M. Knuth (pro sp.) [*Cylindropuntia acanthocarpa* x *Cylindropuntia leptocaulis*]: Four-spined Klein's Cholla**

SYNONYMY: *Opuntia kleiniae* A.P. de Candolle var. *tetracantha* (J.W. Toumey) W.T. Marshall; *Opuntia tetracantha* J.W. Toumey; *Opuntia* x *tetracantha* J.W. Toumey (pro sp.). COMMON NAMES: Candle Cholla; Cane Cholla; Four-spined Cholla; Four-spined Klein's Cholla; Hybrid Pencil Cholla; Klein Pencil Cholla; Pencil Joint Cholla; Tucson Cholla; Tucson Prickly-pear; Tucson Pricklypear. DESCRIPTION: Terrestrial perennial stem-succulent shrub (erect stems 1 to 8 feet in height; plants were observed and described as being 20 inches in height and 32 inches in width, one plant was observed and described as being 4 feet in height and width); the stems may be gray-green, green (often reported with a gray wax) or reddish; the spines may be purple-brown or yellow; the glochids are dark brown or yellow; the flowers (¾ to 1 3/8 inches in diameter) may be green edged with brown, maroon or red, greenish-bronze, dirty pink, pink-purple-red over yellow, light reddish, dirty reddish-purple, red-magenta, yellow-green suffused with purple-brown; the anthers are pale green or pale yellow; flowering generally takes place between mid-April and late May (additional records: one for early February, one for late March, one for mid-September and one for late September); the egg-shaped fleshy to dry fruits are green turning yellow with a red blush or red with orange; the ripe fruits (¾ to 1 inch in length and 1/2 to 5/8 inch in diameter) are green, green-red, greenish-yellow, red or reddish-orange. HABITAT: Within the range of this species it has been reported from mountains; canyons; ridgetops; rocky hills; rocky slopes; gravelly bajadas; rocky and gravelly flats; roadsides; gullies; along washes; banks of arroyos, and mesquite bosques growing in damp and dry desert pavement and rocky and gravelly ground, occurring from 700 to 4,400 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Cylindropuntia* x *tetracantha* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia kleiniae* DC. var. *tetracantha* (Toumey) W.T. Marshall, Page 60), 15 (recorded as *Opuntia kleiniae* DC. var. *tetracantha* (Toumey) W.T. Marshall), 16 (recorded as *Opuntia kleiniae* DC. var. *tetracantha* (Toumey) Marshall), 26 (genus, recorded as *Opuntia*), 27 (recorded as *Opuntia kleiniae* DeCandolle var. *tetracantha* (Toumey) F.M. Knuth, Marshall, Page 4; color photograph: Plate 4, Page 94), 43 (070512), 44 (062111 - no record of species; genus record), 46 (recorded as *Opuntia tetracantha* Toumey, Page 584), 48 (genus, recorded as *Opuntia*), 63 (070512), 77 (recorded as *Opuntia* x *tetracantha* Toumey), 85 (070512 - color presentation of dried material), 124 (010911 - no record of species or genus, "chollas" are included under the genus *Opuntia*), **HR***

***Cylindropuntia versicolor* (G. Engelmann ex J.M. Coulter) F.M. Knuth: Staghorn Cholla**

SYNONYMY: *Opuntia versicolor* G. Engelmann ex J.M. Coulter. COMMON NAMES: Deer Horn Cactus; Deer Horn Cholla; Deerhorn Cholla; Morada Cholla (Spanish); Staghorn Cholla; Tree Cholla. DESCRIPTION: Terrestrial perennial stem-succulent shrub (erect stems 3 to 15 feet in height; one plant was observed and described as being 40 inches in height with a crown 40 inches in width, one plant was observed and described as being 40 inches in height with a crown 6½ feet in width, one

plant was observed and described as being 50 inches in height with a crown 40 inches in width, one plant was observed and described as being 51 inches in height with a crown 6½ feet in width, one plant was observed and described as being 63 inches in height with a crown 87 inches in width, one plant was observed and described as being 75 inches in height with a crown 87 inches in width); the stems may be green, green-purple, greenish-red, maroon, purple, purple-green or dark purple-red; the spines may be dark brown, gray, pinkish, purple-brown, red-brown; dark reddish-brown or whitish; the glochids are yellow or dark yellow; the flowers (1¼ to 2¼ inches in diameter) may be bronze, bronze-red, brown, burnt orange, gold, green, lavender, magenta, orange, orange-brown, orange-red, orange-rust, pink-red, purple, red, rose, rose-purple, yellow, yellow-green or yellow-green-bronze; the anthers are yellow; the stigma lobes are whitish; flowering generally takes place between early April and mid-June (additional records: one for early January, one for early March, two for mid-August, one for late August and one for mid-September); the fleshy, spineless or nearly spineless pear-shaped fruits (¾ to 1¼ inches in length and ¾ inch in diameter) may be green tinged with lavender, purple, straw-yellow, red, bright yellow or yellowish-green sometimes tinged with purple or red, sometimes forming chains of 2 to 4 fruits. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rocky and sandy canyons; rocky canyon bottoms; ridges; rocky ridgetops; foothills; rocky and rocky-gravelly hills; rocky hillsides; rocky and gravelly slopes; gravelly-sandy alluvial fans; rocky and gravelly-sandy bajadas; sand dunes; plains; gravelly and gravelly-sandy flats; sandy valley floors; along roadsides; along sandy arroyos; gravelly and sandy bottoms of arroyos; ravines; along sandy streambeds; riverbeds; along sandy washes; playas; sandy gravel bars; strands; bottomlands; riparian areas, and disturbed areas growing in dry rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground, occurring from sea level to 5,000 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Varied flower colors between plants, the cascading branches of the larger plants, along with pendulous fruits make this an attractive plant. *Cylindropuntia versicolor* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia versicolor*, Pages 43 & 45-46; color photograph: Plate 1.17, Page 43), 15 (recorded as *Opuntia versicolor* Engelm.), 16 (recorded as *Opuntia versicolor* Engelm.), 26 (genus, recorded as *Opuntia*), 27 (Page 6; color photographs: Plates 6, 6A & 6B, Page 95), 28 (color photograph 118), 43 (012110 - *Cylindropuntia versicolor* (Engelm.) F.M. Knuth), 44 (070512 - no record of species; genus record), 45 (color photograph), 46 (recorded as *Opuntia versicolor* Engelm., Page 585), 48 (genus, recorded as *Opuntia*), 58 (recorded as *Opuntia versicolor* Engelm.), 63 (070512 - color presentation), 77 (recorded as *Opuntia versicolor* Engelm., color photograph #15), **85** (070512 - color presentation), 115 (color presentation), 119 (recorded as *Opuntia versicolor* Engelm.), 124 (070512 - no record of species or genus, “chollas” are included under the genus *Opuntia*), 127, 140 (Pages 102, 103 & 288), **MBJ** (undated record which may include landscaped material that persists without maintenance), **WTK** (August 4, 2005)*

Echinocactus wislizeni (see *Ferocactus wislizeni*)

***Echinocereus fasciculatus* (G. Engelmann ex B.D. Jackson) L.D. Benson: Pinkflower Hedgehog Cactus**

SYNONYMY: *Echinocereus fasciculatus* (G. Engelmann) L.D. Benson var. *fasciculatus*; *Echinocereus fendleri* (G. Engelmann) F. Sencke ex J.N. Haage var. *fasciculatus* (G. Engelmann ex B.D. Jackson) N.P. Taylor; *Echinocereus fendleri* (G. Engelmann) F. Sencke ex J.N. Haage var. *robustus* (R.H. Peebles) L.D. Benson; *Mammillaria fasciculata* G. Engelmann ex B.D. Jackson (possibly incorrectly applied). COMMON NAMES: Bundle Hedgehog; Bundle Hedgehog Cactus; Bundle-spine Hedgehog; Magenta-flower Hedgehog Cactus; Pinkflower Hedgehog Cactus (a name also applied to other species); Robust Hedgehog; Robust Hedgehog Cactus; Short-spine Strawberry Cactus; Strawberry Cactus (a name also applied to other species). DESCRIPTION: Terrestrial perennial stem-succulent shrub (ascending to erect stems 2 to 18 inches in height and 1½ to 3 inches in width; either single or in clusters of up to 30 stems; one plant was reported to have 150 stems); the stems are green or dark green; the spines often having zones of differing colors including black, gray, grayish-black-purplish, reddish-brown, whitish or yellowish turning gray with age; the flowers (2 to 3 inches in diameter) may be cerise, lavender-pink, pale magenta, magenta, magenta-maroon, magenta-pink, magenta-purple, magenta-red, pink, pink-purple, purple, reddish-purple, rose-pink or white; the anthers are yellow; the stigma lobes may be green, dark green or olive green; flowering generally takes place between late March and late June (additional records: one for early October, one for mid-October, one for late October, two for early November and one for early December); the mature fruits (¾ to 1¼ inches in length and ½ to 1 inch in diameter) may be orange-red or bright red. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; cliffs; bases of cliffs; canyons; canyon sides; buttes; knolls; ledges; ridges; along rocky and stony ridgetops; foothills; rocky, gravelly and sandy hills; rocky hilltops; rocky and sandy hillsides; rocky, stony and gravelly slopes; bajadas; rocky outcrops; amongst rocks and gravels; rocky and sandy banks; plains; gravelly flats; valley floors; along cobbly creeks; along and in washes, and floodplains growing in dry rocky, rocky-gravelly, stony, cobbly, gravelly and sandy ground, occurring from sea level to 6,300 feet in elevation in the woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Echinocereus fendleri*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The fruits are eaten by birds and other animals. *Echinocereus fasciculatus* is native to southwest-central and southern North America. *5, 6, 8, 12 (color photograph - recorded as *Echinocereus fasciculatus* (Engelm.) L. Benson var. *fasciculatus*, Pages 132-135), 15 (recorded as *Echinocereus fasciculatus* (Engelm.) L. Benson var. *fasciculatus*), 16 (recorded as *Echinocereus fasciculatus* (Engelm.) L. Benson), 27 (Page 81; color photograph: Plate 50, Page 104), 43 (101510 - *Echinocereus fendleri* var. *fasciculatus* (Engelm. ex B.D. Jacks.) N.P. Taylor, *Echinocereus fendleri* var. *robustus* (Peebles) L.D. Benson), 44 (070512 - no record of

species; genus record), 45 (color photograph), 46 (recorded as *Echinocereus fendleri* (Engelm.) Rümpler var. *robustus* (Peebles) L. Benson, Page 572 and *Echinocereus fendleri* (Engelm.) Rümpler var. *robustus* (Peebles) L. Benson, Page 572), 48 (genus), 58 (recorded as *Echinocereus fasciculatus* (Engelm.) L. Benson var. *fasciculatus*), 63 (070512), 77 (recorded as *Echinocereus fasciculatus* (Engelm.) L. Benson, color photograph #64), 85 (070512 - color presentation), 115 (color presentation), 119 (species, recorded as *Echinocereus fendleri* (Engelm.) Rümpler), 124 (070512 - no record of species; genus record), 127, 140 (recorded as *Echinocereus fendleri* (Engelmann) F. Seitz var. *fasciculatus* (Engelmann ex B.D. Jackson) N.P. Taylor, Page 288), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Echinocereus fasciculatus var. *fasciculatus* (see *Echinocereus fasciculatus*)

Echinocereus fendleri var. *fasciculatus* (see *Echinocereus fasciculatus*)

***Echinocereus fendleri* (G. Engelmann) F. Sencke ex J.N. Haage subsp. *rectispinus* (R.H. Peebles) N.P. Taylor: Pinkflower Hedgehog Cactus**

SYNONYMY: *Echinocereus fendleri* (G. Engelmann) F. Sencke ex J.N. Haage var. *rectispinus* (R.H. Peebles) L.D. Benson, *Echinocereus rectispinus* R.H. Peebles. COMMON NAMES: Fendler Needle-spine Hedgehog, Pinkflower Hedgehog Cactus, Straight-spined Hedgehog Cactus. DESCRIPTION: Terrestrial perennial stem-succulent shrub (ascending to erect stems are 4 to 10 inches in height and to 2½ inches in width in clusters of 3 to 5 stems); the stem is gray-green or dark green; the spines are reddish-brown or white tipped with black; the flowers (2 to 2½ inches in diameter) are magenta or purple; flowering generally takes between early March and mid-May; the mature fruits (¾ to 1¼ inch in length and ½ to 1 inch in diameter) are red. HABITAT: Within the range of this species it has been reported from mountains; canyons; grassy ridges; ridgetops; amongst oaks; hills; gravelly-sandy hillsides; rocky and gravelly slopes; rocky outcrops; flats, along arroyos; along gullies, and in washes growing in dry rocky, gravelly, gravelly-sandy and sandy ground, occurring from 3,000 to 8,000 feet in elevation in the woodland, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Echinocereus fendleri*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Echinocereus fendleri* subsp. *rectispinus* is native to southwest-central and southern North America. *5, 6, 12 (*Echinocereus fendleri* Engelm. var. *rectispinus* (Peebles) L. Benson, Pages 130-131), 15, 27 (color photograph - *Echinocereus fendleri* Engelm. ex Rümpler var. *rectispinus* (Peebles) L. Benson, Pages 80 & 104), 43 (012210 - *Echinocereus fendleri* Small subsp. *rectispinus* (Peebles) N.P. Taylor, *Echinocereus fendleri* var. *rectispinus* (Peebles) L.D. Benson), 45 (color photograph of species), 46 (*Echinocereus fendleri* (Engelm.) Rümpler var. *rectispinus* (Peebles) Benson, Page 572), 48 (genus), 58, 63 (012210 - color presentation), **85** (012210), 127, 140 (recorded as *Echinocereus fendleri* (Engelmann) F. Seitz var. *rectispinus* (Peebles) L.D. Benson, Page 288)*

Echinocereus fendleri var. *rectispinus* (see *Echinocereus fendleri* subsp. *rectispinus*)

Echinocereus fendleri var. *robustus* (see *Echinocereus fasciculatus*)

Echinocereus rectispinus (see *Echinocereus fendleri* subsp. *rectispinus*)

***Ferocactus wislizeni* (G. Engelmann) N.L. Britton & J.N. Rose: Candy Barrelcactus**

SYNONYMY: *Echinocactus wislizeni* G. Engelmann. COMMON NAMES: Arizona Barrel Cactus; Arizona [Fish-hook, Candy] Barrel Cactus (English)¹⁴⁰; Barrel Cactus (a name also applied to other species and the genus *Ferocactus*); Biznaga, Biznaga; Biznaga [de Agua, Gigantesca, Hembra] (“[Water, Giant, Female] Barrel Cactus”, Spanish)¹⁴⁰; Biznaga de Agua (Spanish); Biznagre; Candy Barrel; Candy Barrel Cactus; Candy Barrelcactus; Chiávil (Uto-Aztec: Akimel O’odham)¹⁴⁰; Compass Barrel; Compass Plant; Fish-hook Barrel; Fishhook Barrel Cactus; Fishhook Cactus; Hisil <hísely> (“Cholla”, Uto-Aztec: Mountain Pima)¹⁴⁰; Hosh Tsá <hosh chaal> (Athapascan: Western Apache)¹⁴⁰; Hosh Sidáhi (Athapascan: Navajo)¹⁴⁰; Ibávoli (Uto-Aztec: Northern Tepehuan)¹⁴⁰; Jiavul (Uto-Aztec: Hiá Ce□ O’odham)¹⁴⁰; Jiavuli <jiauwul, tciaur, tjedvoli> (Uto-Aztec: Tohono O’odham)¹⁴⁰; Kíče’apil (Uto-Aztec: Tübatulabal)¹⁴⁰; Miltát <mil□a□> (Yuman: Walapai)¹⁴⁰; Miltót (Yuman: Maricopa)¹⁴⁰; Multát (Yuman: Havasupai)¹⁴⁰; Muł’cáac (Yuman: Cocopa)¹⁴⁰; Nookwi’a(pi) (Uto-Aztec: Panamint)¹⁴⁰; Ono’e (Uto-Aztec: Yaqui)¹⁴⁰; Siml <simláa> (“True Barrel Cactus”, Hoka: Seri)¹⁴⁰; Southwest Barrel Cactus; Southwestern Barrel Cactus; Táci (Uto-Aztec: Southern Paiute)¹⁴⁰; Te□íwe (Uto-Aztec: Guarijío)¹⁴⁰; Visnaga; Vznaga Hembra (Spanish); Wislizenus Barrel; Yellow-spined Barrel Cactus. DESCRIPTION: Terrestrial perennial stem-succulent shrub or tree (erect stems 8 inches to 11 feet [one record at 20 feet] in height and 8 to 40 inches in diameter); the stem is green or blue-gray-green; the central spines and larger radial spines are ashy gray, gray, dull pink, reddish or tan; the smaller radial spines are white; the flowers (1½ to 2½ inches in diameter) are orange, orange-yellow, orange-red, orange-yellow, parchment, pinkish-red, reddish, red-orange, yellow or yellow-orange; the stigma lobes are orange, red or yellow; flowering generally takes place between mid-July and mid-October (additional records: one for early January, three for early March, five for mid-March, two for late March, three for early April, one for mid-April, one for late April and two for early June); the mature fruits (1¼ to 2 inches in length and 1 to 1½ inches in diameter) are greenish-brown, yellow or yellow-green and may remain on the plant until the next flowering period. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rocky, gravelly and sandy canyons; canyon walls; rocky and sandy canyon bottoms; bluffs; foothills; bouldery, rocky, gravelly and sandy hills; hillsides; rocky, cobbly, gravelly and clayey-loamy slopes; rocky, gravelly and sandy alluvial fans; bajadas; rocky

outcrops; plains; rocky, gravelly and sandy flats; valley floors; along roadsides; arroyos; sandy bottoms of arroyos; along washes; (rocky, gravelly and sandy) borders of washes; margins of washes; floodplains; mesquite bosques, and riparian areas growing in dry desert pavement; bouldery, rocky, cobbly, gravelly and sandy ground, and sandy-clayey loam and clayey loam ground, occurring from 200 to 5,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or beverage crop; it was also noted as having been used as a tool (the spines were heated and used to make fishing hooks). Fishhook Barrel Cacti are very slow to establish. A 4 year old plant may be no more than 1½ inches in height and 2 inches in width, and an 8 year old plant may be no more than 4¼ inches in height and ¾ inches in width. The growth rate of propagated and cultivated barrel cacti may be much faster. The life-span of Fishhook Barrel Cactus has been reported to be from 50 to over 130 years of age. Some plants tend to lean to the south with age. Cristate forms have been reported. The Cactus Beetle (*Moneilema gigas*) feeds on this plant, the flowers are pollinated by Cactus Bees of the genus *Lithurge*; the fruits are eaten by Javelina (*Peccari tajacu*), Mule Deer (*Odocoileus hemionus*), Rock Squirrels (*Spermophilus variegatus*) and other animals, and the seeds are eaten by birds and rodents. *Ferocactus wislizeni* is native to southwest-central and southern North America. *5, 6, 12 (Pages 166-170; color photograph: Plate 5.5, Page 169), 15, 16, 18, 26 (genus, color photograph of genus), 27 (Page 120; color photographs: Plates 60, 60A, 60B & 60C Pages 106), 28 (color photograph 125), 43 (063009 - *Ferocactus wislizeni* Britton & Rose), 44 (040111 - no record of species; genus record), 45 (color photograph), 46 (Page 573), 48 (genus), 58, 63 (070612 - color presentation), 77 (color photograph #10), **85** (070612 - color presentation), 91 (Pages 215-216), 106 (110110), 115 (color presentation), 119, 124 (040111 - no record of species or genus), 127, 135 (110110 - *Moneilema gigas*), 140 (Pages 103-105 & 288), **MBJ** (undated record which may include landscaped material that persists without maintenance), **WTK** (August 4, 2005)*

Mammillaria fasciculata (see *Echinocereus fasciculatus* and/or *Mammillaria thornberi*)

***Mammillaria grahamii* G. Engelmann: Graham's Nipple Cactus**

SYNONYMY: *Cactus grahamii* (G. Engelmann) C.E. Kuntze; *Mammillaria grahamii* G. Engelmann var. *grahamii* G. Engelmann; *Mammillaria grahamii* G. Engelmann var. *oliviae* (C.R. Orcutt) L.D. Benson; *Mammillaria microcarpa* G. Engelmann; *Mammillaria milleri* (N.L. Britton & J.N. Rose) F. Boedeker; *Mammillaria oliviae* C.R. Orcutt; *Neomammillaria microcarpa* (G. Engelmann) N.L. Britton & J.N. Rose; *Neomammillaria milleri* N.L. Britton & J.N. Rose; *Neomammillaria oliviae* (C.R. Orcutt) N.L. Britton & J.N. Rose. COMMON NAMES: Arimo'o <urimo'o> (Uto-Aztec: Onavas Pima)¹⁴⁰; Arizona Fishhook (a name also applied to other species); Arizona Fishhook Cactus; Ba:ban Ha-'is:vig ("Coyotes' Hedgehog-cactus", Uto-Aztec: Hiá Ce□ O'odham)¹⁴⁰; Ba:ban Ha-i:swigí <bahban ha-ihswig, baaban ha-iiswikga> ("Coyotes' Hedgehog-cactus", Uto-Aztec: Tohono O'odham)¹⁴⁰; Ban Cekida ("Coyote Vaccination", Uto-Aztec: Hiá Ce□ O'odham and O'odham and Tohono O'odham)¹⁴⁰; Ban Cepla (Uto-Aztec: Tohono O'odham)¹⁴⁰; Ban Cesani (Uto-Aztec: Hiá Ce□ O'odham)¹⁴⁰; Ban Ha 'Iswig ("Coyotes' Hedgehog-cactus", Uto-Aztec: Tohono O'odham)¹⁴⁰; Ban Mauppa <baaban makuppa> ("Coyotes' Paws", Uto-Aztec: Akimel O'odham)¹⁴⁰; Ban Maupai ("Like Coyote Paws", Uto-Aztec: Akimel O'odham)¹⁴⁰; Biznaguita ("Little Barrel Cactus", Spanish: Sonora)¹⁴⁰; Black-spined Pincushion; Cabeza de Viejo ("Old Man's Head", Spanish: Sonora)¹⁴⁰; Cekida Cactus; Chi-kul Hu'i (Uto-Aztec: Yaqui)¹⁴⁰; Chicul Ónore (Uto-Aztec: Mayo, Sonora)¹⁴⁰; Chilitos de Viznaga ("Little Cactus Chiles", Spanish: San Luis Potosi)¹⁴⁰; Choyita (Spanish: Sonora)¹⁴⁰; Churrito (Spanish: Sonora)¹⁴⁰; Corkseed Cactus; Fish-hook Cactus (a name also applied to other species); Fish-hook Cactus [Pincushion] (English: Arizona, Sonora)¹⁴⁰; Fishhook Cactus; Fishhook Mammillaria (a name also applied to other species); Fishhook Pincushion (a name also applied to other species); Graham Fishhook; Graham Fishhook Cactus; Graham Nipple Cactus; Graham Nipple-cactus; Graham Pincushion Cactus; Graham's Fishhook; Graham's Fishhook Cactus; Graham's Fishhook Pincushion; Graham's Nipple Cactus (English)¹⁴⁰; Graham's Nipple-cactus; Graham's Pincushion Cactus; Hant Iipzx Itéja ("Bladder of the Arroyo", Hokan: Seri)¹⁴⁰; Hi-i:swigí; Hikuri (Uto-Aztec: Tarahumara)¹⁴⁰; Hue Tchurí <we□cúri, wehcúri> (Uto-Aztec: Guarijio)¹⁴⁰; Lizard Catcher; Miller's Fishhook Cactus; Miller's Fish-hook Cactus; Miller's Pincushion; Miller's Pincushion Cactus; Mu'tsa (for pincushions in general, Uto-Aztec: Shoshoni)¹⁴⁰; Nipple Cactus (a name also applied to other species and the genus *Mammillaria*); Noog^wiyav□ (Uto-Aztec: Kawaiisu)¹⁴⁰; Olive Pincushion; Olive's Pincushion; Pin-cushion Cactus (a name also applied to other species); Pitahayita <pitaiaya, pitajaya, pitahaya> ("Little Cactus Fruit", (Spanish: Sonora)¹⁴⁰; Strawberry Cactus (English)¹⁴⁰; Sunset Cactus; ^aTat (Yuman: Walapai)¹⁴⁰; Tori Bichu (Uto-Aztec: Mayo, Sonora)¹⁴⁰; Tur Soigai <tu'i shogi> (Uto-Aztec: Mountain Pima)¹⁴⁰; Uvayu'u^s (Uto-Aztec: Southern Paiute)¹⁴⁰; Xuebi (Athapascan: Chiricahua and Mescalero Apache)¹⁴⁰. DESCRIPTION: Terrestrial perennial stem-succulent shrub (ascending to erect stems 1 to 12 inches in height and 1 to 3 inches in diameter; one plant was observed and described as being 1¼ inches in height and 1½ inches in width); the stems are gray-green or green; the central spines may be black, golden-brown, purplish-brown or reddish; the radial spines are whitish or whitish-yellow; the flowers (½ to 1½ inches in diameter) may be lavender, pink, pink with a darker mid-stripe, pink-lavender, rose-pink, rose-purple or white, the anthers are yellow; the stigma lobes are green to yellow-green; flowering generally takes place between mid-May and early August (additional records: flowering has also been described as taking place one week after heavy rains that occur between mid-March and late September); the mature club-shaped fruits (1/2 to 1 1/8 inches in length and 3/16 to 1/2 inch in diameter) are carmine, orange, orange-red, red, bright red, scarlet, yellow or yellowish (rarely). HABITAT: Within the range of this species it has been reported from rocky mountains; gravelly mesas; rocky canyons; rocky canyon walls; canyon bottoms; crevices in boulders and rocks; knobs; bedrock and cobbly ridges; rocky ridgetops; ridgelines; foothills; rocky and gravelly hills; rocky hillsides; bedrock, rocky and sandy slopes; bajadas; rocky outcrops; amongst boulders and rocks; bases of boulders; protected clefts; plains; gravelly and sandy flats; valley floors; sandy

arroyos; bottoms of arroyos; rocky ravines; streambeds; riverbeds; along and in bouldery and sandy washes; edges of streams; margins of arroyos; terraces; bottomlands; floodplains, and riparian areas growing in dry bouldery, rocky, cobbly, cindery-sandy, gravelly and sandy ground; gravelly loam ground; clay ground; silty ground, and humusy ground often in the shade of other plants, occurring from sea level to 5,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. Birds and rodents feed on the fruits. *Mammillaria grahamii* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Mammillaria grahamii* Engelm., Pages 156 & 159-161, *Mammillaria grahamii* Engelm. var. *grahamii*, Pages 159-160, *Mammillaria grahamii* Engelm. var. *oliviae* (Orcutt) L. Benson, Pages 160-161 and *Mammillaria microcarpa* Engelm., Pages 152-153 & 156; color photographs: Plate 4.8, Page 156), 15 (recorded as *Mammillaria grahamii* Engelm. var. *grahamii*, *Mammillaria grahamii* Engelm. var. *oliviae* (Orcutt) L. Benson and *Mammillaria microcarpa* Engelm.), 16 (recorded as *Mammillaria microcarpa* Engelm.), 18 (genus), 27 (recorded as *Mammillaria grahamii*, Page 172, *Mammillaria grahamii* Engelm. var. *oliviae* (Orcutt) L. Benson, Page 173 and as *Mammillaria microcarpa* Engelm., Page 179; color photographs: Plate 94, Page 113, Plate 95, Page 113 and Plate 99, Page 114), 28 (recorded as *Mammillaria microcarpa*, color photograph 126), 43 (071212), 44 (112910), 45 (color photograph), 46 (recorded as *Mammillaria microcarpa* Engelm., Page 578 and as *Mammillaria oliviae* Orcutt, Page 578), 48 (genus), 58 (recorded as *Mammillaria microcarpa* Engelm.), 63 (070712 - color presentation), 77 (color photograph #11), 85 (070712 - color presentation, reduced recovery), 86 (recorded as *Mammillaria microcarpa*, color photograph), 115 (color presentation), 119 (recorded as *Neomammillaria microcarpa* (Engelm.) B. & R., *Neomammillaria milleri* B. & R.), 124 (062311 - no record of species; genus record), 127, 140 (recorded as *Mammillaria grahamii* Engelm. var. *grahamii*, Pages 106-107 & 288), **MBJ** (undated record which may include landscaped material that persists without maintenance), **WTK** (August 4, 2005)*

Mammillaria grahamii var. *grahamii* (see *Mammillaria grahamii*)

Mammillaria grahamii var. *oliviae* (see *Mammillaria grahamii*)

Mammillaria microcarpa (see *Mammillaria grahamii*)

Mammillaria milleri (see *Mammillaria grahamii*)

Mammillaria oliviae (see *Mammillaria grahamii*)

Neomammillaria microcarpa (see *Mammillaria grahamii*)

Neomammillaria milleri (see *Mammillaria grahamii*)

Neomammillaria oliviae (see *Mammillaria grahamii*)

Opuntia arbuscula (see *Cylindropuntia arbuscula*)

Opuntia arizonica (see *Opuntia phaeacantha*)

Opuntia bigelovii (see *Cylindropuntia bigelovii*)

Opuntia discata (see *Opuntia engelmannii* var. *engelmannii*)

***Opuntia engelmannii* J.F. Salm-Reifferscheid-Dyck ex G. Engelmann: Cactus Apple**

COMMON NAMES: Á'láv^a <alav> (Yuman: Walapai)¹⁴⁰; Abrojo; Ai'gwobi (Uto-Aztecan: Shoshoni)¹⁴⁰; Áláva (Yuman: Havasupai)¹⁴⁰; Cacanapo (Spanish: for var. *lindheimeri*); Cactus Apple; Cactus-apple; Cow-tongue Cactus (var. *linguiformis*); Cowtongue Cactus (var. *linguiformis*); Cow-tongue Prickly-pear (var. *linguiformis*); Cowtongue Prickly-pear (var. *linguiformis*); Coyonoxtle <joconostle> (Spanish: Náhuatl)¹⁴⁰; Cuija (Spanish)¹⁴⁰; Desert Prickly-pear; Desert Pricklypear; Desert Pricklypear Cactus; Discus Prickly Pear; Discus Prickly-pear; Ekupittsi (Uto-Aztecan: Panamint)¹⁴⁰; Engelmann Prickly Pear; Engelmann Prickly Pear Cactus; Engelmann Prickly-pear; Engelmann Pricklypear; Engelmann's Prickly Pear; Engelmann's Prickly Pear Cactus; Engelmann's Prickly-pear; Engelmann's Prickly-pear Cactus; Engelmann's Pricklypear; Few-spine Marble-fruit Prickly-pear; Flaming Pricklypear; Goltcide <gultcide> (Athapascan: Chiricahua and Mescalero Apache)¹⁴⁰; Heel Hayéen Ipáii ("Prickly-pear Used for Face Painting", Hokan: Seri)¹⁴⁰; Hosh Nteeli <h^wos> (Athapascan: Navajo)¹⁴⁰; Hosh Nteeli [ts'osé] (Athapascan: Western Apache)¹⁴⁰; Huichacame <huichanabo> (Spanish: Sonora)¹⁴⁰; I:bai <lbai> (Uto-Aztecan: Onavas Pima)¹⁴⁰; 'I:bhai <iibhai> ("Fruit", Uto-Aztecan: Akimel O'odham and Hiá Ce□ O'odham)¹⁴⁰; I:bhai ("Fruit", Uto-Aztecan: Tohono O'odham)¹⁴⁰; Ila' (Uto-Aztecan: Guarijío)¹⁴⁰; Indian Fig; Irá [Ira-ka, Rihuirí] (Uto-Aztecan: Tarahumara)¹⁴⁰; Ìyal <i'yal> (Uto-Aztecan: Tübatulabal)¹⁴⁰; Joconostle; Kal Yap (Yuman: Maricopa)¹⁴⁰; Klein Rondeblaarturksvy (Afrikaans: for var. *lindheimeri*); Lindheimer Prickly-pear (var. *lindheimeri*); Naavo (Uto-Aztecan: Yaqui)¹⁴⁰; Náavut (Uto-Aztecan: Luiseño)¹⁴⁰; Nabo <nacoo> (Uto-Aztecan: Cahita)¹⁴⁰; Nabu (Uto-Aztecan: Northern Paiute)¹⁴⁰; Napó (Uto-Aztecan: Tarahumara)¹⁴⁰; Nav (Uto-Aztecan: Hiá

Ce□ O'odham)¹⁴⁰; Nava (Uto-Aztec: Mountain Pima)¹⁴⁰; Navet <náve-t, navit> (Uto-Aztec: Cahuilla)¹⁴⁰; Navī <naf, naw, nohwi> (“the Plant”, Uto-Aztec: Akimel O'odham and Tohono O'odham)¹⁴⁰; Návoi (Uto-Aztec: Northern Tepehuan)¹⁴⁰; Návu (“the Plant”, Uto-Aztec: Hopi)¹⁴⁰; Navú-c (Uto-Aztec - Eudeve)¹⁴⁰; Návūt (Uto-Aztec: Cupeño, Luiseño)¹⁴⁰; Nopal (Mexico: Sonora); Nopal [Cuixo] (“[Lizard] Prickly-pear”, Spanish: Sonora)¹⁴⁰; Nopal de Engelmann; Nopal Prickly-pear (var. *lindheimeri*); Prickly Pear (a name also applied to the species, to other species and to the genus *Opuntia*); Prickly Pear Cactus (a name also applied to other species and the genus *Opuntia*); Prickly-pear (English)¹⁴⁰; Prickly-pear Cactus; Pricklypear (a name also applied to other species and the genus *Opuntia*); Sae (Kiowa Tanoan: Tewa)¹⁴⁰; Small Round-leaf Prickly-pear (var. *lindheimeri*); Tach Pa (Yuman: Yuma)¹⁴⁰; Texas Prickly-pear (var. *lindheimeri*); Tuna; Tuna [Cuija] (“[Lizard] Prickly-pear”, Spanish: Sonora)¹⁴⁰; Vela de Coyote (“Coyote's Candle”, Spanish)¹⁴⁰; Xpa: (Yuman: Cocopa)¹⁴⁰; Xté (Yuman: Paipai)¹⁴⁰; Yöngö <yüñü, y□:ngu> (“the Fruit”, Uto-Aztec: Hopi)¹⁴⁰. DESCRIPTION: Terrestrial perennial stem-succulent shrub (forms clumps with ascending and/or decumbent stems 1 to 8 feet in height and 40 inches to 10 feet or more in width, one plant was reported as being 12 inches in height and 55 inches in width; plants were observed and described as being 40 inches in height and width, one plant was observed and described as being 40 inches in height and 6½ feet in width, one plant was observed and described as being 4 feet in height and 6 feet in width); the paddle-shaped stems (6 to 16 inches in length and 4 to 12 inches in width, except in var. *linguiformis* where the stems are 6 inches to 4 feet in length and 4 to 16 inches in width) are blue-gray, blue-green, green, dark green or yellow-green; the spines are dark brown, brown-red, rust, white with red tips, yellow or pale yellow-brown aging to gray; the glochids are light brown, golden, red-brown, reddish or yellow aging to blackish or gray; the flowers (2¼ to 3½ in diameter) may be lemon-yellow, pink, pink-red, red-magenta, red-pink, reddish-rose, rose-red, salmon, whitish, yellow or yellow-orange turning to orange, orange-yellow or pink-orange with age; the anthers may be cream, whitish or yellow; the stigma lobes may be green, lime green or yellow-green; flowering generally takes place between early March and late June with the individual flowers lasting one or two days (additional records: two for mid-February, one for mid-July, one for mid-August, one for late August, one for early September, two for mid-September, one for late October and one for late December); the mature fruits (also known as tunas are 1½ to 3½ in length and ¾ to 1½ inches in diameter) are maroon, purple, dark red, red-maroon, red-purple or wine-red. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; sandy mountainsides; rocky mesas; bedrock, bouldery and rocky mesas; rocky canyons; rocky canyon bottoms; talus slopes; rocky ledges; bedrock ridges; rocky ridgetops; ridgelines; foothills; rocky and rocky-sandy-loamy hills; bouldery, rocky and gravelly hillsides; bases of hills; bouldery, rocky, gravelly-sandy and sandy slopes; gravelly-sandy bajadas; rocky outcrops; amongst boulders and rocks; lava beds; rocky, gravelly and sandy flats; rocky valleys; along roadsides; along gravelly-humusy arroyos; gullies; along streams; along streambeds; along creeks; creekbeds; riverbeds; along washes; along and in drainage ways; ciénegas; banks of creeks and rivers; borders of washes; beaches; benches; shelves; terraces; loamy bottomlands; sandy floodplains; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-sandy, shaley, stony, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly loam and loam ground; silty ground, and gravelly humus ground, occurring from sea level to 7,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage, cooking agent or paint crop; it was also noted as having been used as a tool, as a lubricant (var. *engelmannii*) and as a drug or medication. This plant provides cover for many desert animals. *Opuntia engelmannii* is native to south-central and southern North America. *5, 6, 26, 28 (color photograph 135 A&B, 43 (063009), 44 (121210), 45 (color photograph), 46 (Page 583), 48 (genus), 63 (070712 - color presentation), 77, 85 (071112 - color presentation, reduced recovery), 91 (recorded *Opuntia phaeacantha* var. *discata* (Griffiths) Benson & Walkington together with *Opuntia phaeacantha* var. *major* Engelmann, “Both species are sympatric throughout much of their range and often can be found together.”, Pages 291-293), 115 (color presentation), 119, 124 (110210), 127, 140 (reported as *Opuntia engelmannii* Salm-Dyck [*Opuntia phaeacantha* var. *discata* (Griffiths) Benson & Walkington], Pages 105-106 & 288), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Opuntia engelmannii* J.F. Salm-Reifferscheid-Dyck ex G. Engelmann var. *engelmannii*: Cactus Apple**

SYNONYMY: *Opuntia discata* D. Griffiths; *Opuntia phaeacantha* G. Engelmann var. *discata* (D. Griffiths) L.D. Benson & D.L. Walkington. COMMON NAMES: Á'láv^a <alav> (Yuman: Walapai)¹⁴⁰; Abrojo; Ai'gwobi (Uto-Aztec: Shoshoni)¹⁴⁰; Áláva (Yuman: Havasupai)¹⁴⁰; Cactus Apple (a name also applied to other species and to other species); Cactus-apple (a name also applied to the species and to other species); Coyonoxtle <joconostle> (Spanish: Náhuatl)¹⁴⁰; Cuija (Spanish)¹⁴⁰; Desert Pricklypear Cactus (a name also applied to the species and to other species); Discus Prickly Pear; Ekupittsi (Uto-Aztec: Panamint)¹⁴⁰; Engelmann Prickly Pear; Engelmann Prickly Pear Cactus; Engelmann Prickly-pear; Engelmann Pricklypear; Engelmann's Prickly Pear; Engelmann's Prickly Pear Cactus; Engelmann's Prickly-pear; Engelmann's Prickly-pear Cactus; Engelmann's Pricklypear; Flaming Prickly-pear; Goltcide <gultcide> (Athapascan: Chiricahua and Mescalero Apache)¹⁴⁰; Heel Hayéen Ipáii (“Prickly-pear Used for Face Painting”, Hokan: Seri)¹⁴⁰; Hosh Nteeli <h'os> (Athapascan: Navajo)¹⁴⁰; Hosh Nteeli [ts'osé] (Athapascan: Western Apache)¹⁴⁰; Huichacame <huichanabo> (Spanish: Sonora)¹⁴⁰; I:bai <Ibai> (Uto-Aztec: Onavas Pima)¹⁴⁰; I:bhai <iibhai> (“Fruit”, Uto-Aztec: Akimel O'odham and Hiá Ce□ O'odham)¹⁴⁰; I:bhai (“Fruit”, Uto-Aztec: Tohono O'odham)¹⁴⁰; Ila' (Uto-Aztec: Guarijío)¹⁴⁰; Irá [Ira-ka, Rihuirí] (Uto-Aztec: Tarahumara)¹⁴⁰; İyal <i'yal> (Uto-Aztec: Tübatulabal)¹⁴⁰; Joconostle; Kal Yap (Yuman: Maricopa)¹⁴⁰; Naavo (Uto-Aztec: Yaqui)¹⁴⁰; Náavut (Uto-Aztec: Luiseño)¹⁴⁰; Nabo <nacoó> (Uto-Aztec: Cahita)¹⁴⁰; Nabu (Uto-Aztec: Northern Paiute)¹⁴⁰; Napó (Uto-Aztec: Tarahumara)¹⁴⁰; Nav (Uto-Aztec: Hiá Ce□ O'odham)¹⁴⁰; Nava (Uto-Aztec: Mountain Pima)¹⁴⁰; Navet <náve-t, navit> (Uto-Aztec: Cahuilla)¹⁴⁰; Navī <naf, naw, nohwi> (“the Plant”, Uto-Aztec: Akimel O'odham and Tohono O'odham)¹⁴⁰; Návoi

(Uto-Aztecan: Northern Tepehuan)¹⁴⁰; Návú (“the Plant”, Uto-Aztecan: Hopi)¹⁴⁰; Navú-c (Uto-Aztecan - Eudeve)¹⁴⁰; Návüt (Uto-Aztecan: Cupeño, Luiseño)¹⁴⁰; Nopal [Cuixó] (“[Lizard] Prickly-pear”, Spanish: Sonora)¹⁴⁰; Nopal de Engelmann; Prickly Pear (a name also applied to this species, to other species and to the genus *Opuntia*); Prickly Pear Cactus (a name also applied to the species, to other species and to the genus *Opuntia*); Prickly-pear (a name also applied to the species, to other species and to the genus *Opuntia*); Prickly-pear (English)¹⁴⁰; Pricklypear (a name also applied to the species, to other species and to the genus *Opuntia*); Sae (Kiowa Tanoan: Tewa)¹⁴⁰; Tach Pa (Yuman: Yuma)¹⁴⁰; Tuna [Cuija] (“[Lizard] Prickly-pear”, Spanish: Sonora)¹⁴⁰; Vela de Coyote (“Coyote’s Candle”, Spanish)¹⁴⁰; Xpa: (Yuman: Cocopa)¹⁴⁰; Xté (Yuman: Paipai)¹⁴⁰; Yöngö <yüñü, y□:ngu> (“the Fruit”, Uto-Aztecan: Hopi)¹⁴⁰. DESCRIPTION: Terrestrial perennial stem-succulent shrub (forms clumps with ascending and/or decumbent stems 20 inches to 8 feet in height and 20 inches to 10 feet or more in width; one plant was observed and described as being 20 inches in height and 8¼ feet in width, one plant was observed and described as being 3 feet in height and 4½ feet in width, one plant was observed and described as being 3 feet in height and 6 to 12 feet in width, one plant was observed and described as being 3 feet in height and 8 feet in width, one plant was observed and described as being 40 inches in height and 79 inches in width, one plant was observed and described as being 40 inches in height and 10 feet in width); the paddle-shaped stems (8 to 16 inches in length and 6½ to 12 inches in width) may be bluish-green, gray-green, green, dark green or yellow-green; the spines may be brown-red, chalky-white, pale straw or pale yellow-brown usually with red or red-brown bases aging to black or gray; the glochids are reddish or yellow; the flowers (2¼ to 3½ in diameter) may be lemon-yellow, pink, pink-red, red-pink, rose-red, salmon, tannish-yellow, yellow, light yellow-orange, yellow-orange or yellow-peach turning to orange, orange-yellow or pink-orange with age; the anthers are yellow; the stigma lobes are lime green; flowering generally takes place between mid-March and mid-July (additional records: one for early January, two for mid-February, two for mid-August, one for early September, six for mid-September, four for early October and one for late December); the mature fruits (also known as tunas are 2½ to 3¼ in length and 1¼ inches in diameter) are magenta-rose, purple, red or reddish-purple. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; sandy mountainsides; bedrock mesas; edges of cliffs; canyons; canyon bottoms; talus slopes; ledges; ridges; rocky ridgetops; rocky hills; bouldery, rocky and gravelly hillsides; bouldery, rocky, rocky-gravelly and sandy slopes; bajadas; rocky outcrops; amongst boulders and rocks; lava beds; breaks; steppes; plains; rocky, gravelly and sandy and silty flats; basins; valley floors; along roadsides; along and in gravelly and gravelly-humusy arroyos; gullies; along streams; along creeks; creekbeds; along and in washes; along and in rocky-sandy and gravelly-sandy drainages; banks of rivers; beaches; benches; shelves; terraces; sandy floodplains; amongst mesquites; ditches, and gravelly-sandy and sandy riparian areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam ground; clay ground; silty ground, and gravelly humusy ground, occurring from 100 to 7,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Opuntia engelmannii*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage, cooking agent or paint crop; it was also noted as having been used as a tool, as a lubricant (var. *engelmannii*) and as a drug or medication. The flowers open around 8 AM and remaining open for one or two days, and may live to be 30 or more years of age. The juicy fruits (tunas) with edible pulp are fed on by many browsing animals, including Black Bear (*Ursus americanus ambylceps*), Coyote (*Canis latrans mearnsi*), Javelina (*Peccari tajacu sonoriensis*) and Desert Tortoise (*Gopherus agassizi*) among others, and birds. The plant provides cover for many desert animals. *Opuntia engelmannii* var. *engelmannii* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia phaeacantha* Engelm. var. *discata* (Griffiths) Benson & Walkington “This is the largest and, in especially southern Arizona, one of the best-known native prickly pears of the Southwestern Deserts of the United States. It is variable in habit of growth, shape and size of joints, and size and distribution of spines. It is almost always found growing with var. *major*, which has longer brown spines restricted largely to the upper part of the narrower joint. Almost everywhere there are intergrading forms with many character recombinations. Var. *discata* is rarely stable but apparently a fringe-population extreme tied in closely with the more abundant and wide-ranging var. *major*.”, Pages 99 & 101-103; color photograph: Plate 1.74, Page 102), 15 (recorded as *Opuntia phaeacantha* Engelm. var. *discata* (Griffiths) Benson & Walkington), 16 (recorded as *Opuntia phaeacantha* Engelm. var. *discata* (Griffiths) L. Benson - “Rocky slopes and gravelly flats; common; intergrading with *O. p.* var. *major*.”), 26 (species), 27 (recorded as *Opuntia phaeacantha* Engelm. var. *discata* (Griffiths) L. Benson, Pages 53 & 99-100; color photographs: Plates 30 & 30A, Pages 99 & 100), 28 (recorded as *Opuntia phaeacantha* var. *discata*, color photograph 135 A&B), 43 (063009), 44 (062311), 45 (species, color photograph), 46 (species, Page 583), 48 (genus), 58 (recorded as *Opuntia phaeacantha* Engelm. var. *discata* (Griffiths) Benson & Walk.), 63 (070812 - color presentation), 77 (recorded as *Opuntia phaeacantha* var. *discata* (Griffiths) Benson & Walkington, color photograph #14 labeled as *Opuntia phaeacantha*), 85 (071112 - color presentation, reduced recovery), 91 (recorded together with *Opuntia engelmannii* Salm-Dyck. *Opuntia phaeacantha* var. *discata* (Griffiths) L.D. Benson & Walkington / *Opuntia phaeacantha* var. *major* Engelm.: “Both species are sympatric throughout much of their range and often can be found together.”, Pages 291-293), 115 (color presentation of the species), 119 (recorded as *Opuntia discata* Griffiths), 124 (062311 - no record of variety; genus and species record), 127 (variety *engelmannii* and species), 140 (reported as *Opuntia engelmannii* Salm-Dyck [*Opuntia phaeacantha* var. *discata* (Griffiths) Benson & Walkington], Pages 105-106 & 288), **WTK** (August 4, 2005)*

***Opuntia engelmannii* J.F. Salm-Reifferscheid-Dyck ex G. Engelmann var. *lindheimeri* (G. Engelmann) B.D. Parfitt & D.J. Pinkava: Texas Pricklypear**

SYNONYMY: *Opuntia lindheimeri* G. Engelmann G. Engelmann. COMMON NAMES: Cacanapo (Spanish); Cactus Apple; Chenille Prickly-pear; Klein Rondeblaarturksvy (Afrikaans); Lindheimer Prickly-pear; Nopal Prickly-pear; Nopal

Pricklypear; Prickly Pear (a name also applied to the species, to other species and to the genus *Opuntia*); Small Round-leaf Prickly-pear; Texas Prickly-pear; Texas Pricklypear. DESCRIPTION: Terrestrial perennial stem-succulent shrub (stems 32 inches to 5 feet in height and to 6½ feet in width); the spines are yellow aging to blackish; the flowers (3 to 3¼ inches in diameter) are yellow; flowering generally takes place between March and June (flowering records: one for late May, two for late June and one for mid-August); the mature fruits may be purple or red. HABITAT: Within the range of this species it has been reported from mountains; canyons; hills; slopes; gravelly flats; basins; valley floors; along roadsides; within arroyos; in washes; drainages; terraces; mesquite bosques, and along fencelines growing in dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground and gravelly loam ground, occurring from sea level to 6,300 feet in elevation in the woodland, scrub and desertscrub ecological formations. NOTES: **EXOTIC** Invasive Plant. The species, *Opuntia engelmannii*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage, cooking agent or paint crop; it was also noted as having been used as a tool, as a lubricant (var. *engelmannii*) and as a drug or medication. *Opuntia engelmannii* var. *lindheimeri* is native to south-central and southern North America. *5, 6, 26 (species), 43 (063009), 45 (color photograph, species), 46 (species, Page 583), 48 (genus), 63 (070812 - color presentation), 85 (071112), 127 (variety *lindheimeri* and species), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Opuntia engelmannii* J.F. Salm-Reifferscheid-Dyck ex G. Engelmann var. *linguiformis* (D. Griffiths) B.D. Parfitt & D.J. Pinkava: Cactus Apple**

SYNONYMY: *Opuntia lindheimeri* G. Engelmann var. *linguiformis* (D. Griffiths) L.D. Benson. COMMON NAMES: Cactus Apple (a name also applied to the species and to other species); Cow Tongue Prickly Pear; Cow's Tongue; Cow's Tongue Prickly Pear; Cow's Tongue Pricklypear; Cow's-tongue Prickly-pear; Cow's-tongue Pricklypear; Cowtongue Cactus; Cowtongue Prickly-pear; Lengua de Vaca; Prickly Pear (a name also applied to the species, to other species and to the genus *Opuntia*). DESCRIPTION: Terrestrial perennial stem-succulent shrub (stems 4 to 10 feet in height and 4 to 8 feet in width); the paddle-shaped stems (6 inches to 4 feet in length and 4 to 16 inches in width) are light green; the spines are yellow aging or blackish; the glochids are yellow to dark brown; the stigma lobes are light green; the flowers (3 to 4 inches in diameter) are yellow; flowering generally takes place between April and mid-May; the mature fruits are purple or red. HABITAT: Within the range of this species it has been reported from hillsides; slopes; bajadas; gravelly flats; along washes, and floodplains growing in dry gravelly ground, occurring from 300 to 3,300 feet in elevation in the scrub and desertscrub ecological formations. NOTES: **EXOTIC** Invasive Plant. The species, *Opuntia engelmannii*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage, cooking agent or paint crop; it was also noted as having been used as a tool, as a lubricant (var. *engelmannii*) and as a drug or medication. *Opuntia engelmannii* var. *linguiformis* is native to southwest-central North America. *5, 6, 16 (recorded as *Opuntia lindheimeri* Engelm. var. *linguiformis* (Griffiths) L. Benson), 26 (species), 43 (070109), 44 (062311 - no record of variety; genus and species records), 45 (species, color photograph), 46 (species, Page 583), 48 (genus), 63 (070812), 77 (recorded as *Opuntia lindheimeri* Engelm. var. *linguiformis* (Griffiths) L. Benson), 85 (071112 - color presentation), 124 (062311 - no record of variety; genus and species records), 127 (species), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Opuntia fulgida (see *Cylindropuntia fulgida* var. *fulgida*)

Opuntia fulgida var. *fulgida* (see *Cylindropuntia fulgida* var. *fulgida*)

Opuntia fulgida var. *mamillata* (see *Cylindropuntia fulgida* var. *mamillata*)

Opuntia fulgida var. *mamillata* forma *monstrosa* (see NOTES under *Cylindropuntia fulgida* var. *mamillata*)

***Opuntia ficus-indica* (C. Linnaeus) P. Miller: Barbary Fig**

SYNONYMY: *Opuntia opuntia* (C. Linnaeus) G.K. Karsten. COMMON NAMES: Barbary Fig; Barbary Fig Cactus; Barbary Fig Prickly Pear; Barbary Fig Prickly-pear; Barbary Fig Pricklypear; Barbary-fig; Barbary-fig Cactus; Boereturksvy (Afrikaans); Burbank Prickly Pear; Burbank's Spineless; Cactus Pear; Chumba (Spanish); Chumbera (Spanish); Common Tuna; Common Tuna Cactus; Feigenkaktus (German); Figo-da-Espanha (Portuguese); Figo-da-Índia (Portuguese); Figueira-da-Barbária (Portuguese); Figuier d'Inde (French); Figuier de Barbarie (French); Fikonkaktus (Swedish); Grootdoringturksvy (Afrikaans); Higuera (Spanish); Indian Fig (a name also applied to the genus *Opuntia*); Indian-fig; Indian-fig Prickly-pear; Indian-fig Pricklypear; Jamaracá (Portuguese); Jurumbeba (Portuguese); Mission Cactus; Mission Prickly Pear; Mission Prickly-pear; Mission Pricklypear; Mission Tuna; Mission Tuna Cactus; Mission-fig Cactus; Nopal (a name also applied to the genus *Opuntia*); Nopal de Castilla (Spanish); Nopal Pelón (Spanish); Nopal Prickly-pear; Nopal Tuna; Nopales Cactus; Nopales Prickly Pear; Orelha-de-onka (Portuguese); Palma-de-gado (Portuguese); Palma-gigante (Portuguese); Prickly Pear (a name also applied to the species, to other species and to the genus *Opuntia*); Prickly-pear (a name also applied to the species, to other species and to the genus *Opuntia*); Rancheria Prickly Pear; Rancheria Prickly-pear; Spineless Cactus; Smooth Mountain Prickly Pear; Smooth Mountain Prickly-pear; Smooth Mountain Pricklypear; Smooth Prickly-pear (a name also applied to other species); Spineless Cactus (a name also applied to other species); Spiny Pest Pear (a name also applied to other species); Sweet Prickly-pear (a name also applied to other species); Sweet Pricklypear (a name also applied to other species); Tuberos Prickly-pear (a name also applied to other species); Tuna (Spanish); Tuna Blanca (Hispanic); Tuna Cactus (a name also applied to other species); Tuna de

Campo (Hispanic); Tuna de Castilla (Spanish); Tuna Fina (Hispanic); Tuna Mansa (Spanish). DESCRIPTION: Terrestrial perennial stem-succulent shrub or tree (erect stems 6 to 23 feet in height and to 10 feet in width); the paddle-shaped stems (8 to 24 inches in length and 6 to 16 inches in width) may be gray-green or green; the spines if present are brown, tan or whitish; the glochids are yellowish aging brown; the flowers ($\frac{3}{4}$ to 2 inches in diameter) are orange or yellow fading to salmon; the anthers may be cream-yellow or yellow; the stigma lobes are light yellow or yellow; flowering generally takes place in April (flowering records: one for early June); the mature fruits (also known as tunas are 2 to 4 inches in length and $1\frac{1}{2}$ to $3\frac{1}{2}$ inches in diameter) may be orange, purple, red, reddish or yellow. HABITAT: Within range reported from mountains; canyons; canyon bottoms; slopes; bajadas; gravelly flats; uplands; coastal plains; coastal beaches; along roadsides; along washes; floodplains; riparian areas, and disturbed areas growing in dry gravelly and sandy ground, occurring from sea level to 7,200 feet in elevation in the woodland, scrub and desertscrub ecological formations. NOTES: **EXOTIC** Invasive Plant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. The young stem segments are called nopalitos. This plant was probably created by native peoples through the selection of spineless forms of *Opuntia streptacantha* to facilitate the collection and culturing of the cochineal scale insect (Flora of North America). *Opuntia ficus-indica* is native to southern North America. *5, 6, 12 (note), 16, 18, 26 (color photograph), 30, 43 (012310 - *Opuntia opuntia* H. Karsten), 44 (071112 - color photograph), 48 (genus - *Opuntia*), 63 (071112 - color presentation), 85 (071112 - color presentation), 115 (color presentation), 124 (071112 - no record of species, genus record), 127, **WTK** (August 4, 2005)*

Opuntia gilvescens (see *Opuntia phaeacantha*)

Opuntia kleiniae var. *tetracantha* (see *Cylindropuntia* x *tetracantha*)

Opuntia leptocaulis (see *Cylindropuntia leptocaulis*)

Opuntia lindheimeri (see *Opuntia engelmannii* var. *lindheimeri*)

Opuntia lindheimeri var. *linguiformis* (see *Opuntia engelmannii* var. *linguiformis*)

***Opuntia lubrica* D. Griffiths: Lubrica Cactus**

COMMON NAMES: Lubrica Cactus. DESCRIPTION: Terrestrial perennial stem-succulent shrub. *12 (recorded as *Opuntia lubrica* Griffiths var. *aurea* Backeberg a synonym of *Opuntia basilaris* Engelm. & Bigelow var. *aurea* (Baxter) W.T. Marshall), 42 (062813 - no record of species), 43 (062813), 44 (062813 - no record of species; genus record), 63 (062813 - no record of species), 85 (062813 - no record of species), 106 (062813 - no record of species), **MBJ** (correspondence dated May 13, 2013)*

***Opuntia macrocentra* G. Engelmann (var. *macrocentra* is the variety reported as occurring in Arizona): Purple Pricklypear**

SYNONYMY: *Opuntia violacea* G. Engelmann ex B.D. Jackson var. *macrocentra* (G. Engelmann) L.D. Benson; *Opuntia violacea* G. Engelmann ex B.D. Jackson var. *violacea*. COMMON NAMES: Black-spine Prickly Pear; Black-spined Pricklypear; Duranzilla; Long-spined Prickly Pear; Long-spined Pricklypear; Purple Prickly Pear; Purple Prickly-pear; Purple Pricklypear. DESCRIPTION: Terrestrial perennial stem-succulent shrub or tree (decumbent to erect stems forming clumps to 2 to 5 feet in height; one plant was observed and described as being 32 inches in height and 40 inches in width); the stems (4 to 8 inches in length and 3 to 5 inches in width) are light blue, blue-gray-green tinged with purple, blue-green tinged with red, bluish-gray-green, lead-green with a violet tinge, dark purple or red; the spines are black, brown or reddish-brown sometimes with gray, reddish or white tips; the glochids are reddish-yellow aging to brown; the flowers (2 to $3\frac{1}{2}$ inches in diameter) are yellow with a red throat; the anthers are yellowish; the stigma lobes are green, light yellow or yellowish; based on few records located, flowering generally takes place between early April and early June (flowering records: one for early April, two for mid-April, two for early May, one for mid-May and one for early June, flowering beginning as early as March has been reported); the fleshy fruits (1 to $2\frac{1}{2}$ inches in length and $\frac{3}{4}$ to 1 inch in diameter) are purple, purplish-red, red or red-violet drying to tan. HABITAT: Within the range of this species it has been reported from rocky and sandy hills; rocky hillsides; rocky slopes; sandy-loamy bajadas; sand hills; plains; sandy flats; valley floors, and along washes growing in dry rocky, gravelly and sandy ground and sandy loam ground, occurring from 2,000 to 5,800 feet in elevation in the woodland, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Opuntia macrocentra* var. *macrocentra* is native to southwest-central and southern North America. *5, 6, 12 (*Opuntia violacea* var. *macrocentra* and *Opuntia violacea* var. *violacea*, Pages 91-93; color photograph: Plate 1.67, Page 94), 18 (species), 26 (genus), 27 (recorded as *Opuntia violacea* Engelmann var. *macrocentra* (Engelmann) L. Benson, Page 59 and *Opuntia violacea* Engelmann var. *violacea* L. Benson, Page 57; color photographs: Plates 33 & 33A, Page 100), 43 (062710), 44 (121210 - no record), 45 (color photograph), 46 (Page 583), 48 (genus), 63 (062710 - color presentation), 85 (121210 - recorded as *Opuntia macrocentra* Engelm.), 91 (Pages 294-295), 124 (111210 - no record, genus), 140 (Page 288), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Opuntia mamillata (see *Cylindropuntia fulgida* var. *mamillata*)

***Opuntia microdasys* (J.G. Lehmann) L.K. Pfeiffer: Angel's-wings**

COMMON NAMES: Angel's-wings (a name also applied to other species); Bunny Cactus (a name also applied to other species); Bunny Ear Prickly Pear; Bunny Ears; Bunny Ears Pricklypear; Bunny-ear Prickly Pear; Bunny-ear Prickly-pear; Bunny-ears Cactus; Bunny-ears Prickly-pear; Bunny-ears Pricklypear; Bunyears Cactus; Cegador (Spanish); Golden-bristle; Goldplush; Guldopuntia (Swedish); Nopal Cegador (Spanish); Nopalillo Cegador (Spanish); Polka Dot Cactus; Polka-dot Cactus; Prickly Pear (a name also applied to other species and the genus *Opuntia*); Rabbit Ears (a name also applied to other species); Rabbit Ears Prickly Pear. DESCRIPTION: Terrestrial perennial stem-succulent shrub (erect sprawling stems 12 to 40 inches in height and 4 to 5 feet in width); the paddle-shaped stems (2 to 6 inches in length and 1¼ to 4 inches in width) are light green or green; the glochids may be brown, golden-yellow, reddish-brown, white, whitish or yellow; the flowers (1 to 1¼ inches in width) are bright yellow aging to peach or pinkish-salmon; the anthers are yellowish; the stigma lobes are green or dark green; flowering generally takes place between late April and early June (additional records: one for late June and one for early October); the ripe fruits may be green or red. HABITAT: Within range reported from mountains; rocky canyon bottoms; bouldery-rocky hills; slopes; bajadas; amongst boulders and rocks; flats; uplands; along and in rocky-sandy washes; banks of washes; benches, and floodplains growing in dry bouldery, bouldery-rocky, rocky, rocky-sandy and sandy ground and loam ground, occurring from 800 to 6,900 feet in elevation in the scrub and desertscrub ecological formations. NOTES: **EXOTIC** Invasive Plant that poses a significant threat to native habitat. *Opuntia microdasys* is native to southern North America. *5, 6, 18, 26 (color photograph), 43 (012310), 44 (062411), 48 (genus - *Opuntia*), 63 (071112 - recorded as *Opuntia microdasys* (Lehm.) N.E. Pfeiffer, color presentation), 77, 85 (071112 - color presentation of dried material), 106 (102308), 124 (062411 - no record of species; genus record), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Opuntia opuntia (see *Opuntia ficus-indica*)

Opuntia phaeacantha var. *discata* (see *Opuntia engelmannii* var. *engelmannii*)

***Opuntia phaeacantha* G. Engelmann: Tulip Pricklypear**

SYNONYMY: *Opuntia arizonica* D. Griffiths; *Opuntia gilvescens* D. Griffiths; *Opuntia phaeacantha* G. Engelmann var. *major* G. Engelmann; *Opuntia phaeacantha* G. Engelmann var. *phaeacantha*; *Opuntia phaeacantha* G. Engelmann var. *superbospina* (D. Griffith) L.D. Benson. COMMON NAMES: Abrojo; Berry Prickly Pear; Berry Prickly Pear Cactus; Berry Pricklypear; Blåopuntia (Swedish); Brown Spine Prickly-pear Cactus; Brown Spined Prickly Pear; Brown Spined Prickly Pear Cactus; Brown-spine Prickly-pear; Brown-spine Prickly-pear Cactus; Brown-spine Pricklypear; Brown-spined Prickly Pear; Brown-spined Prickly Pear Cactus; Brown-spined Prickly-pear; Brown-spined Pricklypear; Brownspine Prickly Pear; Brownspine Prickly-pear; Brownspine Pricklypear; Brownspined Prickly Pear; Brownspined Prickly-pear; Brownspined Pricklypear; Dense-spine Prickly-pear; Densely Spined Prickly Pear; Desert Prickly-pear (a name also applied to other species); Figuier de Barbarie à Fruits Violets (French); Great Pricklypear; Great Pricklypear Cactus; Joconostle; Major Prickly Pear; Major Prickly-pear; Major Pricklypear; Major Pricklypear Cactus; Mojave Prickly-pear (a name also applied to other species); Mojave Pricklypear (a name also applied to other species); Mojave Tuna; New Mexico Prickly-pear (a name also applied to other species); Nopal (a name also applied to other species and the genus *Opuntia*, Spanish); Nopal Pardo; Plains Pricky-pear¹⁴⁰; Prickly Pear (a name also applied to other species and the genus *Opuntia*); Prickly-pear (a name also applied to other species and the genus *Opuntia*); Pricklypear (a name also applied to other species and the genus *Opuntia*); Purple-fruit Prickly-pear (a name also applied to other species); Sprawling Prickly Pear (a name also applied to other species); Tulip Prickly Pear; Tulip Prickly Pear Cactus; Tulip Prickly-pear; Tulip Pricklypear; Vela de Coyote; Yellow Pricklypear; Yellow-spine Prickly-pear (a name also applied to other species). DESCRIPTION: Terrestrial perennial stem-succulent shrub (trailing and/or decumbent stems 10 inches to 7 feet in height and 3 to 10 feet in width sometimes forming clumps up to 75 feet in width; one plant was observed and described as being 10 inches in height and 40 inches in width, one plant was observed and described as being 1 foot in height and 3 feet in width, one plant was observed and described as being 14 inches in height and 52 inches in width, plants were observed and described as being 16 inches in height and 40 inches in width, one plant was observed and described as being 16 inches in height and 48 inches in width, one plant was observed and described as being 16 inches in height and 60 inches in width, one plant was observed and described as being 18 inches in height and 8 to 10 feet in width, one plant was observed and described as being 20 inches in height and 13 feet in width, one plant was observed and described as being 2 feet in height and 5 to 6 feet in width, one plant was observed and described as being 30 inches in height and 5 feet in width, plants were observed and described as being 3 feet in height and 4 to 10 feet in width); may develop a trunk; the paddle-shaped stems (4 to 10 inches in length and 3 to 8 inches in width) may be bluish-green, gray-brown, gray-green, green, dark green, dull green, greenish-yellow, purple, reddish or yellow-gray-green; the spines may be blackish, brown, charcoal, gray, reddish, red-brown, white or yellow; the glochids may be golden, red-brown, reddish-brown or tan; the flowers (1½ to 3 inches in diameter) may be golden-apricot (with yellow-green mid-stripes), orange, orange-yellow, pink, pink-purple, red, red-pink, pale yellow, yellow (with an orange or red center or brown, greenish, greenish-brown or red mid-stripes) or yellow-orange aging to red-orange; the anthers are yellow; the stigma lobes are green to yellow-green; flowering generally takes place between mid-March to late July (additional records: one for early January, one for late January, one for early February, three for mid-August, two for late August, one for late September and one for early October); the mature pear-shaped fruits (1¼ to 3½ inches in length and 1 to 1¼ inches in width) may be maroon, purple, purple-red, red, dark red, red-brown or wine-red. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; plateaus; cliffs; bases of cliffs; rocky canyons; bedrock canyon rims; rocky and

sandy-silty canyon bottoms; rocky rincons; talus slopes; bluffs; rocky-gravelly-sandy buttes; knolls; rocky ledges; bedrock ridges; rocky and sandy-loamy ridgetops; meadows; foothills; rocky and gravelly hills; cobbly and sandy hilltops; bouldery, rocky, gravelly and gravelly-sandy-loamy hillsides; bedrock, bouldery, rocky, rocky-gravelly, gravelly, gravelly-clayey, sandy, sandy-loamy and silty slopes; gravelly bajadas; rocky outcrops, amongst rocks; on boulders and rocks; lava beds; blow-sand; prairies; plains; sandy llanos; plains; rocky, shaley, cindery and sandy flats; sandy uplands; valley floors; along sandy roadsides; within rocky and sandy arroyos; bottoms of arroyos; draws; springs; sandy streambeds; along creeks; along creekbeds; along and in sandy riverbeds; along and in bedrock-bouldery-sandy, gravelly and sandy washes; sandy drainages; silty-loamy and silty-clayey-loamy dry lakebeds; along (sandy) banks of rivers; borders of washes; cobbly-sandy-silty and gravelly-sandy terraces; sandy-loamy bottomlands; sandy floodplains; mesquite bosques; riparian areas, and disturbed areas growing in dry cryptogammic soil; rimrock pavement; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and silty-clayey loam ground; gravelly-sandy clay and gravelly clay ground; cobbly-sandy silty, sandy silty and silty ground, and humusy ground, occurring from 600 to 8,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or cooking agent crop; it was also noted as having been used for tools, in pottery making and as a drug or medication. This plant provides cover for many desert animals. Deer, Javelina (*Peccari tajacu sonoriensis*) and rodents feed on the stems, and the fruits are eaten by deer, grasshoppers, Javelina and other desert animals (including grasshoppers). Cristate forms have been reported. The change in nomenclature in USDA NRCS has not been recognized in BONAP, varieties remain as varieties of *Opuntia phaeacantha* (accessed 041806). *Opuntia phaeacantha* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia phaeacantha* Engelm., Pages 95-101, *Opuntia phaeacantha* Engelm. var. *major* Engelm., Pages 99-101 and *Opuntia phaeacantha* Engelm. var. *phaeacantha*, Pages 97-98), 15 (recorded as *Opuntia phaeacantha* var. *major* Engelm., color photograph which includes habitat and associated species, Page 77), 16 (recorded as *Opuntia phaeacantha* Engelm. var. *major* Engelm.), 26 (color photograph), 27 (recorded as *Opuntia phaeacantha* Engelm., Page 50, *Opuntia phaeacantha* Engelm. var. *major* Engelm., Page 51 and *Opuntia phaeacantha* Engelm. var. *superbospina* (Griffith) L. Benson, Page 54; color photographs: Plate 28, Page 99, Plate 29, Page 99 and Plate 31, Page 100), 43 (071212), 44 (062411 - color photograph), 45 (color photograph), 46 (recorded as *Opuntia phaeacantha* Engelm., Page 583 and *Opuntia gilvescens* Griffiths, Page 583), 48 (genus - recorded as *Opuntia*), 58 (recorded as *Opuntia phaeacantha* Engelm. var. *major* Engelm.), 63 (071212 - color presentation), 77 (recorded as *Opuntia phaeacantha* Engelm. var. *major* Engelm., color photograph #14 labeled as *Opuntia phaeacantha*), 85 (071212 - color presentation, reduced recovery), 91 (recorded together with *Opuntia engelmannii* Salm-Dyck. (*Opuntia phaeacantha* var. *discata* (Griffiths) Benson & Walkington) / *Opuntia phaeacantha* var. *major* Engelm. - "Both species are sympatric throughout much of their range and often can be found together.", Pages 291-293), 119, 124 (062411), 127, 140 (recorded as *Opuntia phaeacantha* Engelm. var. *major* Engelm., Pages 105, 106 & 288), **MBJ** (undated record which may include landscaped material that persists without maintenance), **WTK** (recorded as *Opuntia phaeacantha* var. *major*, August 4, 2005)*

Opuntia phaeacantha var. *major* (see *Opuntia phaeacantha*)

Opuntia phaeacantha var. *phaeacantha* (see *Opuntia phaeacantha*)

Opuntia phaeacantha var. *superbospina* (see *Opuntia phaeacantha*)

***Opuntia santa-rita* (D. Griffiths & R.F. Hare) J.N. Rose: Santa Rita Pricklypear**

SYNONYMY: *Opuntia violacea* G. Engelm. var. *santa-rita* (D. Griffiths & R.F. Hare) L.D. Benson. COMMON NAMES: Blue Blade; Blue-blade; Dollar Cactus; Duraznilla (Spanish); Nopal Morado (Spanish); Purple Prickly Pear; Purple Pricklypear; Red Blade Pricklypear; Santa Rita Cactus; Santa Rita Prickly Pear; Santa Rita Prickly-pear; Santa Rita Pricklypear; Santa-Rita Cactus. DESCRIPTION: Terrestrial perennial stem-succulent shrub or tree (erect stems 2 to 6½ feet in height); the paddle-shaped stems (4 to 8 inches in length) may be azure-purple (warmer months), bluish-green, gray-green with a red tinge on the edge, green, greenish-blue, lavender, pink, red-purple, reddish-purple (cooler months), rose or pale violet-purple; the spines may be golden, pale yellow or pale yellow-gray aging to reddish-brown; the glochids may be golden, tan or yellow aging to brown or reddish-brown; the flowers (3 to 3½ inches in diameter) may be lemon-yellow, orange-yellow, pale yellow or yellow; the anthers are pale yellow or yellow; the stigma lobes may be light chartreuse, light green, green or light yellow; flowering generally takes place between early March and early June (additional record: one for early January and one for early August); the ripe fruits (1 to 1½ inches in length and ¼ inch in diameter) may be maroon, purple, purplish or reddish aging to gray. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; canyons; canyon bottoms; ridges; rocky hills; rocky hillsides; rocky and gravelly-sandy-loamy slopes; bajadas; rocky outcrops; sandy dunes; terraces; gravelly and sandy plains; flats; valley floors; along roadsides; creekbeds, and disturbed areas growing in dry rocky, rocky-sandy, gravelly and sandy ground and gravelly-sandy loam ground, occurring from 2,000 to 5,600 feet in elevation in the woodland, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Opuntia santa-rita* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Opuntia violacea* Engelm. var. *santa-rita* (Griffiths & Hare) L. Benson, Pages 92 & 95-96), 26 (recorded as *Opuntia violacea* var. *santa-rita*, color photograph), 27 (recorded as *Opuntia violacea* Engelm. var. *santa-rita* (Griffiths & Hare) L. Benson, Page 58; color

photographs: Plates 34 & 34A, Pages 100-101), 28 (recorded as *Opuntia violacea* var. *santa-rita*, color photograph 136), 43 (071810 - *Opuntia violacea* G. Engelm. in Emory var. *santa-rita* (Griffiths & Hare) L.D. Benson), 44 (062411 - no record of species; genus record), 45 (color photograph), 46 (Page 582), 48 (genus), 58 (recorded as *Opuntia violacea* Engelm. var. *santa-rita* (Griff. & Hare) L. Benson), 63 (071212), 77, 85 (071212 - color presentation), 91 (Pages 294-295), 115 (color presentation), 124 (062411 - no record of species; genus record), 140 (Pages 106 & 288), **HR** (observed as an escaped and naturalized ornamental)*

Opuntia spinosior (see *Cylindropuntia spinosior*)

Opuntia tetracantha (see *Cylindropuntia x tetracantha*)

Opuntia x tetracantha (see *Cylindropuntia x tetracantha*)

Opuntia versicolor (see *Cylindropuntia versicolor*)

Opuntia violacea var. *macrocentra* (see *Opuntia macrocentra* var. *macrocentra*)

Opuntia violacea var. *santa-rita* (see *Opuntia santa-rita*)

Opuntia violacea var. *violacea* (see *Opuntia macrocentra* var. *macrocentra*)

***Peniocereus greggii* (G. Engelm.) N.L. Britton & J.N. Rose: Nightblooming Cereus**

SYNONYMY: *Cereus greggii* G. Engelm. COMMON NAMES: Arizona Queen-of-the-night; Chaparral Cactus; Deer-horn Cactus; Desert Night-blooming Cereus; Desert Threadcereus; Night-blooming Cereus; Nightblooming Cereus; Huevos de Venado (Spanish); Jaramatraca (Spanish); Queen of the Night; Queen-of-the-night; Reina de la Noche (Spanish); Reina-de-la-noche; Saramatraca (Spanish); Sweet Potato-cactus. DESCRIPTION: Terrestrial perennial root- and stem-succulent shrub (sprawling to erect stems 1 to 8 feet in height and ¼ to ½ inch in width); the stems may be gray, gray-green or purple; the spines may be black or yellowish-white; the large white flowers (2 to 5 inches in diameter and 6 to 8½ inches in length) open after dusk and last only one night; the anthers are pale cream-yellow; the stigma lobes are white; flowering generally takes place between late May and early July (additional records: one for early January, two for mid-March, one for early May and one for early December); the ripe fruits (1¼ to 4 inches in length and ¾ to 2 inches in diameter) are orange-red or bright red. HABITAT: Within the range of this species it has been reported from mountains; mesas; ridges; ridge crests; gravelly hills; rocky hillsides; rocky slopes; bajadas; sand dunes; gravelly-sandy plains; gravelly flats; valley floors; arroyos; along sandy washes; edges of washes and bottomlands growing in dry desert pavement; rocky, gravelly and sandy ground, and rocky-sandy loam, gravelly loam, gravelly-sandy loam, sandy loam and clayey loam ground, occurring from 800 to 5,200 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers are fragrant. The plant, *Peniocereus greggii* var. *greggii*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or beverage crop; it was also noted as having been used as a drug or medication. Plant with other desert shrubs and trees, such as the Creosote Bush (*Larrea tridentata* var. *tridentata*), Foothill Paloverde (*Parkinsonia microphylla*) and Velvet Mesquite (*Prosopis velutina*), that will provide support and protection. Birds feed on the fruit and seeds. *Peniocereus greggii* is native to southwest-central and southern North America. *5, 6, 12 (recorded as *Cereus greggii* Engelm., Pages 116-118), 16, 27 (recorded as *Cereus greggii* Engelm., Pages 61; color photographs: Plates 36 & 36A, Page 101), 28 (color photographs 112 A&B), 43 (012310), 44 (040111 - no record of species or genus), 45 (color photograph), 46 (Page 568), 48, 63 (071212), 77, 85 (071212 - color presentation), 86 (recorded as *Cereus greggii*, color photograph), 115 (color presentation), 119, 124 (040111 - no record of species or genus), 127 (records found under *Peniocereus greggii* var. *greggii*), 151, **MBJ** (correspondence date July 3, 2013)*

Campanulaceae: The Bellflower Family

***Nemacladus glanduliferus* W.L. Jepson var. *orientalis* R. McVaugh: Glandular Threadplant**

SYNONYMY: *Nemacladus orientalis* (R. McVaugh) N.R. Morin. COMMON NAMES: Glandular Nemacladus (a name applied to the species); Glandular Threadplant (a name also applied to the species and other species); Silver Stem Threadplant (a name applied to the species); Thread Plant (a name applied to the species and the genus *Nemacladus*); Threadplant (a name applied to the species and the genus *Nemacladus*); Threadstem (a name applied to the species and other species). DESCRIPTION: Terrestrial annual forb/herb (stems 3 to 8 inches in height); the stems are reddish-brown; the flowers are pinkish-white, white, white-cream-lavender or white and maroon; flowering generally takes place between mid-February and mid-June. HABITAT: Within the range of this species it has been reported from mountains; gravelly mesas; canyons; crevices in rocks; ridgetops; rocky hills; hilltops; rocky hillsides; bedrock, rocky, rocky-sandy, gravelly, gravelly-loamy, sandy-loamy and loamy slopes; alluvial fans; shaley outcrops; gravelly and loamy flats; valley floors; gravelly-sandy roadsides; within gravelly and sandy arroyos; bottoms of arroyos; gravelly riverbeds; along and in rocky, rocky-sandy, stony-sandy, gravelly, gravelly-sandy and sandy washes; along and in drainages; (gravelly and gravelly-sandy) banks of rivers and washes; gravelly-sand bars;

sandy benches; riparian areas, and disturbed areas growing in moist and dry desert pavement; rocky, rocky-cobbly, rocky-sandy, shaley, shaley-sandy, stony-sandy, cindery-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam and loam ground, and gravelly silty ground, occurring from 500 to 4,900 feet in elevation in the desertscrub and wetland ecological formations. NOTE: *Nemacladus glanduliferus* var. *orientalis* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (070310), 44 (071212 - no listings recorded under Common Names), 46 (Page 827), 63 (071212), 85 (071312 - color presentation of dried material), 115 (color presentation of the species), 124 (071212 - no record of variety, species or genus), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Nemacladus orientalis (see *Nemacladus glanduliferus* var. *orientalis*)

Capparaceae (Capparidaceae): The Caper Family

***Wislizenia refracta* G. Engelmann: Spectacle Fruit**

COMMON NAMES: Jack-ass Clover; Jackass Clover (a name also applied to the genus *Wislizenia*); Jackass-clover (a name also applied to the genus *Wislizenia*); Jackassclover (a name also applied to the genus *Wislizenia*); Rocky Mountain Bee Plant; Spectacle Fruit; Spectacle Pod (a name also applied to other species); Spectacle-fruit; Spectacle-pod (a name also applied to other species); Spectaclefruit; Spider Flower; Yellow Bee Weed. DESCRIPTION: Terrestrial annual (subsp. *californica* and *refracta*) or perennial (subsp. *palmeri*) forb/herb (erect stems 2 inches to 8 feet in height); the foliage is light green; the flowers are yellow; flowering generally takes place between mid-February and early December (additional record: one for mid-January). HABITAT: Within the range of this species it has been reported from mountains; crevices in rocks; cinder cones; foothills; sandy hills; hillsides; cindery slopes; bajadas; amongst boulders; lava flows; sand dunes; sand hummocks; sandy, sandy-loamy, clayey and silty flats; valley bottoms; coastal dunes; coastal plains; coastal beaches; gravelly-sandy road beds; along rocky, gravelly, gravelly-sandy-loamy and sandy roadsides; arroyos; bottoms of arroyos; within gullies; seeps; springs; streambeds; along rivers; in sandy washes; bouldery-sandy-silty drainages; silty lakebeds; playas; palm oases; marshes; depressions; sandy swales; edges of ponds; margins of washes; mudflats; sandy beaches; bottomlands; sandy floodplains; along riparian areas, and disturbed areas growing in wet and dry bouldery, bouldery-sandy, rocky, cindery, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, gravelly-sandy-clayey loam and sandy loam ground; clay ground, and bouldery-sandy-silty and silty ground, occurring from sea level to 7,900 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. Rufous Hummingbirds (*Selasphorus rufus*) and Pygmy Blue Butterflies have been observed visiting the flowers. *Wislizenia refracta* is native to southwest-central and southern North America. *5, 6, 28 (color photograph 332), 43 (012410), 44 (071512 - color photograph), 46 (placed in the Capparidaceae: The Caper Family, Page 357), 63 (071512 - color presentation of seed), **80** (This species is listed as a Rarely Poisonous and Suspected Poisonous Range Plants. "Feeding experiments have shown this annual forb to be highly toxic but the plant is not very palatable."), **85** (071512 - color presentation), 86 (color photograph), 115 (color presentation), 124 (071512 - no record of species or genus)*

Caprifoliaceae: The Honeysuckle Family

Sambucus caerulea var. *mexicana* (C. Presl ex DC.) L.D. Benson (see *Sambucus nigra* subsp. *canadensis*)

Sambucus canadensis (see *Sambucus nigra* subsp. *canadensis*)

Sambucus cerulea var. *mexicana* (C. Presl ex DC.) L.D. Benson (see *Sambucus nigra* subsp. *canadensis*)

Sambucus mexicana C. Presl ex DC. (see *Sambucus nigra* subsp. *canadensis*)

***Sambucus nigra* C. Linnaeus: Black Elderberry**

SYNONYMY: (For subsp. *canadensis* (C. Linnaeus) R. Bolli: *Sambucus caerulea* C.S. Rafinesque-Schmaltz var. *mexicana* (C.B. Presl ex A.P. de Candolle) L.D. Benson, orth. var. (alternate spelling: *Sambucus cerulea* C.S. Rafinesque-Schmaltz var. *mexicana* (C.B. Presl ex A.P. de Candolle) L.D. Benson); *Sambucus canadensis* C. Linnaeus; *Sambucus mexicana* C.B. Presl ex A.P. de Candolle. For subsp. *cerulea* (C.S. Rafinesque-Schmaltz) R. Bolli: *Sambucus caerulea* (alternate spellings observed: *Sambucus cerulea* and *Sambucus coerulea*) C.S. Rafinesque-Schmaltz; *Sambucus caerulea* (alternate spellings observed: *Sambucus cerulea* var. *neomexicana*) C.S. Rafinesque-Schmaltz var. *neomexicana* (E.O. Wooten) A. Rehder; *Sambucus glauca* T. Nuttall; *Sambucus neomexicana* E.O. Wooten; *Sambucus nigra* C. Linnaeus subsp. *caerulea* (C.S. Rafinesque-Schmaltz) R. Bolli, orth.var.). COMMON NAMES: Alcanfor (Hispanic); Alderne; American Black-berry Elder; American Black-berried Elder; American Black Elderberry; American Elder; American Elder Tree (applied to subsp. *canadensis*); American Elderberry; Arizona Blueberry Elder; Arizona Blue Elder; Arizona Elder; 'Atsinilt'ish 'Ii'taa' <□acinl̥iṣ □ilt'ā□i> (applied to *Sambucus mexicana*, Athapascan: Navajo)¹⁴⁰; Azumate (applied to subsp. *canadensis*, en Mich); Azumatl (applied to subsp. *canadensis*, en Mich); Azumate (applied to subsp. *canadensis*, en Mich); Azumatl (applied to subsp. *canadensis*, en Mich); Azumate (en Mich); Azumatl (en Mich); Baadu□ <páru> (applied to *Sambucus mexicana*, Hokan:

Washo)¹⁴⁰; Bapoki Hi (applied to subsp. *canadensis* “Popping Blackhaw Plant”, Osage); Bixhumí (applied to *Sambucus mexicana*, Oto-Manguéan: Zapotec)¹⁴⁰; Black Elder; Black-berry Elder; Black-berried Elder; Black-berried European Elder; Blue Elder (applied to subsp. *cerulea*, a name also applied to other species); Blue Elderberry (applied to subsp. *cerulea*, a name also applied to other species); Blueberry Elder (a name also applied to other species); Bone Tree (a name also applied to the genus *Sambucus*); Bone-tree (a name also applied to the genus *Sambucus*); Bore Tree (applied to subsp. *canadensis*); Bore-tree (applied to subsp. *canadensis*); Bottery Tree (applied to subsp. *canadensis*); Bottery-tree (applied to subsp. *canadensis*); Bountry; Boutry; Bur Tree (a name also applied to the genus *Sambucus*); Bur-tree (a name also applied to the genus *Sambucus*); Canadian Elderberry (applied to subsp. *canadensis*); Canadian Red-berry Elder (applied to subsp. *canadensis*); Canadian Red-berried Elder (applied to subsp. *canadensis*); Canadische Hollunder (applied to subsp. *canadensis*, German); Capiro (applied to *Sambucus mexicana*, Spanish)¹⁴⁰; Chaputa (applied to subsp. *canadensis*, Dakota); Chaputa-hu (applied to subsp. *canadensis* “Elder Bush”, Dakota); Ch’ih Bitsiin Lizhin <č’ih bicin ližin> (applied to *Sambucus mexicana*, Athapascan: Navajo)¹⁴⁰; Ch’ilhazhé <suul> (applied to *Sambucus mexicana*, Athapascan: Western Apache)¹⁴⁰; Common Elder; Common Elderberry; Continental Elder; Coyapa (Chiapas); Coyapa (applied to *Sambucus mexicana*, Mixe-Zoque: Zoque)¹⁴⁰; Cumdemba <cumdumba, cumtempa, condumbo> (applied to *Sambucus mexicana*, Tarascan: Purépecha)¹⁴⁰; Dahapdam (applied to *Sambucus mexicana*, Uto-Aztecan: Akimel O’odham)¹⁴⁰; Danewort; Desert Elderberry (a name also applied to other species); [Blue-] Desert Elderberry (applied to *Sambucus mexicana* and subsp. *cerulea*, English)¹⁴⁰; Dwarf Elder; Dwarf Elder (applied to subsp. *cerulea*); Dwarf Elder; Elder (a name also applied to other species and the genus *Sambucus*); Elder Bush (applied to subsp. *canadensis*); Elder Flowers (applied to subsp. *canadensis*); Elder Rob (applied to subsp. *canadensis*, a name given to the juice of the berries); Elder-blow (applied to subsp. *canadensis*); Elder-blows (applied to subsp. *canadensis*); Elder-flowers (applied to subsp. *canadensis*); Elderberry (a name also applied to other species and the genus *Sambucus*); Ellar; Ellarne (a name also applied to the genus *Sambucus*); Ellen; Ellenwood (a name also applied to the genus *Sambucus*); Ellet; Ellhorn (a name also applied to the genus *Sambucus*); Elorne (a name also applied to the genus *Sambucus*); Elren (a name also applied to the genus *Sambucus*); English Elder; European Black Elder (applied to subsp. *nigra*); European Black Elderberry (applied to subsp. *nigra*); European Common Elder; European Common Elderberry; Euroelder; European Elder; European Elder Berry; European Elderberry (applied to subsp. *nigra*); Fläder (Swedish); Filkfläder (Swedish); Flieder (German); Flor de Saucó (Hispanic); Flor Saucó; Florida Elder (applied to subsp. *canadensis*); Florida Elderberry; German Elder; Guarico (Hispanic); Hairy Blue Elderberry; Hauk U’usi <hauk u’ushi> (applied to *Sambucus mexicana*, Uto-Aztecan: Mountain Pima)¹⁴⁰; Hilder; Hillerne; Hollunder (German); Hubu’ <hub-ú> (applied to *Sambucus mexicana*, Uto-Aztecan: Northern Paiute)¹⁴⁰; Hungwat <hun-kwat> (applied to *Sambucus mexicana*, Uto-Aztecan: Cahuilla)¹⁴⁰; Huvúhya (applied to *Sambucus mexicana*, Uto-Aztecan: Mono)¹⁴⁰; Huvú (applied to *Sambucus mexicana*, Uto-Aztecan: Western Paiute)¹⁴⁰; Hylder; Ita Tindo (Yuku en Oax); Ita Tindoo (yaa Mixteco en Oax); Jihhazhí (applied to *Sambucus mexicana*, Jihhazí is a name that may also be applied to *Celtis palida* and *Celtis reticulata*, Athapascan: Navajo)¹⁴⁰; Joday Kanadese Vlier (applied to subsp. *canadensis*, Afrikaans); Joday Llochic (Tepehuano en Nayarit); Judas Tree (misapplied); Kanadese Vlier (Afrikaans); Kēwēmām <kiwimám, kiwimöm, kiwi> (applied to *Sambucus mexicana*, Yuki: Yuki)¹⁴⁰; Kondembasi (Tarasco); Kopáhl (applied to *Sambucus mexicana*, Yuman: Kumiai)¹⁴⁰; Kuhupil <kuhup-|-> (applied to *Sambucus mexicana*, Uto-Aztecan: Tübatulabal)¹⁴⁰; Kunugivū (applied to *Sambucus mexicana*, Uto-Aztecan: Mono)¹⁴⁰; Kunuki(ppüh) (applied to *Sambucus mexicana*, Uto-Aztecan: Panamint)¹⁴⁰; Kunuvug□ (applied to *Sambucus mexicana*, Uto-Aztecan: Kawaiisu, the berry is called kunuvugu□ivi)¹⁴⁰; Ku:ta (applied to *Sambucus mexicana*, Uto-Aztecan: Luiseño)¹⁴⁰; Kuuhuut□ (applied to *Sambucus mexicana*, Uto-Aztecan: Serrano)¹⁴⁰; Kúút (applied to *Sambucus mexicana*, Uto-Aztecan: Cupeño)¹⁴⁰; Llochic (applied to subsp. *canadensis*, Tepehuano en Nayarit); Má’ Ma Joo (Hispanic); Mexican Elder; Mexican Elder (applied to *Sambucus mexicana* and subsp. *cerulea*, English)¹⁴⁰; Mexican Elderberry; Ne Ho (en Oax); New Mexican Blueberry; New Mexican Elder (applied to subsp. *cerulea*); New Mexican Elderberry (applied to subsp. *cerulea*); New Mexico Blueberry Elder; Nttzirza (applied to *Sambucus mexicana*, Oto-Manguéan: Otomi)¹⁴⁰; Ocoquihui (Chiapas); Ocoquihui (applied to *Sambucus mexicana*, Spanish)¹⁴⁰; Pa’gonogwip [Pa’go-nogip] (applied to *Sambucus mexicana*, Uto-Aztecan: Shoshoni)¹⁴⁰; Parsley Elder; P□gübūxia, Hübū□xia, Saíinoiya□^a, Sainō□waiyu□^u (applied to *Sambucus mexicana*, Uto-Aztecan: Northern Paiute)¹⁴⁰; Pipigwe-minan (applied to subsp. *canadensis*, Chippewa); Qayas (applied to *Sambucus mexicana*, Chumash: Chumash)¹⁴⁰; Road Berry (Ohio); Rotosi (applied to *Sambucus mexicana*, Uto-Aztecan: Tarahumara)¹⁴⁰; Sabugueiro-negro (Portuguese); Sahuco (Spanish); Sambugo (Spanish); Sau (applied to *Sambucus mexicana*, Uto-Aztecan: Mountain Pima)¹⁴⁰; Sauce (Hispanic); Sauce Chico (Hispanic); Saucó (Spanish); Saucó (Spanish); Saucó [Azul] <saucó> (applied to *Sambucus mexicana*, “[Blue] Elder”, Spanish: California, Chihuahua, Sonora south)¹⁴⁰; Saucó Grande (Hispanic); Sauko [Saokó] (applied to *Sambucus mexicana*, Uto-Aztecan: Guarijío)¹⁴⁰; Sauzo Tapiro (Hispanic); Schwarzer Holunder (German); Skaw; Skirariu (applied to subsp. *canadensis*, Pawnee); Soapberry (a name also applied to other species); Sureau (a name also applied to the genus *Sambucus*, French); Sureau du Canada (applied to subsp. *canadensis*, French); Sureau Noir (French); Sweet Elder (a name also applied to other species); Tapiro (Hispanic); Tahapidam (applied to *Sambucus mexicana*, Uto-Aztecan: Hiá Ce□ O’odham, Tohono O’odham)¹⁴⁰; Tal Tal (applied to *Sambucus mexicana*, Yuma: Paipai)¹⁴⁰; Tapiro (Hispanic: New Mexico); Tápiro (applied to *Sambucus mexicana*, Spanish: Arizona, Sonora)¹⁴⁰; Tapiro Saucó (Hispanic); Tóisavui (applied to *Sambucus mexicana*, Uto-Aztecan: Western Paiute)¹⁴⁰; Toxem o Toxem (Mixe en Oax); Toxiwua (en Michoacán); Tree of Music; Tszof (applied to *Sambucus mexicana*, Athapascan: Chiricahua and Mescalero Apache)¹⁴⁰; Velvet Elder; Velvet-leaf Elder; Velvetleaf Elder; Wagathahashka (applied to subsp. *canadensis*, Omaha-Ponca); Wagathahashka-hi (applied to subsp. *canadensis*, “Elder Bush”, Omaha-Ponca); Walewort; Western Blue Elder (applied to subsp. *cerulea*); Western Blue Berry Elder (applied to subsp. *cerulea*); Western Blue Elder Berry (applied to subsp. *cerulea*); Western Blue Elder-berry (applied to subsp. *cerulea*); Western Blue Elderberry (applied to subsp. *cerulea*); Western Blue-berry Elder (applied to subsp. *cerulea*); Western Blueberry Elder (applied to subsp. *cerulea*); Whist-aller; Wild

Elder; Winlin-berry; Xiiksh (applied to *Sambucus mexicana*, Mixe-Zoque: Mixe)¹⁴⁰; Xometl <azumiatl, azu-miatl, xomét> (applied to *Sambucus mexicana*, Uto-Aztecan: Náhuatl, San Luis Potosí, Veracruz)¹⁴⁰; Xsa:wk (applied to *Sambucus mexicana*, Yuman: Cocopah)¹⁴⁰; Yutnucate (applied to *Sambucus mexicana*, Oto-Manguéan: Mixtec)¹⁴⁰. DESCRIPTION: Terrestrial perennial drought-deciduous (nearly evergreen) shrub or tree (erect stems 6 to 36 feet in height with a compact rounded crown 8 to 26 feet in width; one tree was observed and described as being 10 feet in height with a crown 13 feet in width, one tree was observed and described as being 12 feet in height with a crown 10 feet in width and a trunk diameter of 4 inches, one plant was observed and described as being 13 feet in height with a crown 16½ feet in width); the bark may be light brown, dark brown, gray or grayish; the branches are gray-brown; the twigs are light green or green; the leaves may be bright green, dark green or yellow green with 3 to 5 leaflets (subsp. *canadensis*) or with 5 to 9 leaflets (subsp. *cerulea*); the flowers (between 1/8 to 1/4 inch in diameter in many-branched clusters ½ to 10 inches in width) may be buff, pale cream, cream, creamy-white, creamy-white-yellowish, creamy-yellow, golden-ivory, pale green, white, white-cream, white-pink, pale yellow, yellow, yellow-cream, yellow-green, yellow-white, yellowish or yellowish-white; the anthers are cream-yellow; flowering generally takes place between mid-March and late October (additional records: one for mid-February, two for late February, two for late November and one for mid-December); the mature berrylike fruits (between 1/8 to 1/4 inch in diameter in clusters) are black, blackish, blue, dark blue, blue-black, blue-gray, dark blue-purple, purple, dark purple or purple-black. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; plateaus; rock walls; clayey cliffs; cliff ledges; bases of cliffs; rocky canyons; along bouldery-gravelly-sandy and sandy-silty canyon bottoms; rocky talus slopes; rocky bluffs; buttes; along ridges; clearings and openings in forests; meadows; foothills; bouldery and rocky hills; hilltops; bouldery, rocky, rocky-humusy-loamy, cobbly-loamy and clayey hillsides; rocky escarpments; bouldery, rocky, rocky-sandy, shaley, cobbly-sandy-loamy, sandy and loamy-clayey slopes; rocky-sandy-loamy alluvial fans; amongst boulders and rocks; bases of rocks; sheltered spring nooks; rocky banks; plains; flats; uplands; basins; gravelly-sandy and silty valley floors; valley bottoms; railroad right-of-ways; railroad beds; along rocky-gravelly roadsides; along and in arroyos; along bottoms of arroyos; within draws; gulches; gullies; along gravelly-sandy ravines; seeps; springs; along bouldery streams; rocky and gravelly-sandy streambeds; along creeks; creekbeds; along rivers; silty riverbeds; along and in gravelly, sandy and loamy washes; along and in drainages; drainage ways; watercourses; playas; ciénegas; marshes; sloughs; along (rocky and sandy-clayey-loamy) banks of streams, streambeds, creekbeds and rivers; along (sandy-silty and clayey) edges of creeks and rivers, washes and marshes; along (rocky-sandy and sandy) margins of washes, creeks and playas; shorelines of lakes; sandy beaches; sandy benches; sandy terraces; sandy and silty bottomlands; sandy floodplains; mesquite bosques; along fencerows; along canal banks; along ditches; along ditch banks; sandy canal banks; gravelly-sandy and sandy riparian areas, and disturbed areas growing in wet, moist and dry bouldery, bouldery-gravelly, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, rocky-humusy loam, cobbly loam, cobbly-sandy loam, gravelly loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; gravelly clay, sandy clay, loamy clay, humusy clay and clay ground, and gravelly silty, sandy silty and silty ground, occurring from sea level to 11,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: A plant with EXOTIC and NATIVE subspecies. The native subspecies may be attractive components of a restored native habitat, and valuable in controlling erosion and in stabilizing the banks of streams. This plant, *Sambucus nigra* including *Sambucus nigra* subsp. *canadensis* and *Sambucus nigra* subsp. *cerulea*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage (subsp. *canadensis*), spice (subsp. *cerulea*), and/or dye (black, orange, purple and yellow dyes - subsp. *canadensis*) crop; it was also noted as having been used as a fuel (subsp. *cerulea*), as tools, for making musical instruments (clappers, flutes, music sticks and whistles), as a toy or in games, as a drug or medication and as an insecticide (inner bark of young shoots used to repel flies and insects - subsp. *canadensis*). The Blue Elderberry has been reported to be fairly easy to establish from direct seeding and planting of cuttings, rootstock and seedlings and older plants stock. The flowers may be fragrant. The Blue Elderberry produces valuable cover and food for wildlife as well as perching and nesting sites for birds. The Blue Elderberry provides nesting habitat for the Dusky Flycatcher (*Empidonax oberholseri*), Broad-tailed Hummingbird (*Cyananthus latirostris*), Lincoln Sparrow (*Melospiza lincolni*), White-crowned Sparrow (*Zonotrichia leucophrys*), MacGillivray's Warbler (*Oporornis tolmiei*) and Orange-crowned Warbler (*Vermivora celata*); the foliage is browsed by Black Bear (*Ursus americanus*), Elk (*Cervus elaphus*), Mule Deer (*Odocoileus hemionus*), White-tailed Deer (*Odocoileus virginianus*), Pronghorn (*Antilocapra americana*) and other animals; hummingbirds have been observed visiting the flowers for nectar, and the fruits are eaten by many species of birds, including among others: bluebirds, Green-tailed Towhees (*Pipilo chlorurus*), grosbeaks, grouse, House Finches (*Carpodacus mexicanus*), magpies, pheasant, quail, Townsend Solitaires (*Myadestes townsendi*), Warbling Vireos (*Vireo gilvus*), Western Tanagers (*Piranga ludoviciana*) and woodpeckers. When restoring the floodplains of major river systems consider including the following plants in the mix if they have been recorded from this township: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*),

Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soap-tree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Palo Verde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Nettleleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii*). *Sambucus nigra* subsp. *cerulea* is native to west-central and southern North America. *Sambucus nigra* C. Linnaeus subsp. *cerulea* (C.S. Rafinesque-Schmaltz) R. Bolli and *Sambucus nigra* C. Linnaeus subsp. *canadensis* (C. Linnaeus) R. Bolli are the native Arizona subspecies. *Sambucus nigra* C. Linnaeus subsp. *nigra* (European Black Elderberry) is native to northeastern North America; northern, central, eastern and southern Europe; western Asia, and northern Africa and is not known to occur in Arizona. *5, 6, 18, 43 (012510), 44 (062811 - color photograph), 46 (recorded as *Sambucus neomexicana* Wooten, *Sambucus mexicana* Presl and *Sambucus coerulea* Raf., Pages 813-814), 48 (genus), 52 (recorded as *Sambucus coerulea* and *Sambucus mexicana*, color photographs), 63 (071812 - color presentation), 80 (Species of the genus *Sambucus* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. “This tall shrub is reported poisonous to livestock and humans but the cooked berries are harmless.”), 85 (071912 - color presentation), 124 (062711), 127, 140 (recorded as *Sambucus nigra* Linnaeus subsp. *cerulea* (Rafinesque-Schmaltz) R. Bolli [*Sambucus mexicana* C. Presl ex DeCandolle], Pages 107-109 & 289)*

***Sambucus nigra* C. Linnaeus subsp. *canadensis* (C. Linnaeus) R. Bolli: American Black Elderberry**

SYNONYMY: *Sambucus caerulea* C.S. Rafinesque-Schmaltz var. *mexicana* (C.B. Presl ex A.P. de Candolle) L.D. Benson, orth. var. (alternate spelling: *Sambucus caerulea* C.S. Rafinesque-Schmaltz var. *mexicana* (C.B. Presl ex A.P. de Candolle) L.D. Benson); *Sambucus canadensis* C. Linnaeus; *Sambucus mexicana* C.B. Presl ex A.P. de Candolle. COMMON NAMES: Alcanfor (Hispanic); American Black Elderberry; American Elder; American Elder Tree; American Elderberry; Arizona Blueberry Elder; Arizona Blue Elder; Arizona Elder; ‘Atsinilt’ish ‘Ii’taq’ <□acinl̄iṣ □ilt’ā□i> (applied to *Sambucus mexicana*, Athapascan: Navajo)¹⁴⁰; Azumate (en Mich); Azumatl (en Mich); Baadu □ <páru> (applied to *Sambucus mexicana*, Hokan: Washo)¹⁴⁰; Bapoki Hi (“Popping Blackhaw Plant”, Osage); Bixhumí (applied to *Sambucus mexicana*, Oto-Manguan: Zapotec)¹⁴⁰; Black Elder; Black-berry Elder; Black-berried Elder; Blueberry Elder; Bore Tree; Bore-tree; Bottery Tree; Bottery-tree; Canadian Elderberry; Canadian Red-berry Elder; Canadian Red-berried Elder; Canadische Hollunder (German); Capiro (applied to *Sambucus mexicana*, Spanish)¹⁴⁰; Chaputa (Dakota); Chaputa-hu (“Elder Bush”, Dakota); Ch’ił Bitsiin Lizhin <č’ił bicin ližin> (applied to *Sambucus mexicana*, Athapascan: Navajo)¹⁴⁰; Ch’iłhazhé <suul> (applied to *Sambucus mexicana*, Athapascan: Western Apache)¹⁴⁰; Common Elder (a name also applied to the species); Common Elderberry (a name also applied to the species); Coyapa (Chiapas); Coyapa (applied to *Sambucus mexicana*, Mixe-Zoque: Zoque)¹⁴⁰; Cumdemba <cumdumba, cumtempa, condumbo> (applied to *Sambucus mexicana*, Tarascan: Purépecha)¹⁴⁰; Dahapdam (applied to *Sambucus mexicana*, Uto-Aztecan: Akimel O’odham)¹⁴⁰; Desert Elderberry (a name also applied to the species); [Blue-] Desert Elderberry (applied to *Sambucus mexicana*, English)¹⁴⁰; Elder (a name also applied to the species, to other species and to the genus *Sambucus*); Elder Berry (a name also applied to the species, to other species and to the genus *Sambucus*); Elder Bush; Elder Flowers; Elder Rob (a name given to the juice of the berries); Elder-berry (a name also applied to the species, to other species and to the genus *Sambucus*); Elder-blow; Elder-blows; Elder-flowers; Elderberry (a name also applied to the species, to other species and to the genus *Sambucus*); Flor de Saucó (Hispanic); Florida Elder; Florida Elderberry; Guarico (Hispanic); Hauk U’usi <hauk u’ushi> (applied to *Sambucus mexicana*, Uto-Aztecan: Mountain Pima)¹⁴⁰; Hubu’ <hub-ú> (applied to *Sambucus mexicana*, Uto-Aztecan: Northern Paiute)¹⁴⁰; Hungwat <hun-kwat> (applied to *Sambucus mexicana*, Uto-Aztecan: Cahuilla)¹⁴⁰; Huvúhya (applied to *Sambucus mexicana*, Uto-Aztecan: Mono)¹⁴⁰; Huvúii (applied to *Sambucus mexicana*, Uto-Aztecan: Western Paiute)¹⁴⁰; Ita Tindo (Yuku en Oax); Ita Tindoo (yaa Mixteco en Oax); Jiłhazhi (applied to *Sambucus mexicana*, Jiłhazhi is a name that may also be applied to *Celtis palida* and *Celtis reticulata*, Athapascan: Navajo)¹⁴⁰; Joday Kanadese Vlier (Afrikaans); Kēwēmām <kiwimám, kiwimöm, kiwi> (applied to *Sambucus mexicana*, Yuki: Yuki)¹⁴⁰; Kondembasi (Tarasco); Kopáhl (applied to *Sambucus mexicana*, Yuman: Kumiai)¹⁴⁰; Kuhupil <kuhup□-l> (applied to *Sambucus mexicana*, Uto-Aztecan: Tübatulabal)¹⁴⁰; Kunugivú (Uto-Aztecan: Mono)¹⁴⁰; Kunuki(ppüh) (applied to *Sambucus mexicana*, Uto-Aztecan: Panamint)¹⁴⁰; Kunuvug□ (applied to *Sambucus mexicana*, Uto-Aztecan: Kawaiisu, the berry is called kunuvugu□ivi)¹⁴⁰; Ku:ta (applied to *Sambucus mexicana*, Uto-Aztecan: Luiseño)¹⁴⁰; Kuuhuut□ (applied to *Sambucus mexicana*, Uto-Aztecan: Serrano)¹⁴⁰; Kúüt (applied to *Sambucus mexicana*, Uto-Aztecan: Cupeño)¹⁴⁰; Llochic (Tepehuano en Nayarit); Má’ Ma Joo (Hispanic); Mexican Elder; Mexican Elder (applied to *Sambucus mexicana*, English)¹⁴⁰; Mexican Elderberry; Ne Ho (en Oax); New Mexican Blueberry; New Mexico Blueberry Elder; Ntzirza (applied to *Sambucus mexicana*, Oto-Manguan: Otomí)¹⁴⁰; Ocoquihui (Chiapas); Ocoquihui (applied to *Sambucus mexicana*, Spanish)¹⁴⁰; Pa’gonogwip [Pa’go-nogip] (applied to *Sambucus mexicana*, Uto-Aztecan: Shoshoni)¹⁴⁰; Pipigwe-minan (Chippewa); P□gübūxia, Hübū□xia, Saíinoiya□^a, Sainō□waiyu□^u (applied to *Sambucus mexicana*, Uto-Aztecan: Northern Paiute)¹⁴⁰; Qayas (applied to *Sambucus mexicana*, Chumash: Chumash)¹⁴⁰; Road Berry (Ohio); Rotosi (applied to *Sambucus mexicana*, Uto-Aztecan: Tarahumara)¹⁴⁰; Sambucus (a name also applied to the genus *Sambucus*); Sau (applied to *Sambucus mexicana*, Uto-Aztecan: Mountain Pima)¹⁴⁰; Sauce (Hispanic); Sauce Chico (Hispanic); Saucó (Spanish); S’auco (Zoque-popoluca en Veracruz); Saúco [Azul] <saucó> (applied to *Sambucus mexicana*, “[Blue] Elder”, Spanish: California, Chihuahua, Sonora south)¹⁴⁰; Saucó Grande (Hispanic); Sauko [Saokó] (applied to *Sambucus mexicana*, Uto-Aztecan: Guarijío)¹⁴⁰; Sauzo Tapiro (Hispanic); Skirariu (Pawnee); Sureau du Canada (French); Sweet Elder; Tahapidam (applied to *Sambucus mexicana*, Uto-Aztecan: Hiá Ce□ O’odham, Tohono O’odham)¹⁴⁰; Tal Tal (applied to *Sambucus mexicana*, Yuma: Paipai)¹⁴⁰; Tapiro (Hispanic: New Mexico); Tápíro (applied to *Sambucus mexicana*, Spanish: Arizona, Sonora)¹⁴⁰; Tapiro Saucó (Hispanic); Tóisavui (applied to *Sambucus mexicana*, Uto-Aztecan: Western Paiute)¹⁴⁰; Toxem o Toxeem (Mixe en Oax); Toxiwua (en Michoacán); Tsoł (applied to *Sambucus mexicana*, Athapascan: Chiricahua and Mescalero Apache)¹⁴⁰;

Wagathahashka (Omaha-Ponca); Wagathahashka-hi (“Elder Bush”, Omaha-Ponca); Xiiksh (applied to *Sambucus mexicana*, Mixe-Zoque: Mixe)¹⁴⁰; Xometl <azumiatl, azu-miatl, xomét> (applied to *Sambucus mexicana*, Uto-Aztecan: Náhuatl, San Luis Potosí, Veracruz)¹⁴⁰; Xsa:wk (applied to *Sambucus mexicana*, Yuman: Cocopah)¹⁴⁰; Yutnucate (applied to *Sambucus mexicana*, Oto-Manguean: Mixtec)¹⁴⁰. DESCRIPTION: Terrestrial perennial drought-deciduous or nearly evergreen shrub or tree (erect stems 7 to 36 feet in height with a compact rounded crown 8 to 26 feet in width; one tree was observed and described as being 12 feet in height with a crown 10 feet in width and a trunk diameter of 4 inches); the bark is light brown or gray; the twigs are light green; the leaves are bright green with 3 to 5 leaflets; the flowers (between 1/8 to 1/4 inch in diameter in many-branched clusters 2 to 8 inches in width) may be buff, pale cream, cream, creamy-white, creamy-white-yellowish, creamy-yellow, pale green, white, white-cream, pale yellow, yellow, yellow-cream or yellowish-white; the anthers are cream-yellow; flowering generally takes place between mid-March and early October (additional records: one for late February, one for late October and one for late November); the mature berry-like fruits (between 1/8 to 1/4 inch in diameter in clusters) are black, blackish, blue, dark blue, blue-black, blue-gray or dark blue-purple. HABITAT: Within the range of this species it has been reported from mountains; plateaus; canyons; along bouldery-gravelly-sandy and sandy-silty canyon bottoms; talus slopes; bluffs; openings in forests; meadows; foothills; bouldery hills; hilltops; bouldery, rocky, cobbly-loamy and clayey hillsides; bouldery, rocky-sandy, cobbly-sandy-loamy, sandy and loamy-clayey slopes; rocky-sandy-loamy alluvial fans; amongst boulders and rocks; rocky banks; plains; flats; basins; gravelly-sandy valley floors; railroad right-of-ways; along rocky-gravelly roadsides; along and in arroyos; along bottoms of arroyos; within draws; gulches; gullies; along gravelly-sandy ravines; seeps; springs; along bouldery streams; gravelly-sandy streambeds; along creeks; creekbeds; riverbeds; along and in sandy and loamy washes; drainage ways; watercourses; playas; ciénegas; marshes; sloughs; (sandy-clayey-loamy) banks of streams and rivers; (sandy-silty) edges of rivers, washes and marshes; (sandy) margins of washes and playas; sandy beaches; sandy benches; sandy terraces; bottomlands; sandy floodplains; mesquite bosques; sandy canal banks; along ditches; along ditch banks; gravelly-sandy and sandy riparian areas, and disturbed areas growing in wet, moist and dry bouldery, bouldery-gravelly, bouldery-gravelly-sandy, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, cobbly loam, cobbly-sandy loam, gravelly loam, sandy loam, sandy-clayey loam and loam ground; loamy clay, humusy clay and clay ground, and sandy silty ground, occurring from sea level to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or dye (black, orange, purple and yellow dyes) crop; it was also noted as having been used as tools, for making musical instruments (whistles), as a toy or in games, as a drug or medication and as an insecticide (inner bark of young shoots used to repel flies and insects). The tree is covered with bright green leaves during the cooler months, but is nearly deciduous during the hot summer months, the flowers may be fragrant. Hummingbirds have been observed visiting the flowers for nectar, the fruits are eaten by birds and the foliage is browsed by deer. When restoring the floodplains of major river systems consider including the following plants in the mix if they have been recorded from this township: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Nettle Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii*). *Sambucus nigra* subsp. *canadensis* is native to central and southern North America and Central America. *5, 6, 13 (recorded as *Sambucus caerulea* Raf. var. *mexicana* (Presl) L. Benson), 15 (recorded as *Sambucus mexicana* Presl ex DC.), 16 (recorded as *Sambucus mexicana* Presl), 18 (recorded as *Sambucus* spp.), 26 (recorded as *Sambucus mexicana*, color photograph), 28 (recorded as *Sambucus mexicana*, color photograph), 30 (recorded as *Sambucus mexicana*), 43 (012510), 44 (062811 - no listing records under Common Names - subspecies does not occur in California), 46 (recorded as *Sambucus mexicana* Presl, Page 814), 48 (recorded as *Sambucus mexicana*), 52 (recorded as *Sambucus mexicana* Presl), 53 (recorded as *Sambucus mexicana* Presl), 58 (recorded as *Sambucus mexicana* Presl), 63 (071812 - color presentation), 77 (recorded as *Sambucus mexicana* Presl), 80 (Species of the genus *Sambucus* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. “This tall shrub has been reported poisonous to livestock and humans but the cooked berries are harmless.”), 85 (071912 - color presentation of dried material), 115 (color presentation), 124 (062711), 127, 140 (recorded as *Sambucus nigra* Linnaeus subsp. *caerulea* (Rafinesque-Schmaltz) R. Bolli [*Sambucus mexicana* C. Presl ex DeCandolle], Pages 107-109 & 289)*

Caryophyllaceae: The Pink Family

***Loeflingia squarrosa* T. Nuttall: Spreading Pygmyleaf**

COMMON NAME: California Loeflingia; Loeflingia (a name also applied to the genus *Loeflingia*); Sage-like Loeflingia (var. *artemisiarum*); Sagebrush Loeflingia (var. *artemisiarum*); Sagebrush Pygmyleaf (var. *artemisiarum*); Spreading Loeflingia; Spreading Pygmy-leaf; Spreading Pygmyleaf. DESCRIPTION: Terrestrial annual forb/herb (stems ½ to ¾ inches in height); the flowers are inconspicuous; flowering generally takes place between early March and early June (additional record: one for mid-February). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; canyons; sandy ridges; rocky ridgetops; foothills; bouldery, rocky hills; rocky, cobbly-sandy, sandy and clayey slopes; rocky, gravelly, gravelly-sandy and sandy alluvial fans; gravelly gravelly-sandy bajadas; amongst gravels; sand dunes; blow-sand deposits; gravelly-sandy and sandy plains; gravelly, gravelly-sandy and sandy flats; sandy valley floors; roadbeds; along bouldery-gravelly and sandy roadsides; sandy seeps; along and in sandy washes; clayey depressions; silty-loamy swales; banks of rivers; along edges of rivers; benches; sandy terraces; sandy and loamy bottomlands; sandy floodplains, and disturbed areas growing in wet, moist and dry bouldery, bouldery-gravelly, rocky, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam, silty loam and loam ground, and clay ground, occurring from sea level to 7,000 feet in elevation in the forest, woodlands, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Loeflingia squarrosa* is native to south-central and southern North America. *5, 6, 15, 16, 43 (012610), 44 (072412), 46 (Page 300), 58, 63 (072412), 77, **85** (012610 - color presentation of dried material), 124 (072412)*

***Silene antirrhina* C. Linnaeus: Sleepy Silene**

COMMON NAMES: Alfinetes-da-terra-miúdo (Portuguese: Brazil); Annual Catchfly; Campion (a name also applied to other species and the genus *Silene*); Catchfly (English)¹⁴⁰; Catchfly (a name also applied to other species and the genus *Silene*); Desert Sleepy Catchfly; Gartner-pink (English: South)¹⁴⁰; Oi'tcuyo (Uto-Aztecan: Shoshoni)¹⁴⁰; Silene (a name also applied to the genus *Silene*); Silene (Spanish)¹⁴⁰; Silène Muflier (French); Sleepy Campion; Sleepy Cat; Sleepy Catch-fly; Sleepy Catchfly; Sleepy Silene; Sleepy [Silene] Catchfly [Silene] (English)¹⁴⁰; Snapdragon Campion; Snapdragon Catchfly; Snapdragon Catchfly (English: Massachusetts)¹⁴⁰; Tarry Cockle; Tjärglim (Swedish). DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems ¾ inches to 3 feet in height); the stems may be purple; the flowers may be lavender, magenta, magenta-pink, pink, pinkish-whitish, purple, purple-pink, purplish, red, rose, white, white with pink or dark purple-tipped lobes or white fading to deep pink; flowering generally takes place between mid-February and early August (additional records: one for late August, three for mid-September and one for early November). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; cliffs; rims of canyons; rocky canyons; sandy canyon bottoms; gorges; talus slopes; crevices in rocks; bluffs; buttes; bouldery and rocky ledges; shaley ridges; cobbly-sandy-loamy ridgetops; granite balds; clearings and openings in forests and woodlands; rocky and sandy meadows; foothills; rocky hills; rocky hillsides; along bedrock, bouldery-silty-clayey, rocky, cobbly, gravelly, sandy-loamy, loamy, loamy-clayey and clayey slopes; rocky-sandy alluvial fans; gravelly bajadas; rocky and cindery outcrops; bases of rocky outcrops; amongst rocks; rock beds; volcanic flows; loamy and loamy-clayey banks; loamy, loamy-clayey, silty-loamy-clayey prairies; plains; rocky, gravelly and sandy flats; rocky, gravelly-silty-loamy, loamy and loamy-clayey, uplands; basins; roadcuts; along gravelly and gravelly-loamy roadsides; rocky arroyos; rocky and rocky-sandy draws; clayey gulches; ravines; seeps; in sand along streams; along rocky, rocky-sandy and sandy streambeds; in sand along creeks; along and in creekbeds; along rivers; along and in rocky, gravelly-sandy and sandy washes; along and in drainages; swales; (gravelly-sandy and sandy) banks of washes; (rocky and rocky-gravelly) edges of streams, streambeds, rivers and ponds; (sandy-loamy) margins of streambeds and rivers; gravelly-sand bars; benches; shelves; terraces; sandy and loamy bottomlands; floodplains; mesquite bosques; clayey catchments; along ditches; gravelly-sandy, gravelly-sandy-loamy and sandy riparian areas; waste places, and recently burned areas in forests, woodlands and chaparral growing in wet, moist and dry rimrock pavement; cryptogamic soil; bouldery, rocky, rocky-gravelly, rocky-sandy, cobbly, shaley, cindery, gravelly, gravelly-sandy and sandy ground; cobbly-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-silty loam, sandy loam, clayey loam and loam ground; bouldery-silty clay, loamy clay, silty-loamy clay and clay ground, and gravelly-sandy silty and silty ground, occurring from sea level to 8,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Silene antirrhina* is native to central and southern North America. *5, 6, 15, 16, 28 (color photograph 587), 43 (012610), 44 (072412), 46 (Page 302), 58, 63 (072412 - color presentation), 77, **85** (072512 - color presentation), 101 (note under *Silene alba*), 115 (color presentation), 124 (072412), 140 (Pages 109-110 & 289)*

Chenopodiaceae: The Goosefoot Family

***Atriplex* C. Linnaeus: Saltbush**

COMMON NAMES: Atriplex; Goose-weeds; Orach; Orache; Salt Bush; Salt-bush; Saltbush; Salt Sage; Salty Sage; Salt-sage; Saltsage. *43 (051710), 44 (021911), 46 (Pages 254-260), 63 (012710 - color presentation), 124 (082512), **HR***

***Atriplex canescens* (F.T. Pursh) T. Nuttall: Fourwing Saltbush**

COMMON NAMES: Atahi'xp (Seri); Buckwheat Shrub (English)¹⁴⁰; Bushy Atriplex; Bushy Salt-sage; Bushy Saltsage; Caleb Saltbush (var. *laciniata*); Ceniso <cenizo> ("Ashy One", Spanish: Baja California, Chihuahua, Sonora)¹⁴⁰; Cenizo (a name also applied to other species, Spanish); Chamere (Spanish); Chamiso (a name also applied to other species and to

other species, Spanish: Mexico); Chamiso <chamiza> (preferred over Chamise, Spanish: Baja California, Chihuahua, Sonora, New Mexico)¹⁴⁰; Chamiso Cenizo [Blanco] (“Ashy [White] Chamiso”, Spanish: Mexico)¹⁴⁰; Chamiza (a name also applied to other species); Chamizo (a name also applied to other species, Spanish); Ciw’wībīl (Uto-Aztec: Tūbatulabal)¹⁴⁰; Costilla de Vaca (“Cow’s Rib”, Spanish: Zacatecas)¹⁴⁰; □asilk (Yuman: Walapai)¹⁴⁰; Diwoozhii Ibehi (Navajo); Dīwózhiiłbeii <dóy’ózhíłbá□i, tiwójiilpáih> (“Grey Greasewood”, Athapascan: Navajo)¹⁴⁰; Dzi’cúp (Uto-Aztec: Shoshoni)¹⁴⁰; Four Wing Saltbush; Four Winged Salt Bush; Four Winged Shadscale; Four-wing Salt Bush; Four-wing Salt-bush; Four-wing Saltbush; Four-wing Shadscale; Four-wing Shad-scale; Four-winged Salt Bush; Four-winged Salt-bush (English)¹⁴⁰; Four-winged Saltbush; Four-winged Shadscale; Fourwing Saltbush; Fourwing Shadscale; Fourwinged Saltbush; Giant Four-wing Saltbush (var. *gigantea*); Grease-wood (a name also applied to other species); Greasewood; Grey Grease Winter Chamiso; Grease-wood (English)¹⁴⁰; Grey Sage Brush; Hataj-isijc (“Immature Vulva”, Hokan: Seri)¹⁴⁰; Hataj-ixp (“White Vulva”, Hokan: Seri)¹⁴⁰; Hoary Saltbush; Hoary Wingscale; Ke'ma:we (Zuni - "salt weed" refers to the salty taste of the flowers); Ke'mwe (Language Isolate: Zuni)¹⁴⁰; Koksvul Sha'i (“Cocoon Bush”, Uto-Aztec: Akimel O'odham)¹⁴⁰; Lynndyl Saltbush (var. *gigantea*); Mu'kwapt (Yuman: Paipai)¹⁴⁰; Murunav□ (Uto-Aztec: Kawaiisu)¹⁴⁰; Narrow-leaf Saltbush; Narrowleaf Wingscale; 'Onk 'I:wagi, 'Onk 'I:vaki (“Salty Greens”, Uto-Aztec: Hiá Ce□ O'odham)¹⁴⁰; 'Onk 'I:wagi <teu'ari> (“Salty Greens”, Uto-Aztec: Tohono O'odham)¹⁴⁰; Orache (a name also applied to the genus *Atriplex*); [Salt, Wafer]-sage (English)¹⁴⁰; Sage Brush; Sagebrush; Saladillo (“Little Salty One”, Spanish: Baja California, Chihuahua)¹⁴⁰; Sha'ashkackh Iibatkam (River Pima); Sha'ashkackh Iibadkam (“It Has Rough Fruit”, Uto-Aztec: Akimel O'odham)¹⁴⁰; Shad Scale; Shad-scale (English)¹⁴⁰; Shadscale; Suwvi <cūovi, súovi> (Uto-Aztec: Hopi)¹⁴⁰; Ta□ibi [tónova] (Uto-Aztec: Northern Paiute)¹⁴⁰; Ta'āñaeñ (Kioi Tanoan: Tewa)¹⁴⁰; Thinleaf Fourwing Saltbush; Wheel-scale; White Greasewood; Wing-scale; [Wheel-] Wing-scale (English)¹⁴⁰; Wingscale; Wingscale Saltbush; Yup (Seri); 4-Winged Salt-bush. DESCRIPTION: Terrestrial perennial evergreen (winter-deciduous in cold climates) shrub (erect stems 1 to 10 feet in height; one plant was observed and described as being 4½ feet in height and 4½ feet in width, one plant was observed and described as being 40 inches in height and 5 feet in width, one plant was observed and described as being 5 feet in height and width, one plant was observed and described as being 5 feet in height and 6½ feet in width, plants were observed and described as being 6½ feet in height and width, one plant was observed and described as being 7 feet in height and 13 feet in width, plants were observed and described as being 8 feet in height and 15 feet in width); the branches are gray; the stems may be white; the leaves are gray, gray-green, light green or green; the flowers (male and female flowers are usually borne on separate plants; however, this plant has been known to change sexes if stressed) are brown (rarely), cream, green, greenish, greenish-white, greenish-yellow, white-brown, pale yellow, yellow or yellowish; flowering generally takes place between early February and early December (additional record: one for mid-January); the mature four-winged fruits (0.4 to 1 inch square bracts) are green or yellow-green drying to pale brown or tan. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rocky plateaus; along rocky, rocky-sandy and sandy rims; cliffs; rocky, sandy and clayey canyons; sandy canyon walls; sandy and clayey canyon bottoms; rocky narrows; rincons; gorges; rocky scree; talus slopes; along gravelly-sandy bluffs; knolls; rocky ledges; rocky and gravelly ridges; rocky-sandy, rocky-loamy and sandy ridgetops; gravelly-chalky openings in sagebrush; meadows; foothills; rocky, rocky-clayey, gravelly-sandy, clayey and silty-loamy hills; rocky-gravelly hilltops; bouldery, rocky, gravelly and clayey hillsides; bedrock, bouldery, rocky, rocky-sandy, rocky-loamy, shaley, stony-loamy, cindery, gravelly, gravelly-sandy-loamy, sandy, sandy-loamy, sandy-loamy-silty-powdery, sandy-clayey, sandy-silty, clayey, clayey-loamy and silty-loamy slopes; alluvial fans; sandy bajadas; rocky and gypsum outcrops; amongst boulders and rocks; sandy lava flows; sand hills; sand dunes; blow-sand deposits; bouldery debris flows; prairies; sandy, sandy-loamy and sandy-silty plains; rocky, gravelly, gravelly-loamy, sandy, sandy-loamy and clayey flats; uplands; basins; gravelly-sandy, sandy and sandy-loamy valley floors; coastal dunes; sandy coastal plains; coastal flats; coastal beaches; coastal saltmarshes; along rocky, gravelly, gravelly-sandy, sandy and sandy-loamy roadsides; sandy arroyos; bottoms of arroyos; draws; gulches; ravines; seeps; around springs; streambeds; along creeks; along sandy creekbeds; in sand along rivers; sandy riverbeds; along rocky, gravelly, gravelly-sandy and sandy washes; along and in drainages; lakebeds; playas; freshwater and saltwater marshes; around and in swamps; depressions; clayey pans; sinks; swales; along (gravelly-sandy, sandy and clayey) banks of arroyos, rivers and drainages; borders of washes; (cindery) edges of washes, ponds, lakes and salt marshes; margins of drainages; gravel bars; beaches; sandy and clayey benches; sandy-loamy terraces; sandy bottomlands; gravelly, gravelly-sandy and sandy floodplains; (Galleta) lowlands; mesquite bosques; ditches; sandy riparian areas; waste places, and disturbed areas growing in muddy and moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, stony loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam, silty loam and loam ground; rocky clay, sandy clay and clay ground; rocky silty, sandy silty and silty ground; gravelly chalky ground, and sandy-loamy-silty powdery ground, occurring from sea level to 8,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder, cooking agent (ashes used in place of baking soda and also to give a greenish-blue color to dough), spice and/or dye crop; it was also noted as having been used as tools, as a drug or medication, to make ceremonial items (including prayer sticks - pahos) and as a commodity used in personal hygiene. The life span of the Fourwing Saltbush has been reported to be from 29 to over 100 years of age. Fourwing Saltbush may be useful in controlling erosion. Mule Deer (*Odocoileus hemionus*), White-tailed Deer (*Odocoileus virginianus*), Elk (*Cervus elaphus*), Black-tailed Jackrabbits (*Lepus californicus*), Pronghorn (*Antilocapra americana*) and Bighorn Sheep (*Ovis canadensis*) and other small mammals browse this plant, and Masked Bobwhite (*Colinus virginianus* subsp. *ridgwayi*), Deer, Grouse, Gray Partridge (*Perdix perdix*), Pronghorn (*Antilocapra americana*), Gambel's Quail (*Callipepla gambelii*), Scaled Quail (*Callipepla squamata*) and other birds as well as Kangaroo Rats, Pocket Mice and other small rodents feed on the fruits and seeds. This plant is a larval food plant for the Pygmy Blue

(*Brefidium exile*). Possible predation was reported by the exotic Puncturevine Seed Weevil (*Microlarinus laeeynii*). The keying out of Four-wing Saltbushes may be difficult due to intraspecific variation and introgression with other saltbush species. *Atriplex canescens* is native to west-central and southern North America. *5, 6, 13 (Pages 164-166), 15, 16, 18, 26 (color photograph), 28 (color photograph 490), 43 (012710), 44 (062811 - color photograph), 46 (Page 259), 48, 63 (082512 - color presentation), 77, 82, 85 (082812 - color presentation including habitat), 91 (“As a secondary or facultative absorber of selenium, *Atriplex canescens* can be mildly poisonous to livestock where selenium occurs in the soil.”, Pages 100-103), 115 (color presentation), 124 (082512), 127, 140 (Pages 111-112 & 289), **HR***

Atriplex canescens subsp. *linearis* (see *Atriplex canescens* var. *linearis*)

***Atriplex canescens* (F.T. Pursh) T. Nuttall var. *linearis* (S. Watson) P.A. Munz: Thinleaf Fourwing Saltbush**

SYNONYMY: *Atriplex canescens* (F.T. Pursh) T. Nuttall subsp. *linearis* (S. Watson) H.M. Hall & F.E. Clements; *Atriplex linearis* S. Watson. COMMON NAMES: Four-wing Saltbush; Narrow-leaf Saltbush; Narrow-leaf Four-wing Saltbush; Narrow-leaf Shadscale; Narrow-leaved Salt Bush; Narrow-leaved Saltbush; Narrowleaf Saltbush; Narrowleaf Wingscale; Slender-leaf Saltbush; Slender-leaved Saltbush; Slenderleaf Saltbush; Thinleaf Fourwing Saltbush. DESCRIPTION: Terrestrial perennial evergreen shrub (1 to 7 feet in height, one plant was reported to be 20 inches in height and 30 inches in width, plants were reported that were 6 feet in height and 8 feet in width); the stems may be yellowish; the leaves are gray or gray-green; the flowers (male and female flowers are usually borne on separate plants) are dull gold-yellow, greenish or yellow; flowering generally occurs between mid-March and late October; the mature four-winged fruits (0.4 to 1 inch square bracts) are green drying to pale brown, straw or tan. HABITAT: Within the range of this species it has been reported from mesas; sand hills; sandy flats; coastal plains; roadsides; riverbeds; along and in washes; banks; sandy terraces; floodplains; in sand along canals; riparian areas, and disturbed areas growing in dry sandy ground and silty ground, occurring from sea level to 3,300 feet in elevation in the desertscrub ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Atriplex canescens*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder, cooking agent (ashes used in place of baking soda and also to give a greenish-blue color to dough), spice and/or dye crop; it was also noted as having been used as tools, as a drug or medication, to make ceremonial items (including prayer sticks - pahos) and as a commodity used in personal hygiene. The life span of the Fourwing Saltbush has been reported to be from 29 to over 100 years. Fourwing Saltbush may be useful in controlling erosion. Mule Deer (*Odocoileus hemionus*), White-tailed Deer (*Odocoileus virginianus*), Elk (*Cervus elaphus*), Black-tailed Jackrabbits (*Lepus californicus*), Pronghorn (*Antilocapra americana*), and Bighorn Sheep (*Ovis canadensis*); as well as, other small mammals browse this plant, and Grouse, Gray Partridge (*Perdix perdix*), Scaled Quail (*Callipepla squamata*) and other birds as well as Kangaroo Rats, Pocket Mice and other small rodents feed on the seeds. This plant is a larval food plant for the Pygmy Blue (*Brefidium exile*). The keying out of Four-wing Saltbushes may be difficult due to intraspecific variation and introgression with other saltbush species. *Atriplex canescens* var. *linearis* is native to southwest-central and southern North America. *5, 6, 13 (*Atriplex canescens* (Pursh) Nutt. var. *macilenta* (Jepson) Munz - “This variety is restricted to more alkaline soils than is var. *canescens* and is associated often with *Atriplex polycarpa*.”), 18 (species), 26 (color photograph of species, species), 28 (species, color photograph 490 of species), 43 (012710 - *Atriplex canescens* (Pursh) Nutt. var. *linearis* Munz, *Atriplex canescens* (Pursh) Nutt. subsp. *linearis* H.M. Hall & Clem.), 44 (082612), 46 (*Atriplex linearis* Wats.), 48 (species), 63 (082512), 77, 82, **85** (082812), **91** (“As a secondary or facultative absorber of selenium, *Atriplex canescens* can be mildly poisonous to livestock where selenium occurs in the soil.”), 115 (color presentation of the species), 124 (082512 - no record of species; genus record), 127 (species)*

Atriplex linearis (see *Atriplex canescens* var. *linearis*)

***Atriplex wrightii* S. Watson: Wright’s Saltbush**

COMMON NAMES: Wright Saltbush; Wright’s Orach; Wright’s Salt Bush; Wright’s Saltbush. DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 6 inches to 6 feet in height); the stems are reddish; the leaves are bright green above and silvery beneath; the flowers are inconspicuous; flowering generally takes place between early June and mid-September (additional record: one for late April). HABITAT: Within the range of this species it has been reported from mountains; canyons; hills; rocky and clayey-loamy slopes; valley floors; along railroad right-of-ways; along rocky roadsides; draws; springs; along rivers; along riverbeds; along washes; clayey playas; sandy depressions; (sandy) banks of rivers; terraces; bottomlands; floodplains; ditches; clayey-loamy ditch banks; riparian areas; waste places, and disturbed areas growing in damp and dry rocky and sandy ground; clayey loam ground, and clay ground, occurring from sea level to 7,000 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or spice crop. This plant reportedly provides food for Mule Deer (*Odocoileus hemionus* subsp. *crooki*), Antelope and Quail. *Atriplex wrightii* is native to southwest-central and southern North America. *5, 6, 43 (070209), 44 (062911 - no species record; genus record), 46 (Page 258), 63 (090112), 68, **85** (090112 - color presentation), 124 (062911 - no species record; genus record), 127*

Salsola australis (see *Salsola tragus*)

Salsola iberica (see *Salsola tragus*)

Salsola kali (see *Salsola tragus*)

Salsola kali subsp. *tenuifolia* (see *Salsola tragus*)

Salsola kali subsp. *tragus* (see *Salsola tragus*)

Salsola kali var. *tenuifolia* (see *Salsola tragus*)

***Salsola tragus* C. Linnaeus: Prickly Russian Thistle**

SYNONYMY: *Salsola australis* R. Brown; *Salsola iberica* (f. Sennen & C. Pau) V.P. Botschantzev ex S.K. Czerepanov; *Salsola kali* C. Linnaeus; *Salsola kali* C. Linnaeus subsp. *tenuifolia* C.H. Moquis-Tandon; *Salsola kali* C. Linnaeus var. *tenuifolia* I.F. Tausch; *Salsola kali* C. Linnaeus subsp. *tragus* (C. Linnaeus) L.J. Čelakovský. COMMON NAMES: Cardo Ruso; Chamiso; Chamiso Valador; Ci Sha Peng (transcribed Chinese); Coast Saltwort; Common Russian Thistle (a name also applied to other species); Common Russian Thistle Tumbleweed; Hari Hijikii (Japanese Rōmaji); Leap the Field; Prickly Russian Thistle (a name also applied to other species); Russian Cactus (a name also applied to other species); Russian-cactus; Russian Thistle (a name also applied to the genus *Salsola*); Russian-thistle (a name also applied to the genus *Salsola*); Russian Tumble Weed; Russian Tumble-weed; Russian Tumbleweed (a name also applied to the genus *Salsola*); Rysk Sodaört (Swedish); Soude Épineuse (French); Soude Roulante (French); Spineless Saltwort; Tumbleweed (a name also applied to other species); Tumbling Thistle; Ukraine Salzkraut (German); Volador; Wind Witch; Wind-witch; Windwitch. DESCRIPTION: Terrestrial annual forb/herb (ascending (rarely) and/or erect stems 2 inches to 7 feet in height; plants were observed and described as being 4 feet in height and 3 feet in width); the stems may be gray-green with purple longitudinal stripes or dark green; the foliage may be blue-green, gray-green, grayish-green, green, purple or red striped, reddish-purple or yellow-green; the inconspicuous flowers (without petals) may be brown, pale green, green, green-red, pink, pinkish-green, white, whitish, whitish-green, white-pink, white-yellow or yellowish-green; flowering generally takes place between early April and mid-November (additional records: one for early February, one for mid-March and one for early December); the fruit is a reddish top-shaped pod with papery wings. HABITAT: Within the range of this species it has been reported from mountains; gravelly mountainsides; sandy bases of mountains; sandy mesas; plateaus; canyon rims; chalky cliffs; bases of cliffs; rocky and sandy canyons; bouldery-gravelly-sandy, rocky and sandy canyon bottoms; bluffs; cindery (scoria) buttes; sandy knolls; rocky- rocky, sandy and sandy-loamy ridges; sandy rims of craters; rocky-clayey foothills; rocky, sandy and clayey hills; rocky, gravelly and sandy hillsides; sandy bases of escarpments; bouldery, rocky, rocky-gravelly, rocky-sandy-loamy, shaley, cindery, gravelly, gravelly-loamy, gravelly-sandy-loamy, sandy, sandy-loamy, loamy, clayey, clayey-loamy and silty slopes; alluvial fans; bajadas; rocky and shaley outcrops; sand hills; sand dunes; sandy berms; sandy-clayey breaks; sandy breaklands; steppes; prairies; sandy plains; sandy uplands; gravelly, gravelly-clayey, sandy, sandy-loamy, sandy-silty, clayey and silty flats; basins; gravelly, gravelly-sandy and sandy valley floors; valley bottoms; coastal dunes; coastal plains; sandy coastal beaches; coastal salt marshes; along gravelly-clayey railroad right-of-ways; gravelly roadbeds; sandy roadcuts; along rocky-sandy, shaley-clayey-loamy, gravelly, gravelly-sandy, gravelly-clayey, sandy, sandy-loamy, sandy-clayey and clayey roadsides; sandy arroyos; bottoms of arroyos; rocky-sandy, sandy, loamy and loamy-clayey draws; bottoms of draws; gravelly gullies; seeps; along streams; along sandy streambeds; along creeks; along cobbly-loamy, sandy and sandy-silty creekbeds; along rivers; along rocky, rocky-sandy, sandy, sandy-clayey and clayey riverbeds; along bouldery, sandy, sandy-loamy and sandy-clayey washes; within gravelly-clayey, sandy and clayey drainages; pondbeds; around lakes; lakebeds; sandy-loamy playas; ciénegas; marshes; depressions; gravelly and gravelly-sandy swales; (sandy, clayey and clayey-loamy) banks of springs, streams, rivers and washes; borders of washes; (sandy) edges of creeks, marshes and lakes; margins of streams and rivers; (sandy and clayey-loamy) shorelines of rivers and lakes; mudflats; cobble, sand and silt bars; sandy and sandy-clayey beaches; sandy and clayey benches; cobbly-gravelly and gravelly terraces; sandy-clayey bottomlands; along gravelly, sandy, sandy-clayey and clayey floodplains; mesquite bosques; along fencelines; around and in (dry) stock tanks; along banks and shores of reservoirs; along canals; along sandy ditches; along sandy ditch banks; bouldery-cobbly-sandy, gravelly, sandy and silty-loamy riparian areas; sandy waste places, and disturbed areas growing in wet and dry desert pavement; bouldery, bouldery-cobbly-sandy, bouldery-gravelly-sandy, rocky, rocky-sandy, stony, cobbly-gravelly, cindery, gravelly, gravelly-pebbly, gravelly-sandy and sandy ground; rocky-sandy loam, shaley-clayey loam, cobbly loam, gravelly loam, gravelly-sandy loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground; rocky clay, gravelly clay, gravelly-sandy clay, sandy clay, loamy clay and clay ground; rocky silty, sandy silty and silty ground, and chalky ground, occurring from sea level to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, fodder and as a drug or medication. Russian Thistle is a host plant of the Beet Leafhopper which transmits the Curly Top Virus to Sugarbeets *Salsola tragus* is native to northern, central, eastern and southern Europe; Asia, and northern Africa. *5, 6, 15 (recorded as *Salsola iberica* Sennen & Pau), 16 (recorded as *Salsola iberica* Sennen & Pau), 28 (recorded as *Salsola iberica*, color photograph), 43 (070309), 44 (070611), 46 (recorded as *Salsola kali* L. and *Salsola kali* L. var. *tenuifolia* Tausch, Page 264), 58 (recorded as *Salsola iberica* Sennen & Pau), 63 (090912 - color presentation), 68 (of *Salsola kali* L. var. *tenuifolia* Tausch, "It is a host plant for the sugarbeet leafhopper which carries the virus causing curly top in beets. It is also the source of "blight" in other crop plants such as tomatoes, spinach and beans. ... May store toxic amounts of nitrates after periods of fast growth."), 77 (recorded as *Salsola australis* R. Br.), 80 (*Salsola kali* L. var. *tenuifolia* is listed as a Major Poisonous Range Plant. "Russian thistle is capable of storing up toxic quantities of nitrate, particularly during the flush period of

growth. *Salsola* has also been suspected of causing oxalate poisoning in Australia. ... Large-scale control can best be accomplished through range improvement to replace the thistle with grass.” See text for additional information.), **85** (090912 - color presentation, J.J. Thornber reported on August 8, 1913, that Russian Thistle (*Salsola kali* L.) was recently introduced and rapidly spreading at a population observed in the Rillito bottomlands east of Tucson.), 101 (recorded as *Salsola iberica* Sennen, color photograph), 115 (color presentation), 124 (070611), 127, 140 (Page 289), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Convolvulaceae: The Morning-glory Family

Jacquemontia pringlei A. Gray: Pringle’s Clustervine

COMMON NAMES: Pringle Clustervine; Pringle’s Clustervine. DESCRIPTION: Terrestrial perennial vine or shrub (to 3 feet in height as a shrub and/or with stems up to 5 to 10 feet in length as twining vines); stems woody towards the base; the leaves are green; the flowers may be pale lavender, lavender, pale pink-white or white; flowering generally takes place between late July and late September (additional records: one for mid-February, one for late February, two for late March, one for late April, one for mid-May, two for mid-October and one for late October). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky peaks; rocky cliffs; rocky walls; bases of cliffs; rocky canyons; canyon bottoms; crevices in rocks; rocky ridgetops; foothills; rocky hills; bedrock and rocky slopes; rocky outcrops; amongst rocks; banks; beach dunes; roadcuts; roadsides; draws; along streams; (sandy) margins of watercourses, and riparian areas growing in dry rocky and sandy ground, occurring from sea level to 9,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Jacquemontia pringlei* is native to southwest-central and southern North America and Central America. *5, 6, 13, 15, 43 (041112), 44 (041112 - no record of species or genus), 46 (Page 673), 63 (041112), **85** (041112 - color presentation), 106 (041112 - no record of species), 115 (color presentation), 124 (041112 - no record of species or genus), 140 (Page 290)*

Cucurbitaceae: The Cucumber Family

Cucurbita digitata A. Gray: Fingerleaf Gourd

COMMON NAMES: A:□ (Uto-Aztec: Tohono O’odham)¹⁴⁰; ‘Ad (Uto-Aztec: Hiá Ce□ O’odham, Arizona, Sonora)¹⁴⁰; ‘Adawi (Uto-Aztec: Akimel O’odham, Arizona)¹⁴⁰; Adawi (Uto-Aztec: Hiá Ce□ O’odham)¹⁴⁰; A□awi (Uto-Aztec: Tohono O’odham)¹⁴⁰; Aláwe (Uto-Aztec: Guarijío)¹⁴⁰; Ara (Uto-Aztec: Mountain Pima)¹⁴⁰; Be’iikan Dee’é [Joollé] (Athapascan: Western Apache)¹⁴⁰; Calabacilla (Spanish); Calabacilla (“Little Gourd”, Spanish: Arizona, Sonora)¹⁴⁰; Calabaza Amarga (a name also applied to other species, Spanish); Calabaza Amarga (“Bitter Gourd”, Spanish: Arizona, Sonora)¹⁴⁰; Chichi Coyota (Spanish); Chichicoyote (Spanish); Chichicoyote <chichicoyote, chichi coyota> (“Coyote’s Breasts”, Spanish: Sonora)¹⁴⁰; Chichicoyotli (a word that refers to a practice used to discourage breast feeding, Uto-Aztec: Náhuatl, Mexico); Coyote Gourd (a name also applied to other species); Coyote Gourd (English)¹⁴⁰; Coyote Melon (a name also applied to other species); Finger Leaf Gourd; Finger-leaf Gourd; Finger Leafed Gourd; Finger Leaved Gourd; Finger-leaf Gourd; Finger-leafed Gourd (English: New Mexico)¹⁴⁰; Finger-leaved Gourd; Fingerleaf Gourd; Melón de Coyote (Spanish); Melon de Coyote (“Coyote Melon”, Spanish: Arizona, Sonora)¹⁴⁰; Meloncillo (Spanish); Meloncillo (“Little Melon”, Spanish: Arizona)¹⁴⁰; Mösipatnga (Uto-Aztec: Hopi)¹⁴⁰; Naadokkal <nat dil kaali> (“Gourd”, Athapascan: Western Apache)¹⁴⁰; Ndilkal (Athapascan: Navajo for *Cucurbita*)¹⁴⁰; Nekhish <nekish> (Uto-Aztec: Cahuilla)¹⁴⁰; Patnga (Uto-Aztec: Hopi)¹⁴⁰; Teta’ahao (Uto-Aztec: Yaqui)¹⁴⁰; Whsáraaganápu (Uto-Aztec: Ute)¹⁴⁰; Xa:más (Yuman: Cocopa)¹⁴⁰; Xamach (Yuman: Paipai)¹⁴⁰; Ziix Is Cmasol (“Yellow-fruited Thing”, Hokan: Seri)¹⁴⁰. DESCRIPTION: Terrestrial perennial forb/herb or vine (climbing, sprawling and/or trailing stems 3 to 40 feet in length); the spreading stems arise from a thick root; the palmate leaves are dark blue-green, gray-green, grayish-green or green; the large funnel-shaped flowers (2¾ to 4 inches in diameter and 1½ to 2 inches in length) are greenish-yellow, orange or yellow; flowering generally takes place between mid-May and mid-October (additional records: one for mid-February and one for mid-November); the striped gourd-like fruits (2 to 3¾ inches in diameter) are green aging to pale yellow or yellowish-green. HABITAT: Within the range of this species it has been reported from mountains; mesas; bases of cliffs; rocky canyons; canyon bottoms; foothills; hills; sandy hilltops; hillsides; rocky slopes; banks; plains; gravelly and sandy flats; basins; gravelly-sandy valley floors; along gravelly, gravelly-sandy-silty and sandy roadsides; along and in sandy arroyos; gravelly bottoms of arroyos; gulches; along streambeds; sandy creekbeds; along rivers; sandy riverbeds; along and in gravelly-sandy, gravelly-loamy, sandy and silty washes; (sandy) banks of arroyos, rivers and washes; borders of washes; sandy benches; bottomlands; floodplains; along canal banks; riparian areas; waste places, and disturbed areas growing in dry rocky, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; gravelly loam ground, and gravelly-sandy silty and silty ground, occurring from 100 to 5,700 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. One record reported that the flowers opened at dawn and closed in the afternoon, another reported that the flowers were closed by 10:00 a.m. The flowers are pollinated by “Digger-bees” and Gourd-bees” in the genera *Peponapis* and *Xenoglossa*. The Coyote (*Canis latrans*) feeds on the fruit pulp and seeds of this plant. *Cucurbita digitata* is native to southwest-central and southern North America. *5, 6, 15, 16, 28 (color photograph 371), 43 (070409), 44 (120310), 46 (Page 822), 48 (genus), 58, 63 (091612 -

color presentation of seed), 68, 77, 85 (091612 - color presentation), 115 (color presentation), 124 (110410 - no record of species; genus record), 127,140 (Pages 123-124 & 290), **HR***

***Marah gilensis* E.L. Greene: Gila Manroot**

COMMON NAMES: Big Root; Gila Manroot; Wild Cucumber. DESCRIPTION: Terrestrial perennial forb/herb or vine (slender, long clambering or climbing stems to over 6 feet in length); the leaves are dark green; the flowers (3/8 inch in diameter) are cream, greenish-white, white or yellowish-white; flowering generally takes place between February and April; the spiny fruits (to 2 inches in diameter) are green drying to brown. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; canyons; gorges; buttes; foothills; rocky slopes; amongst boulders; along roads; gulches; seeps; springs; along streams; along washes, and bosques and thickets along streams and washes growing in dry silty ground sometimes reported as climbing over shrubs and small trees, occurring below 5,000 feet in elevation in the woodland, scrub, desertscrub and wetland ecological formations. NOTE: This plant may be an attractive component of a restored native habitat. *Marah gilensis* is native to southwest-central North America. *5, 6, 15, 28 (color photograph), 43 (062610), 46 (Pages 823-824), 58, 63 (062610), **85** (062610 - color presentation, unable to access species information), 106 (062610 - genus), 115 (color presentation), 140 (Pages 125 & 290)*

***Tumamoca macdougalii* J.N. Rose: Tumamoc Globeberry**

COMMON NAMES: Camote de Jabalin (Spanish); Globeberry (a name also applied to the genus *Ibervillea*); MacDougal Tumamoc Globe-berry; Tumamoc Globeberry. DESCRIPTION: Terrestrial perennial forb/herb or vine (clambering stem 28 inches to 5 feet in length); the leaves are dark green; the flowers (one-eighth inch in diameter) are greenish-yellow, white or yellow; flowering generally takes place between late July and late September; the mature berry-like fruit (1/2 to 3/4 inch in diameter) is orange-red, bright red or yellow. HABITAT: Within the range of this species it has been reported from mountains; rocky hills; rocky hillsides; rocky slopes; rocky bajadas; amongst rocks; gravelly flats; valley floors; sandy valley bottoms; coastal plains; valley floors; along arroyos; along gullies; along sandy washes; along stony drainages; along edges of arroyos, poolbeds and swales; along margins of washes; terraces, and mesquite bosques growing in dry rocky, stony, gravelly and sandy ground and sandy-silty ground usually with the support of and/or in the shade of shrubs and trees, occurring from sea level to 3,000 feet in elevation in the scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, plants remains dormant during winter and early spring, vines die back after fruiting or are killed by frost, consider planting beneath shrubs and low growing trees that will give support to the vines. The flowers are pollinated by moths; Cardinals, thrashers, Gambel Quail (*Callipepla gambelii*) and Gila Woodpeckers (*Melanerpes uropygialis*) feed on the fruits and seeds, and Javelinas (*Peccari tajacu*) feed on the tuberous roots. Ants have been observed visiting the fruits. *Tumamoca macdougalii* is native to southwest-central and southern North America. *5, 6, 8, 9, 16 (recorded in the 1909 Thornber Listing as *Maximowiczia tripartita* Cogni. var. *tenuisecta* Wats.), 43 (020110), 44 (091712 - no record of species or genus), 46 (Pages 821-822), 63 (091712), 77, 85 (091712), 91 (Pages 392-393), 124 (091712 - no record of species or genus), **HR***

Euphorbiaceae: The Spurge Family

***Chamaesyce* S.F. Gray: Sandmat**

COMMON NAME: Carpet-weed; Carpetweed; Chamaesyce; Golondrina ("Swallow" a name also applied to other species; used for the genus, Spanish); Ground Spurge; Mat Spurge; Mat-spurge; Matspurge; Sandmat; Prostrate Spurge; Prostrate-spurge; Spurge (a name also applied to the genus *Euphorbia*). *43 (042510), 44 (071111), 46 (Pages 513 & 518-520), 63 (042510), 85 (042510), 124 (071111), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Chamaesyce arizonica* (G. Engelmann) J.C. Arthur: Arizona Sandmat**

SYNONYMY: *Euphorbia arizonica* G. Engelmann. COMMON NAMES: Arizona Broomspurge; Arizona Euphorbia; Arizona Sand Mat; Arizona Sand-mat; Arizona Sandmat; Arizona Spurge; Mat-spurge; Golondrina ("Swallow" a name also applied to other species; used for the genus, Spanish); Spurge (a name also applied to other species, the genus *Euphorbia* and to the Euphorbiaceae). DESCRIPTION: Terrestrial perennial forb/herb (prostrate, ascending and/or erect stems 6 to 12 inches in height); the foliage appears reddish or reddish-purple; the leaves are green with red margins; the flower-like cups have maroon glands (centers) with pink or white petaloid appendages; flowering generally takes place between mid-January and early December. HABITAT: Within the range of this species it has been reported from bouldery mountains; rocky-sandy mountaintops; bouldery-rocky cliffs; bouldery and rocky canyons; rocky and gravelly canyon bottoms; scree; gravelly bases of cliffs; bluffs; rocky ledges; ridgetops; foothills; rocky hills; rocky hillsides; rocky and gravelly-loamy slopes; amongst boulders and rocks; boulder fields; plains; gravelly and sandy flats; valley floors; along sandy roadsides; along sandy arroyos; rocky bottoms of arroyos; gulches; sandy seeps; damp sand of seeping streams; along sandy streams; along and in rocky-gravelly streambeds; along and in creeks; sandy creekbeds; along rivers; riverbeds; along and in bedrock, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along and in drainages; swales; banks of washes; borders of washes; edges of creeks and washes; sandy-clayey bars; riparian areas, and disturbed areas growing in damp and dry bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam ground; sandy-clayey, and bouldery silty and

silty ground, occurring from 100 to 5,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The stems have a milky sap. *Chamaesyce arizonica* is native to southwest-central and southern North America. *5, 6, 18 (“All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species).”), 43 (020310), 44 (071111), 46 (recorded as *Euphorbia arizonica* Engelm., Pages 519-520), 58, 63 (092312), 68 (see: Poisonous Properties of Spurges, Page 202), 77, 80 (*Species of the genus Euphorbia are considered to be Secondary Poisonous Range Plants*. “The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available.” See text for additional information.), 85 (092312 - color presentation), 86 (“Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth.”), 124 (071111 - no record of species; genus record), 140 (Page 291)*

***Chamaesyce capitellata* (G. Engelmann) C.F. Millspaugh: Head Sandmat**

SYNONYMY: *Euphorbia capitellata* G. Engelmann. COMMON NAMES: Golondrina (“Swallow” a name also applied to other species; used for the genus, Spanish); Head Euphorbia; Head Sandmat; Head Spurge; Koapaim (Yaqui); Spurge (a name also applied to other species, the genus *Euphorbia* and to the Euphorbiaceae). DESCRIPTION: Terrestrial perennial forb/herb (prostrate and/or ascending stems 3 to 8 inches in height); the leaves are green; the flower-like cups have brown-maroon, pink or red glands and white petaloid appendages; flowering generally takes place between mid-February and late October (additional records: two for early January, two for mid-November, four for late November, one for mid-December and two for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; bouldery and clayey mesas; rocky canyons; gravelly-sandy canyon bottoms; rocky-sandy rims of craters; rocky ridgetops; rocky ridgelines; foothills; rocky and cobbly-gravelly-loamy hills; rocky hilltops; bouldery and rocky hillsides; rocky, gravelly and sandy slopes; bajadas; boulder fields; cobbly plains; rocky, gravelly, sandy and clayey flats; uplands; along rocky roadbeds; along rocky, rocky-clayey, gravelly, sandy-clayey roadsides; sandy arroyos; gravelly bottoms of arroyos; gravelly-silty bottoms of draws; gullies; along and in rocky and stony streambeds; along creeks; along sandy creekbeds; riverbeds; along and in rocky, gravelly and sandy washes; drainages; banks of arroyos and lakes; (sandy) edges of poolbeds, ponds; bays, lagoons and marshes; along margins of pools; floodplains; fencelines; dry stock tank (charco) bottoms; gravelly-sandy riparian areas, and disturbed areas growing in wet, moist and dry desert pavement; bouldery, rocky, stony, cobbly, gravelly, gravelly-sandy and sandy ground; cobbly-gravelly loam and gravelly loam ground; bouldery clay, rocky clay, sandy clay and clay ground, and bouldery-silty and gravelly silty ground, occurring from sea level to 7,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The stems have a milky sap. *Chamaesyce capitellata* is native to southwest-central and southern North America. *5, 6, 15, 16 (recorded as *Euphorbia capitellata* Engelm.), 18 (“All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species).”), 43 (020310), 44 (092312 - no record of species; genus record), 46 (recorded as *Euphorbia capitellata* Engelm., Page 518), 58, 63 (092312), 68 (see: Poisonous Properties of Spurges, Page 202), 77 (recorded as *Euphorbia capitellata* Engelm.), 80 (*Species of the genus Euphorbia are considered to be Secondary Poisonous Range Plants*. “The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available.” See text for additional information.), 85 (092312 - color presentation), 86 (“Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth.”), 124 (110410 - no record of species; genus record), 140 (Page 291)*

***Chamaesyce florida* (G. Engelmann) C.F. Millspaugh: Chiricahua Mountain Sandmat**

SYNONYMY: *Euphorbia florida* G. Engelmann. COMMON NAMES: Chiricahua Mountain Sandmat; Florida Spurge; Golondrina (“Swallow” a name also applied to other species; used for the genus, Spanish); Spurge (a name also applied to other species, the genus *Euphorbia* and to the Euphorbiaceae). DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 1 to 18 inches in height); the stems are pink-tan; the leaves are green; the flower-like cups have green glands (centers) and white (aging rose), white-pink or white with pinkish tips petaloid appendages; flowering generally takes place between mid-July and early November (additional records: two for early January, one for late June and two for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; canyon walls; sandy canyon bottoms; chasms; sandy ridgetops; rocky foothills; rocky and sandy hills; rocky hillsides; rocky, rocky-gravelly, rocky-sandy, gravelly-loamy and sandy-loamy slopes; bajadas; sand dunes; plains; gravelly and sandy flats; basins; valley floors; coastal dunes; in roadbeds; along rocky-sandy, gravelly-clayey and sandy roadsides; sandy arroyos; along and in streambeds; along and in gravelly and sandy washes; gravelly-clayey depressions; along (sandy) banks of arroyos, rivers and washes; margins of washes; bottomlands; floodplains; sandy mesquite woodlands; edges of stock tanks; sandy riparian areas, and disturbed areas growing in wet, moist and dry rocky, rocky-gravelly, rocky-sandy, gravelly and sandy ground; gravelly loam, gravelly-clayey loam and sandy loam ground, and gravelly clay ground, occurring from sea level to 5,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The stems have a milky sap. *Chamaesyce*

florida is native to southwest-central and southern North America. *5, 6, 15, 16 (recorded as *Euphorbia florida* Engelm.), 18 (“All euphorbias have milky white sap that is irritating on contact or toxic, if ingested, (degree of irritation or toxicity varies, depending on the species).”), 43 (020310), 44 (092312 - no record of species; genus record), 46 (recorded as *Euphorbia florida* Engelm., Page 518), 58, 63 (092312), 68 (see: Poisonous Properties of Spurges, Page 202), 77 (recorded as *Euphorbia florida* Engelm.), 80 (Species of the genus *Euphorbia* are considered to be Secondary Poisonous Range Plants. “The milky juice of Spurge is considered poisonous. Plants may cause skin irritation, diarrhea, photosensitization, and cyanogenetic poisoning. Cattle, horses, sheep, and humans may be affected. The green plants are generally unpalatable but the dried plants in hay are more palatable and remain toxic. ... Poisoning may be prevented by keeping animals off areas heavily infested with spurge when other desirable feed is unavailable, and by not feeding contaminated hay. Range improvement will both reduce spurge infestations through grass competition, and decrease consumption by making more desirable forage available.” See text for additional information.), 85 (092312 - color presentation), 86 (“Most members of the family (Euphorbiaceae) are poisonous, and their milky sap will irritate the membranes of the eyes and mouth.”), 115 (color presentation), 124 (110410 - no record of species; genus record), 140 (Page 291)*

Euphorbia arizonica (see *Chamaesyce arizonica*)

Euphorbia capitellata (see *Chamaesyce capitellata*)

Euphorbia florida (see *Chamaesyce florida*)

***Jatropha cardiophylla* (J. Torrey) J. Müller Argoviensis: Sangre de Cristo**

COMMON NAMES: Limberbush; Matacora; Nettlespurge; Sangre de Cristo (Spanish); Sangre de Drago (Spanish); Sangre-de-Cristo; Sangre-de-drago; Sangregrado (Spanish); Sangregrado (Spanish: Mexico, Sonora); Sangringada; Torote. DESCRIPTION: Terrestrial perennial deciduous, semi-succulent shrub (erect stems 1 to 7 feet in height); the flexible stems are basally branches; the bark is reddish; the leaves shiny green; the small bell-shaped flowers may be cream-white, pink, white or yellow; flowering generally takes place between mid-July and late September. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; rocky canyons; canyon bottoms; ridges; rocky ridgetops; foothills; rocky hills; rocky hillsides; rocky and gravelly slopes; rocky and gravelly bajadas; boulderfields; terraces; gravelly plains; gravelly-sandy flats; basins; valley floors; coastal plains; coastal beaches; rocky roadsides; along and in gravelly and sandy arroyos; sandy bottoms of arroyos; cobbly and cobbly-gravelly-loamy draws; riverbeds; along and in sandy washes; margins of washes; floodplains; mesquite woodlands; riparian areas, and disturbed areas growing in dry bouldery, rocky, cobbly, gravelly, gravelly-sandy and sandy ground and cobbly-gravelly loam and gravelly loam ground, occurring from sea level to 4,800 feet in elevation in the scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fiber crop; the stems were used in the making of baskets. The shiny heart-shaped emerald green leaves appear around the time of the first rains and then provide color when the leaves turn gold in the fall. *Jatropha cardiophylla* is native to southwest-central and southern North America. *5, 6, 13 (Pages 113-114, color photograph: Plate M.1., Page 400), 15, 16, 43 (020510), 44 (071311 - no record of species or genus), 45 (color photograph), 46 (Page 509), 48, 58, 63 (100312), 77, 80 (Species of the genus *Jatropha* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. “Seeds of several species of *Jatropha* are toxic to humans and livestock but no poisoning has been reported from Arizona.”), 85 (100412 - color presentation), 91 (Pages 244-245), 115 (color presentation), 124 (071311 - no record of species or genus), 127, 140 (Page 291)*

Fabaceae (Leguminosae): The Pea Family

***Acacia constricta* G. Bentham: Whitethorn Acacia**

SYNONYMY: *Vachellia constricta* (G. Bentham) D.S. Seigler & J.E. Ebinger. COMMON NAMES: All-thorn Acacia; Chaparo Prieta; Chaparro Prieto (Spanish); Common Whitethorn; Garabato; Gidag (Tohono O'odham); Gigantillo (Spanish); Huisache; Huizache (Spanish); Largoncillo (Spanish); Mescat Acacia; Twinthorn Acacia; Vara Prieta (Spanish); Vinorama (Spanish); White Thorn; White Thorn Acacia; White-thorn Acacia; Whitethorn Acacia; Yellow Cat Claw. DESCRIPTION: Terrestrial perennial cold- and drought-deciduous shrub or tree (ascending and/or erect stems 1 to 20 feet in height with crowns to about the same in width; one plant was observed and described as being 8 feet in height with a crown 8 feet in width); the bark may be light gray, mahogany or nearly black; the stems may be red; the spines on the branches and stems are gray or white; the small pinnate leaves are green; the small flowers have been described as being golden, golden-yellow, orange-yellow, light yellow, yellow or yellowish-orange; flowering generally takes place between late March and late October (additional records: one for mid-April, two for early March and one for late December); the seedpods are brown, purple-red, reddish or rusty-brown. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; cliffs; rocky canyons; canyon sides; sandy canyon bottoms; sandy ridges; foothills; rocky and gravelly hills; bouldery hilltops; rocky and gravelly hillsides; escarpments; rocky, rocky-clayey-loamy and clayey-loamy slopes; gravelly bajadas; rocky outcrops; amongst boulders; terraces; sandy-loamy plains; gravelly, gravelly-sandy and sandy flats; valley floors; coastal plains; along rocky, rocky-gravelly-loamy, rocky-gravelly-clayey loam, rocky-clayey-loamy, gravelly, gravelly-sandy,

gravelly-sandy-loamy, gravelly-sandy-clayey-loamy, gravelly-loamy, gravelly-clayey loam and sandy roadsides; along and in rocky and sandy arroyos; bottoms of arroyos; rocky gulches; along streambeds; creeks; along and in sandy creekbeds; along rivers; along and in gravelly, gravelly-sandy, sandy and silty-clayey washes; drainages; swales; along (gravelly-sandy and sandy) banks of streams, creeks, rivers and washes; borders of washes; along edges of washes; (rocky) margins of arroyos and washes; mudflats; benches; alluvial terraces; sandy bottomlands; floodplains; mesquite bosques; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-gravelly-clayey loam, rocky-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam and loam ground, and silty clay ground, occurring from 100 to 6,500 feet (infrequently as low as 500 feet and as high as 9,200 feet) in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, plants may live to be more than 72 years of age and the flowers may be fragrant. Whitethorn Acacia is used for food (but not extensively) by the Desert Mule Deer (*Odocoileus hemionus*) and Scaled Quail (*Callipepla squamata*), Merriam's Kangaroo Rats (*Dipodomys merriami*), Bailey's Pocket Mice (*Chaetodipus baileyi*) and Rock Pocket Mice (*Chaetodipus intermedius*) as well as a variety of other birds and mammals feed on the seeds. *Acacia constricta* is native to southwest-central and southern North America. *5, 6, 13 (Pages 226-228; color photograph: Plate R-1, Page 403), 15, 16, 18, 26 (color photograph), 28 (color photograph 83), 43 (080409), 44 (040211 - no record of species; genus record), 46 (Page 399), 48, 53 (note under *Acacia farnesiana*), 63 (101012 - color presentation), 68, 77, 80 (This species is listed as a Major Poisonous Range Plant. "The plants are high in cyanide forming-compounds and have been reported to cause death of cattle in Arizona. In general, the plants are not palatable to livestock although the pods are grazed. However, in the fall of the year at or near frost time, when the range grasses become less palatable, cattle may eat heavily of these plants and death is likely to result. ... Animals should be removed from heavily infested areas during the early frost period or considerable death losses may occur." See text for additional information.), 85 (101812 - color presentation), 91 (Pages 15-16), 115 (color presentation), 124 (040211 - no record of species; genus record), 134, 140 (Page 138), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Acacia greggii* A. Gray (var. *greggii* is the variety reported as occurring in Arizona): Catclaw Acacia**

SYNONYMY: (for var. *greggii*: *Acacia greggii* A. Gray var. *arizonica* D. Isely); *Senegalia greggii* (A. Gray) N.L. Britton & J.N. Rose. COMMON NAMES: Acacia (a name also applied to the genus *Acacia*); Algarroba (Spanish)¹⁴⁰; Arizona Acacia (var. *greggii*); Cat Claw; Cat Claw Acacia; Catclaw; Cat Claw Acacia; Cat-claw Acacia; Catclaw Acacia; [Long-flower] Catclaw Acacia (English)¹⁴⁰; Cat's Claw (a name also applied to other species); Cat's Claw Acacia; Cat's-claw (a name also applied to other species); Devil's Catclaw; Ch'il Yijish <ch'il gotiza> (Athapascan: Western Apache)¹⁴⁰; Devil's Claw (a name also applied to other species); Devil's Claw (English)¹⁴⁰; Devil's Claw Acacia; Devil's-claw (a name also applied to other species); Devil's-claw Acacia; Devil'sclaw Acacia; Devilsclaw (a name also applied to other species); Di:s (Seri); Gatuño (Spanish); Gatuño ("Cat Claw", Spanish: Chihuahua)¹⁴⁰; Gregg Acacia; Gregg Cat-claw; Gregg Catclaw; Gregg Catclaw Acacia; Gregg's Acacia; Gregg's Cat-claw; Gregg's Catclaw; Gregg's Catclaw Acacia; Hu□upa Kek□ala (Uto-Aztecan: Yaqui)¹⁴⁰; Ka'djása (Yuman: Havasupai)¹⁴⁰; Kitcás^a <gijes> (Yuman: Walapai)¹⁴⁰; Long-flower Catclaw; Long-flower Catclaw Acacia; Long-flowered Catclaw; Palo Chino (Spanish); Patitos ("Little Feet", Spanish: New Mexico)¹⁴⁰; Sichingily <sichingal, sichingil> (Uto-Aztecan: Cahuilla)¹⁴⁰; Tear-blanket (English: California)¹⁴⁰; Tearblanket; Tepame (Spanish: Mexico)¹⁴⁰; Teso (Uto-Aztecan: Cahita)¹⁴⁰; Tesota (a name also applied to other species); Tésota (Spanish); Tésoto [Tesota, Tésota] (Spanish: Sonora)¹⁴⁰; Texas Catclaw; Texas Mimosa (a name also applied to other species); Texas-mimosa; Tis (Hokan: Seri)¹⁴⁰; Tümpipüh (Uto-Aztecan: Panamint)¹⁴⁰; 'U:pa□ <'u:padh, uupat> (Uto-Aztecan: Hiá Ce□ O'odham and Tohono O'odham)¹⁴⁰; 'Uupa□ (Uto-Aztecan: Akimel O'odham)¹⁴⁰; Uña de Gato ("Cat's Claw", Spanish: New Mexico, Chihuahua)¹⁴⁰; Wait-a-minute (a name also applied to other species); Wait-a-minute Bush (a name also applied to other species); Wright Acacia (var. *wrightii*). DESCRIPTION: Terrestrial perennial winter-deciduous shrub or tree (40 inches to 35 feet in height with a broad crown; plants were observed and described as being 6½ feet in height with crowns 10 feet in width, one plant was observed and described as being 13 feet in height with a crown 16½ feet in width); the bark may be gray-black or red-brown; the leaves may be gray-green or green; the flowers may be cream, cream-white, cream-yellow, green, greenish-yellow, lemon-yellow, dull white, white, pale yellow, yellow, yellow-cream or yellow-green in catkins; flowering generally takes place between early March and early August (additional records: two for late August, one for mid-September, two for late September, one for early October, three for mid-October, one for early November, one for mid-November, one for early December and one for late December); the mature fruits (straight or twisted pods) are brown or brownish-red. HABITAT: Within the range of this species it has been reported from rocky mountains; mountainsides; gravelly mesas; rocky canyons; rocky and sandy canyon bottoms; gorges; rocky bluffs; rocky and sandy ridges; ridgetops; foothills; rocky hills; gravelly hilltops; rocky, gravelly and gravelly-loamy hillsides; bedrock, rocky, rocky-gravelly-loamy, gravelly, gravelly-sandy and sandy slopes; bases of slopes; alluvial fans; bajadas; amongst boulders; debris flows; terraces; plains; sandy flats; basins; valley floors; loamy valley bottoms; coastal plains; coastal beaches; along gravelly-sandy, gravelly-sandy-clayey-loamy and sandy roadsides; along and in arroyos; bottoms of arroyos; draws; ravines; seeps; springs; along streams; along creeks; along sandy and sandy-silty creekbeds; in sand along rivers; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; within drainages; along drainage ways; bases of waterfalls; along (rocky, gravelly-sandy, gravelly-silty, sandy and sandy-silty) banks of arroyos, streams, creeks, rivers and washes; borders of washes; along (sandy) edges of arroyos, creeks and washes; margins of washes; shorelines; sand bars; shelves; gravelly-sandy and sandy terraces; sandy bottomlands; sandy-loamy floodplains; lowlands; mesquite bosques; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-sandy, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly-sandy-clayey loam, gravelly loam, sandy loam, clayey loam and loam ground; gravelly clay, sandy clay and clay

ground, and gravelly silty, sandy silty and silty ground, occurring from slightly above sea level to 6,000 feet (one record located showing 10,400 plus feet in Yavapai County, AZ) in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat; the flowers are fragrant, it may live to be up to 120 years of age. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder and/or fiber crop; it was also noted as having been used as a fuel, tool and in the making of perfumed sachets. The Catclaw Acacia provides food, shelter, protection, shade, nesting sites, roosting sites and nesting material for a wide variety of species of wildlife. It is a favored nesting site of the Verdin (*Auriparus flaviceps*). *Acacia greggii* is native to southwest-central and southern North America. *5, 6, 13 (Pages 223-224; color photograph: Plate R-1, Page 403), 15, 18, 26 (color photograph), 28 (color photograph 84), 43 (102012 - *Senegalia greggii* Britton & Rose), 44 (071311), 46 (“This is probably the most heartily disliked plant in the state, the sharp, strong prickles tearing the cloths and lacerating the flesh.”, Page 398), 48 (“A good honey plant but a poisonous weed on range lands.”), 52, 53, 58, 63 (102012 - color presentation), 77, 80 (**This species is listed as a Secondary Poisonous Range Plant.** “Plants contain cyanide-forming compounds and symptoms are typical of cyanide poisoning. The new foliage is relished by cattle in the early spring. It also may be grazed considerably during dry seasons or drouth periods when other feed is short. Plants are most dangerous in the fall during first frosts. Cattle are most often poisoned, but losses in Arizona are not heavy. Poisoning may be prevented by deferring heavily infested areas during the early frost periods.” See text for additional information.), 85 (102012 - color presentation), 91 (Pages 21-22), 115 (color presentation), 124 (071311 - no record of species; genus record), 140 (Pages 136-138 & 291), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Acacia greggii var. *arizonica* (see *Acacia greggii* var. *greggii*)

***Acacia greggii* A. Gray var. *greggii*: Catclaw Acacia**

SYNONYMY: *Acacia greggii* A. Gray var. *arizonica* D. Isely. COMMON NAMES: Acacia (a name also applied to the species and the genus *Acacia*); Algarroba (a name applied to the species, Spanish; usually used for *Prosopis*)¹⁴⁰; Arizona Acacia; Cat Claw (a name also applied to the species); Cat Claw Acacia (a name also applied to the species); Catclaw (a name also applied to the species); Catclaw Acacia (a name also applied to the species); [Long-flower] Catclaw Acacia (a name applied to the species, English)¹⁴⁰; Cat’s-claw (a name also applied to the species); Devil’s Catclaw (a name also applied to the species); Ch’il Yijish <ch’il gotiza> (a name applied to the species, Athapascan: Western Apache)¹⁴⁰; Devil’s Claw (a name also applied to the species); Devil’s Claw (a name applied to the species, English)¹⁴⁰; Devil’s-claw (a name also applied to the species); Devil’s-claw Acacia (a name also applied to the species); Devilsclaw (a name also applied to the species); Di:s (a name also applied to the species, Seri); Gatuño (“Cat Claw” a name applied to the species, Spanish: Chihuahua)¹⁴⁰; Gregg Catclaw (a name also applied to the species); Gregg’s Acacia (a name also applied to the species); Hu□upa Kek□ala (a name applied to the species, Uto-Aztecan: Yaqui)¹⁴⁰; Ka’djása (a name applied to the species, Yuman: Havasupai)¹⁴⁰; Kitchás^a <gijes> (a name applied to the species, Yuman: Walapai)¹⁴⁰; Long-flower Catclaw Acacia (a name also applied to the species); Patitos (“Little Feet” a name applied to the species, Spanish: New Mexico)¹⁴⁰; Sichingily <sichingal, sichingil> (a name applied to the species, Uto-Aztecan: Cahuilla)¹⁴⁰; Tear-blanket (a name applied to the species, English: California)¹⁴⁰; Tearblanket (a name also applied to the species); Tepame (a name applied to the species, Spanish: Mexico)¹⁴⁰; Teso (a name applied to the species, Uto-Aztecan: Cahita)¹⁴⁰; Tesota (a name also applied to the species and to other species); Tesoto [Tesota, Tésota] (a name applied to the species, Spanish: Sonora)¹⁴⁰; Texas Catclaw (a name also applied to the species); Texas Mimosa (a name also applied to the species and to other species); Texas-mimosa (a name also applied to the species); Tis (a name applied to the species, Hokan: Seri)¹⁴⁰; Tümiipüh (a name applied to the species, Uto-Aztecan: Panamint)¹⁴⁰; ‘U:pa□ <‘u:padh, uupat> (a name applied to the species, Uto-Aztecan: Hiá Ce□ O’odham and Tohono O’odham)¹⁴⁰; ‘Uupa□ (a name applied to the species, Uto-Aztecan: Akimel O’odham)¹⁴⁰; Uña de Gato (“Cat’s Claw” a name applied to the species, Spanish: New Mexico, Chihuahua)¹⁴⁰; Wait-a-minute (a name also applied to the species and to other species); Wait-a-minute Bush (a name also applied to the species and to other species). DESCRIPTION: Terrestrial perennial winter-deciduous shrub or tree (40 inches to 25 feet in height with a broad crown); the bark is gray-black or red-brown; the leaves are gray-green or green; the flowers may be cream, cream-white, cream-yellow, green, greenish-yellow, lemon-yellow, white, yellow, yellow-cream or yellow-green in catkins; flowering generally takes place between early March and mid-July (additional record: one for mid-October); the mature fruits (straight or twisted pods) are brown or brownish-red. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; canyons; rocky and sandy canyon bottoms; rocky bluffs; rocky and sandy ridges; ridgetops; hillsides; rocky, rocky-clayey-loamy, sandy and loamy slopes; amongst boulders; alluvial fans; sandy flats; valley floors; gravelly-sandy-clayey-loamy and sandy roadsides; sandy edges of arroyos; draws; ravines; along streams; along creeks; along rivers; along gravelly and sandy washes; within drainages; along banks of rivers and washes; along edges of washes; margins of arroyos; floodplains; mesquite bosques, and riparian areas growing in dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-clayey loam, gravelly-sandy-clayey loam, sandy loam and clayey loam ground, and gravelly clay ground, occurring from slightly above sea level to 5,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat; the flowers are fragrant, it may live to be up to 120 years of age. The species, *Acacia greggii*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder and/or fiber crop; it was also noted as having been used as a fuel, tool and in the making of perfumed sachets. The Catclaw Acacia provides food, shelter, protection, shade, nesting sites, roosting sites and nesting material for a wide variety of species of wildlife. It is a favored nesting site of the Verdin (*Auriparus flaviceps*). *Acacia greggii* var. *greggii* is native to southwest-central and southern North America. *5, 6, 13

(species, Pages 223-224; color photograph of species: Plate R-1, Page 403), 16 (recorded as *Acacia greggii* Gray var. *arizonica* Isely), 18 (species), 26 (species, color photograph of species), 28 (species, color photograph of species 84), 43 (020710), 44 (071311 - no listing provided under Common Names), 46 (species, “This is probably the most heartily disliked plant in the state, the sharp, strong prickles tearing the clothes and lacerating the flesh.”, Page 398), 48 (species, “A good honey plant but a poisonous weed on range lands.”), 52 (species) 53, (species), 63 (102012), 80 (The species is listed as a Secondary Poisonous Range Plant. “Plants contain cyanide-forming compounds and symptoms are typical of cyanide poisoning. The new foliage is relished by cattle in the early spring. It also may be grazed considerably during dry seasons or drouth periods when other feed is short. Plants are most dangerous in the fall during first frosts. Cattle are most often poisoned, but losses in Arizona are not heavy. Poisoning may be prevented by deferring heavily infested areas during the early frost periods.” See text for additional information.), 85 (102012 - color presentation of dried material), 91 (species, Pages 21-22), 115 (color presentation of the species) 124 (071311 - no record of species/variety; genus record), 127 (species), 140 (species, Pages 136-138 & 291), **WTK** (August 4, 2005)*

***Astragalus allochrous* A. Gray var. *allochrous*: Halfmoon Milkvetch**

COMMON NAMES: Crazyweed (a name also applied to the species); Halfmoon Locoweed (a name also applied to the species); Halfmoon Milkvetch (a name also applied to the species); Loco (a name also applied to the species, other species and to the genus *Astragalus*); Loco Weed (a name also applied to the species, other species and to the genus *Astragalus*); Locoweed (a name also applied to the species, other species and to the genus *Astragalus*); Poisonvetch (a name also applied to the species and the genus *Astragalus*); Rattleweed (a name also applied to the species and the genus *Astragalus*). DESCRIPTION: Terrestrial annual or perennial forb/herb (prostrate stems 1 to 2 feet in length); the leaves are dark gray-green; the flowers may be purple or pale red-violet; flowering generally takes place between early March and late May (additional records: one for mid-June one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; mesas; along rocky canyons; canyon bottoms; bluffs; bouldery ridges; sandy cinder cones; foothills; hills; rocky hilltops; bouldery-rocky and gravelly hillsides; rocky, gravelly clayey slopes; amongst rocks; lava flows; plains; flats; valley floors; valley bottoms; along rocky, gravelly and sandy roadsides; springs; around streams; along creeks; creekbeds; washes; (sandy) banks of streams and washes; floodplains, and riparian areas growing in dry bouldery, bouldery-rocky, rocky, gravelly and sandy ground; clay ground, and silty ground, occurring from 1,500 to 7,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The species, *Astragalus allochrous*, was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication and as a ceremonial item. *Astragalus allochrous* var. *allochrous* is native to southwest-central and southern North America. *5, 6, 43 (020810), 44 (071411 - no record of variety; genus and species records), 46 (species, Page 463), 63 (102112), 68 (species), 80 (The species is listed as a Major Poisonous Range Plant. Poisonings by *Astragalus* and *Oxytropis* are similar and are of three types. “Some species cause typical loco poisoning. Others pick up poisonous minerals, such as selenium, and cause mineral poisoning. A third type of poisoning causes respiratory problems, in addition to other loco symptoms, and death by asphyxiation. The toxic principle of typical loco poisoning has never been specifically isolated, though an alkaloid-like substance given the name of “locoine” has been proven to cause typical symptoms. ... Animals ordinarily will not eat loco unless feed is scarce, but animals forced to eat the plants become addicted and will eat the loco plants even when good forage is available.” See text for additional information.), 85 (102112 - color presentation), 124 (071411 - no record of species or variety; genus record), 127 (species)*

***Astragalus nuttallianus* A.P. de Candolle var. *austrinus* (J.K. Small) R.C. Barneby: Smallflowered Milkvetch**

COMMON NAMES: Cascabelito (Spanish: applied to other taxa); Hierba Loca (Spanish: applied to other taxa); Locoweed (a name also applied to other taxa including the genus *Astragalus*); Nuttall Locoweed (a name also applied to other taxa); Nuttall Milkvetch (a name also applied to other taxa); Rattleweed (a name also applied to other taxa including the genus *Astragalus*); Small-flowered Milkvetch (a name also applied to other taxa); Smallflowered Milkvetch (a name also applied to other taxa); Sonora Rattle-weed; Southern Small Flowered Milk Vetch; Southern Small-flowered Milk-vetch. DESCRIPTION: Terrestrial annual or perennial forb/herb (the species has been recorded as having prostrate, procumbent and/or weakly ascending stems 2 to 4 inches in height and 1½ to 21 inches in length); the flowers may be pale blue, bluish, blue-purple, blue & white, pale lavender & white, lavender, lavender & white, dull pink, dull pink & white, pink-purple, pink-purple & white, pale purple, purple, red-violet, pale violet, pale violet & white, white & purple or whitish; flowering generally takes place between early March and late May (additional records: one for late January, one for early August and one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; canyons; canyon bottoms; foothills; hills; rocky and sandy hillsides; rocky, rocky-gravelly, gravelly, sandy-loamy and loamy slopes; gravelly bajadas; pediments; rocky outcrops; sand dunes; clayey-loamy prairies; shaley-sandy plains; gravelly and sandy-clay-loamy flats; gravelly-sandy bowls; basins; silty valley floors; along railroad right-of-ways; gravelly roadbeds; along gravelly-loamy, gravelly-clayey-loamy and sandy roadsides; rocky, gravelly and sandy arroyos; gravelly bottoms of arroyos; draws; gulches; along streams; in gravelly-sandy creekbeds; in riverbeds; along and in rocky-gravelly, gravelly and sandy washes; (sandy) banks of creeks and rivers; (sandy) edges of creeks; shorelines; sandy beaches; rocky shelves; along sandy bottomlands; riparian areas and waste places growing in moist and dry rocky, rocky-gravelly, shaley-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam, humusy loam and loam ground, and silty ground, occurring from sea level to 7,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Astragalus nuttallianus* var. *austrinus* is native to southwest-central and southern North America. *5, 6, 15, 43 (070709), 44 (102312), 46 (species, Page 468), 63 (102312 - color presentation), 68 (species), 77, 85 (102412 - color presentation of dried material), 124 (102312 - no record of

variety; species and genus records), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Astragalus nuttallianus* A.P. de Candolle var. *imperfectus* (P.A. Rydberg) R.C. Barneby: Turkeypeas**

COMMON NAMES: Coliche Milkvetch; Imperfect Milkvetch; Locoweed (a name also applied to other taxa including the genus *Astragalus*); Milk-vetch (a name also applied to other taxa including the genus *Astragalus*); Nuttall Locoweed (a name also applied to other taxa); Nuttall Milkvetch (a name also applied to other taxa); Smallflowered Milkvetch (a name also applied to other taxa); Turkeypeas (a name also applied to other taxa). DESCRIPTION: Terrestrial annual or perennial forb/herb (the species has been recorded as having prostrate, procumbent and/or weakly ascending stems 2 to 4 inches in height and 1½ to 21 inches in length); the foliage is grayish; the flowers may be blue, blue-violet, lavender & white, purple, white or whitish; flowering generally takes place between late January and late May (additional records: one for early October, two for late October and one for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; gravelly mesas; rock cliffs; stony-gravelly bases of cliffs; rocky and gravelly-sandy canyons; gravelly canyon bottoms; gorges; gravelly scree; talus slopes; knobs; rocky knolls; ledges; rocky meadows; volcanic cones; foothills; rocky and stony-gravelly hills; rocky hillsides; rocky, gravelly and sandy slopes; gravelly bajadas; rock outcrops; amongst boulders and rocks; lava fields; rocky, cindery and gravelly and gravelly-sandy flats; sandy uplands; basins; stony and sandy valley floors; along gravelly-sandy-silty roadsides; gravelly arroyos; gravelly bottoms of arroyos; along creeks; creekbeds; along rivers; along gravelly and sandy washes; (gravelly-sandy) banks of washes; gravelly-sand bars; sandy beaches; terraces; sandy riparian areas growing in dry desert pavement; bouldery, bouldery-sandy, rocky, stony, stony-gravelly, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, sandy loam and clayey loam ground, and gravelly-sandy silty ground, occurring from 600 to 9,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Astragalus nuttallianus* var. *imperfectus* is native to southwest-central and southern North America. *5, 6, 43 (070709), 44 (102312), 46 (Page 468), 63 (102312 - color presentation), 68 (species), 85 (102412 - color presentation of dried material), 124 (102312 - no record of variety; species and genus records)*

***Calliandra eriophylla* G. Bentham: Fairyduster**

SYNONYMY: *Calliandra eriophylla* G. Bentham var. *erriophylla*. COMMON NAMES: Bastard Catclaw; Bastard Mesquite; Brasilillo (“Little Brazil-wood”, Spanish: New Mexico, Chihuahua)¹⁴⁰; Cabellito [Cabellos, Pelo de Ángel] (“Little [Angel] Hair”, Spanish: Mexico)¹⁴⁰; Cabeza de Ángel (Spanish); Cabeza [de] Ángel (“Angel Head”, Spanish: Baja California)¹⁴⁰; Cabelleto de Angel; Charresquillo (“Little Thicket”, Spanish: San Louis Potosí)¹⁴⁰; Cosahui (Spanish); Cósahui [del Norte] (Spanish: Sonora)¹⁴⁰; Cu:wí Wuipo <cu:wí wu:pui> (“Jack-rabbit Eyes”, Uto-Aztecan: Tohono O’odham)¹⁴⁰; Desert Fairy Duster; Desert Fairy-duster; Desert Fairyduster; Fairy Duster (a name also applied to the genus *Calliandra*); Fairy Duster [Fairy-duster] (English)¹⁴⁰; Fairy Duster False Mesquite; Fairy-duster (a name also applied to the genus *Calliandra*); Fairy-duster False-mesquite; Fairy-duster Mesquitilla; Fairyduster (a name also applied to the genus *Calliandra*); Fairyduster Mesquitilla; False Catclaw; False Mesquite; False [Bastard, Mock] Mesquite [Catclaw] (English)¹⁴⁰; False Mesquite Calliandra (a name also applied to other species); False-mesquite Calliandra; Guajillo; Hairy-leaved Calliandra; Hairy-leaved Calliandra; Haxz Iztim (“Dog’s Hipbone”, Hokan: Seri)¹⁴⁰; Huajillo <guajillo> (Spanish: Mexico)¹⁴⁰; Mautillo (Mexico, Sonora); Mesquitella (Spanish); Mesquitilla (a name also applied to other species); Mezquitilla (“Little Mesquite”, Spanish: Mexico)¹⁴⁰; Mezquitillo (Spanish); Mock Catclaw; Mock Mesquite (a name also applied to the genus *Calliandra*); Pelo de Ángel (Spanish); Pink Fairy Duster; Pink Fairy-duster; Pink Fairyduster; Pink False Mesquite; Plumita (“Little Plume”, Spanish: Mexico)¹⁴⁰; Rama Mansa (Spanish: Puerto Rico); Taaseyueylalá <ta-a-sey-ueylalá> (Uto-Aztecan: Guarijío)¹⁴⁰. DESCRIPTION: Terrestrial perennial deciduous subshrub or shrub (4 inches to 6½ feet in height; one plant was observed and described as being 40 inches in height with a crown 80 inches in width); the stems may be bluish, light gray, gray, whitish or white-gray; the leaves may be grayish, dark green or red; the flowers may be cream-white, pink, pink-red, pink-white, pinkish, light purple, purple, red, red and white, reddish-purple, rose, violet-red or white; flowering generally takes place between late January and early July (additional records: two for mid-January, five for mid-August, three for late August, three for early September, three for mid-September, one for early October, four for mid-October, four for late October, four for early November, two for mid-November, three for late November, one for early December, one for mid-December and two for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky peaks; mountainsides; gravelly mesas; plateaus; rocky canyons; along rocky canyon bottoms; buttes; knolls; bedrock and sandy ridges; rocky ridgetops; rocky, shaley-sandy and gravelly-clayey-loamy foothills; rocky hills; hilltops; rocky hillsides; along bedrock, bouldery, rocky, rocky-loamy, rocky-clayey, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy and clayey slopes; gravelly bajadas; rocky outcrops; amongst boulders and rocks; boulderfields; lava hills; interior dunes; stony banks; plains; rocky, gravelly, sandy and clayey-loamy flats; basins; valley floors; along rocky, gravelly-sandy, rocky-sandy, sandy and sandy-loamy roadsides; along rocky-sandy and sandy arroyos; within gullies; around seeps; around springs; around seeping streams; streambeds; along and in gravelly and sandy washes; drainages; within bouldery drainage ways; along watercourses; (rocky) banks of arroyos and lakes; borders of washes; edges of washes and drainage ways; margins of washes; shores of lakes; gravelly terraces; bottomlands; mesquite woodlands; ditches; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-sandy, shaley-sandy, stony, gravelly and sandy ground; rocky loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, pebbly-clayey loam, sandy loam and clayey loam ground, and rocky clay and clay ground, occurring from sea level to 7,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and is sold as an ornamental; it is considered to be a soil binder. This plant was reported to have been utilized by native peoples

of North America; it was noted as having been used as a drug or medication. Hummingbirds and White-lined Sphinx Moths (*Hyles lineata*) have been observed visiting the flowers, the plant is browsed by wildlife with Mule Deer (*Odocoileus hemionus*) and White-tailed Deer (*Odocoileus virginianus*) finding it highly palatable, and birds may feed on the seeds. *Calliandra eriophylla* is native to southwest-central and southern North America. *5, 6, 13 (Pages 230-231), 15, 16, 18, 28 (color photograph 653), 43 (080409), 44 (071611 - color photograph), 46 (Page 397), 48, 58, 63 (102712 - color presentation), 77 (color photograph #32), **85** (101812 - color presentation), 86 (color photograph), 91 (Pages 142-143), 115 (color presentation), 124 (071611 - no record of genus or species), 127, 140 (Pages 138-139 & 292)*

Calliandra eriophylla var. *erriophylla* (see *Calliandra eriophylla*)

Cassia artemisioides (see *Senna artemisioides*)

Cassia covesii (see *Senna covesii*)

Cercidium floridum (see *Parkinsonia florida*)

Cercidium floridum subsp. *floridum* (see *Parkinsonia florida*)

Cercidium microphyllum (see *Parkinsonia microphylla*)

***Coursetia glandulosa* A. Gray: Rosary Babybonnets**

SYNONYMY: *Coursetia microphylla* A. Gray. COMMON NAMES: Ari (Hispanic); Baby Bonnets; Chino (Spanish); Chipile; Chipilillo; Coursetia (a name also applied to the genus *Coursetia*); Cousamo (Spanish); Cousano (Spanish); Lac Bush; Rosary Babybonnets; Samo (Tarahumara); Samo Prieto; Samota; Samotum [Samodum, Úsapdum] (Pima Bajo, usap is the word used for the sap of this plant); Samo Prieto (Spanish); Sámota (Spanish: Mexico, Sonora); Sámu (Hispanic); [Tepe] Chipile (Spanish); Tepechipile; Zamota (Hispanic). DESCRIPTION: Terrestrial perennial (winter-deciduous in Arizona) shrub (3 to 20 feet in height); the bark on the slender branches is light gray, grayish, gray or tan; the leaves are grayish-green or green; the flowers may be cream & yellow, lavender & cream, lemon-yellow, pink, white, white-yellow, pale yellow, yellowish or yellow & white often tinged with lavender, pink, purple or red; flowering generally takes place between early December and late May (additional records: two for late June and one for mid-November); the mature seed pods (1 to 2 inches in length) are brown. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; bases of cliffs; rocky canyons; rocky sides of canyons; bouldery and rocky canyon bottoms; ridges; foothills; rocky hills; rocky hilltops; rocky and gravelly hillsides; bedrock, rocky and sandy-loamy slopes; gravelly alluvial fans; bajadas; rocky outcrops; amongst boulders and rocks; terraces; cobbly and sandy-loamy plains; flats; basins; sandy valley floors; coastal flats; roadsides; within rocky and sandy arroyos; rocky and sandy bottoms of arroyos; along bottoms of ravines; springs; along rocky streams; riverbeds; along and in rocky, gravelly-sandy, sandy and sandy-loamy washes; drainages; borders of washes; (rocky) edges of streambeds and washes; (rocky) margins of arroyos; (sandy) sides of rivers; mesquite bosques, and riparian areas growing in dry bouldery, rocky, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground and sandy loam ground, occurring from sea level to 4,300 (one record for 7,500) feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial sealant crop (the transparent yellowish-brown gum was mixed with adobe to make jars of syrup air tight). An orange-colored lac may be observed on the stems of the plant that is produced by the feeding of an insect in the genus *Tachardiella*. The Broad-billed Hummingbird (*Cyanthis latirostris*) has been observed visiting the flowers. *Coursetia glandulosa* is native to southwest-central and southern North America. *5, 6, 10, 13 (Page 256), 15, 28 (recorded as *Coursetia microphylla*, color photograph 95), 30, 43 (020910), 44 (102812 - no record of species or genus), 46 (recorded as *Coursetia microphylla* Gray, Page 443), 63 (102812 - color presentation of seed), 77 (color photograph #33), **85** (102812 - color presentation), 91 (Pages 171-172), 115 (color presentation), 124 (102812 - no record of species or genus), 127, 140 (Page 292)*

Coursetia microphylla (see *Coursetia glandulosa*)

Dalea parryi (see *Marina parryi*)

***Dalea pogonathera* A. Gray (var. *pogonathera* is the variety reported as occurring in Arizona): Bearded Prairie Clover**

COMMON NAMES: Bearded Dalea; Bearded Pogonathera; Bearded Prairie Clover; Bearded Prairieclover; Herba del Corazón; Heirba del Corazon; Pea-bush. DESCRIPTION: Terrestrial perennial forb/herb (8 inches to 2 feet in height); the flowers (a spike 2 to 4 inches in length) may be pale blue-lavender, blue-lavender, bluish-purple, brown, lavender, pink, light purple, purple, violet, white or yellow; flowering generally takes place between mid-March and mid-October (additional records: one for mid-February, two for early November and one for early December). HABITAT: Within the range of this species it has been reported from mountains; rocky-sandy and gravelly mesas; rocky canyons; stony talus; rocky ridges; foothills; rocky, gravelly and clayey hills; rocky, rocky-gravelly and rocky-sandy hillsides; bedrock, rocky, rocky-sandy-clayey, stony-clayey, gravelly and gravelly-sandy slopes; bajadas; rocky and gravelly piedmonts; rocky outcrops; amongst rocks; rocky hardpans;

rocky flats; rocky valley floors; along bouldery-rocky, rocky-gravelly, rocky-gravelly-loamy, rocky-gravelly-clayey-loamy, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, gravelly-clayey, gravelly-clayey-loamy and sandy roadsides; arroyos; rocky draws; rocky gullies; rocky-gravelly streambeds; along creeks; washes; drainages; edges of gullies; terraces; floodplains, and disturbed areas growing in dry rocky desert pavement; bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-gravelly-clayey loam, gravelly-sandy loam, gravelly loam and gravelly-clayey loam ground; rocky-sandy clay, stony clay, gravelly clay and clay ground, and sandy silty ground, occurring from 300 to 8,000 feet in elevation in the forest, woodland, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Dalea pogonathera* is native to southwest-central and southern North America. *5, 6, 15, 18 (genus), 43 (020910), 44 (102912 - no record of species; genus record), 46 (Page 438), 58, 63 (102912 - color presentation), 77, **85** (102912 - color presentation of dried material), 124 (102912 - no record of species; genus record), 140 (Page 292)*

***Galactia wrightii* A. Gray: Wright's Milkpea**

COMMON NAMES: Cliff Bean; Wright Milkpea; Wright's Milkpea. DESCRIPTION: Terrestrial perennial forb/herb or vine (prostrate, climbing, scrambling, trailing or twining stems 20 inches to 2 feet in height); the leaves are dark green above and gray-green below; the flowers may be pale blue, cream-yellow, greenish-yellow, light lavender & yellowish-cream, lavender, lavender-purple, magenta-rose, pink, pink-lavender, pink & white, pink with yellow markings, pale purple, purple, purplish, purplish-pink, red-purple, rose, rose-pink, rose-purple, white, yellow-orange and yellow-purple; flowering generally takes place between early June and late October (additional records: one for late January, one for mid-February and one for late April). HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; cliffsides; bases of cliffs; rocky canyons; along rocky canyon bottoms; crevices in boulders; stony ledges; along rocky ridges; rocky ridgetops; rocky crests of ridges; rocky-sandy meadows; rocky hilltops; rocky, rocky-gravelly-loamy and rocky-clayey hillsides; bouldery-rocky, rocky, rocky-gravelly, rocky-silty, shaley, stony and clayey-loamy slopes; rocky-sandy bases of slopes; rocky outcrops; amongst boulders and rocks; along rocky banks; plains; open flats; rocky-gravelly-loamy and gravelly roadsides; bottoms of ravines; along and in streams; in rocky streambeds; along creeks; along and in rocky washes; along and in drainages; (bouldery-cobbly-sandy and rocky) banks of gullies, creeks, rivers and drainages, and riparian areas growing in moist and dry bouldery, bouldery-rocky, bouldery-cobbly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley and gravelly ground; rocky-gravelly loam, gravelly-sandy-clayey loam and clayey loam ground; rocky clay ground, rocky-silty and sandy silty ground, occurring from 100 to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Galactia wrightii* is native to southwest-central and southern North America. *5, 6, 15, 43 (071910), 46 (Page 480), 58, 63 (071910), 77, **85** (080210 - color presentation of dried material), 124 (111210 - no record), 140 (Page 292)*

Hosackia brachycarpa (see *Lotus humistratus*)

***Lotus humistratus* E.L. Greene: Foothill Deervetch**

SYNONYMY: *Hosackia brachycarpa* G. Bentham. COMMON NAMES: Bird's Foot Lotus; Colchita; Deer Vetch (a name also applied to the genus *Lotus*); Deer-vetch (a name also applied to the genus *Lotus*); Foothill Deervetch; Hill Deervetch; Hill Locust; Foothill Deervetch; Maresfat; Short Podded Lotus. DESCRIPTION: Terrestrial annual forb/herb (spreading prostrate stems 4 to 18 inches in height or length); the leaves are gray-green or green; the small flowers are orange, orange-yellow, yellow, yellow-orange, yellow & orange-red and yellow & red; flowering generally takes place between late January and late June (additional records: one for early August, one for late August and one for early October); the mature pods are brown. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; sandy mesas; plateaus; cliffs; rocky, rocky-gravelly and stony canyons; sandy-loamy canyon bottoms; scree; bluffs; rocky and clayey-loamy ridges; rocky and clayey ridgetops; ridgelines; rocky-sandy meadows; foothills; bases of foothills; bedrock, rocky and clayey hills; clayey hilltops; rocky, rocky-gravelly-loamy, rocky-pebbly-sandy-silty, stony, cobbly-sandy-loamy, gravelly and clayey hillsides; rocky, rocky-gravelly, rocky-sandy, rocky-clayey-loamy, cobbly-sandy-loamy, gravelly, clayey and clayey-loamy slopes; rocky-sandy and sandy alluvial fans; gravelly bajadas; rocky outcrops; amongst rocks; rocky banks; clay lenses; sandy-silty plains; rocky-sandy, gravelly, gravelly-sandy, sandy and clayey flats; benchlands; clayey basins; gravelly-sandy-loamy, sandy and clayey valley floors; valley bottoms; along rocky, gravelly and silty roadsides; along and in rocky and sandy arroyos; bottoms of arroyos; within draws; gulches; gullies; along seeping washes; springs; along streams; sandy soils along creeks; bouldery-rocky, stony, cobbly, gravelly, gravelly-sandy and sandy creekbeds; sandy soils along rivers; sandy riverbeds; along and in gravelly, gravelly-sandy, gravelly-loamy, sandy and clayey washes; within drainage ways; along (rocky-silty, gravelly-loamy and sandy) banks of streams, streambeds, rivers and washes; gravel bars; clayey benches; terraces; sandy and loamy bottomlands; cobbly-sandy and sandy floodplains; along canals; gravelly-sandy and sandy riparian areas; recently burned areas in scrub, and disturbed areas growing in wet, moist, damp and dry bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, rocky-sandy loam, rocky-clayey loam, cobbly-sandy loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, clayey loam, silty loam and loam ground; clay ground, and rocky-pebbly-sandy silty, rocky silty, sandy silty and silty ground, occurring from sea level to 6,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Lotus humistratus* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (071009), 44 (110112 - no listings under Common Names; genus record), 46 (Page 427), 48 (genus), 58, 63 (110112 - color presentation of seed), 77, 85 (110112 - color presentation), 86 (color

photograph), 115 (color presentation), 124 (110112 - no record of species; genus record), 127, 140 (Page 292), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Lupinus C. Linnaeus: Lupine

COMMON NAMES: Blue Bonnet; Fingerleaf; Lupin; Lupine; Monkey Faces (Sulfur Grove Ohio); Monkey-faces (Sulfur Grove Ohio); Old-maid's-bonnets; Old-maid's-sunbonnets; Quaker Bonnet; Quaker's-bonnets; Sun Dial; Sun Dial Plant; Sun-dial (Sulfur Grove Ohio); Sun-dial Plant; Sundial (Sulfur Grove Ohio); Sundial Plant; Wild Lupine; Wolf's Bean; Wolf's-bean. *43 (071110), 44 (041212), 46 (Pages 414-420), 63 (071110 - color presentation), 124 (041212), **HR***

Lupinus concinnus J.G. Agardh: Bajada Lupine

COMMON NAMES: Agardh Lupine (var. *agardhianus* - Invalid; *Lupinus agardhianus* A.A. Heller - Valid); Agardh's Lupine (var. *agardhianus* - Invalid; *Lupinus agardhianus* A.A. Heller - Valid); Annual Lupine; Bajada Bluebonnet; Bajada Lupin; Bajada Lupine; Bluebonnet (Blue Bonnet is a name that is applied to the genus *Lupinus*); Concinnus Annual Lupine; Elegant Lupine (a name also applied to other taxa); Lupine (Blue Bonnet is a name that is applied to the genus *Lupinus*); Lupino (a name also applied to other species, Spanish); Orcutt Bajada Lupine (subsp. *orcuttii*); Orcutt Lupine (subsp. *orcuttii*); Orcutt's Bajada Lupine (subsp. *orcuttii*); Orcutt's Lupine (subsp. *orcuttii*); Scarlet Lupine; Trébola (a name also applied to other species, Spanish). DESCRIPTION: Terrestrial annual forb/herb (decumbent and/or erect stems 3 to 18 inches in height); the stems may be red; the woolly herbage may be grayish or gray-green; the flowers may be blue, blue-magenta, blue-purple, blue & white, blue & light yellow, deep blue-purple & white, cream & purple, cream & rose-purple, pale lavender, dark lavender, lavender-pink, lavender-purple, lavender-rose, lavender & white, magenta-lavender, pink, pink-lavender, pink-purple & white-cream, pink-purple & white tinged with lavender, pink & white, pinkish-blue, pinkish-purple, light purple & yellow, purple, purple-blue, purple-lavender, purple-magenta, purple-magenta & white, purple-pink, purple & white, purple & yellow, purplish, red-purple, reddish-purple, violet, white rimmed with pink, yellow & pink or yellowish-purplish; flowering generally takes place between late February and late June. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky, gravelly, sandy and sandy-clayey-loamy mesas; bases of cliffs; rocky canyons; bouldery-sandy, rocky and sandy canyon bottoms; chasms; bouldery and clayey ridges; sandy ridgetops; ridgelines; openings in forests; sandy foothills; rocky, gravelly and clayey hills; sandy hillsides; along bouldery, rocky, rocky-gravelly-sandy, gravelly, sandy, clayey-loamy and clayey slopes; rocky-sandy alluvial fans; bajadas; amongst boulders and rocks; boulder fields; blow-sand deposits; sandy banks; berms; sandy and sandy-silty plains; gravelly and sandy flats; basins; sandy-silty valley floors; along gravelly, gravelly-sandy and sandy roadsides; within arroyos; gulches; ravines; around streams; rocky streambeds; along creeks; along and in gravelly-sandy and gravelly-silty creekbeds; along rivers; sandy riverbeds; along and in rocky-sandy, gravelly, gravelly-sandy and sandy washes; within rocky drainage ways; (gravelly, gravelly-sandy and sandy) banks of arroyos, creeks, rivers and washes; borders of washes; along (cobble) edges of rivers and washes; along margins of washes; (sandy) sides of washes; gravelly and sandy benches; sandy terraces; gravelly and loamy bottomlands; rocky-sandy, cobble-sandy, gravelly and sandy floodplains; along ditches; along gravelly-clayey-loamy banks of ditches; rocky-sandy, gravelly-sandy and sandy riparian areas; recently burned areas in woodlands and scrub, and disturbed areas growing in dry bouldery, bouldery-sandy, rocky, rocky-gravelly-sandy, rocky-sandy, cobble, cobble-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; rocky clay, cobble clay, loamy clay and clay ground, and gravelly silty and sandy silty ground, occurring from 100 to 7,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Lupinus concinnus* is native to southwest-central and southern North America. *5, 6, 16, 18 (genus), 28 (color photograph 765), 43 (021110), 44 (110812 - color photograph), 46 (Page 417), **48** (genus), 58, 63 (110812 - color presentation), 77 (color photograph #80), **80** (Some, but not all, species of the genus *Lupinus* are considered to be Secondary Poisonous Range Plants. "The lupines contain numerous poisonous alkaloids. They are mostly dangerous to sheep but cattle, goats, horses, hogs and deer have also been poisoned. The seeds and pods are most poisonous but both young and dried plants may be dangerous. However, not all species are poisonous and some may furnish moderately palatable and nutritious forage for sheep. ... Animals will seldom eat a toxic dose if desirable forage is available. Losses can generally be avoided by good range management to improve forage, by keeping animals away from dense lupine patches (particularly in late summer or on the trail), or by grazing with cattle." See text for additional information.), **85** (110812 - color presentation), 115 (color presentation), 124 (110812 - no record of species, genus record), 140 (Page 292)*

Lupinus concinnus J.G. Agardh subsp. orcuttii (S. Watson) D.B. Dunn: Orcutt's Lupine

SYNONYMY: *Lupinus concinnus* J.G. Agardh var. *orcuttii* (S. Watson) C.P. Smith; *Lupinus orcuttii* S. Watson. COMMON NAMES: Orcutt Lupine; Orcutt's Lupine. DESCRIPTION: Terrestrial annual forb/herb (decumbent and/or erect stems 6 to 10 inches in height); the woolly stems and leaves are grayish; the flowers are blue-white, lavender, pink, purple, purple & yellow, red-violet, reddish-purple, reddish-violet, violet, white & maroon-pink or yellow with violet tips; flowering generally takes place between late February and mid-May (additional record: one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; canyons; buttes; rocky hills; rocky hillsides; rocky, sandy and clayey slopes; rocky alluvial fans; sandy bajadas; sandy dunes; gravelly and sandy flats; sandy valley floors; along rocky and sandy roadsides; along creeks; along rivers; riverbeds; along and in sandy and sandy-loamy washes; within drainages; (gravelly-sandy) banks of creeks and washes; edges of washes; gravelly-sand bars; sandy terraces; floodplains; riparian areas, and disturbed areas growing in dry rocky, gravelly and sandy ground; gravelly-sandy loam, sandy loam and clayey loam ground, and rocky clay and

clay ground, occurring from 1,500 to 7,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Lupinus concinnus* subsp. *orcuttii* is native to southwest-central and southern North America. *5, 6, 15, 18 (genus), 28 (color photograph of species 765), 43 (021110), 44 (110812), 46 (*Lupinus concinnus* Agardh var. *orcuttii* (Wats.) C.P. Smith, Page 417), 48 (genus), 63 (110812), 80 (Some, but not all, species of the genus *Lupinus* are considered to be Secondary Poisonous Range Plants. "The lupines contain numerous poisonous alkaloids. They are mostly dangerous to sheep but cattle, goats, horses, hogs and deer have also been poisoned. The seeds and pods are most poisonous but both young and dried plants may be dangerous. However, not all species are poisonous and some may furnish moderately palatable and nutritious forage for sheep. ... Animals will seldom eat a toxic dose if desirable forage is available. Losses can generally be avoided by good range management to improve forage, by keeping animals away from dense lupine patches (particularly in late summer or on the trail), or by grazing with cattle." See text for additional information.), 85 (110812 - color presentation of dried material), 115 (color presentation of the species), 124 (110812 - no record of subspecies or species, genus record)*

Lupinus concinnus var. *orcuttii* (see *Lupinus concinnus* subsp. *orcuttii*)

Lupinus orcuttii (see *Lupinus concinnus* subsp. *orcuttii*)

***Lupinus sparsiflorus* G. Bentham: Coulter's Lupine**

COMMON NAMES: Altramuz (Spanish); Arizona Lupine; Chicharito (Spanish); Coulter Lupine; Coulter Lupine; Coulter's Lupine; Coulter's Lupine (a name also applied to other species); Few-flowered Lupine; Loose-flowered Lupine (a name also applied to other species); Loose-flowered Annual Lupine; Loosely-flowered Annual Lupine; Lupine (a name also applied to other species and the genus *Lupinus*); Lupino (a name also applied to other species, Spanish); Mojave Lupine (a name also applied to other species); Sparse-flowered Lupine; Tash Mahad (or possibly Tash Mahot - River Pima); Trébola (a name also applied to other species, Spanish). DESCRIPTION: Terrestrial annual forb/herb (6 to 32 inches in height; one plant was observed and described as being 11 inches in height and 12 inches in width); the leaves are dark green; the flowers may be light blue-lavender-white, blue, dark blue, blue-lavender, blue-lavender-reddish, blue-lilac, blue-purple, blue-violet, blue & white, magenta-pink, magenta-pink with a yellow spot on the banner, magenta & purple, pinkish, pinkish-lavender, light purple, purple, purplish-blue, violet, deep violet, violet-blue or white; flowering generally takes place between early January and late June (additional records: three for early September, one for early October and one for early November). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy mesas; sandy rims of canyons; cliffs; rocky, rocky-gravelly and stony canyons; along sandy-loamy canyon bottoms; scree; talus slopes; buttes; rocky and sandy ridges; ridgetops; clearings in forests; sandy meadows; gravelly-sandy and sandy foothills; rocky hills; bases of hills; rocky hilltops; rocky and sandy hillsides; rocky, rocky-stony, rocky-clayey-loamy, stony, cobbly-sandy-loamy, gravelly, gravelly-loamy, sandy, sandy-loamy and sandy-clayey slopes; rocky alluvial fans; gravelly bajadas; gravel slides; rocky outcrops; amongst rocks; shelves; gravelly plains; gravelly and sandy flats; basins; sandy hollows; sandy valley floors; along railroad right-of-ways; along rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and clayey roadsides; within arroyos; in gravelly-silty draws; along gravelly-loamy ravines; springs; along streams; rocky-sandy streambeds; along creeks; along and in gravelly-sandy creekbeds; along rivers; sandy riverbeds; along and in bouldery-sandy, rocky, cobbly, gravelly, gravelly-sandy and sandy washes; drainages; within cobbly, gravelly, sandy and sandy-loamy drainage ways; along (gravelly, gravelly-sandy, sandy and sandy-clayey) banks of arroyos, streams, rivers, washes and drainage ways; (rocky) edges of rivulets, rivers and washes; margins of washes; gravelly-sand and sand bars; gravelly benches; gravelly and sandy terraces; sandy and loamy bottomlands; cobbly and cobbly-sandy floodplains; ditches; bouldery, rocky-clayey, gravelly-sandy and sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-stony, rocky-gravelly, rocky-sandy, stony, cobbly, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, cobbly-sandy loam, gravelly loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; rocky clay, sandy clay and clay ground, and gravelly-sandy silty and gravelly silty ground, occurring from 100 to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Lupinus sparsiflorus* is native to southwest-central and southern North America. *5, 6, 16, 18 (genus), 28 (color photograph 767), 43 (071409), 44 (071711 - color photograph), 46 (Page 416), 48 (genus), 58, 63 (110912 - color presentation), 77 (color photograph #81), 80 (This species is listed as a Secondary Poisonous Range Plant. "The lupines contain numerous poisonous alkaloids. They are mostly dangerous to sheep but cattle, goats, horses, hogs and deer have also been poisoned. The seeds and pods are most poisonous but both young and dried plants may be dangerous. However, not all species are poisonous and some may furnish moderately palatable and nutritious forage for sheep. ... Animals will seldom eat a toxic dose if desirable forage is available. Losses can generally be avoided by good range management to improve forage, by keeping animals away from dense lupine patches (particularly in late summer or on the trail), or by grazing with cattle." See text for additional information.), 85 (111012 - color presentation), 86 (color photograph), 115 (color presentation), 124 (110912 - no record of species; genus record), 140 (Page 293), MBJ (undated record which may include landscaped material that persists without maintenance)*

***Lupinus sparsiflorus* G. Bentham subsp. *mohavensis* C.T. Dziekanowski & D.B. Dunn: Coulter's Lupine**

SYNONYMY: *Lupinus sparsiflorus* G. Bentham var. *mohavensis* (C.T. Dziekanowski & D.B. Dunn) S.L. Welsh. COMMON NAME: Coulter Lupine (a name also applied to the species); Coulter's Lupine (a name also applied to the species); Mojave Lupine (a name also applied to the species and to other species). DESCRIPTION: Terrestrial annual forb/herb (8 to 20

inches in height); the leaves are dark green; the flowers may be blue, blue-purple, blue-white, lilac, purple, purple & white or white; flowering generally takes place between mid-January and mid-May (additional records: one for early September, one for early October and one for early November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; bases of mountains; mesas; rocky canyons; canyon bottoms; bases of cliffs; buttes; ridgetops; clearings in forests; foothills; rocky hills; rocky hillsides; rocky, rocky-stony, gravelly and sandy slopes; bajadas; gravel slides; lava fields; sandy flats; sandy valley floors; rocky, gravelly, gravelly-sandy and sandy roadsides; gullies; springs; sandy streambeds; creeks; along and in rocky, rocky-sandy, gravelly, sandy and silty washes; gravelly-sandy banks of rivers; shores of lakes; sandy beaches; sandy terraces; bottomlands; sandy mesquite bosques; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-stony, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam ground, and silty ground, occurring from 800 to 6,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Lupinus sparsiflorus* subsp. *mohavensis* is native to southwest-central and southern North America. *5, 6, 15, 18 (genus), 28 (color photograph of species 767, species), 43 (071409), 44 (110912 - no listings under Common Names), 46 (species, Page 416), 48 (genus), 63 (110912), 80 (The species is listed as a Secondary Poisonous Range Plant. "The lupines contain numerous poisonous alkaloids. They are mostly dangerous to sheep but cattle, goats, horses, hogs and deer have also been poisoned. The seeds and pods are most poisonous but both young and dried plants may be dangerous. However, not all species are poisonous and some may furnish moderately palatable and nutritious forage for sheep. ... Animals will seldom eat a toxic dose if desirable forage is available. Losses can generally be avoided by good range management to improve forage, by keeping animals away from dense lupine patches (particularly in late summer or on the trail), or by grazing with cattle." See text for additional information.), 85 (111012 - color presentation of dried material), 86 (color photograph of species, species), 115 (color presentation of the species), 124 (110912 - no record of subspecies or species; genus record)*

Lupinus sparsiflorus var. *mohavensis* (see *Lupinus sparsiflorus* subsp. *mohavensis*)

***Marina parryi* (J. Torrey & A. Gray) R.C. Barneby: Parry's False Prairie-clover**

SYNONYMY: *Dalea parryi* J. Torrey & A. Gray. COMMON NAMES: Parry Dalea; Parry False Prairie Clover; Parry False Prairie-clover; Parry False Prairieclover; Parry Indigo Pea; Parry Indigo-bush; Parry Marina; Parry's Dalea; Parry's False Dalea; Parry's False Prairie Clover; Parry's False Prairie-clover; Parry's False Prairieclover; Parry's Indigo-bush; Parry's Indigobush; Parry's Marina; Silk Dalea. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (erect stems 8 to 50 inches (to over 13 feet [4.0 m] reported) in height; one plant was observed and described as being 16 inches in height with a crown 16 inches in width, plants were observed and described as being 30 inches in height with a crown 40 inches in width); the reddish-purple stems are more or less woody; the leaves may be gray-green or green; the flowers may be blue, blue-violet, blue & white, dark blue, dark blue-indigo, dark blue-purple, indigo, indigo-blue, indigo & blue-purple, deep indigo, deep indigo-violet, magenta-violet, purple, dark purple, dark purple-blue, purplish, purple-blue, purple-indigo, purple & white, violet or yellow; flowering generally takes place between late December and early June and again from late August to early December (additional records: flowering March thru June and year-round have also been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; cliffs; rocky canyons; rocky canyon sides; rocky, gravelly and gravelly-sandy canyon bottoms; rocky talus; rocky ridgetops; foothills; rocky hills; hilltops; rocky, rocky-sandy and sandy hillsides; along bouldery, rocky, rocky-sandy, stony, gravelly, gravelly-loamy, sandy and sandy-silty slopes; rocky and sandy alluvial fans; bajadas; rocky outcrops; amongst rocks; sand dunes; gravelly-sandy outwash fans; gravelly-sandy-loamy and sandy plains; rocky, rocky-sandy, gravelly, gravelly-sandy and sandy flats; basins; sandy valley floors; beach dunes; coastal shores; along gravelly and silty-clayey roadsides; along and in rocky, gravelly-sandy-loamy and sandy arroyos; along sandy-silty bottoms of arroyos; gulches; rocky gullies; silty springs; along streams; streambeds; creekbeds; along and in rocky, gravelly and sandy washes; gravelly drainages; within drainage ways; silty depressions; along (sandy) banks of arroyos, creeks and lakes; borders of washes; (gravelly-sandy and sandy) edges of washes and tinajas; mudflats; gravel and sand bars; sandy riparian areas, and disturbed areas growing in dry desert pavement; rocky, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; gravelly-loam, gravelly-sandy loam and loam ground; silty clay ground, and silty ground, occurring from sea level to 4,700 feet in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Marina parryi* is native to southwest-central and southern North America. *5, 6, 15, 16, 28 (recorded as *Dalea parryi*, color photograph 763), 43 (021210), 44 (111112), 46 (recorded as *Dalea parryi* Torr. & Gray, Page 436), 63 (111112 - color presentation), 77, 85 (111112 - color presentation), 115 (color presentation), 124 (111112 - no record of species or genus)*

***Nissolia schottii* (J. Torrey) A. Gray: Schott's Yellowhood**

COMMON NAMES: Schott Yellowhood; Schott's Yellowhood. DESCRIPTION: Terrestrial perennial forb/herb or vine (twining stems 9 to 16 feet in length); the flowers are orange-yellow or yellow; flowering generally takes place between mid-July and early October (additional records: one for mid-March, one for late March, one for late May, one for late June, one for early November and one for mid-December; flowering ending as late as November has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountainsides (and flanks); gravelly mesas; cliffs; rocky and stony canyons; rocky-sandy canyon bottoms; ledges; ridges; ridgetops; foothills; rocky, stony and gravelly hills; rocky hillsides; bedrock, bouldery, rocky and gravelly slopes; bottoms of slopes; bajadas; bases of boulders; terraces; cobbly plains; gravelly and gravelly-sandy flats; basins; gravelly valley floors; coastal plains; along roadsides; sandy arroyos; sandy bottoms of arroyos;

along rocky draws; along streams; streambeds; riverbeds; along and in washes; (gravelly) banks of arroyos; margins of arroyos; rocky benches; bottomlands; floodplains; mesquite bosques; around represos; rocky and gravelly riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-sandy, stony, cobbly, gravelly, gravelly-sandy and sandy ground, occurring from sea level to 5,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This woody vine may be an attractive component of a restored native habitat; it is often found climbing over or up through shrubs and small trees. The stems, leaves and flowers are browsed by quail and the White-tailed Deer (*Odocoileus virginianus couesi*). *Nissolia schottii* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (021310 - *Nissolia schottii* A. Gray), 44 (111612 - no record of species or genus), 46 (Page 472), 58, 63 (111612 - color photograph of seedpod), 77, **85** (111712 - color presentation), 124 (111612 - no record of species or genus), 140 (Page 293)*

***Parkinsonia aculeata* C. Linnaeus: Jerusalem Thorn**

COMMON NAMES: Acacia de los Masones; Arrêtenègre (French); Bacapore; Bagota; Bagote (Spanish: Mexico, Sonora); Barbados Flowerfence (a name also applied to other species); Cacaporo (Spanish); Cina-cina (a name also applied to other species, Portuguese: Brazil); Espinheiro-de-Jerusalém (Portuguese); Espinillo (Spanish); Espinho-de-jerusalém (Portuguese: Brazil); Espinillo (Spanish); Guacoporo (Spanish); Guacóporo (Spanish); Horse Bean (a name also applied to other species); Horse-bean (a name also applied to other species); Horsebean (a name also applied to other species); Huacapori (Spanish); Huacóporo (Spanish); Jelly Bean Tree; Jellybean Tree; Jerusalem Thorn (a name also applied to other species); Jerusalem-thorn (a name also applied to other species); Jerusalemtdorn (German); Jerusalemtdörne (Swedish); Junco; Junco Marino (Spanish); Long-leaf Paloverde; Mexican Palo Verde; Mexican Palo-verde; Mexican Paloverde; Mezquite Verde (Spanish); Palo de Rayo (Spanish); Palo Ver (Spanish); Palo Verde Mejicano (Spanish); Palo Verde Mexicano; Ratama; Retaima; Retama (a name also applied to other species); Rosa-da-turquia (Portuguese: Brazil); Sessaban (transliterated Arabic); Turco (Portuguese: Brazil). DESCRIPTION: Terrestrial perennial drought- and possibly cold-deciduous shrub or tree (10 to 40 feet in height); the older bark is brown or gray; the younger bark, branches and twigs are green or yellow-green; the leaves are green; the flowers (¾ to 1 inch in width) are golden-yellow, orange, yellow, yellow with orange or red spots or golden-yellow; flowering generally takes place between mid-February and early July (additional records: two for late July, four for early August, one for mid-August, two for late August, one for mid-September, two for late September, one for mid-October, three for late October, one for mid-September, one for early October, one for late October, one for early November, one for mid-November and one for late November) with the bloom generally lasting 3 to 4 weeks; the mature seedpods (2 to 4 inches in length) are brown. HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky and gravelly canyons; canyon bottoms; foothills; bouldery hills; rocky hillsides; rocky, rocky-gravelly-sandy-clayey-loamy slopes; bajadas; gravelly and sandy alluvial fans; sand hummocks; cobbly and sandy plains; gravelly uplands; sandy flats; basin bottoms; sandy valley floors; coastal flats; railroad right-of-ways; clayey roadcuts; along rocky-gravelly, gravelly and sandy-loamy roadsides; along sandy and sandy-silty arroyos; gravelly bottoms of arroyos; within gullies; along streams; along rocky streambeds; along rivers; along and in rocky-cobbly-sandy and sandy riverbeds; along and in sandy and silty washes; along watercourses; clayey pondbeds; banks of creeks and rivers; borders of washes; (sandy) edges of rivers, ponds and lakes; shores of rivers; (sandy) sides of rivers; beaches; terraces; bottomlands; gravelly-sandy, sandy and sandy-silty-clayey floodplains; mesquite bosques; along canals; along canal banks; along ditches; riparian areas; waste places, and disturbed areas growing in moist and dry bouldery, rocky-cobbly, rocky-cobbly-sandy, rocky-gravelly, cobbly, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy-clayey loam, rocky-sandy loam and sandy loam ground; sandy-silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 4,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was observed as an escaped and naturalized ornamental. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. This plant may be an attractive component of a restored native habitat; however, outside of its native range it may become weedy, especially so in riparian areas and along roadsides. In Arizona, the Jerusalem Thorn is native to the Castle Dome Mountains in Yuma County and the foothills of the Baboquivari, Coyote and Quinlan Mountains in Pima County. The foliage and pods are browsed by wildlife. *Parkinsonia aculeata* is native to southwest-central and southern North America; western and southern South America, and Islands in the South Pacific Ocean. *5, 6, 13 (Pages 245-246), 16, 18, 26 (color photograph), 28 (color photograph 93), 43 (021310), 44 (071711 - color photograph), 46 (Page 407), 48, 52 (color photograph), 53, 58, 63 (112112 - color presentation), 77, **80** (This species is listed as a Poisonous Cropland and Garden Plant. "This ornamental shrub or small tree has been reported to accumulate toxic levels of nitrate."), 85 (112112 - color presentation), 91 (Pages 309-311), 115 (color presentation), 124 (071711 - no record of genus or species), 127, 140 (Page 293), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Parkinsonia florida* (G. Bentham ex A. Gray) S. Watson: Blue Paloverde**

SYNONYMY: *Cercidium floridum* G. Bentham; *Cercidium floridum* G. Bentham var. *floridum*. COMMON NAMES: Blue Palo Verde; Blue Palo-verde; Blue Paloverde; Caro (Mayo); Palo Verde (a name also applied to other species and the genus *Parkinsonia*, Spanish for Green Pole, Green Stick or Green Tree); Palo Verde Azul (Spanish); Paloverde (a name also applied to other species and the genus *Parkinsonia*); Stedak U'us (Pima); Studuk U'us (Bajo Pima). DESCRIPTION: Terrestrial perennial deciduous shrub or tree (40 inches to 40 feet in height); the bark may be blue-green, green, yellow or yellow-green, and gray on the older trunks; the leaves are blue-green; the flowers (¾ to 1 inch in width) are yellow or white (rarely); flowering generally takes place between early March and mid-June (additional records: three for early February, one for late July, two for mid-August, two for early September, one for late September, one for early October, two for mid-October, one for late October, two

for early November, one for mid-November and one for early December); the mature fruits (1½ to 4 inches in length) are light brown. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; along rocky canyons; canyon walls; rocky and sandy canyon bottoms; buttes; gravelly-clayey ridges; rocky ridgetops; foothills; rocky, rocky-sandy, gravelly, gravelly-loamy and sandy hills; rocky, rocky-sandy, gravelly-clayey-loamy, sandy, sandy-loamy and clayey slopes; bajadas; sand hills; sand dunes; benchlands; cobbly plains; rocky-sandy, cindery, sandy and sandy-silty flats; valley floors; valley bottoms; coastal slopes; coastal plains; along rocky-gravelly-sandy, gravelly-sandy and sandy roadsides; along gravelly and sandy arroyos; along gravelly and sandy bottoms of arroyos; rocky draws; seeps; streambeds; creekbeds; along rivers; along riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; watercourses; around ponds; playas; along (rocky and sandy) banks of arroyos, rivers and washes; borders of washes; edges of draws and washes; margins of rivers and washes; gravelly-sand bars; benches; gravelly terraces; loamy bottomlands; sandy and sandy-loamy floodplains; clayey lowlands; mesquite bosques; fencerows; catchments; stock tanks; along canals; along canal banks; gravelly-sandy riparian areas, and disturbed areas growing in dry rocky, rocky-gravelly-sandy, rocky-sandy, cobbly, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam, sandy loam and loam ground; gravelly clay and clay ground, and sandy silty ground, occurring from sea level to 5,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it has a very showy display of yellow flowers in very showy in late March and April. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used for shelter and for tools. The Blue Paloverde may be useful in controlling erosion. Bighorn Sheep (*Ovis canadensis*), Mule Deer (*Odocoileus hemionus*) and other wildlife browse the fruits, leaves and twigs and the seeds are eaten by birds and rodents and used by Bruchid Beetles. *Parkinsonia florida* is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Cercidium floridum* Benth., Pages 246-247, color photograph including habitat: Plate S.2., Page 404), 15, 16 (recorded as *Cercidium floridum* Benth.), 18, 26 (recorded as *Cercidium floridum*, color photograph), 28 (recorded as *Cercidium floridum*, color photograph 91), 43 (021310 - *Cercidium floridum* Benth. ex A. Gray, *Parkinsonia florida* S. Watson), 44 (071711 - color photograph), 46 (recorded as *Cercidium floridum* Benth., Page 407), 48, 52 (recorded as *Cercidium floridum* Benth. ex Gray, color photograph), 53 (recorded as *Cercidium floridum* Benth.), 58, 63 (112112 - color presentation), 77 (recorded as *Cercidium floridum* Benth.), 85 (112412 - color presentation including habitat), 86 (recorded as *Cercidium floridum*, color photograph), 91 (recorded as *Cercidium floridum* Benth., Pages 156-157), 115 (color presentation), 124 (071711 - no record of species or genus), 127, 140 (Page 293), **MBJ** (recorded as *Cercidium floridum* subsp. *floridum*, undated record which may include landscaped material that persists without maintenance), **WTK** (August 4, 2005)*

***Parkinsonia microphylla* J. Torrey: Yellow Paloverde**

SYNONYMY: *Cercidium microphyllum* (J. Torrey) J.N. Rose & I.M. Johnston. COMMON NAMES: Dipua; Foothill Palo Verde; Foothill Palo-verde; Foothill Paloverde; Foothills Palo Verde; Foothills Palo-verde; Foothills Paloverde; Hillside Palo Verde; Hillside Palo-verde; Hillside Paloverde; Horsebean (a name also applied to other species); Kuk Cehedagi (Tohono O'odham); Little Horsebean; Little Leaf Paloverde; Little-leaf Horse-bean; Little-leaf Horsebean; Little-leaf Palo Verde; Little-leaf Palo-verde; Little-leaf Paloverde; Little-leaved Palo Verde (a name also applied to other species and the genus *Parkinsonia*); Littleleaf Horsebean; Littleleaf Palo Verde; Littleleaf Paloverde; Male Palo Verde; Mesa Palo Verde; Mesa Palo-verde; Mesa Paloverde; Palo Verde (Spanish for Green Pole, Green Stick or Green Tree); Palo Verde de Hoja Finita (Spanish); Palo-verde; Paloverde; Small-leaf Palo Verde; Small-leaf Paloverde; Small-leaved Palo Verde; Smallleaf Palo Verde; Yellow Palo Verde; Yellow Palo-verde; Yellow Paloverde. DESCRIPTION: Terrestrial perennial drought deciduous shrub or tree (40 inches to 26 feet in height; one plant was observed and described as being 6 feet in height and 7 feet in width, one plant was observed and described as being 9 feet in height and width, one plant was observed and described as being 16 feet in height and width); the bark is green, olive-green or yellow-green, and gray on older trunks; the ends of the leafy branchlets are spine-like; the small leaflets are green, greenish-gray or yellow-green; the flowers (½ inch in width) are lemon-yellow, whitish & yellow, yellow, yellow-green or yellow & white; the styles are pale yellow or pale yellow-green; the filaments are pale yellow or pale yellow-green; the anthers are orange; flowering generally takes place between mid-March and mid-June (additional records: one for mid-August and one for mid-October); the mature seedpods (2 to 3 inches in length) are light brown or tan. HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; gravelly mesas; cliffs; rocky walls; rocky canyons; canyon walls; canyon bottoms; bluffs; buttes; ledges; ridges; rocky ridgetops; bouldery and rocky foothills; bases of foothills; rocky hills; rocky hillsides; rocky, gravelly and sandy slopes; alluvial fans; rocky, gravelly and gravelly-silty bajadas; boulder fields; bouldery and rocky outcrops; plains; gravelly and sandy flats; valley floors; sandy valley bottoms; along rocky and gravelly roadsides; along and in gravelly-sandy and sandy arroyos; sandy bottoms of arroyos; along and in rocky, gravelly, gravelly-sandy and sandy washes; drainages; (rocky-sandy) banks of arroyos and rivers; borders of washes; along edges of washes; margins of arroyos and washes; rocky sand bars; coves; gravelly terraces; floodplains; ditches; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam, clay loam and loam ground; clay ground, and gravelly silty ground, occurring from sea level to 4,000 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and may live to be more than 400 years of age. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. To reduce water loss during extended periods of drought a tree may undergo a natural drought-pruning process where entire branches die back The Foothill Paloverde is a common "nurse plant" of the Saguaro or Giant Cactus (*Carnegiea gigantea*) and provides a

sheltered microhabitat in which other desert plants are able to become established. Bighorn Sheep (*Ovis canadensis*), Mule Deer (*Odocoileus hemionus*), jackrabbits and other small mammals browse the fruits, leaves and twigs; the Collard Peccary (*Peccari tajacu*) feed on the fruit, and the seeds are used by Bruchid Beetles. The Foothill Paloverde is considered a significant foraging site for birds; it is used as a nesting site by the Black-tailed Gnatcatcher (*Poliophtila melanura*) and Verdins, and as a roosting site by Gambel's Quail (*Callipepla gambelii* subsp. *gambelii*). The Costa's Hummingbird (*Calypte costae*) has been observed visiting the flowers. *Parkinsonia microphylla* is native to southwest-central and southern North America. *5, 6, 10, 13 (recorded as *Cercidium microphyllum* (Torrey) Rose & Johnston, Pages 247-248, color photograph including habitat: Plate T.1., Page 405), 15, 16 (recorded as *Cercidium microphyllum* (Torr.) Rose & Johnst.), 18, 26 (recorded as *Cercidium microphyllum*, color photograph), 28 (recorded as *Cercidium microphyllum*, color photograph 92), 43 (021410 - *Cercidium microphyllum* Rose & I.M. Johnst.), 44 (071811 - color photograph), 46 (recorded as *Cercidium microphyllum* (Torr.) Rose & Johnston, Page 407), 48, 52 (recorded as *Cercidium microphyllum* (Torr.) Rose & I.M. Johnst., color photograph), 53 (recorded as *Cercidium microphyllum* (Torr.) Rose & Johnst.), 63 (112412 - color presentation including habitat), 77 (recorded as *Cercidium microphyllum* (Torr.) Rose & Johnst.), 85 (071811 - color presentation including habitat), 86 (note under *Cercidium floridum*), 91 (recorded as *Cercidium microphyllum* (Torr.) Rose & I.M. Johnston, Pages 157-159), 115 (color presentation), 124 (071811 - no record of genus or species), 127, 134, 140 (Page 293), **MBJ** (recorded as *Cercidium floridum* subsp. *floridum*, undated record which may include landscaped material that persists without maintenance), **WTK** (August 4, 2005)*

Prosopis juliflora var. *velutina* (see *Prosopis velutina*)

***Prosopis velutina* E.O. Wooton: Velvet Mesquite**

SYNONYMY: *Prosopis juliflora* (O. Swartz) A.P. de Candolle var. *velutina* (E.O. Wooton) C.S. Sargent. COMMON NAMES: Algarroba <algoroba> (Spanish: Texas, Colima)¹⁴⁰; Ana'ly (Yuman: Maricopa)¹⁴⁰; Anáhl (Yuman: Kumiai)¹⁴⁰; ^aNāi^a <anāi^c, na:l> (Yuman: Walapai)¹⁴⁰; Arizona Mesquite; Arizona Velvet Mesquite; Ava (Yuman: Mohave)¹⁴⁰; Chachaca (Spanish); Chachaka <chúcata> (Spanish: Michoacán)¹⁴⁰; □É:-la (Uto-Aztecan: Luiseño)¹⁴⁰; Eva^c (Yuman: Yuma)¹⁴⁰; Fluweelprosopis (Afrikaans); Haas <□aas> (Hokan: Seri)¹⁴⁰; Hu'upa (Uto-Aztecan: Yaqui)¹⁴⁰; Iyáa (Yuman: Havasupai)¹⁴⁰; Iyah <iiyáa> ("The Pod", Athapascan: Western Apache)¹⁴⁰; Kui (Uto-Aztecan: Akimel O'odham, Hiá Ce □ O'odham, Tohono O'odham)¹⁴⁰; Kui <k'ui> (Uto-Aztecan: Onavas Pima)¹⁴⁰; Kwayúly <anyal> (Yuman: Cocopa)¹⁴⁰; Meskit (Uto-Aztecan: Mountain Pima)¹⁴⁰; Mesquit (a name also applied to other species and the genus *Prosopis*, Spanish); Mesquite (a name also applied to other species and the genus *Prosopis*, Spanish); Mesquite (English)¹⁴⁰; Mezquite (a name also applied to other species and the genus *Prosopis*); Mezquite (Spanish: Sonora)¹⁴⁰; Mezquite Amargo (Spanish); Mizquitl; Nastane <natase> ("That Which Lies About", Athapascan: Chiricahua and Mescalero Apache)¹⁴⁰; Ohpimpü (Uto-Aztecan: Panamint)¹⁴⁰; Opi(m) □ (Uto-Aztecan: Kawaiisu)¹⁴⁰; Péchita (Spanish: Arizona, Chihuahua, Sonora)¹⁴⁰; Quiot (Uto-Aztecan: Ópata, Sonora)¹⁴⁰; Sako (Uto-Aztecan: Mountain Pima)¹⁴⁰; Tají (Oto-Manguean: Otomí)¹⁴⁰; Tziritzecua (Tarascan: Purépecha)¹⁴⁰; Uhpalá (Uto-Aztecan: Guarijío)¹⁴⁰; Upárai (Uto-Aztecan: Northern Tepehuan)¹⁴⁰; Velvet Mesquite. DESCRIPTION: Terrestrial perennial deciduous shrub or tree (2 to 56 feet in height; one plant was observed and described as being 6½ feet in height with a canopy 6½ feet in width, one plant was observed and described as being 13 feet in height with a canopy 16½ feet in width, one tree was observed and described as being 20 feet in height with a crown 40 feet in width); the bark on the trunk and older branches is dark brown, dark brownish-green or dark gray; the leaves are gray-green; the flowers (cylindrical spikes 2 to 5 inches in length) may be cream, cream-white, cream-yellow, green-yellow, greenish-white, pale yellow, yellow, yellow-green, pale yellowish or yellowish-green; flowering generally takes place between mid-March and early September (additional records: one for early October and one for early November); the mature seedpods (3 to 8 inches in length) are red, tan, yellow or mottled. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; plateaus; rocky canyons; along rocky and sandy canyon bottoms; rocky bases of cliffs; buttes; bedrock, rocky and sandy ridges; rocky ridgetops; foothills; rocky hills; rocky hillsides; rocky, rocky-loamy, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey-loamy, sandy, sandy-loamy and clayey slopes; alluvial fans; gravelly bajadas; rocky outcrops; sand dunes; terraces; rocky and cobbly plains; gravelly, gravelly-sandy, sandy and sandy-loamy flats; basins; sandy valley floors; valley bottoms; coastal plains; coastal beaches; along rocky-gravelly-loamy, gravelly-clayey-sandy-loamy and silty-clayey roadsides; along and in rocky, gravelly and sandy arroyos; rocky and sandy bottoms of arroyos; rocky-gravelly-loamy draws; seeps; springs; around seeping streams; along streams; along rocky streambeds; along creeks; creekbeds; along rivers; along rocky-sandy riverbeds; along and in rocky, cobbly, gravelly-sandy and sandy washes; along drainages; within drainage ways; around ponds; playas; ciénegas; (sandy) banks of streams, creeks, rivers and washes; borders of washes; (gravelly and sandy) edges of rivers, washes and ponds; sandy-loamy benches; gravelly and gravelly-sandy terraces; bottomlands; rocky-gravelly floodplains; mesquite bosques; along fencelines; around stock tanks (represos); around reservoirs; along canals; canal banks; ditches; along ditch banks; riparian areas, and disturbed areas growing in dry rocky, rocky-gravelly, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; silty clay and clay ground, and sandy silty, clayey silty and silty ground, occurring from sea level to 6,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, it may live to be more than several hundred years of age. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage, fiber and/or dye or paint (boiled resin used as a pottery paint) crop; it was also noted as having been used as fuel, as a tool, as toys, as a drug or medication and as a guide for determining a planting season. The Velvet Mesquite is a common "nurse plant" of the Saguaro or Giant Cactus (*Carnegiea gigantea*). The flowers are pollinated by native bees. The Velvet Mesquite provides food

and shelter for many species of wildlife. The plant is a food source for quail, Desert Mule Deer (*Odocoileus hemionus crooki*) and Desert Bighorn Sheep (*Ovis canadensis mexicana*). The Giant Mesquite Bug (*Thassus acutangulus*) feeds on the sap. Coyotes (*Canis latrans*), Desert Cottontails (*Sylvilagus audubonii*), Round-tailed Ground Squirrels (*Spermophilus tereticaudus*) and many other wild animals feed on the seed pods. Velvet Mesquite is the host for a Drywood Termite (*Incisitermes banksi*). Bruchid Beetles feed on the fruits and seeds. Much of the mesquite forest (bosques) originally found along the desert water courses have been lost to fuel wood cutting and clearing for agricultural fields and commercial and residential development. Velvet Mesquite Bosques were small, open, park-like woodlands with the Velvet Mesquite often occurring in nearly pure stands and interspersed with other common species such as the Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Mexican Elder (*Sambucus nigra* subsp. *canadensis*), Desert Hackberry (*Celtis ehrenbergiana*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Wolfberry (*Lycium* spp.), Four-wing Salt-bush (*Atriplex canescens*) and Vine Mesquite Grass (*Panicum obtusum*). *Prosopis velutina* is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Prosopis juliflora* (Swartz) DC. var. *velutina* (Wooton) Sarg., Pages 238-240, color photograph: Plate R.2., Page 403), 15, 16, 18, 26 (color photograph), 28 (color photograph 90), 43 (071609), 44 (040211), 46 (recorded as *Prosopis juliflora* (Swartz) DC. var. *velutina* (Wooton) Sarg., Page 402), 48, 52 (color photograph), 53 (species: recorded as *Prosopis juliflora* (Sw.) DC.), 58, 63 (112512), 68, 77, 80 (This species is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "Heavy, long-continued consumption of pods and leaves of these common desert shrubs may cause rumen impaction and poisoning."), 85 (112612 - color presentation including habitat), 91 (Pages 330-333), 115 (color presentation), 124 (040211 - no record of genus or species), 127, 134, 140 (Pages 146-147 & 293), ADS (Arizona Daily Star, Sunday, July 26, 2009, Tucson & Region, B1: Mesquite Pods are of Consuming Interest), **MBJ** (recorded as *Cercidium floridum* subsp. *floridum*, undated record which may include landscaped material that persists without maintenance), **WTK** (August 4, 2005)*

Senegalia greggii (see *Acacia greggii*)

***Senna artemisioides* (C. Gaudichaud-Beaupré ex A.P. de Candolle) B.R. Randell: Silver Senna**

SYNONYMY: *Cassia artemisioides* C. Gaudichaud-Beaupré ex A.P. de Candolle. COMMON NAMES: Blunt Leaf Cassia (*Senna artemisioides* subsp. *helmsii* - Not Accepted, *Senna artemisioides* - Accepted; Dense Cassia (nothosubsp. *sturtii*); Desert Cassia (nothosubsp. *coriacea*); Feathery Cassia (nothosubsp. *artemisioides*); Grey Cassia; Leafless Cassia; Old Man Senna; Puntynbush; Scented Senna (nothosubsp. *coriacea*); Silver Cassia (nothosubsp. *artemisioides*); Silver Senna; Silver Wild Sensitive-plant; Silverbush; Silvery Cassia; Threadleaf Cassia; Woody Cassia; Wormwood Cassia; Wormwood Senna. DESCRIPTION: Terrestrial perennial evergreen shrub (rounded 1 to 6 feet in height and 3 to 5 feet in width; one plant was observed and described as being 5 feet in height and 4 feet in width); the foliage may be gray or gray-green; the flowers (½ to ¾ inch in diameter in clusters of five to eight) are yellow; based on few records located flowering generally takes place between late January and late April (additional records: one for late November, two for early December, and one for late May; flowering beginning as early as fall and possibly continuing into summer has also been reported). HABITAT: Within the range of this species it has been reported from railroad right-of-ways; roadsides; riverbeds; within gravelly, gravelly-sandy washes; along terraces; along edges and margins of ditches; riparian areas, and disturbed areas growing in gravelly-sandy and sandy ground and clayey loam ground, occurring from sea level to 3,200 feet in elevation in the scrub, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Plant. *Senna artemisioides* is native to Australasia. *5, 6, 18, 26 (recorded as *Cassia artemisioides*, color photograph), 42 (062813), 43 (062813), 63 (062813 - color presentation), 77, 85 (062813 - color presentation), **MBJ** (recorded as *Cercidium floridum* subsp. *floridum*, undated record which may include landscaped material that persists without maintenance)*

***Senna covesii* (A. Gray) H.S. Irwin & R.C. Barneby: Coues' Cassia**

SYNONYMY: *Cassia covesii* A. Gray. COMMON NAMES: Coues Cassia; Coues Senna; Coues' Cassia; Coues' Senna; Coues's Cassia; Coues's Senna; Coves (error) Cassia; Coves' (error) Cassia; Cove (error) Senna; Coves (error) Senna; Coves' (error) Senna; Coves's (error) Senna; Dais; Daisillo (Spanish); Desert Senna (a name also applied to other species); Ejotillo (Spanish); Hojasen; Hojasén (Spanish); Kau Ohasen (Yaqui); Ojosón (Spanish); Oyasón (Spanish); Rosamaria (Spanish); Rosemaria; Rattlebox; Rattlebox Senna; Rattleweed; Senna (a name applied to other species and the genus *Senna*). DESCRIPTION: Terrestrial perennial forb/herb or subshrub (10 to 32 inches in height); the leaves are gray or gray-green; the flowers (½ to 1 inch in width) golden, orange-yellow, rusty-yellow, pale yellow, yellow, yellow-orange or yellow with reddish veins; flowering generally takes place between early March and early December (additional records: one for early February and two for mid-February); the mature seedpods (1 to 2 inches in length) are brown. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; gravelly mesas; cliffs; canyons; canyon sides; rocky and gravelly canyon bottoms; along rocky and rocky-sandy ridges; rocky ridgetops; foothills; rocky hills; rocky and sandy hillsides; along rocky, rocky-gravelly, rocky-clayey and gravelly slopes; alluvial fans; gravelly bajadas; amongst grasses; terraces; sandy-loamy plains; rocky, gravelly, sandy and silty flats; basins; valley floors; coastal plains; coastal beaches; along rocky, gravelly, gravelly-sandy and sandy roadsides; rocky, gravelly and sandy arroyos; gravelly and sandy bottoms of arroyos; gulches; along streams; within streambeds; creeks; sandy creekbeds; along rivers; sandy riverbeds; along and in bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; gravelly drainage ways; waterholes; around ponds; (gravelly and gravelly-sandy) banks of rivers, washes and lakes; borders of washes; margins of washes; (gravelly) shorelines of lakes; gravel bars; sandy beaches; sandy loamy benches; gravelly terraces; sandy, sandy-loamy, loamy and silty floodplains; mesquite bosques; gravelly-sandy shorelines of reservoirs; gravelly and sandy riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy,

gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, sandy loam, sandy-clayey loam and loam ground; rocky clay ground, and silty ground, occurring from sea level to 6,700 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The Cove Cassia is a larval food plant of the Cloudless Sulfur (*Phoebis sennae*) and Sleepy Orange (*Eurema nicippe*) and is used for food by Gambel's Quail (*Callipepla gambelii gambelii*). *Senna covesii* is native to southwest-central and southern North America. *5, 6, 15, 16, 28 (recorded as *Cassia covesii*, color photograph 501), 43 (021710), 44 (071911), 46 (recorded as *Cassia covesii* Gray, Page 406), 63 (120212 - color presentation), 68, 77, 82, 85 (110312 - color presentation), 115 (color presentation), 124 (071911 - no record of species; genus record)*

Vachellia constricta (see *Acacia constricta*)

Fouquieriaceae: The Ocotillo Family

***Fouquieria splendens* G. Engelmann: Ocotillo**

SYNONYMY: *Fouquieria splendens* G. Engelmann subsp. *splendens* G. Engelmann. COMMON NAMES: Albarda <barda> (“Pack Saddle”, Spanish: Coahuila, Sonora, Zacatecas)¹⁴⁰; Apache Whipping Stick (English)¹⁴⁰; Barba (“Beard”, Spanish: Coahuila)¹⁴⁰; Barba (Spanish); Candle Bush (English)¹⁴⁰; Candlewood (English: Texas)¹⁴⁰; Chimuchi Chuwara <simuchi chuwara> (Uto-Aztecan: Tarahumara)¹⁴⁰; Chumari (Spanish: Sonora)¹⁴⁰; Chunari (Uto-Aztecan: Cahita); Cirio (“Wax Candle”, Spanish: Baja California)¹⁴⁰; Coach Whip (a name also applied to the genus *Fouquieria*); Coach-whip (a name also applied to the genus *Fouquieria*); Coach-whip (English: Arizona)¹⁴⁰; Coach-whip Cactus; Coach-whip Ocotillo; Coachwhip (a name also applied to the genus *Fouquieria*); Coachwhip Cactus; Coachwhip Ocotillo; Colorín Cimmarón (“Wild Red One”, Spanish: Mexico)¹⁴⁰; Cunuri (Uto-Aztecan: Guarijio)¹⁴⁰; Flamingsword; Í’i’qimie <igamye> (Yuman: Walapai)¹⁴⁰; I’ikumadhí (Yuman: Maricopa)¹⁴⁰; □I:n’áy (Yuman: Cocopa)¹⁴⁰; Jacob’s Staff [Wand] (English)¹⁴⁰; Jacob’s Wand; Melhog <mirok, mīro’k> (Uto-Aztecan: Hiá Ce □ O’odham, Tohono O’odham)¹⁴⁰; Merihog <nuri’og> (Uto-Aztecan: Onavas Pima; should possibly be applied to *Fouquieria macdougalii*)¹⁴⁰; Monkey-tail; Mureo (Uto-Aztecan: Yaqui)¹⁴⁰; Ocotillo (a name also applied to the genus *Fouquieria*, Spanish: Mexico; Ocotillo [de Corral] (“[Corral] Little Torch”, Spanish: New Mexico, Texas, Baja California, Chihuahua, Coahuila, Sonora, Zacatecas)¹⁴⁰; Ocotillo del Corral (Spanish); Palo de Adán (“Adam’s Tree”, Spanish: Baja California)¹⁴⁰; Saar (Uto-Aztecan: Mountain Pima)¹⁴⁰; Slimwood (English: Arizona)¹⁴⁰; Tarákovara (Uto-Aztecan: Northern Tepehuan)¹⁴⁰; T’iis Ts’ □z <ges choze> (Athapascan: Western Apache)¹⁴⁰; Utush <otosh> (Uto-Aztecan: Cahuilla)¹⁴⁰; Vine Cactus; Vine-cactus (English)¹⁴⁰; Xomxéziz <xeshish> (Hokan: Seri)¹⁴⁰; Wolf’s Candles; Xong (Hokan: Seri)¹⁴⁰. DESCRIPTION: Terrestrial perennial cold- and drought-deciduous semi- and stem-succulent shrub (sinuously-ascending or erect spreading stems 5 to 33 feet in height with a crown width of 5 to 15 feet); the stems (wand-like and branching from the base in clusters of up to 100 stems) are gray, gray & dark gray, gray-green or green; the leaves are green; the flowers (in 2 to 10 inch long clusters at the tips of the stems) may be coral-red, cream, cream-white, orange, orange-red, pinkish-purple, red, reddish-orange, red & yellow, salmon, scarlet, scarlet-coral, white or yellow; flowering generally takes place over a period of 50 to 60 days between early February and early August (additional records: two for late August, two for mid-September, one for late September, one for mid-October, two for late October, two for early November and two for early December); the mature fruits are capsules containing winged seeds. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky, gravelly, gravelly-sandy and sandy mesas; crags; canyon rims; cliffs; bouldery and rocky canyons; rocky canyon bottoms; talus slopes; crevices in rocks; bedrock and gravelly ridges; rocky and gravelly ridgetops; ridgelines; bases of lava domes; rocky foothills; rocky and rocky-sandy hills; rocky hilltops; rocky and gravelly hillsides; bedrock, bouldery-cobbly, rocky, rocky-gravelly, shaley-sandy, stony, gravelly, gravelly-sandy and gravelly-loamy slopes; alluvial fans; rocky and sandy bajadas; rocky outcrops; amongst boulders; lava flows; sand hills; sand dunes; dune swales; gravelly outwash fans; terraces; gravelly and sandy plains; rocky, gravelly, gravelly-sandy and sandy flats; basins; rocky and sandy valley floors; valley bottoms; coastal plains; coastal beaches; along gravelly roadsides; within rocky arroyos; gravelly arroyo bottoms; gullies; streambeds; along rivers; riverbeds; along cobbly and sandy washes; within gravelly drainages; (bedrock, bouldery-cobbly and sandy) banks of rivers and washes; borders of washes; (rocky-sandy) shores of lakes; bottomlands; benches; along floodplains and riparian areas growing in dry desert pavement; bouldery, bouldery-cobbly, rocky, rocky-gravelly, rocky-sandy, shaley-sandy, stony, cobbly, cindery-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam ground, and clay ground, occurring from sea level to 8,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or fiber crop; it was also noted as having been used as a fuel, tool, drug or medication, ceremonial item and as an ornamental landscape plant. Older plants may be 150 to 200 years of age. This “vase-shaped” plant has been described by Benson and Darrow as being “one of the most distinctive shrubs in the Southwestern Deserts, and it is one of the plants giving outstanding character to the flora of the region”. Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*), Mule Deer (*Odocoileus hemionus*) and White-tailed Deer (*Odocoileus virginianus* subsp. *couesi*) browse this plant. Solitary Bees, Butterflies, Carpenter Bees (*Xylocopa californica*), House Finches (*Carpodacus mexicanus*), Lesser Goldfinches (*Carduelis psaltria*), Syrphid Flies, Broad-billed Hummingbirds (*Cyananthus latirostris*), Costa’s Hummingbirds (*Calypte costae*), Rufous Hummingbirds (*Selasphorus rufus*), Hooded Orioles (*Icterus cucullatus*), Scott’s Orioles (*Icterus parisorum*), Pyrrhuloxias (*Cardinalis sinuatus*), Verdins (*Auriparus flaviceps*), and Warblers have been observed visiting the flowers. The Ocotillo is a preferred food plant of the

Costa's Hummingbird. *Fouquieria splendens* is native to southwest-central and southern North America. *5, 6, 10, 13 (Pages 178-179, color photograph: Plate N., Page 401), 15, 16, 18, 26 (color photograph), 28 (color photograph 553 A&B), 43 (080309), 44 (071911 - color photograph), 45 (color photograph), 46 (Page 640), 48, 58, 63 (120612 - color presentation including habitat), 77 (color photograph #27), 85 (121212 - color presentation), 86 (color photograph), 91 (Pages 224-226), 106 (021810 - color presentation), 107, 115 (color presentation), 124 (071911 - no record of genus or species), 127, 140 (recorded as *Fouquieria splendens* Engelmann subsp. *splendens*, Pages 152-153 & 293), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Fouquieria splendens subsp. *splendens* (see *Fouquieria splendens*)

Geraniaceae: The Geranium Family

***Erodium cicutarium* (C. Linnaeus) C.L. L'Héritier de Brutelle ex W. Aiton (subsp. *cuticularium* is the subspecies reported as occurring in Arizona): Redstem Stork's Bill**

COMMON NAMES: Afilaree; Aguaje del Pastor ("Shepherd's Needle", Spanish: Mexico)¹⁴⁰; Aguja del Pastor (Spanish); Agujitas ("Little Needle", Spanish: Sonora)¹⁴⁰; Alfilariee (a name also applied to the genus *Erodium*); Alfilaria (a name also applied to the genus *Erodium*); Alfilaria (a name also applied to the genus *Erodium*, Spanish); Alfilaria [Alfilario, de Pastor] ("[Shepherd's] Little Needle" a name also applied to the genus *Erodium*, Spanish: California, New Mexico to Edo. México, Guerrero)¹⁴⁰; Alfilarilla (a name also applied to the genus *Erodium*, Spanish); Alfileres [Alfileritos] ("[Little] Needles", Spanish: Spain)¹⁴⁰; Alfileria (Spanish); Alfilerilla (a name also applied to the genus *Erodium*, Spanish); Alfillarilla (a name also applied to the genus *Erodium*, Spanish); Alfirerillo (Spanish); Alfiliria (a name also applied to the genus *Erodium*, Spanish); Arete (Hispanic); California Filaree (a name also applied to other species); Chikwi (Chumash: Barbareño Chumash)¹⁴⁰; Chooyin 'azee' <čoyñ □aze□> (Athapascan: Navajo)¹⁴⁰; Clocks; Coastal Heron's Bill; Coastal Heron's-bill; Common Crowfoot; Common Erodium; Common Heron's Bill; Common Heron's-bill; Common Herons Bill; Common Herons-bill; Common Heronsbill; Common Stork's Bill (a name also applied to other species); Common Stork's-bill (a name also applied to other species); Crane's Bill (a name also applied to other species and the genus *Erodium*); Crane's Bill (English)¹⁴⁰; Cranesbill (a name also applied to other species); Cut-leaf Filaree; Cutleaf Filaree; Dah Yíitihidáá' <dahitihidá□> ("Hummingbird's Food", Athapascan: Navajo)¹⁴⁰; Dahmiyet el-Ghazal (Arabic); Dzílí Biláshgaan <tzílí pilackaan> (Athapascan: Navajo)¹⁴⁰; Filaree (a name also applied to the genus *Erodium*, Spanish); [Red-stem] Filaree (English)¹⁴⁰; Filaria; Filaree (a name also applied to the genus *Erodium*, Spanish); Filerie (a name also applied to the genus *Erodium*, Spanish); Hawañ Ta:tad (Uto-Aztecan: Tohono O'odham)¹⁴⁰; Hemlock Geranium; Hemlock Heron's Bill; Hemlock Heron's-bill; Hemlock Stork's Bill; Hemlock Stork's-bill; Hemlock Storksbill; Herba de la Coralina ("Little Pink Herb", Spanish: Mexico)¹⁴⁰; Heron Bill (a name also applied to the genus *Erodium*); Heron's Bill (a name also applied to the genus *Erodium*); Heron-bill (a name also applied to the genus *Erodium*); Heron's-bill (a name also applied to the genus *Erodium*); Heronbill (a name also applied to the genus *Erodium*); Hierba de Chuparrosa [Yerba de Chuparrosa] ("Hummingbird Herb", Spanish: Chihuahua)¹⁴⁰; Hoho'iba□ (Uto-Aztecan: Akimel O'odham, Hiá Ce□ O'odham, Tohono O'odham)¹⁴⁰; Ko:ko□ Oipij (Uto-Aztecan: Tohono O'odham)¹⁴⁰; Kw'ł'n (Chumash: Ventureño Chumash)¹⁴⁰; Min^am^en'yá' <min'min'ya> (Yuman: Walapai)¹⁴⁰; Muutana□ziv□ [Muutanamuzuv□] ("Hummingbird Beak", Uto-Aztecan: Kawaiisu)¹⁴⁰; Pa'boiäts (Uto-Aztecan: Ute)¹⁴⁰; Pakhanat (Uto-Aztecan: Cahuilla)¹⁴⁰; Peine de Bruja (Spanish); Piene de Bruja ("Witch's Comb", Spanish: Edo. México)¹⁴⁰; Pico de Cigüeña ("Crane's Bill", Spanish: Mexico)¹⁴⁰; Pikuku Jasi (Purépecha); Pin Grass (a name also applied to other species and the genus *Erodium*); Pin Weed (a name also applied to other species); Pin-clover (a name also applied to the genus *Erodium*); Pin-clover (English)¹⁴⁰; Pin-grass (a name also applied to other species and the genus *Erodium*); Pin-weed (a name also applied to other species); Pinlover; Pine-needle; Pingrass; Pink Filaree; Pink Needle; Pink-needle; Pinweed; Powk-needle; Purple Filaree; Red Alfilariee; Red Stem Alfilariee; Red Stemmed Filaree; Red Stemmed Stork's Bill; Red-stem (English)¹⁴⁰; Red-stem Alfilariee; Red-stem Filaree; Red-stem Stork's Bill; Red-stem Stork's-bill; Red-stemmed Filaree; Red-stemmed Filarel; Red-stemmed Stork's Bill; Red-stemmed Stork's-bill Filaree; Redstem Alfilariee; Redstem Filaree; Redstem Filaria; Redstem Stork's Bill; Redstem Stork's-bill; Redstem Storksbill; S'u'wlima' (Chumash: Ineseño Chumash)¹⁴⁰; Semuči (Uto-Aztecan: Tarahumara)¹⁴⁰; Semuchi (Hispanic); Small-flowered Stork's Bill; Small-flowered Stork's-bill; Stick-pile; Stork's Bill (a name also applied to the genus *Erodium*); [Red-stem] Stork's Bill [Storkbill] (a name also applied to the genus *Erodium*, English)¹⁴⁰; Stork's-bill (a name also applied to the genus *Erodium*); Storks' Bill (a name also applied to the genus *Erodium*); Storksbill (a name also applied to the genus *Erodium*); Tenedorcitos ("Little Forks", Spanish: Spain)¹⁴⁰; Tsís'ná dáá' ("Bee Food", Athapascan: Navajo)¹⁴⁰; Wild Musk; Yam'pagwanüp (Uto-Aztecan: Shoshoni)¹⁴⁰. DESCRIPTION: Terrestrial annual or biennial forb/herb (prostrate, decumbent, ascending and/or erect stems 2 to over 32 inches in height/length); the stems may be reddish; the green leaves forming a basal rosette; the flowers may be blue, blue-violet, fuchsia, lavender, lavender-pink, lilac, magenta, magenta-lavender, magenta-rose, light pink with lavender stripes, pink, dark pink, pink-lavender, pink-magenta, pink-purple, pinkish-violet, light purple; purple, purple-pink, red-lavender, rose-lavender, rosy-purple or violet; flowering generally takes place between late December and early November. HABITAT: Within the range of this species it has been reported from rocky mountains; mountaintops; bouldery mountainsides; gravelly, gravelly-sandy, sandy, pebbly-sandy-silty and clayey mesas; sandy bases of mesas; plateaus; cliffs; rocky walls; rocky-gravelly-sandy-humusy bases of cliffs; along and in rocky and sandy canyons; bouldery-gravelly-sandy, rocky-sandy and sandy canyon bottoms; clayey-cindery talus slopes; buttes; knolls; rocky ledges; bouldery, rocky and gravelly ridges; shaley ridgetops; sandy openings in scrub; grassy meadows; cinder cones; rocky and sandy foothills; bouldery, rocky and sandy hills; bases of hills;

rocky-gravelly hilltops; bouldery, rocky, rocky-gravelly, rocky-silty, gravelly and loamy hillsides; bouldery, rocky, rocky-pebbly-clayey-loamy, rocky-sandy-loamy, rocky-loamy, rocky-loamy-clayey, rocky-clayey, rocky-clayey-loamy, shaley, shaley-gravelly, stony, stony-cobbly, cindery, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey, sandy, sandy-clayey, sandy-clayey-loamy, loamy, clayey, clayey-loamy, silty-loamy and humusy slopes; rocky alluvial fans; sandy bases of alluvial fans; rocky and gravelly bajadas; rocky outcrops; amongst rocks; bases of domes; lava flows; sand and sandy-clayey dunes; rocky banks; benches; benchlands; breaks; steppes; prairies; plains; sandy fields; muddy, gravelly, gravelly-sandy, gravelly-sandy-silty, sandy, sandy-loamy, sandy-clayey and loamy flats; uplands; rocky and sandy basins; valley floors; valley bottoms; coastal prairies; coastal plains; along cindery railroad right-of-ways; rocky roadbeds; roadcuts; along rocky, gravelly, gravelly-sandy-clayey-loamy, gravelly-sandy-silty, sandy and sandy-loamy roadsides; along rocky-sandy and sandy arroyos; along bottoms of arroyos; gravelly and sandy draws; rocky gulches; sandy bottoms of gulches; rocky ravines; seeps; springs; along streams; streambeds; along creeks; along sandy creekbeds; sandy riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along and in sandy and silty drainages; in rocks around ponds; silty lakebeds; gravelly depressions; swales; along (gravelly and gravelly-sandy) banks of streams, creeks and rivers, washes, ponds and lakes; borders of washes; (muddy, rocky and sandy) edges of springs and washes, salt marshes and washes; (cobbly-gravelly) margins of washes; shores of lakes; cobbly and sandy beaches; rocky-sandy, stony-loamy and sandy benches; rocky terraces; sandy and loamy bottomlands; rocky-sandy, cobbly-silty and sandy floodplains, mesquite bosques; margins of stock tanks; receding shorelines of reservoirs; along ditches; recently burned areas of scrub; riparian areas; waste places, and disturbed areas growing in muddy and wet, moist, damp and dry rimrock pavement; cryptogamic; bouldery, bouldery-gravelly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-gravelly, stony, stony-cobbly, cobbly, cobbly-gravelly, cobbly-gravelly-sandy, cindery, gravelly, gravelly-sandy, gravelly-sandy-silty and sandy ground; rocky loam, rocky-pebbly-clayey loam, rocky-sandy loam, rocky-clayey loam, stony loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam, sandy-clayey loam, clayey loam, silty-clayey loam, silty loam and loam ground; rocky clay, rocky-loamy clay, shaley clay, gravelly clay, sandy clay and clay ground; rocky silty, cobbly silty, pebbly-sandy silty and silty ground, and rocky-gravelly-sandy humusy and humusy ground, occurring from sea level to 11,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant that poses a significant threat to our native biotic communities. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, as fodder, for protection (dried and powdered plant parts were mixed with watermelon seeds during storage and planting to prevent disease), as a drug or medication and as a ceremonial item. The fruits are collected by Harvester Ants. *Erodium cicutarium* is native to northern, central, eastern and southern Europe and coastal islands in the Mediterranean Sea and North Atlantic Ocean; northern, western, central and southern Asia and islands in the Mediterranean Sea and East China Sea, and northern Africa and coastal islands in the North Atlantic Ocean. *5, 6, 15, 16, 22 (color photograph), 28 (color photograph 593), 30, 43 (021910 - *Erodium cicutarium* (L.) L'Hér. ex Aiton), 44 (072111), 46 (Page 486), 58, 63 (121612 - color presentation), 77, 80 (This species is listed as a Secondary Poisonous Range Plant. "Filaree is a valuable forage plant that furnishes good forage in both the green and dry state. However, plants occasionally develop high concentrations of nitrate that may cause loss of livestock. In Arizona, there have been several instances of heavy death loss in cattle showing typical symptoms of nitrate poisoning that have been associated with high nitrate content in Filaree plants. ... Danger is highest during the flush period of growth. ... Control of Filaree is not generally desirable because of its forage value, therefore, animals may need to be moved to less dangerous pastures during the critical period." See text for additional information.), 85 (122212 - C.H. Bowen reported the following in a collection record dated May 13, 1920: "This plant is a native of the Mediterranean region having spread from there over large portions of Europe, Asia, Africa and North and South America. It is believed to have been introduced into the western hemisphere by the early Spanish explorers either in Mexico or Central America and later in California from whence it has spread over considerable areas principally in California, Nevada, Utah, Arizona and New Mexico. It seems to thrive best between elevations of 1500 and 4500 feet and where abundant is often considered to double the spring carrying capacity of the range. Relished by all classes of stock especially by sheep.", color presentation), 86 (color photograph), 101 (color photograph), 115 (color presentation), 124 (072011), 127, 140 (Pages 153-155 & 294), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Erodium texanum* A. Gray: Texas Stork's Bill**

COMMON NAMES: Alfilerilla (a name also applied to the genus *Erodium*, Spanish); Bull Filaree; Desert Filaree; Desert Heron's Bill; Desert Heron's-bill; Desert Stork's Bill; Desert Storksbill (a name also applied to other taxa); False Filaree; Heron Bill (a name also applied to the genus *Erodium*); Heron's Bill (a name also applied to the genus *Erodium*); Heron-bill (a name also applied to the genus *Erodium*); Large Flowered Stork's Bill; Large-flower Stork's Bill; Large-flower Stork's-bill; Large-flower Storksbill; Large-flowered Stork's Bill; Large-flowered Stork's-bill; Largeflower Stork's Bill; Pine Needle; Stork's Bill; Texas Filaree; Texas Fillarie; Texas Heron's Bill; Texas Heron's-bill; Texas Heronbill; Texas Stork's Bill; Texas Stork's-bill; Texas Storksbill; Tufted Filaree. DESCRIPTION: Terrestrial annual or biennial forb/herb (prostrate to ascending stems 2 inches to 2 feet in height/length); the basal rosette leaves are green with red spots; the flowers may be lavender, magenta, pink-purple, purple-magenta, reddish-purple, rose-magenta, purple, purplish-red, rose-magenta, rose-pink, violet or violet-red; flowering generally takes place between late January and mid-May (additional records: one for early June, one for mid-September and one for early October); the fruits are reddish. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; pebbly-sandy-silty, sandy and sandy-silty mesas; bases of cliffs; stony canyons; gorges; buttes; rocky ledges; rocky and chalky ridges; ridgetops; meadows; foothills; muddy-clayey, rocky, gravelly, sandy and sandy-clayey hills; hillsides; bouldery, bouldery-gravelly, rocky, rocky-cobbly, rocky-cobbly-sandy, rocky-loamy, stony, gravelly, gravelly-sandy-loamy and sandy slopes; rocky-sandy, gravelly, gravelly-loamy and sandy bajadas; bouldery and rocky outcrops; amongst

boulders; boulder fields; sandy lava flows; sandy lava fields; dunes; berms; prairies; gravelly, sandy-loamy clayey-loamy plains; rocky, stony, stony-chalky, gravelly, gravelly-sandy, pebbly-sandy-silty and sandy flats; basins; valley floors; along gravelly, gravelly-sandy, gravelly-loamy and sandy roadsides; rocky arroyos; bottoms of arroyos; gulches; gullies; creekbeds; riverbeds; along and in gravelly, sandy and sandy-silty washes; along gravelly drainages; silty lakebeds; marshes; silty depressions; swales; (rocky) banks of creeks, creekbeds and washes; benches; gravelly, gravelly-sandy and gravelly-sandy-loamy terraces; beds of silty-clayey impoundments; margins of stock tanks; canals; canal banks; sandy riparian areas, and disturbed areas growing in muddy and damp and dry rocky, cobbly and sandy desert pavements; bouldery, bouldery-gravelly, bouldery-sandy, rocky, rocky-cobbly-sandy, rocky-gravelly, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; sandy clay and silty clay ground; pebbly-sandy silty, sandy silty and silty ground, and chalky ground, occurring from sea level to 7,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: These low growing and sprawling or widely spreading plants may be an attractive component of a restored native habitat. The Texas Stork's Bill is browsed by food by quail. *Erodium texanum* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (022010), 44 (122212), 46 (Page 486), 58, 63 (122212 - color presentation), 77 (color photograph #76), 85 (122412 - color presentation), 86 (note), 115 (color presentation), 140 (Page 294), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Geranium carolinianum* C. Linnaeus (var. *carolinianum* is the variety reported as occurring in Arizona):
Carolina Geranium**

COMMON NAMES: Australasian Geranium (*Geranium carolinianum* var. *australe* - Not Accepted, *Geranium solanderi* - Accepted; *Geranium homeanum* - Not Accepted, *Geranium glabratum* - Accepted); Bicknell's Cranebill (*Geranium carolinianum* var. *longipes* - Not Accepted, *Geranium bicknellii* - Accepted); Carolina Crane's Bill; Carolina Crane-bill; Carolina Crane's-bill; Carolina Cranes-bill; Carolina Cranebill; Carolina Cranesbill; Carolina Geranium; Carolina Geranium (*Geranium carolinianum* var. *sphaerospermum*; *Geranium carolinianum* var. *confertiflorum* - Not Accepted, *Geranium carolinianum* var. *carolinianum* - Accepted); Kvarmnäva (Swedish); Wild Geranium. DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 4 to 28 inches in height); the stems may be pinkish or red; the leavers may be grayish-green or red; the flowers have been described as being blue-pink, pale lavender, lavender, lavender-pink, pale pink, pink, dark pink, pinkish, pale pinkish-white, pinkish-white, purple, purple-lavender, purplish-pink, rose-pink, pale violet, violet, white or white-lavender; flowering generally takes place between early March and early August (additional records: one for early September, two for mid-September and one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; mesas; bases of cliffs; rocky and sandy canyons; rocky canyon bottoms; rocky talus; crevices in rocks; grassy margins of woods; openings in woodlands; meadows; along bases of hills; rocky, shaley-clayey-loamy, gravelly-loamy and sandy slopes; amongst rocks; silty-loamy prairies; silty-loamy uplands; sandy roadbeds; along roadsides; bottoms of arroyos; draws; bottoms of draws; gullies; ravines; bottoms of ravines; along and in seeps; springs; along streams; along and in rocky, rocky-sandy and sandy streambeds; along creeks; in rocky creekbeds; along stony washes; along and in rocky and cobbly-clayey drainages; watercourses; ponds; beaver ponds; drained beaver ponds; marshy areas; depressions; swales; banks of streambeds, creeks and washes; edges of seeps; margins of creeks; along sides of streams; sand bars; cobbly-sandy benches; bottomlands; floodplains; lowlands; margins of reservoirs; muddy edges of ditches; riparian areas; waste places and disturbed areas growing in muddy and wet, moist, damp and dry (rarely reported) rocky, stony, cobbly-sandy and sandy ground; shaley-clayey loam, gravelly loam, sandy loam, silty loam and loam ground; cobbly clay and clay ground, and silty ground, occurring from sea level to 9,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: *Geranium carolinianum* is native to central and southern North America and coastal islands in the North Atlantic Ocean and Caribbean Sea. *5, 6, 15, 18 (genus), 28 (color photograph 595), 42 (062913), 43 (062913), 44 (062913 - color photograph), 46 (Page 485), 48 (genus), 63 (062913 - color presentation), 85 (062913 - color presentation)*

Hydrophyllaceae: The Waterleaf Family

***Eucrypta chrysanthemifolia* (G. Bentham) E.L. Greene (var. *bipinnatifida* (J. Torrey) L. Constance is the variety reported as occurring in Arizona): Spotted Hideseed**

COMMON NAMES: Chrysanthemum-leaved Eucrypta; Chrysanthemum-leaved Hideseed; Common Eucrypta; Green Spotted Hideseed; Spotted Eucrypta; Spotted Hideseed; Torrey Eucrypta (var. *bipinnatifida*) ; Torrey's Eucrypta (var. *bipinnatifida*). DESCRIPTION: Terrestrial annual forb/herb (sprawling, trailing and/or erect stems 4 to 40 inches in height/length); the bell-shaped flowers may be pale blue, blue, cream-white, lavender, pinkish-white, pale purple, white, white-blue or yellow-white; flowering generally takes place between mid-January and early June (additional records: four for late June and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy mesas; plateaus; rocky cliffs; rocky canyons; canyon walls; along bouldery-sandy, rocky, rocky-sandy, sandy and sandy-loamy canyon bottoms; talus; bases of cliffs; crevices in rocks; buttes; rocky knobs; ledges; rocky ridges; ridgetops; sandy meadows; bouldery and rocky hills; stony-sandy-silty and clayey hilltops; rocky, loamy and clayey hillsides; bouldery, rocky, rocky-gravelly, stony, gravelly, gravelly-loamy, gravelly-clayey, sandy, loamy-clayey, clayey and clayey-loamy slopes; bouldery-stony-gravelly-sandy and rocky alluvial fans; sandy bajadas; rocky and shaley outcrops; bases of outcrops; amongst boulders and rocks; bases of boulders and rocks; boulder fields; sand dunes; banks; sandy-loamy and clayey plains; gravelly and sandy flats; basins; sandy valley floors; coastal plains; along rocky and rocky-gravelly roadsides; arroyos; gullies;

ravines; seeps; springs; along streams; along seeping streams; along creeks; along sandy creekbeds; along rivers; rocky-sandy riverbeds; along and in rocky-sandy, stony-sandy, gravelly-sandy, gravelly-sandy-silty and sandy washes; within drainages; vernal pools; rocky depressions; along banks of rivers and washes; along (rocky) edges of streams and rivers; margins of creeks; shores of lakes; benches; sandy terraces; rocky-sandy bottomlands; floodplains; riparian areas; recently burned areas, and disturbed areas often found in the shade of rocks or shrubs or trees growing in moist and dry bouldery, bouldery-stony-gravelly-sandy, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, stony-sandy, cindery-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, clayey loam and loam ground; gravelly clay, loamy clay and clay ground, and stony-sandy silty and gravelly-sandy silty ground, occurring from sea level to 7,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The foliage may be sweet-scented. *Eucrypta chrysanthemifolia* is native to southwest-central and southern North America. *5, 6, 16, 43 (072209), 44 (1224112), 46 (Page 698), 63 (122412), 77, 85 (122712 - color presentation)*

***Eucrypta micrantha* (J. Torrey) A.A. Heller: Dainty Desert Hideseed**

COMMON NAMES: Dainty Desert Hideseed; Desert Eucrypta; Desert Hideseed; Peluda; Small-flower Eucrypta; Smallflower Eucrypta; Small-flower Eucrypta; Small Flowered Eucrypta; Small-flowered Eucrypta. DESCRIPTION: Terrestrial annual forb/herb (weak stems 2 inches to 1 foot in height); the stems may appear to be vining; the leaves are dark green; the cup-shaped flowers may be pale blue-purple, blue, blue-magenta, blue-purple, pale lavender, pale pink-lavender, pale purple-pink, purple, purple with a yellow center, reddish-purple with a yellow throat, pale violet, violet or white; the anthers are blue; flowering generally takes place between mid-January and mid-June (additional record: one for late October). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; cliffs; bases of cliffs; along canyons; rocky canyon walls; bouldery, rocky and sandy canyon bottoms; talus slopes; crevices in rocks; knolls; ledges; rocky ridges; bouldery ridgetops; cinder cones; foothills; rocky and gravelly-sandy hills; mud hills; rocky and sandy-loamy hillsides; bases of hillsides; bouldery, bouldery-gravelly, rocky, rocky-stony, rocky-gravelly, rocky-sandy, rocky-clayey, cobbly-gravelly-sandy, gravelly, gravelly-loamy, gravelly-silty and sandy slopes; alluvial fans; rocky, rocky-sandy and sandy bajadas; rocky outcrops; amongst boulders and rocks; bases of rocks; lava flows; sand hills; sand dunes; terraces; sandy plains; gravelly flats; basins; valley floors; along railroad right-of-ways; along gravelly roadsides; two-tracks; within rocky, rocky-sandy and sandy arroyos; along draws; gulches; ravines; along streams; along rivers; along and in rocky, rocky-sandy, rocky-silty, cobbly-silty-loamy, gravelly, gravelly-sandy and sandy washes; along drainages; lakebeds; sandy and clayey depressions; along (gravelly-sandy and sandy) banks of rivers and washes; edges of washes and lakes; shores of lakes; sand bars; benches; gravelly terraces; sandy bottomlands; floodplains; riparian areas, and disturbed areas growing in dry rocky-cobbly and cobbly-gravelly-sandy desert pavement; bouldery, bouldery-gravelly, rocky, rocky-stony, rocky-cobbly, rocky-gravelly, rocky-sandy, shaley, stony-sandy, cobbly-gravelly, cobbly-gravelly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; bouldery-sandy-clayey loam, cobbly-silty loam, gravelly loam, sandy loam, sandy-clayey loam and silty loam ground; rocky-clayey and clayey ground, and rocky silty, gravelly-sandy silty and gravelly silty ground often in the shade of boulders, rocks, shrubs and trees, occurring from 100 to 8,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Eucrypta micrantha* is native to southwest-central and southern North America. *5, 6, 15, 16, 28 (color photograph 696), 43 (022110), 44 (072211), 46 (Page 697), 58, 63 (022110 - color presentation), 77, 85 (122712 - color presentation), 115 (color presentation), 124 (072211 - no record of species or genus), 140 (Page 294)*

***Nama hispidum* A. Gray: Bristly Nama**

SYNONYMY: *Nama hispidum* A. Gray var. *mentzelii* A. Brand; *Nama hispidum* A. Gray var. *revolutum* W.L. Jepson; *Nama hispidum* A. Gray var. *spathulatum* (J. Torrey) C.L. Hitchcock. COMMON NAMES: Bristly Nama; Bristly Purple Mat; Curled Nama; Flor Morada (Spanish); Hairy Nama; Hispid Nama; Hispid Purple Mat; Hohr-oohit (Seri); Morada; Purple Mat (a name also applied to the genus *Nama*); Purple Roll Leaf; Purple Roll-leaf; Rough Fiddleleaf; Rough Nama; Rough Purple Mat; Sand Bells (Oklahoma, Texas); Sand Bells; Sand-bell; Sand-bells; Sandbell; Sandbells (Oklahoma, Texas). DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 2 inches to 1 foot in height and up to 16 inches in width; plants were observed and described as being 3½ inches in height and 7 inches in width, plants were observed and described as being 3 inches in height and 9½ inches in width, plants were observed and described as being 4 inches in height and width, plants were observed and described as being 4 inches in height and 8 inches in width, one plant was observed and described as being 6 inches in height and 3½ inches in width, one plant was observed and described as being 10 inches in height and 12 inches in width); the leaves are pale green or white; the flowers may be blue, blue-purple, dark blue, pale lavender, lavender, lavender-pink, magenta, bright pink-magenta with a yellow throat, pink-purple, pinkish-lavender, pinkish-magenta, pinkish-purple, purple, purple-magenta; purple-white, red-purple, rose, rose-magenta, violet, violet-blue or white; flowering generally takes place between late January and early November (additional records: two for mid-December). HABITAT: Within the range of this species it has been reported from mountains; cobbly-gravelly-loamy mountainsides; gravelly, gravelly-sandy-loamy and sandy mesas; plateaus; rocky canyons; rocky canyon walls; sandy canyon bottoms; talus slopes; knolls; sandy foothills; rocky and sandy hills; rocky-sandy hilltops; escarpments; bedrock, rocky, sandy, sandy-loamy, sandy-clayey, and sandy-clayey-loamy slopes; gravelly and sandy alluvial fans; sandy bajadas; lava flows; lava beds; sand hills; sand dunes; sand hummocks; sand sheets; stony tablelands; sandy-clayey prairies; cobbly and sandy plains; gravelly, gravelly-loamy, sandy, sandy-clayey, sandy-clayey-loamy and sandy-silty flats; sandy valley floors; coastal plains; beach dunes; along gravelly, gravelly-sandy, gravelly-loamy, gravelly-sandy-loamy, sandy, sandy-loamy and clayey roadsides; rocky, gravelly, sandy and sandy-loamy arroyos; sandy bottoms of arroyos; rocky, gravelly and sandy draws; sandy bottoms of draws; ravines; along streams; along sandy streambeds; along creeks; along

ivers; rocky-cobbly-sandy and sandy riverbeds; along and in rocky-sandy, gravelly, gravelly-sandy, gravelly-sandy-silty, sandy and clayey washes; sandy-silty playas; swales; along (sandy and silty) banks of streams, rivers and washes; along (gravelly-sandy) edges of streams and playas; (rocky-sandy) shores of lakes; sandy beaches; benches; sandy terraces, sandy bottomlands; lowlands; cobbly, cobbly-silty, sandy, clayey and silty floodplains; mesquite bosques; margins of stock tanks; canal walls; along ditches; ditch banks and edges; sandy riparian areas, and disturbed areas growing in dry desert pavement; rocky, rocky-cobbly-sandy, rocky-gravelly, rocky-sandy, stony, cobbly, gravelly, gravelly-sandy and sandy ground; cobbly-gravelly loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, sandy loam, sandy-clayey loam and loam ground; sandy clay, silty clay and clay ground; cobbly silty, gravelly-sandy silty, sandy silty and silty ground, and silty powdery ground, occurring from sea level to 7,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Nama hispidum* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (022110 - *Nama hispida* A. Gray, *Nama hispida* A. Gray var. *mentzelii* Brand, *Nama hispidum* A. Gray var. *revoluta* Jepson and *Nama hispida* A. Gray var. *spathulata* (Torr.) C.L. Hitchc.), 44 (072311), 46 (Page 706), 58, 63 (122712 - color presentation), 77, **85** (122712 - color presentation), 115 (color presentation), 124 (072311), 127, 140 (Page 294), **MBJ** (recorded as *Nama hispidum* var. *spathulatum*, undated record which may include landscaped material that persists without maintenance)*

Nama hispidum var. *mentzelii* (see *Nama hispidum*)

Nama hispidum var. *revolutum* (see *Nama hispidum*)

Nama hispidum var. *spathulatum* (see *Nama hispidum*)

Phacelia A.L. de Jussieu: Phacelia

COMMON NAMES: Phacelia; Scorpion-weed. *42 (062913), 43 (062913), 46 (Pages 698-704), 63 (062913 - color presentation), 85 (062913 - color presentation), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Phacelia affinis A. Gray: Limestone Phacelia

COMMON NAMES: Ally Phacelia; Caterpillar Weed (a name also applied to other species); Limestone Phacelia (a name also applied to other species); Limestone Scorpion Weed; Limestone Scorpion-weed; Limestone Scorpionweed; Purple Bell; Purple Bell Caterpillar Weed; Purple Bell Phacelia; Purple-bell Caterpillar-weed; Purple-bell Phacelia; Purple-bell Scorpion-weed; Purple-bell Scorpionweed; Purplebell Phacelia; Purplebell Scorpionweed. DESCRIPTION: Terrestrial annual forb/herb (erect stems 2 to 14 inches in height); the herbage may be gray-green, green and/or purple-green, the flowers may be pale blue, light blue-purple, blue, blue-purple, bluish, bluish-white, pale lavender, pale lavender-purple, lavender, pale pink, pale pinkish-lavender, purple, red-purple, white (aging blue/purple), whitish or yellowish-white; flowering generally takes place between late February and early July (additional record: one for early February). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky mesas; plateaus; rock walls; canyons; bouldery-gravelly, rocky, sandy and sandy-loamy canyon bottoms; rocky talus slopes; bases of cliffs; rocky ridges; ridgetops; foothills; gravelly hills; hilltops; rocky hillsides; bedrock, rocky, rocky-sandy-loamy, gravelly, gravelly-silty, sandy, sandy-silty and silty slopes; alluvial fans; bajadas; bedrock, boulder and rocky outcrops; amongst rocks; rocky banks; terraces; pebbly plains; sandy and sandy-silty flats; valley floors; arroyos; draws; seeps; along streams; along and in gravelly-sandy creekbeds; along and in sandy washes; drainages; banks of arroyos and washes; along margins of washes; benches; sandy-loamy interfluves; terraces; sandy floodplains; riparian areas; recently burned areas in woodlands, and disturbed areas growing in damp and dry bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, cindery, cindery-sandy, gravelly, gravelly-sandy, pebbly and sandy ground; rocky-sandy loam, sandy loam and silty loam ground; clay ground, and gravelly silty, sandy silty and silty ground, occurring from 400 to 8,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Phacelia affinis* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (022210), 44 (122712 - color photograph), 46 (Page 702), 58, 63 (122712), 77, **85** (122712 - color presentation), 140 (Page 294)*

Phacelia arizonica A. Gray: Arizona Phacelia

SYNONYMY: *Phacelia popei* J. Torrey & A. Gray var. *arizonica* (A. Gray) J.W. Voss. COMMON NAMES: Arizona Phacelia; Arizona Scorpion-weed; Arizona Scorpionweed; Caterpillar Weed (a name also applied to other species). DESCRIPTION: Terrestrial perennial forb/herb (prostrate and/or decumbent stems 1 to 16 inches in height); the flowers may be light blue, pale blue-purplish, blue-purple, blue-purplish, pale bluish-purple, pale lavender, lavender, lavender-white, pale pink-lavender, pink, pinkish with darker mid-stripes, pale purple, pale purplish, purple, dusty rose, pale violet, white, white with a lavender tinge, white with a pale maroon center, whitish or whitish with a rose mid-vein on each petal; the filaments are mauve; the anthers are blue; flowering generally takes place between late February and early June (additional records: one for early February, two for mid-July, three for early September and one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; rocky and gravelly canyons; sandy canyon bottoms; ledges; gravelly openings in mesquite and cat claw and mesquite and creosote bush; foothills; rocky hills; hilltops; rocky, gravelly and gravelly-loamy slopes; rocky-sandy and sandy alluvial fans; sandy bajadas; amongst grasses; lava flows; plains; sandy flats; valley floors; along

rocky-sandy, gravelly, gravelly-sandy, gravelly-sandy-silty, sandy and loamy roadsides; gravelly bottoms of arroyos; gravelly streambeds; along creeks; along rivers; riverbeds; along rocky-gravelly, gravelly and sandy washes; drainages; cobbly-sandy-loamy bottoms of swales; (sandy) banks of washes; gravel bars; terraces; bottomlands; along sandy floodplains; lowlands; sandy mesquite woodlands; sandy riparian areas; waste places, and disturbed areas growing in dry rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; cobbly-sandy loam, gravelly loam, clayey loam and loam ground, and gravelly-sandy silty ground, occurring from 1,500 to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Phacelia arizonica* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (072209), 44 (072311 - no record of species; genus record), 46 (Page 703), 58, 63 (122812 - color presentation), 77, 85 (122812 - color presentation), 124 (072311 - no record of species; genus record), 140 (Page 294), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Phacelia crenulata* J. Torrey ex S. Watson: Cleftleaf Wildheliotrope**

COMMON NAMES: Caterpillar Plant; Caterpillar Weed (a name also applied to other species); Caterpillar-weed; Cleft Leaf Wild Heliotrope; Cleft-leaf Caterpillar-weed; Cleft-leaf Caterpillarweed; Cleft-leaf Phacelia; Cleft-leaf Scorpion-weed; Cleft-leaf Scorpionweed; Cleft-leaf Wild Heliotrope; Cleft-leaf Wild-heliotrope; Cleftleaf Phacelia; Cleftleaf Scorpion-weed; Cleftleaf Scorpionweed; Cleftleaf Wild Heliotrope; Cleftleaf Wildheliotrope; Common Phacelia; Crenate Phacelia; Crenulate Phacelia; Crenulate-leaved Phacelia; Desert Heliotrope; Heliotrope Phacelia; Notch Leaf Scorpion Weed; Notch-leaf Caterpillar Weed; Notch-leaf Phacelia; Notch-leaf Scorpion-weed; Notch-leaf Scorpionweed; Notch-leaved Phacelia; Notch-leaved Phacelia; Notchleaf Phacelia; Phacelia (a name applied to other species and the genus *Phacelia*); Purplestem Phacelia; Purplestem Scorpionweed; Scalloped Phacelia, Scorpion-weed (Scorpion Weed is a name applied to other species and the genus *Phacelia*); Wild Heliotrope; Wild-heliotrope; Violet Caterpillar Weed; Ytamoosh-oohit (Desert Tortoise Food). DESCRIPTION: Terrestrial annual forb/herb (erect stems 3 to 18 inches in height); the stems may be brown-green; herbage may be dark green or yellow-green; the anthers are yellow; the bell-shaped flowers may be blue, blue-lavender, blue-magenta, blue-purple, dark blue-violet, cream-white, indigo-purple, lavender with white centers; lavender-blue-purple, lavender-purple, magenta-lavender, pink-purple, purple, purple-blue, purple-white, purplish-blue, rose-purple, pale violet, violet, violet-purple, violet-white or white; flowering generally takes place between early January and early July (additional records: one for early August, one for early September, one for mid-October and two for mid-December). HABITAT: Within the range of this species it has been reported from mountains; gravelly-clayey mountainsides; rocky mesas; plateaus; rocky and gravelly rims of canyons; cliffs; bases of cliffs; gravelly canyons; scree; talus slopes; buttes; bouldery-gravelly knolls; ledges; bouldery-gravelly, rocky and clayey ridges; ridgetops; cinder cones; foothills; rocky and clayey hills; rocky-gravelly hilltops; rocky, rocky-gravelly, shaley, shaley-clayey and gravelly hillsides; along sandy escarpments; bouldery, rocky, rocky-sandy-loamy, shaley, shaley-stony, cindery, gravelly, gravelly-sandy, sandy and clayey slopes; rocky and clayey alluvial fans; gravelly and gravelly-sandy bajadas; rocky outcrops; amongst boulders and rocks; lava flows; lava fields; sand dunes; sandy outwash fans; barren breaks; terraces; gravelly-sandy steppes; plains; rocky-sandy fields; gravelly, gravelly-sandy, sandy, loamy and silty flats; basins; sandy valley floors; railroad right-of-ways; clayey roadcuts; along rocky, gravelly, gravelly-sandy, sandy and sandy-loamy roadsides; arroyos; along bouldery draws; gulches; gullies; along creeks; sandy creekbeds; along rivers; sandy riverbeds; along and in bouldery, bouldery-gravelly, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; silty lakebeds; gravelly-silty depressions; (gravelly, gravelly-sandy and sandy) banks of creeks, rivers and washes; shores of lakes; gravelly-sand bars; sandy beaches; benches; gravelly and gravelly-sandy terraces; floodplains; banks and shores of reservoirs; gravelly-sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-gravelly, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, shaley-stony, shaley-sandy, stony, stony-gravelly-sandy, cindery, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; rocky-sandy loam, cobbly-silty loam, gravelly loam, sandy loam, clayey loam and loam ground; shaley clay, cobbly-clayey, gravelly clay, sandy clay, silty clay and clay ground, gravelly silty, sandy silty and silty ground, occurring from sea level to 8,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted that it was used as a veterinary aid. *Phacelia crenulata* is native to southwest-central and southern North America. *5, 6, 16, 28 (color photograph 712), 43 (022410), 44 (072411), 46 (Page 704), 63 (122912 - color presentation including habitat), 77, 80 (Phacelia (*Phacelia crenulata* and *Phacelia pedicellata*) is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "These annual forbs have caused liver damage in horses, hogs and cattle. Also their glandular hairs may cause severe dermatitis to susceptible persons."), 85 (123112 - color presentation), 115 (color presentation), 127, **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Phacelia cryptantha* E.L. Greene: Hiddenflower Phacelia**

COMMON NAMES: Hiddenflower Phacelia; Hidden-lower Scorpion-weed; Limestone Phacelia; Smallflower Phacelia. DESCRIPTION: Terrestrial annual forb/herb (erect stems 6 to 20 inches in height); the flowers may be light blue, light blue-lavender, pale blue-purple, blue, blue-lavender, bluish, bluish-purple-lavender, light lavender, lavender, lavender-white, white, white-lavender or yellow; flowering generally takes place between mid-March and mid-June (additional records: one for mid-February and two for early July). HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; rocky bases of cliffs; rocky canyons; rocky and sandy canyon bottoms; bouldery and rocky talus slopes; amongst crevices in rocks; rocky hills; rocky hillsides; rocky, rocky-sandy and gravelly slopes; bajadas; around rocky outcrops; amongst boulders and rocks; against and around boulders and rocks; plains; flats; roadsides; springs; along streams; along creekbeds;

along and in gravelly-sandy and sandy washes; gravelly-sandy benches; gravelly-sandy riparian areas; recently burned areas of chaparral, and disturbed areas growing in moist and dry bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground, occurring from 100 to 6,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Phacelia cryptantha* is native to southwest-central and southern North America. *5, 6, 15, 43 (072010), 46 (Page 703), 63 (080610), 85 (080610 - color presentation)*

***Phacelia distans* G. Bentham: Distant Phacelia**

SYNONYMY: *Phacelia distans* G. Bentham var. *australis* A. Brand. COMMON NAMES: Blue Phacelia; Blue-eyed Phacelia; Blue-eyed Scorpionweed; Caterpillar Phacelia; Caterpillar Weed (a name also applied to other species); Distant Phacelia; Distant Scorpion Weed; Distant Scorpion-weed; Distant Scorpionweed; Fern Phacelia; Fern-leaf Phacelia; Fern-phacelia; Scorpion-weed (a name also applied to other species and the genus *Phacelia*); Wild Heliotrope (a name also applied to other species). DESCRIPTION: Terrestrial annual or perennial forb/herb (decumbent, ascending and/or erect stems 3 to 44 inches in height; one plant was observed and described as being 20 inches in height and width); the fern-like leaves are green, the anthers are yellow; the flowers may be light blue, light blue-purple, light blue-violet, blue, blue-lavender, blue-lavender-purple, blue-pink, blue-purple, blue-purplish, blue-violet, bluish, bluish-lavender, bluish-purple, bluish-white, pale lavender, lavender, dark lavender, lavender-blue, lavender-pink, pale purple, pale purple-lavender, purple, dark purple, purple-blue, purplish-blue, dark purplish-blue, pale violet, violet-blue, white or whitish; flowering generally takes place between mid-January and late June (additional records: one for mid-July, one for late July, one for early August, one for early September, two for early November, one for mid-November and two for late November). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; bases of mountains; gravelly-loamy mesas; sandy plateaus; bases of cliffs; rocky and rocky-silty canyons; bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-loamy canyon bottoms; chasms; rocky scree; bluffs; sandy bases of faults; rocky knobs; rocky ridges; sandy ridgetops; meadows; foothills; bouldery and rocky hills; clayey hilltops; bouldery, rocky and clayey hillsides; bases of hills; bouldery, rocky, rocky-gravelly, rocky-sandy, rocky-clayey-loamy, cobbly-rocky-sandy, gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy, clayey and silty-clayey slopes; rocky, rocky-gravelly, rocky-sandy and rocky-sandy-loamy alluvial fans; rocky, gravelly, gravelly-sandy and sandy bajadas; bouldery and rocky outcrops; amongst boulders and rocks; bases of boulders and rocks; sand dunes; sandy-loamy plains; gravelly, gravelly-sandy, sandy and clayey flats; basins; rocky, gravelly and sandy valley floors; sandy coastal bluffs; coastal plains; sandy coastal strands; sandy railroad right-of-ways; along gravelly, gravelly-sandy and sandy roadsides; along and in sandy arroyos; along bottoms of arroyos; rocky draws; gullies; ravines; seeps; springs; along streams; sandy streambeds; along creeks; creekbeds; riverbeds; along and in bouldery, bouldery-gravelly-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-loamy washes; in gravelly-sandy and sandy drainages; sandy lakebeds; ponds; bogs; rocky-sandy depressions; (sandy) banks of arroyos, streams, creeks, creekbeds, rivers and washes; along (gravelly-sandy) edges of streams, rivers and washes; along margins of creeks and washes; along rocky-sandy, rocky-loamy, gravelly and sandy benches; rocky, sandy and silty-loamy terraces; loamy bottomlands; sandy floodplains; along canals; bouldery-sandy and sandy riparian areas; recently burned areas of woodland, chamise chaparral and sage scrub, and disturbed areas growing in moist and dry desert pavement; bouldery, bouldery-gravelly-sandy bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony-sandy, cobbly-rocky-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy loam, rocky-clayey loam, gravelly loam, gravelly-sandy loam, sandy loam, silty loam and loam ground; silty clay and clay ground, and rocky silty ground often in the shade of boulders, shrubs and trees, occurring from sea level to 7,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Phacelia distans* is native to southwest-central and southern North America. *5, 6, 15, 16, 28 (color photograph 713), 43 (022410 - *Phacelia distans* var. *australis* Brand), 44 (072411), 46 (Page 703), 58, 63 (010313 - color presentation), 77 (color photograph 29), 85 (010513 - color presentation), 86 (color photograph), 115 (color presentation), 124 (072411 - no record of species; genus record), 127, 140 (Page 294)*

Phacelia distans var. *australis* (see *Phacelia distans*)

Phacelia popei var. *arizonica* (see *Phacelia arizonica*)

Juglandaceae: The Walnut Family

***Juglans major* (J. Torrey) A.A. Heller: Arizona Walnut**

SYNONYMY: *Juglans microcarpa* J.L. Berlandier var. *major* (J. Torrey) L.D. Benson; *Juglans rupestris* G. Engelmann ex J. Torrey var. *major* J. Torrey. COMMON NAMES: Arizona Black Walnut; Arizona Walnut; Ch'ildiiyé [Ch'ihniiyé] <ch'il niyé> (Athapascan: Western Apache)¹⁴⁰; Ha'altsédii <xa'altsyétiih> (“That Which is Cracked”, Athapascan: Navajo)¹⁴⁰; Hãlsted <hãlsted> (“That Which is Cracked”, Athapascan: Chiricahua and Mescalero Apache)¹⁴⁰; Īpīvī <īpokai> (Uto-Aztecan: Northern Tepehuan)¹⁴⁰; Īpīvī <uupī> (Uto-Aztecan: Onavas Pima; probably Epeve or Upuv□)¹⁴⁰; Kemtcutek^a <gamjudk> (Yuman: Walapai)¹⁴⁰; Lačí (Uto-Aztecan: Tarahumara)¹⁴⁰; M̄r̄q̄kát̄ūv̄q̄ác̄i (Uto-Aztecan: Ute)¹⁴⁰; New Mexico Walnut; Noga'al U'sh (Uto-Aztecan: Mountain Pima)¹⁴⁰; Nogal (a name also applied to the genus *Juglans*, the small nut is known in Spanish as “nogales”); Nogal (Spanish: Chihuahua, Sonora)¹⁴⁰; Nogal Cimarrón (Hispanic); Nogal Encarcelado

(Hispanic); Nogal Silvestre (“Wild Walnut”, Spanish: Chihuahua, Sonora, Texas)¹⁴⁰; Sühūvi (Uto-Aztecan: Comanche)¹⁴⁰; U:pio (Uto-Aztecan: Tohono O’odham)¹⁴⁰; Uup [Uupio] (Uto-Aztecan: Mountain Pima)¹⁴⁰; Uupai (Uto-Aztecan: Northern Tepehuan)¹⁴⁰; Uupio (Uto-Aztecan: Akimel O’odham)¹⁴⁰; Walnut (a name also applied to the genus *Juglans* and the Juglandaceae); [Arizona] Walnut (English)¹⁴⁰. DESCRIPTION: Terrestrial perennial deciduous tree (5 to 66 feet in height with a rounded crown that may be of about the same width as the height of the tree; one tree was observed and described as being 5 feet in height with a crown 4 feet in width, one tree was observed and described as being 7 feet in height with a crown 5 feet in width, one tree was observed and described as being 23 feet in height with a crown 26 feet in width); the trunk may be up to 4 feet in diameter; the bark may be brownish, light gray, gray, dark gray, grayish-brown or dark gray-brown; the young stems may be light to dark brown; the pinnately compound leaves (7 to 14 inches in length) are green or yellow-green; the flowers (male and female flowers born on separate catkins or spikes) are greenish or yellowish; flowering generally takes place between mid-March and late June (additional records: one for mid-July, one for late July, one for early September and one for mid-September); the mature fruits (1 to 1½ inches in diameter) are rusty-green or yellow-green and ripen between July and September. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; plateaus; cliffs; sandy bases of cliffs; along and in bouldery, rocky and gravelly-sandy canyons; rocky canyonsides; along bouldery, rocky and cobbly canyon bottoms; ledges; rocky ridges; foothills; hills; hilltops; rocky hillsides; rocky escarpments; bouldery, bouldery-loamy, rocky, gravelly-loamy, loamy and silty slopes; amongst boulders and rocks; flats; glens; along valley bottoms; along rocky, rocky-sandy and gravelly roadsides; rocky and sandy arroyos; sandy bottoms of arroyos; within draws; gulches; ravines; springs; along streams; bouldery, bouldery-loamy and rocky streambeds; along creeks; along and in sandy creekbeds; along rivers; along riverbeds; along rocky, stony and sandy washes; drainages; along watercourses; ciénegas; (silty) banks of streams, creeks and rivers; (gravelly) edges of streambeds, washes and drainage ways; shores of lakes; sand bars; sandy benches; terraces; rocky bottomlands; along gravelly-sandy floodplains; mesquite bosques; along ditches; bouldery, gravelly, gravelly-sandy and sandy riparian areas, and disturbed areas growing in well drained moist and dry bouldery, rocky, stony, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; bouldery loam, cobbly-sandy loam, gravelly loam and loam ground; silty ground, and humusy ground, occurring from 900 to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and is considered to be a valuable shade tree. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage, fiber (building materials) and/or dye (brown) and paint (black) crop. Consider using the Arizona Walnut as a specimen plant in a large area and in the re-vegetation of riparian areas. Once past the seedling stage the Arizona Walnut has a growth rate of about one foot per year and may live to be 400 years of age. Note that the Arizona Walnut requires deep soil and moderate water but not as much water as other riparian trees such as the Alder, Ash, Cottonwood, Sycamore and Willow Trees. Walnut trees are susceptible to aphid infestations that produce considerable amounts of honeydew. Birds, squirrels and other wildlife eat the fruits and the tree provides habitat for wildlife including cavities that are used by the Acorn Woodpecker (*Melanerpes formicivorus*). When restoring the floodplains of major river systems consider including the following plants in the mix if they have been recorded from this township: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix goodingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*), Fremont Cottonwood (*Populus fremontii*). *Juglans major* is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Juglans microcarpa* Berlandier var. *major* (Torrey) L. Benson), 15, 18, 28 (color photograph 94), 30, 43 (080409), 44 (072411 - no record of species; genus record), 46, 48, 52 (color photograph), 53, 58, 63 (010713 - color presentation), **85** (010713 - color presentation), 124 (072411 - no record of species; genus record), 127, 140 (Pages 156-157 & 294)*

Juglans microcarpa var. *major* (see *Juglans major*)

Juglans rupestris var. *major* (see *Juglans major*)

Krameriaceae: The Ratany Family

***Krameria erecta* C.L. von Willdenow ex J.A. Schultes: Littleleaf Ratany**

SYNONYMY: *Krameria parvifolia* G. Bentham; *Krameria parvifolia* G. Bentham var. *imparata* J.F. Macbride.
 COMMON NAMES: Chacate (Uto-Aztec: Tohono O'odham)¹⁴⁰; Chacate (Yuman: Maricopa)¹⁴⁰; Coashui, Cósahui (Uto-Aztec: Hiá Ce□ O'odham, Yaqui)¹⁴⁰; Desert Ratany; Desert Rhatany; 'E□ho, He:□ (Uto-Aztec: Hiá Ce□ O'odham)¹⁴⁰; E□ho <'edho, e'e□ho> (Uto-Aztec: Tohono O'odham)¹⁴⁰; Ee□ho (Uto-Aztec: Akimel O'odham)¹⁴⁰; Glandular Ratany; Glandular Rhatany; Haxz Iztim ("Dog's Hipbone", Hokan: Seri)¹⁴⁰; Kosawi <cosawi> (Uto-Aztec: Onavas Pima)¹⁴⁰; Little Leaf Ratany; Little Leaved Ratany; Little-leaf Kramaria; Little-leaf Ratany; Little-leaf Rhatany; Little-leaved Ratany; Little-leaved Rhatany; Littleleaf Kramaria; Littleleaf Ratany; Littleleaf Rhatany; Littleleaved Ratany; Mezquitillo ("Little Mesquite", Spanish: Mexico)¹⁴⁰; Pima; Pima [Little-leaved, Little-leaf, Range] Ratany (English)¹⁴⁰; Pima Rhatany; Purple Heather (a name also applied to other species); Purple Heather (English)¹⁴⁰; Range Ratany (a name also applied to other species); Range Rhatany (a name also applied to other species); Ratany (a name applied to the genus *Krameria*); Small-flower Ratany; Spiny Little-leaf Kramaria; Sticky Little-leaf Kramaria; Sticky Range Ratany; Tahué <tajué, tajuí> (Uto-Aztec: Guarijío)¹⁴⁰; Tajimsi ("Sun Beard", Uto-Aztec: Mayo)¹⁴⁰; Tamichil (Uto-Aztec: Sonora)¹⁴⁰; Wetahúpatci (Uto-Aztec: Tarahumara)¹⁴⁰; Wood Ratany; Zarsaparilla ("Thorny Vine", Spanish: San Luis Potosí)¹⁴⁰. DESCRIPTION: Terrestrial perennial subshrub or shrub (2 to 40 inches (or possibly to 79 inches) in height; one plant was observed and described as being 8 to 10 inches in height and 3 feet in width, one plant was observed and described as being 12 inches in height and 16 inches in width, one plant was observed and described as being 20 inches in height and 6½ feet in width); the older stems may be gray or greenish; the leaves are blue-gray-green, gray, gray-green, gray-red or greenish; the flowers may be burgundy, lavender-purple, magenta, maroon, maroon-magenta, maroon-purple, maroon-red, pink, pink-purple, purple, dark purple, purple-magenta, purple-pink, purple-red, reddish, red-purple, reddish-violet, rose-pink, rose-purple, scarlet-purple, violet-red and white turning pink; flowering generally takes place between early March and late November (additional record: one for early January). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky, sandy and sandy-loamy mesas; along cliffs; bases of rocky cliffs; bouldery and rocky canyons; canyon sides; rocky canyon bottoms; buttes; sandy and clayey knolls; sandy ledges; rocky and rocky-gravelly ridges; bouldery, rocky and gravelly ridgetops; rocky-gravelly ridgelines; foothills; rocky, gravelly and sandy hills; rocky-gravelly hilltops; rocky, rocky-sandy, rocky-sandy-loamy, stony, gravelly and sandy hillsides; bedrock, rocky, rocky-gravelly, rocky-sandy, stony, gravelly, gravelly-sandy-clayey-loamy, sandy and sandy-clayey-loamy slopes; gravelly bajadas; rocky outcrops; amongst boulders and rocks; bases of boulders; boulder fields; lava slopes; lava flows; sand dunes; gravelly, gravelly-sandy-loamy, gravelly-loamy and sandy plains; rocky, gravelly, pebbly-sandy and sandy flats; basins; sandy valley floors; along gravelly-loamy and sandy roadsides; arroyos; along bottoms of arroyos; rocky draws; gulches; along creeks; along rivers; along and in rocky-gravelly, gravelly and sandy washes; along and in rocky drainages; playas; depressions; sandy-clayey-loamy swales; banks of rivers and washes; borders of washes; (sandy) edges of washes and drainage ways; (silty) margins of playas; benches, and riparian areas growing in dry bouldery, bouldery-rocky-sandy, rocky, rocky-gravelly, rocky-sandy, stony, cindery, gravelly, pebbly-sandy and sandy ground; rocky-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam and sandy-clayey loam ground; rocky clay, silty clay and clay ground; sandy silty and silty ground, and chalky ground, occurring from sea level to 6,100 (one record at 9,400 feet) feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial dye crop; it was also noted as having been used as a drug or medication. The roots of this plant form grafts (haustoria) on the roots of other Littleleaf Ratany plants and a broad range of other species. This plant is browsed by Mule Deer (*Odocoileus hemionus crooki*) and Whitetail Deer (*Odocoileus virginianus couesi*) and a bee(s) in the genus *Centris* visits the flowers. Pocket mice, rattlesnakes, whiptails and other animals use the plant for cover. *Krameria erecta* is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Krameria parvifolia* Bentham, Pages 126-127), 15 (recorded as *Krameria parvifolia* Benth.), 16 (recorded as *Krameria parvifolia* Benth.), 28 (recorded as *Krameria parvifolia*, color photograph 662), 43 (022610 - *Krameria parvifolia* var. *imparata* J.F. Macbr.), 44 (031211), 46 (recorded as *Krameria parvifolia* Benth., Page 404), 48 (genus), 58 (recorded as *Krameria parvifolia* Benth. var. *imparata* Macbr.), 63 (010713 - color presentation), 77 (color photograph #30), 85 (010713 - color presentation), 115 (color presentation), 124 (031211 - no record of species; genus record), 127, 140 (Pages 143, 157-159 & 294), **MBJ** (recorded as *Krameria parvifolia*, undated record which may include landscaped material that persists without maintenance)*

***Krameria grayi* J.N. Rose & J.H. Painter: White Ratany**

COMMON NAMES: Chacate; Cosahui; Crimson-beak; E□ho (Uto-Aztec: Hiá Ce□ O'odham)¹⁴⁰; Gray Krameria; Gray Ratany; Gray's Krameria; Gray's Ratany; Naka □B□rīnanīmp (Uto-Aztec: Southern Paiute)¹⁴⁰; Range Ratany (a name also applied to other species); Ratany (a name applied to the genus *Krameria*); White Ratany; White Rhatany. DESCRIPTION: Terrestrial perennial subshrub or shrub (8 inches to 5 feet in height and to 5 feet in width; one plant was observed and reported to be 18 inches in height with a crown 24 inches in width, one plant was observed and reported to be 2 feet in height with a crown 30 inches in width, one plant was observed and reported to be 28 inches in height with a crown 40 inches in width, one plant was observed and reported to be 30 inches in height with a crown 36 inches in width, one plant was observed and reported to be 40 inches in height with a crown 52 inches in width, one plant was observed and reported to be 4 feet in height with a crown 5 feet in width); the foliage is blue-gray, blue-green, gray, grayish-purple or purple, the flowers may be lavender, deep lavender, magenta, maroon, maroon-purple, pink, dark pink-purple, pinkish-purple, light purple fading to white, purple, dull raspberry-red, red-purple, red-violet, reddish-purple, rose, rose-purple, violet, violet-purple or white turning pink or purple; flowering generally takes place between mid-March and mid-July and again between early September and late November (additional records: one for early January, one for mid-February, two for mid-August and one for mid-December). HABITAT: Within the range of this

species it has been reported from mountains; mountainsides; rocky mesas; cliffs; bouldery canyons; rocky canyon bottoms; rocky talus slopes; rocky ledges; ridges; rocky ridgetops; along rocky ridgelines; bouldery and rocky foothills; rocky, gravelly and gravelly-sandy hills; hilltops; rocky and gravelly hillsides; bedrock, bouldery, bouldery-rocky-sandy, bouldery-cobbly, rocky, rocky-gravelly-sandy, gravelly and sandy slopes; gravelly-sandy and sandy alluvial fans; gravelly and sandy bajadas; bouldery and rocky outcrops; amongst boulders; sand dunes; gravelly and sandy plains; rocky, gravelly, sandy and sandy-clayey-loamy flats; loamy basins; sandy valley floors; beach dunes; coastal plains; coastal beaches; along rocky roadsides; along arroyos; rocky bottoms of arroyos; rocky gullies; around seeping streams; along and in gravelly, gravelly-sandy and sandy washes; rocky drainages; ciénegas; swampy areas; (rocky) banks of washes; borders of washes; edges of washes; benches; rocky terraces; bottomlands; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-rocky-sandy, bouldery-cobbly, rocky, rocky-gravelly-sandy, shaley, gravelly, gravelly-sandy and sandy ground; sandy-clayey loam and loam ground, and clay ground, occurring from sea level to 4,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers are reported to be fragrant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial dye crop; it was also noted as having been used as a drug or medication. The roots of this plant form grafts with other White Ratany plants, as well as, other species. White Ratany is browsed by Black-tailed Jack Rabbits (*Lepus californicus*), Desert Bighorn Sheep (*Ovis canadensis mexicana*), Mule Deer (*Odocoileus hemionus crooki*) and Whitetail Deer (*Odocoileus virginianus couesi*) and the Scaled Quail (*Callipepla squamata*) feeds on the seeds. *Krameria grayi* is native to southwest-central and southern North America. *5, 6, 13, 16, 28 (color photographs 550 A-B), 43 (022610), 44 (010913 - no listings under Common Name, listings located under *Krameria bicolor*, color photograph), 46 (Page 404), 48 (genus), 63 (010913 - color presentation), 77, 85 (011513 - color presentation), 115 (color presentation), 127, 140 (Page 158), **HR***

Krameria parvifolia (see *Krameria erecta*)

Krameria parvifolia var. *imparata* (see *Krameria erecta*)

Lamiaceae (Labiatae): The Mint Family

***Salvia columbariae* G. Bentham (var. *columbariae* is the variety reported as occurring in Arizona): Chia**

COMMON NAMES: California Chia; California Chia Sage; California Chia Salvia; California Sage; Chia (a name given to the seeds of this plant, and also to the seeds and plants of several species of *Salvia*, Spanish); Desert Chia; Desert Sage; Golden Chia; Hisopo (Spanish); Romerillo (Spanish); Sage (a name also applied to the genus *Salvia*); Salvia (Spanish); Western Chia; Ziegler's Sage (var. *ziegleri*). DESCRIPTION: Terrestrial annual forb/herb (erect stems 1 to 40 inches in height); the stems are square; flowers may be blue, dark blue, blue-purple, blue-violet, bluish, bluish-lavender, lavender, purple, dark purple, purplish, purplish-blue, royal blue, violet or white; flowering generally takes place between mid-January and late July (additional records: one for mid-August, one for late August and one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; bouldery mountainsides; rocky, rocky-sandy and sandy mesas; rocky plateaus; along rocky cliffs; along rocky canyons; bouldery-sandy, rocky, rocky-sandy and sandy canyon bottoms; rocky bluffs; buttes; rocky and clayey-loamy ridges; rocky-gravelly-loamy ridgetops; meadows; foothills; bedrock, bouldery, rocky, rocky-loamy-clayey, gravelly, sandy and clayey hills; clayey hilltops; bouldery, bouldery-sandy, rocky, rocky-sandy and sandy hillsides; bouldery, rocky, rocky-gravelly-sandy, rocky-gravelly-loamy, rocky-sandy, rocky-loamy, rocky-clayey, shaley, cobbly-gravelly-sandy, gravelly, gravelly-sandy, gravelly-sandy-loamy, sandy, sandy-loamy, clayey, clayey-loamy and silty slopes; rocky and rocky-sandy alluvial fans; gravelly, gravelly-sandy and silty bajadas; rocky outcrops; amongst boulders and rocks; sand dunes; blow-sand deposits; rocky-sandy outwash fans; plains; fields; bouldery-sandy, rocky, gravelly and sandy flats; bouldery-sandy valley floors; sandy bases of coastal bluffs; coastal prairies; sandy coastal bluffs; coastlines; along rocky, rocky-gravelly-loamy, gravelly and sandy roadsides; along arroyos; within draws; along streams; along creeks; along gravelly-sandy creekbeds; sandy riverbeds; along and in rocky, rocky-gravelly-sandy, rocky-sandy, rocky-clayey, stony-sandy-silty, gravelly, gravelly-sandy, pebbly-sandy, sandy and silty washes; sandy drainages; in bouldery and sandy drainage ways; around pools; silty depressions; (bouldery-sandy, gravelly, gravelly-sandy and sandy) banks of springs, arroyos, streams, creeks, rivers and washes; (sandy) edges of arroyos and washes; along margins of washes; gravel and gravelly-sand bars; sandy benches; gravelly and sandy terraces; sandy and loamy bottomlands; floodplains; silty impoundments; gravelly-sandy and sandy-silty riparian areas; recently burned areas in woodlands, chaparral and coastal sage scrub, and disturbed areas growing in moist and dry bouldery, bouldery-sandy, rocky, rocky-gravelly-sandy, rocky-sandy, shaley, cobbly-gravelly-sandy, cindery-sandy, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; rocky loam, rocky-gravelly loam, gravelly-sandy loam, sandy loam, clayey loam and loam ground; rocky-loamy clay, rocky clay and clay ground, stony-sandy silty, sandy silty, silty and powdery silty ground, occurring from sea level to 7,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or food, beverage, spice and/or fiber crop; it was also noted as having been used as a drug or medication. The foliage has a strong, pleasant, sweet odor of sage. *Salvia columbariae* is native to southwest-central and southern North America. *5, 6, 15, 16, 18 (genus), 28 (color photograph 775), 43 (022710), 44 (072511 - color photograph), 46 (Page 741), 48 (genus), 63 (011813 - color presentation), 77, 85 (011813 - color presentation), 86 (color

photograph), 115 (color presentation), 124 (072511 - no record of species; genus record), 127, 140 (Page 295), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Loasaceae: The Blazingstar Family

***Mentzelia albicaulis* (W.J Hooker) J. Torrey & A. Gray: Whitestem Blazingstar**

COMMON NAMES: Blazing Star (a name also applied to other taxa and the Loasaceae); Buena Mujer (a name also applied to other species, Spanish); Gravy Plants (English: Great Basin)¹⁴⁰; Gu'ha (Uto-Aztec: Paiute)¹⁴⁰; Huwikaü (Uto-Aztec: Hopi)¹⁴⁰; Iiltl'ih <□ily.'ih> ['iiltl'ihih] (“[Plant Whose Leaves Are] Tenacious”, Athapascan: Navajo)¹⁴⁰; Iks S-hoohoidam (Uto-Aztec: Akimel O'odham)¹⁴⁰; Iks Ho:ho'idam (Uto-Aztec: Tohono O'odham)¹⁴⁰; Ku'hua <ku'hwa> (Uto-Aztec: Shoshoni)¹⁴⁰; Ku□u (Uto-Aztec: Southern Paiute)¹⁴⁰; Ku□uv□ (Uto-Aztec: Kawaiisu)¹⁴⁰; Kuha (Uto-Aztec: Panamint)¹⁴⁰; Kuhu <kuhá> (Uto-Aztec: Northern Paiute)¹⁴⁰; Kul <ku-l> (Uto-Aztec: Tübatulabal)¹⁴⁰; Pega Pega (“Stick-stick” a name also applied to other species, Spanish: Mexico)¹⁴⁰; Rama Pegajosa (a name also applied to other species, Spanish); Sele' (Yuman: Walapai)¹⁴⁰; Sililitaqa <sililitaqa> (Uto-Aztec: Hopi)¹⁴⁰; Small Flower Blazing Star; Small-flower Blazing Star; Small-flower Blazing-star; Small Flowered Blazing Star; Small-flowered Blazing Star; Small-flowered Blazing-star; Small-flowered [White-stem] Blazing-star (English)¹⁴⁰; Small-flowered Blazingstar; White Blazingstar (a name also applied to other taxa); White Stem Blazingstar; White Stem Mentzelia; White Stemmed Blazing Star; White Stemmed Stickleaf; White-stem Blazing Star; White-stem Blazing-star; White-stem Blazingstar; White-stem Evening Star; White-stem Evening-star; White-stem Mentzelia; White-stem Stick-weed (English)¹⁴⁰; White-stem Stickleaf; White-stemmed Blazing Star; White-stemmed Blazing-star; White-stemmed Evening-star; White-stemmed Mentzelia; White-stemmed Stick-leaf; White-stemmed Stickleaf; Whitestem Blazing Star; Whitestem Blazing-star; Whitestem Blazingstar (a name also applied to other taxa); Whitestem Mentzelia; Whitestem Stickleaf; Whitestemmed Blazing Star; Whitestemmed Blazingstar; Yellow Sand-lily. DESCRIPTION: Terrestrial annual forb/herb (spreading erect stems 4 inches to 2 feet in height; plants were observed and described as being 8 to 12 inches in height and 4 to 10 inches in width); the stems may be green, pink-tan or shiny white; the leaves are gray-green; the flowers may be lemon-yellow, mustard-yellow, orange-yellow, orangish, yellow, bright yellow, yellow with an orange throat and yellow-orange; flowering generally takes place between mid-February and mid-August (additional records: three for early January, two for mid-January and one for mid-October). HABITAT: Within the range of this species it has been reported from mountains; cobbly-sandy mountainsides; rocky and sandy mesas; cliffs; cliff faces; rocky and shaley canyons; canyon walls; rocky, gravelly-sandy and sandy canyon bottoms; gorges; bouldery-gravelly-silty talus slopes; bases of talus slopes; clayey bluffs; buttes; shaley knolls; rocky and gravelly ridges; rocky and gravelly-sandy ridgetops; gravelly foothills; rocky, gravelly, sandy and clayey hills; bouldery-rocky, rocky, rocky-gravelly, rocky-gravelly-loamy, cobbly, sandy and clayey hillsides; escarpments; bouldery, bouldery-gravelly, rocky, rocky-sandy, shaley, shaley-clayey, stony-gravelly, cindery, cindery-sandy; gravelly, gravelly-sandy, gravelly-silty-clayey, sandy, sandy-silty and clayey slopes; sandy alluvial fans; gravelly, gravelly-sandy and sandy bajadas; rocky outcrops; sandy bases of rock outcrops; amongst boulders and rocks; bases of rocks; sand hills; sand dunes; silty hummocks; berms; breaks; benches; clayey steppes; sandy plains; fields; cobbly-sandy, gravelly, gravelly-clayey, pebbly-sandy, sandy, sandy-loamy, sandy-clayey, sandy-powdery-loamy, silty and silty-loamy flats; basins; gravelly and sandy valley floors; valley bottoms; along railroad right-of-ways; roadbanks; along rocky, shaley, gravelly, gravelly-sandy, gravelly-sandy-clayey-loamy, sandy, clayey and silty roadsides; sandy arroyos; along draws; along gulches; streambeds; along creeks; along rivers; riverbeds; along and in cobbly-sandy, gravelly, gravelly-sandy, sandy and sandy-clayey washes; drainages; silty lakebeds; boggy areas; sandy and clayey depressions; along (rocky, gravelly-sandy and sandy) banks of creeks and washes; (sandy) edges of washes, lakes and playas; (sandy-silty) margins of playas; (gravelly-sandy and sandy) shores of lakes; gravelly-sand bars; sandy beaches; rocky-sandy, cobbly-loamy and sandy benches; bases of sandy ramps; floodplains; lowlands; rocky mesquite bosques; along sandy fencelines; sandy ditches; recently burned areas; sandy riparian areas; waste places, and disturbed areas (including cattle-hammered cactus flats) growing in dry bouldery, bouldery-rocky, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, stony, stony-gravelly, cobbly, cobbly-sandy, cindery, cindery-sandy, gravelly, gravelly-sandy, pebbly, pebbly-sandy and sandy ground; rocky-gravelly loam, cobbly loam, gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam, sandy-powdery loam, clayey loam, silty loam and loam ground; shaley clay, gravelly clay, gravelly-silty clay, sandy clay and clay ground; bouldery-gravelly silty rocky silty, gravelly silty, sandy silty and silty ground, and silty-clayey chalky ground, occurring from 400 to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. *Mentzelia albicaulis* is native to west-central and southern North America. *5, 6, 15, 16, 18 (genus), 43 (030110 - *Mentzelia albicaulis* (Douglas ex Hook.) Douglas ex Torr. & A. Gray), 44 (012213), 46 (Page 566), 48 (genus), 58, 63 (012213 - color presentation), 77, **85** (012213 - color presentation), 127, 140 (Pages 164-165 & 295)*

***Mentzelia jonesii* (I. Urban & E.F. Gilg) H.J. Thompson & J.E. Roberts: Jones' Blazingstar**

SYNONYMY: *Mentzelia nitens* E.L. Greene var. *jonesii* (I. Urban & E.F. Gilg) J. Darlington; *Mentzelia nitens* E.L. Greene var. *leptocaulis* J. Darlington. COMMON NAMES: Blazing Star (a name also applied to other taxa and the Loasaceae); Blazingstar (a name also applied to other taxa and the Loasaceae); Buena Mujer (a name also applied to other species, Spanish); Jones Blazing Star; Jones Blazing-star; Jones Blazingstar; Jones Mentzelia; Jones Stickleaf; Jones' Blazing Star; Jones' Blazing-star; Jones' Blazingstar; Jones' Mentzelia; Jones' Stickleaf; Jones's Blazing Star; Jones's Blazing-star; Jones's Blazingstar;

Jones's *Mentzelia*; Jones's Stickleaf; Rama Pegajosa (a name also applied to other species, Spanish). DESCRIPTION: Terrestrial annual forb/herb or vine (erect stems 4 inches to 2 feet in height/length); the stems are gray, pinkish-white or silvery-white; the flowers are lemon-yellow, white & yellow, yellow or yellow-orange; flowering generally takes place between mid-February and mid-June (additional records: one for mid-January and one for early July). HABITAT: Within the range of this species it has been reported from rocky mountains; rocky mountainsides; bases of cliffs; rocky canyons; canyon bottoms; talus slopes; mud-clay, rocky and gravelly hills; bouldery and rocky hillsides; rocky, rocky-sandy and gravelly slopes; sandy alluvial fans; bajadas; rocky outcrops; amongst boulders; flats; basins; rocky and sandy valley floors; along sandy roadsides; along streams; along creeks; riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; rocky drainages; sandy sloughs; (rocky and sandy) banks of streams and rivers; along (sandy) edges of washes; terraces, and riparian areas growing in dry bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam ground, and clay ground, occurring from 600 to 5,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Mentzelia jonesii* is native to southwest-central and southern North America. *5, 6, 18 (genus), 43 (030210 - *Mentzelia nitens* Greene var. *jonesii* (Urban & Gilg) Darl.), 44 (012213), 46 (*Mentzelia nitens* Greene var. *jonesii* (Urban & Gilg) J. Darl., Page 566 and *Mentzelia nitens* Greene var. *leptocaulis* J. Darl., Page 566), 48 (genus), 63 (012213), 77 (color photograph #82), **85** (012313 - color presentation), 115 (color presentation)*

Mentzelia nitens var. *jonesii* (see *Mentzelia jonesii*)

Mentzelia nitens var. *leptocaulis* (see *Mentzelia jonesii*)

***Petalonyx thurberi* A. Gray subsp. *thurberi*: Thurber's Sandpaper Plant**

COMMON NAMES: Common Sandpaper Plant (a name also applied to the species); Common Sandpaper-plant (a name also applied to the species); Sand-paper Plant (a name also applied to the species and the genus *Petalonyx*); Sandpaper Plant (a name also applied to the species and the genus *Petalonyx*); Thurber Sandpaper Plant (a name also applied to the species); Thurber Sandpaper-plant (a name also applied to the species); Thurber Sandpaperplant (a name also applied to the species); Thurber's Sandpaper Plant (a name also applied to the species); Thurber's Sandpaper-plant (a name also applied to the species); Thurber's Sandpaperplant (a name also applied to the species). DESCRIPTION: Terrestrial perennial subshrub or shrub (1 to 6½ feet in height; one plant was observed and described as being 12 inches in height and 20 inches in width); the foliage is gray-green; the flowers may be light cream, greenish-cream, white, whitish or yellowish-white; flowering generally takes place between early May and mid-October. HABITAT: Within the range of this species it has been reported from mountains; canyons; hills; rocky hillsides; slopes; sand dunes; gravelly-sandy banks; plains; flats; silty valley floors; roadsides; arroyos; sandy arroyo bottoms; sandy riverbeds; along and in gravelly, gravelly-sandy and sandy washes; drainages; depressions; (gravelly) banks of rivers; benches; sandy terraces; rocky-sandy and sandy floodplains; sandy lowlands; riparian areas, and disturbed areas growing in dry rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground; clay ground, and sandy silty and silty ground, occurring from sea level to 5,000 feet in elevation in the grassland and desertscrub ecological formations. NOTES: The flowers are reported to be fragrant, peak flowering may take place in May and June. *Petalonyx thurberi* subsp. *thurberi* is native southwest-central and southern North America. *5, 6, 13, 43 (062510), 44 (072611), 46 (species, Page 564), 63 (062510), **85** (072611 - also recorded as *Petalonyx thurberi* var. *thurberi*), 91 (species, Pages 314-315), 124 (072611 - no record of genus, species or subspecies)*

Malpighiaceae: The Barbados-cherry Family

Cottisia gracilis (see footnote 140 under *Janusia gracilis*)

***Janusia gracilis* A. Gray: Slender Janusia**

COMMON NAMES: Desert Vine; Fermina (Spanish); Slender Janusia. DESCRIPTION: Terrestrial perennial deciduous forb/herb or vine (clambering, climbing, scrambling, intertwining vining stems 16 inches to 10 feet in length; one plant was observed and described as being 16 inches in height with a crown 10 inches in diameter); the leaves may be grayish-green, dark green or reddish; the flowers (to ½ inch in width) are orange-yellow or yellow; flowering generally takes place between early March and mid-November (additional records: two for early January, one for late January, one for early December, one for mid-December and one for late December); the winged fruits (paired samaras) are pink, purple-red, red, red-green or reddish. HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; rocky mountainsides; mesas; cliffs; cliff faces; gravelly-sandy bases of cliffs; rocky canyons; rocky and sandy canyon bottoms; amongst crevices; rocky buttes; rocky knolls; rocky and gravelly ridges; rocky ridgetops; foothills; rocky and gravelly hills; rocky hillsides; along bedrock, bouldery-rocky, rocky, rocky-cobbly-gravelly, rocky-gravelly, rocky-clayey-loamy and gravelly slopes; alluvial fans; gravelly bajadas; volcanic plugs; bouldery and rocky outcrops; amongst rocks; terraces; plains; gravelly and gravelly-sandy flats; basins; valley floors; along rocky-gravelly roadsides; along rocky arroyos; bottoms of arroyos; draws; within gullies; within ravines; along streams; along rocky streambeds; along creeks; bouldery-rocky-sandy creekbeds; along and in gravelly and sandy washes; along drainages; waterholes; palm oases; (rocky) banks of streams; borders of washes; edges of washes; benches; floodplains, and riparian areas growing in dry bouldery, bouldery-rocky, bouldery-rocky-sandy, rocky, rocky-cobbly-gravelly, rocky-gravelly, gravelly, gravelly-sandy and sandy ground and rocky-clayey loam and clayey loam ground, occurring from sea

level to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. It is small woody vine often reported as scrambling over rocks, twining among shrubs or forming small tangled shrublets. Slender Janusia is browsed by the Sonoran Desert Tortoise (*Gopherus agassizi*), Desert Mule Deer (*Odocoileus hemionus* subsp. *crooki*) and Whitetail Deer (*Odocoileus virginianus* subsp. *couesi*). *Janusia gracilis* is native to southwest-central and southern North America. *5, 6, 13 (Page 124), 15, 16, 28 (color photograph 356), 43 (030310), 44 (031211 - no record of species or genus), 46 (Page 497), 48, 58, 63 (012413 - color presentation), 77 (color photograph #83), 85 (012413 - color presentation), 115 (color presentation), 124 (031211 - no record of species or genus), 140 (Page 295 - recorded as *Cottisia gracilis* (A. Gray) W.R. Anderson & C. Davis)*

Malvaceae: The Mallow Family

***Abutilon abutiloides* (N.J. von Jacquin) C.A. Garcke ex B.P. Hochreutiner: Shrubby Indian Mallow**

COMMON NAMES: Amantillo (Spanish); Berlandier Abutilon; Indian Mallow (a name also applied to other species and the genus *Abutilon*); Malva Rasposa (Spanish); Pintapan (Spanish); Shrubby Indian Mallow. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (erect stems 1 to 6½ feet in height; one plant was observed and described as being 32 inches in height with a crown 40 inches in width); the leaves are yellow-green; the flowers are orange, orange-yellow, orangish, yellow, yellow-copper or yellow-orange; flowering generally takes place between early March and early November (additional records: two for late November, four for mid-December and three for late December; flowering occurring throughout the year has also been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; bases of cliffs; rocky canyons; along rocky canyon bottoms; ridges; rocky and gravelly ridgetops; foothills, rocky and stony hills; bouldery hilltops; rocky and rocky-sandy-loamy hillsides; bedrock, bouldery, rocky, rocky-cobbly-gravelly and gravelly slopes; bajadas; amongst boulders and rocks; plains; gravelly-sandy and sandy flats; valley floors; sandy coastal flats; coastal beaches; along rocky, stony and sandy roadsides; within gravelly and sandy arroyos; bottoms of arroyos; gulches; streambeds; along and in rocky-sandy, rocky-silty and sandy washes; bouldery drainages; waterholes; along (rocky) banks of washes; edges of arroyos; bottomlands; mesquite woodlands; riparian areas; waste places, and disturbed areas growing in dry bouldery, rocky, rocky-cobbly-gravelly, stony, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam and sandy loam ground, and rocky silty ground, occurring between sea level and 6,200 feet in elevation in the forest, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers open in the evening. The Shrubby Indian Mallow is a food and nesting plant of the caterpillar of the Arizona Powdered-skipper (*Systaceae zampa*). *Abutilon abutiloides* is native to southwest-central and southern North America and coastal islands in the Caribbean Sea. *5, 6, 18 (genus), 43 (030310), 46 (recorded as *Abutilon californicum* Benth., Page 539), 63 (012413 - color presentation of seeds), 77, 85 (012413 - color presentation), 115 (color presentation), 124 (110610 - no record, genus), 140 (Pages 168 & 295)*

Abutilon californicum (see footnote 46 under *Abutilon abutiloides*)

Abutilon crispum (see *Herissantia crispa*)

***Abutilon incanum* (J.H. Link) R. Sweet: Pelotazo**

SYNONYMY: *Abutilon incanum* (J.H. Link) R. Sweet subsp. *incanum* (J.H. Link) R. Sweet; *Abutilon incanum* (J.H. Link) R. Sweet subsp. *pringlei* (B.P. Hochreutiner) R.S. Felger & R.T. Lowe; *Abutilon pringlei* B.P. Hochreutiner. COMMON NAMES: Caate Ipápl ("What Grasshoppers Are Strung With", Hokan: Seri)¹⁴⁰; Escoba Malva ("Broom Mallow", Spanish: Sonora)¹⁴⁰; Hasla an Ihoon ("Ear Is Its Place", Hokan: Seri)¹⁴⁰; Hoary Abutilon; Hoary Indian Mallow; Indian Mallow (a name also applied to other species and the genus *Abutilon*); Indian Mallow (English)¹⁴⁰; Indianmallow Abutilon; Jichiquia To'ora Cojuya ("Ash Broom", Uto-Aztecan: Mayo)¹⁴⁰; Malva (a name also applied to other species, Spanish); Malva ("Mallow", Spanish: Sonora)¹⁴⁰; Pelotazo (a name also applied to other species, Spanish); Pelotazo [Chico] ("[Little] Hairy One", Spanish: Sinaloa)¹⁴⁰; Pelotazo Chico (Spanish); Pringle Abutilon; Pringle's Abutilon; Pringle Indian Mallow; Rama Escoba (Spanish); Shrubby Indian Mallow; Tosaporo (Uto-Aztecan: Guarijío)¹⁴⁰; Tronadora (Spanish: northern Mexico to Oaxaca)¹⁴⁰. DESCRIPTION: Terrestrial perennial evergreen forb/herb or subshrub (stems usually 8 inches to 7 feet in height, rarely to 13 feet in height; one plant was observed and described as being 8 inches in height with a crown 8 inches in width, one plant was observed and described as being 12 inches in height with a crown 16 inches in width, one plant was observed and described as being 30 inches in height with a crown 30 inches in width); the stems are gray, the leaves may be gray-green or grayish; the flowers may be cream, cream & red, lavender, pale orange, orange, orange spotted with maroon, orange-red, orange-yellow, orange-yellowish, peach & maroon, light pink, pink, dark red, salmon, white, white & pink, yellow-gold, yellow-orange, yellowish-pink, yellow, yellow-gold or yellow-salmon sometimes with dark crimson, maroon, deep maroon, purple, red or dark red centers (basal spots); flowering is generally described as taking place throughout the year (between early January and late December) with the principal flowering period reported as being October through November. HABITAT: Within the range of this species it has been reported from bouldery and rocky mountains; mountaintops; bases and lower slopes of mountains; rocky crags; rocky mesas; rocky cliffs; rocky canyons; along bouldery, bouldery-sandy and rocky canyon bottoms; rocky and clayey-loamy talus slopes; crevices in rocks; buttes; knolls; rocky and gravelly ridgetops; rocky ridgelines; openings in desertscrub; foothills; rocky and stony hills; rocky and gravelly hillsides; clayey bases of hills; bouldery-rocky-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey and loamy slopes; rocky bajadas; rocky outcrops; amongst boulders;

volcanic plugs; sand dunes; terraces; rocky, cobbly and gravelly plains; gravelly and sandy flats; basins; valley floors; coastal plains; coastal beaches; along gravelly and loamy roadsides; along rocky, gravelly and sandy arroyos; rocky bottoms of arroyos; around seeping streams; along and in rocky streambeds; along and in gravelly, sandy and clayey-loamy washes; within drainages; swales; banks of lakes; borders of washes; (sandy) sides of rivers; beaches; benches; mesquite bosques; around represos; riparian areas, and disturbed areas growing in wet and dry bouldery, bouldery-rocky-sandy, bouldery-sandy, rocky, rocky-sandy, stony, cobbly, gravelly, pebbly, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, clayey loam and loam ground, and rocky clay, gravelly clay and clay ground, occurring from sea level to 6,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Abutilon incanum* is native to southwest-central and southern North America and islands in the North(-central) Pacific Ocean. *5, 6, 13 (recorded as *Abutilon pringlei* Hochreutiner, Pages 100-101), 15, 16 (recorded as *Abutilon incanum* (Link.) Sweet subsp. *pringlei* (Hochr.) Felger & Lowe), 18 (genus), 28 (color photograph 534), 43 (030410 - *Abutilon incanum* subsp. *pringlei* (Hochr.) Felger), 44 (072711 - no record of species; genus record), 46 (recorded as *Abutilon pringlei* Hochr., Page 539 and *Abutilon incanum* (Link) Sweet, Page 539), 63 (012413 - color presentation), 77 (recorded as *Abutilon incanum* (Link.) Sweet ssp. *pringlei* (Hochr.) Felger & Lowe), **85** (012413 - color presentation), 91 (Page 11), 115 (color presentation), 124 (072711), 127, 140 (Pages (167-168 & 295)*

Abutilon incanum subsp. *incanum* (see *Abutilon incanum*)

Abutilon incanum subsp. *pringlei* (see *Abutilon incanum*)

Abutilon pringlei (see *Abutilon incanum*)

Anoda abutiloides A. Gray: Indian Anoda

COMMON NAMES: False Indian Mallow; Indian Anoda. DESCRIPTION: Terrestrial annual forb/herb or subshrub (erect stems 2 to 5¼ feet in height); the flowers have been described as being orange-yellow often fading to pink or purplish, pale yellow with pink tints, pale yellow drying reddish, or yellow mottled with maroon; based on few records located flowering generally takes place between mid-August to late October (additional records: one for late March, two for early April, one for mid-April, one for early May, two for mid-May, three for late May and one for mid-June; flowering continuing through to December has also been reported). HABITAT: Within the range of this species it has been reported from mountains; bases of cliffs; rocky canyons; rocky canyon walls; along rocky canyon bottoms; crevices in rocks; rocky slopes; amongst rocks; sandbeds; valley floors; roadsides; within arroyos; along streambeds; along and in sandy washes, within drainages; around pools; sandy-silty lakebeds, and riparian areas growing in moist and dry rocky ground and sandy silty ground, occurring from 300 to 5,200 feet in elevation in the woodland, grassland, desertscrub and wetland ecological formation. NOTES: *Anoda abutiloides* is native to southwest-central and southern North America. *5, 6, 15, 42 (062913), 43 (062913), 44 (062913 - no record of species; genus record), 46 (Page 552), 58, 63 (062913), **85** (062913 - color presentation), 140 (Pages 166 & 296)*

Gayoides crispum (see *Herissantia crispa*)

Gossypium thurberi A. Todaro: Thurber's Cotton

COMMON NAMES: Algodoncillo [del Campo, del Monte] ("Little Cotton [of the Countryside, Wild]", Spanish: Sonora)¹⁴⁰; Atcó <xlitco, xotcó> (Yuman: Maricopa); Ban Tokiga ("Coyote's Cotton", Uto-Aztec: Tohono O'odham; Toki <to'ki, tokih> is cultivated cotton)¹⁴⁰; Canyon [Desert, Thurber's] Cotton (English)¹⁴⁰; Desert Cotton; Hedjawa (Yuman: Havasupai)¹⁴⁰; Ichoghqaa (Athapascan: Western Apache)¹⁴⁰; Ndik'a' (Athapascan: Navajo)¹⁴⁰; Thurber Cotton; Thurber Wild Cotton; Thurber's Cotton; Thurberia; Tok (Uto-Aztec: Onavas Pima; for cultivated cottons)¹⁴⁰; Toki (Uto-Aztec: Akimel O'odham; for cultivated cottons)¹⁴⁰; To□sá (Uto-Aztec: Guarijio)¹⁴⁰; Wild Cotton; Wild Desert Cotton; Xsaw [Xsa:w] (Yuman: Cocopa)¹⁴⁰. DESCRIPTION: Terrestrial perennial deciduous shrub or tree (ascending to erect stems 3 to 14 feet in height; one plant was observed and described as being 6½ feet in height and width); the younger stems are purple; the leaves are dark green (sometimes tinged with purple) with a paler underside; the flowers (to 1½ inches in diameter) may be cream, creamy-white, pale pink, pink-cream, white (aging pink, purple, purple-red or rose-pink), pale yellow, yellow or yellow tinged with pink sometimes with a crimson, lavender, pale pink or purple basal spot on the petals; flowering generally takes place between mid-August and mid-November (additional records: one for early May, one for mid-May, two for early June, one for mid-June, three for late June, two for early July, one for late July and one for early December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; cliffs; rocky canyons; along canyonsides; rocky canyon bottoms; crevices in rocks; ridgetops; foothills; hills; rocky hillsides; rocky, rocky-loamy, gravelly, sandy and loamy slopes; bottoms of slopes; bajadas; rocky outcrops; amongst boulders; along rocky roadcuts; along rocky and sandy roadsides; arroyos; bottoms of arroyos; within ravines; along streams; along and in streambeds; in creekbeds; along and in rocky and cobbly washes; drainages; cienegas; (sandy) banks of arroyos and streams; bottomlands; floodplains; within ditches; riparian areas, and disturbed areas growing in dry bouldery, rocky, cobbly, gravelly and sandy ground and rocky loam and loam ground, occurring from 2,100 to 8,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the leaves turn red in the fall. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial fiber crop.

Thurber Wild Cotton is a host plant of the Thurberia Weevil (*Anthonomus grandis* subsp. *thurberiae*) which feeds on the immature cotton bolls. *Gossypium thurberi* is native to southwest-central and southern North America. *5, 6, 13, 15, 28 (color photograph 194), 43 (031211 - *Gossypium thurberi* Tod.), 44 (031211 - no record of genus or species), 46 (Page 553), 58, 63 (031211), 80, 85 (031211), 115 (color presentation), 124 (031211 - no record of genus or species), 127, 140 (Pages 168-169 & 296)*

***Herissantia crispa* (C. Linnaeus) G.K. Brizicky: Bladdermallow**

SYNONYMY: *Abutilon crispum* (C. Linnaeus) F.K. Medikus; *Gayoides crispum* (C. Linnaeus) J.K. Small. COMMON NAMES: Bladder Mallow (a name also applied to the genus *Herissantia*); Bladder-mallow (a name also applied to the genus *Herissantia*); Bladdermallow (a name also applied to the genus *Herissantia*); Curly Abutilon; Curly Bladder Mallow; Curly Bladder-mallow; Curly Bladdermallow; Curly Herissantia; False Indian Mallow; Malva de Lava Prato; Netvein Herissantia; Pelotazo (a name also applied to other species, Spanish). DESCRIPTION: Terrestrial annual or perennial forb/herb or subshrub (sprawling or trailing prostrate stems 8 inches to 4 feet in height/length); the leaves are light green; the flowers may be cream, pale orange-cream, orange, orange-cream, orange-yellow, pink-orange, pale peach, salmon, white, light yellow, light yellow-orange, yellow or yellowish; the anthers are yellow; flowering generally takes place between mid-January and mid-May and again between early August and late December (additional records: one for late June, two for early July and one for mid-July; flowering has also been reported as occurring throughout the year); the fruit is green. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky mesas; rocky cliffs; bases of cliffs; rocky canyons; along rocky and gravelly canyon bottoms; rocky talus slopes; crevices in rocks; rocky ledges; rocky and gravelly ridgetops; rocky and stony hills; bouldery-rocky and rocky hillsides; bouldery and rocky slopes; rocky and sandy alluvial fans; bajadas; rocky outcrops; amongst boulders and rocks; sandy bases of boulders and rocks; sand dunes; banks; plains; gravelly flats; valley bottoms; coastal plains; coastal beaches; along roadsides; mgravelly and sandy arroyos; bottoms of arroyos; gravelly streambeds; sandy creekbeds; along and in rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy washes; bouldery drainages; borders of washes; edges of arroyos; sandy beaches; benches; floodplains; riparian areas, and disturbed areas growing in dry bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground and clayey loam ground, occurring from sea level to 4,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The Bladdermallow is a food and nesting plant of the caterpillar of the Erichson's White-skipper (*Heliopetes domicella*). *Herissantia crispa* is native to south-central and southern North America and coastal islands in the Caribbean Sea. *5, 6, 15, 16, 28 (color photograph 357), 43 (030410), 44 (012613 - color photograph), 46 (recorded as *Gayoides crispum* (L.) Small, Page 540), 48 (genus), 58, 63 (012613 - color presentation), 77 (color photograph #37), 85 (012613 - color presentation), 115 (color presentation), 140 (Page 296)*

***Hibiscus coulteri* W.H. Harvey ex A. Gray: Desert Rosemallow**

COMMON NAMES: Coulter Hibiscus; Desert Hibiscus; Desert Rose Mallow; Desert Rose-mallow; Desert Rosemallow; Hibisco (Spanish); Pelotazo (a name also applied to other species, Spanish); Tulipán (Spanish). DESCRIPTION: Terrestrial perennial subshrub or shrub (erect stems 3 inches to 7 feet in height; one plant was reported to be 18 inches in height with a crown 6 inches in width); the foliage may be green, dark green with reddish margins or green-purple; the flowers are pale lemon, lemon, lemon-yellow, peach, yellow, yellowish-purple or white-pink with or without a blackish, purplish or red basal spot (area at base of the petal); flowering generally takes place between early March and late May and between late July and late December (additional records: one for mid-January, one for mid-February and one for early July, it has been reported that flowering may take place throughout the year; however, the flower buds may be killed by frost). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; bases of cliffs; bouldery, bouldery-gravelly-loamy and rocky canyons; canyon walls; rocky canyon bottoms; crevices in rocks; ridges; rocky and gravelly ridgetops; foothills; rocky hills; rocky hillsides; along bedrock, rocky, rocky-cobbly-gravelly, rocky-clayey-loamy, gravelly and gravelly-loamy slopes; gravelly bajadas; rocky outcrops; amongst boulders; plains; flats; along rocky and sandy arroyos; gulches; gullies; ravines; along rocky, gravelly, sandy and humus-loamy washes; within bouldery and cobbly drainages; banks of lakes; riparian areas, and disturbed areas growing in dry bouldery, rocky, cobbly, gravelly and sandy ground and bouldery-gravelly loam, rocky-clayey loam, gravelly loam and humusy loam ground, occurring from 400 to 5,000 feet in elevation in the scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Hibiscus coulteri* is native to southwest-central and southern North America. *5, 6, 13 (Page 104), 16, 28 (color photograph 358), 43 (030510 - *Hibiscus coulteri* Harv. ex A. Gray), 44 (012613 - no record of species; genus record), 46 (Page 553), 48 (genus), 63 (012613), 58, 77, 85 (012613 - color presentation), 86 (color photograph), 115 (color presentation), 124 (111310 - no record of species; genus record), 140 (Page 296)*

***Sphaeralcea ambigua* A. Gray subsp. *rosacea* (P.A. Munz & I.M. Johnston) T.H. Kearney: Rose Globemallow**

SYNONYMY: *Sphaeralcea ambigua* A. Gray var. *rosacea* (P.A. Munz & I.M. Johnston) T.H. Kearney. COMMON NAME: Rose Globemallow. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (stems 20 inches to 5 feet in height; one plant was observed and described as being 39 inches in height with a crown 78 inches in width); the flowers may be lavender, lavender-pink, mauve, pink, pinkish-lavender or violet-pink; flowering generally takes place between mid-February and mid-May (additional records: one for late June, one for early August, one for late August, one for late October and one for early November; flowering taking place throughout the year has also been reported). HABITAT: Within the range of this species it has been reported from mountains; clayey canyons; foothills; rocky hills; rocky hillsides; bedrock, bouldery and rocky slopes,

bouldery alluvial slopes; bajadas; rocky and sandy flats, along roadsides; rocky arroyos; along and in sandy washes, and edges of arroyos growing in dry bouldery, rocky and sandy ground and clay ground, occurring from 700 to 5,900 feet in elevation in the woodland, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Sphaeralcea ambigua*, was reported to have been utilized by native peoples of North America; it was noted that it was used as a drug or medication. *Sphaeralcea ambigua* subsp. *rosacea* is native to southwest-central and southern North America. *5, 6, 18 (species), 28 (species, color photograph of the species 536 & 601), 43 (030710), 44 (020113 - no listings recorded under Common Names), 46 (Page 543), 48 (genus), 63 (020113 - color presentation), 68 (genus), **85** (020213 - color presentation), 86 (species, color photograph of the species), 115 (color presentation of the species), 127 (species)*

Sphaeralcea ambigua var. *rosacea* (see *Sphaeralcea ambigua* subsp. *rosacea*)

***Sphaeralcea laxa* E.O. Wooton & P.C. Standley: Caliche Globemallow**

COMMON NAMES: Caliche Globe Mallow; Caliche Globemallow; Globemallow (a name also applied to the genus *Sphaeralcea*); Mal de Ojo (a name also applied to other taxa, Spanish). DESCRIPTION: Terrestrial perennial forb/herb or subshrub (stems 12 to 28 inches in height); the leaves may be gray, gray-green, green or dark green; the flowers may be bluish-pink, grenadine, orange, orange-pink, peach-orange, pink-orange, red, red-orange or deep salmon; the anthers are dark purple; flowering generally takes place between early February and late November (additional record: one for mid-December). HABITAT: Within the range of this species it has been reported from rocky mountains; rocky-gravelly mesas; cliffs; rocky canyons; sandy canyon bottoms; talus slopes; ledges; rocky-sandy ridges; rocky-gravelly ridgelines; rocky-sandy rims of craters; foothills; hills; rocky-gravelly hilltops; rocky, gravelly-sandy-loamy and sandy hillsides; bases of hills; rocky, gravelly and silty-clayey slopes; alluvial fans; rocky and gravelly bajadas; rocky outcrops; amongst boulders, rocks and gravels; sandy and sandy-loamy plains; gravelly and sandy flats; basins; valley floors; along railroad right-of-ways; roadcuts; along roadsides; sandy arroyos; clayey bottoms of arroyos; draws; springs; riverbeds; along and in gravelly and sandy washes; along drainages; around lakes; along (sandy-silty) banks of rivers; along (gravelly) edges of streambeds and washes; margins of rivers and washes; gravel bars; bottomlands; floodplains; sandy lowlands; mesquite bosques; riparian areas, and disturbed areas growing in dry bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, pebbly and sandy ground; gravelly-sandy loam and sandy loam ground, and silty clay ground, occurring from 1,200 to 7,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Sphaeralcea laxa* is native to southwest-central and southern North America. *5, 6, 15, 16, 18 (genus), 43 (030810), 44 (072811 - no record of species; genus record), 46 (Page 543), 48 (genus), 63 (020413 - color presentation), 68, 77 (color photograph #40), 85 (020413 - color presentation), 115 (color presentation), 124 (072811 - no record of species; genus record), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Moraceae: The Mulberry Family

***Morus microphylla* S.B. Buckley: Texas Mulberry**

COMMON NAMES: Apuri (Uto-Aztecan: Tarahumara)¹⁴⁰; Baya ("Berry", Spanish)¹⁴⁰; Dwarf Mulberry; Gohi (Uto-Aztecan: Hiá Ce□ O'odham)¹⁴⁰; Gohi <gōhi, gohih, goohi, gaw-hee, kohi, kóxi> (Uto-Aztecan: Akimel O'odham and Tohono O'odham)¹⁴⁰; Hti' Tsi <its' in> (Athapascan: Western Apache)¹⁴⁰; Kohi (Uto-Aztecan: Mountain Pima)¹⁴⁰; Kóhi <kóji> (Uto-Aztecan: Northern Tepehuan)¹⁴⁰; Littleleaf Mulberry; Little-leaf [Mexican, Mountain, Texas] Mulberry (English)¹⁴⁰; Mexican Mulberry; Mora Cimarróna ("Wild Mulberry", Spanish: Arizona, Sonora)¹⁴⁰; Moral ("Mulberry Grove", Spanish: Chihuahua south)¹⁴⁰; Mountain Mulberry; Paboré (Uto-Aztecan: Guarijío)¹⁴⁰; Puima'á (Yuman: Havasupai)¹⁴⁰; Puima'á <pu'i ma> (Yuman: Walapai)¹⁴⁰; Salsa Mora ("Mulberry Sauce", Spanish: Sonora)¹⁴⁰; Small-leaved Mulberry; Texas Mulberry; Tselkane (Athapascan: Chiricahua and Mescalero Apache)¹⁴⁰; Tsélkani (Athapascan: Western Apache)¹⁴⁰; Western Mulberry. DESCRIPTION: Terrestrial perennial deciduous shrub or tree (6½ to 25 feet (rarely to 50 feet) in height, one shrub was observed and recorded as being 6½ feet in height and 10 feet in width); the bark is pale gray; the twigs are brown or greenish; the leaves are green, dark green or yellow-green; the flowers (in ¼ inch long green or yellowish catkins) are green, the green to reddish staminate flowers and dark green pistillate flowers are borne on different plants (dioecious); flowering generally takes place between late March and early June (additional records: one for early August and three for late August); the mature fruits (½ inch in length) are black, blackish, purple or red. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; canyon rims; rock cliffs; bases of cliffs; bouldery and rocky canyons; along rocky and sandy canyon bottoms; scree slopes; rocky talus slopes; crevices in rocks; rocky-sandy bluffs; bouldery ledges; ridges; foothills; rocky hills; rocky hillsides; along bases of hills; bouldery-gravelly, rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy-loamy slopes; bases of slopes; bajadas; rocky outcrops; amongst boulders; bases of boulders; bases of rock slides; sandy lava flows; lava beds; banks; stream valleys; along rocky-gravelly-sandy and gravelly roadsides; along arroyos; within draws; bouldery and rocky ravines (barrancas); seeps; springs; along streams; streambeds; along and in creeks; along gravelly-sandy and sandy creekbeds; along and in sandy washes; rocky drainages; sinks; (rocky) banks of seeps, streams, creeks and washes; along (cobble) edges of streams and creeks; margins of creeks; silty-loamy terraces; floodplains; mesquite bosques, and bouldery, rocky and gravelly-sandy riparian areas growing in shallow water and wet, moist, damp and dry bouldery, bouldery-rocky-sandy, bouldery-gravelly, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, cobble, gravelly, gravelly-sandy and sandy ground and sandy loam, clayey loam and silty loam ground, occurring from 600 to 7,300 feet in elevation in the woodland, scrub, grassland, desertscrub

and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop; it was also noted that the wood was used in the making of bows. The fruits are eaten birds and other wildlife. *Morus microphylla* is native to southwest-central and southern North America. *5, 6, 15, 18 (genus), 28 (color photograph 72), 42 (062913), 43 (082210), 44 (062913 - no record of species; genus record), 46 (Page 221), 52 (color photograph), 53, 58, 63 (062913), 77, **85** (082210 - color presentation), 127, 140 (Pages 174-175 & 296)*

Nyctaginaceae: The Four-o'clock Family

***Allionia incarnata* C. Linnaeus: Trailing Windmills**

COMMON NAMES: Allionia (a name also applied to the genus *Allionia*); Crested Windmills; Guapile (Spanish: Sonora)¹⁴⁰; Hamíp Cmaam (“Female Spiderling”, Hokan: Seri)¹⁴⁰; Hierba de la Golpe (“Bruise Herb”, Spanish: Sonora)¹⁴⁰; Hierba de la Hormiga [Mosca] (“Ant [Fly] Herb”, Spanish: Durango, Nuevo León, Zacatecas)¹⁴⁰; ‘Ilt’aa’ <□ilt’ā□i> (“Leaves Like Rock Tea”, Athapascan: Navajo)¹⁴⁰; Juan Ematilli (Spanish: Onavas Pima)¹⁴⁰; ‘Okup’e (Kiowa Tanoan: Tewa)¹⁴⁰; Pink Three-flower (English: Arizona)¹⁴⁰; Pink Three-flower Allionia; Pink Windmills (a name also applied to other species); Totopwuvápi <totópwuvápi> (Uto-Aztecan: Hopi)¹⁴⁰; Trailing Allionia; Trailing Four O’clock (a name also applied to the genus *Allionia*); Trailing Four O’clock (English)¹⁴⁰; Trailing Four-o’clock (a name also applied to the genus *Allionia*); Trailing Umbrella-wort; Trailing Windmills; Tsét’aa’ Ts’ósi <cedide.h c’o’s> (“Leaves Like Rock Tea”, Athapascan: Navajo)¹⁴⁰; Umbrella Wort (a name also applied to other species and the genus *Allionia*); Umbrella-wort (a name also applied to other species and the genus *Allionia*); Umbrella-wort (English)¹⁴⁰; [Trailing] Wind-mills (English: Arizona, New Mexico)¹⁴⁰; Windmills (a name also applied to the genus *Allionia*). DESCRIPTION: Terrestrial annual or perennial forb/herb (sprawling, trailing prostrate stems 2 to 20 inches in height and 4 inches to 10 feet in length; one plant was observed and described as being 4 inches in height and 12 by 20 inches in width); the stems may be reddish; the sticky foliage has been described as being gray-green or green above and silvery beneath; the flowers may be blue, fuchsia; lavender, lavender-pink, lavender-rose, magenta, deep magenta, magenta-pink, magenta-rose, pink, deep pink, pink-lavender, pink-magenta, pink-purple, pink-violet, purple, purple-blue, purplish-pink, red-violet, reddish-purple, rose, rose-pink, rose-purple, violet, violet-magenta, violet-pink or white (rarely); the anthers are yellow; flowering generally takes place between mid-January and mid-December (additional record: flowering year-round has also been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky, rocky-sandy and gravelly mesas; rims of canyons; cliffs; rocky and shaley canyons; along gravelly canyon bottoms; lava flow talus; buttes; knolls; rocky and shaley ridges; bases of ridges; rocky and gravelly ridgetops; sandy foothills; rocky, rocky-sandy, gravelly, sandy and clayey hills; rocky-gravelly hilltops; rocky and gravelly hillsides; along bedrock, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, rocky-loamy, shaley, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy, sandy-clayey, sandy-silty and silty slopes; rocky alluvial fans; rocky, cobbly-sandy and gravelly-sandy bajadas; clayey outcrops; amongst boulders and rocks; lava hills; sandy lava flows; sand hills; sand dunes; sand hummocks; debris fans; banks; shelves; llanos; sandy and clayey-loamy plains; rocky, rocky-sandy, rocky-loamy, gravelly, gravelly-sandy and sandy flats; silty basin floors; gravelly-sandy valley floors; sandy roadbeds; along rocky, rocky-gravelly-sandy, rocky-gravelly-loamy, stony, gravelly, gravelly-sandy-loamy, sandy and sandy-loamy roadsides; within rocky, rocky-gravelly-sandy, gravelly and sandy arroyos; rocky and gravelly bottoms of arroyos; within draws; within rocky ravines; streambeds; along and in rocky and gravelly-sandy creekbeds; along rivers; along and in riverbeds; along and in bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly-gravelly-sandy, cobbly-pebbly, cobbly-sandy, gravelly, gravelly-sandy and sandy washes; drainages; silty lakebeds; marshy areas; ciénegas; sandy-silty depressions; along (clayey) banks of arroyos, rivers and washes; borders of washes; edges of rivers and washes; along (rocky) margins of arroyos, washes and lakes; shores of lakes; sandy benches; shelves; gravelly terraces; sandy bottomlands; sandy floodplains; lowlands; sandy mesquite bosques; edges of levees; along canals; canal banks; around stock tanks (represos); gravelly-sandy and sandy riparian areas; waste places, and disturbed areas growing in dry sandy desert pavement; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, stony, cobbly-gravelly-sandy, cobbly-pebbly, cobbly-sandy, cindery; gravelly, gravelly-sandy, pebbly and sandy ground; rocky loam, rocky-gravelly loam, gravelly loam, gravelly-sandy loam, sandy loam and clay loam ground; rocky clay, gravelly clay, sandy clay and clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 8,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. Merriam’s Kangaroo Rat (*Dipodomys merriami*), Arizona Pocket Mouse (*Perognathus amplus*), Bailey’s Pocket Mouse (*Chaetodipus baileyi*) and the Rock Pocket Mouse (*Chaetodipus intermedius*) collect the seed of this plant. *Allionia incarnata* is native to southwest-central and southern North America; Central America and coastal islands in the Caribbean Sea, and South America. *5, 6, 15, 16, 28 (color photograph 652), 43 (031010), 44 (073011 - color photograph), 46 (Page 274), 58, 63 (020613 - color presentation), 68, 77 (color photographs #41 and #86), **85** (020713 - color presentation), 86 (color photograph), 115 (color presentation), 124 (073011), 127, 140 (recorded as *Allionia incarnata* Linnaeus [*Allionia incarnata* Linnaeus var. *nudata* (Standley) Munz, *Allionia incarnata* Linnaeus var. *villosa* (Standley) B.L. Turner], Pages 175-176 & 296)*

***Allionia incarnata* C. Linnaeus var. *villosa* (P.C. Standley) B.L. Turner: Trailing Windmills**

COMMON NAMES: Allionia (a name also applied to the species and the genus *Allionia*); Trailing Allionia (a name also applied to the species); Trailing Four O’clock (a name also applied to the species and the genus *Allionia*); Trailing Four-

o'clock (a name also applied to the species and the genus *Allionia*); Trailing Windmills (a name also applied to the species); Windmills (a name also applied to the species and the genus *Allionia*). DESCRIPTION: Terrestrial annual or perennial forb/herb (trailing prostrate stems 4 to 14 inches in height and 4 inches to 10 feet in length); the flowers may be magenta, pink, pinkish-purple, rd-violet, rose-pink or white; flowering generally takes place between mid-March and mid-October (additional record: flowering year-round has also been reported). HABITAT: Within the range of this species it has been reported from mountains; mesas; canyons; hills; hillsides; rocky, rocky-gravelly, gravelly and gravelly-loamy slopes; basins; valley floors; along rocky-gravelly-loamy and gravelly roadsides; gravelly arroyos; ravines; sandy riverbeds; along bouldery-sandy washes; drainages; sandy floodplains; mesquite bosques; gravelly-clayey banks of levees, and disturbed areas growing in dry bouldery-sandy, rocky, rocky-gravelly, cindery; gravelly and sandy ground; rocky-gravelly loam and gravelly loam ground, and gravelly clay and sandy clay ground, occurring from 100 to 5,200 feet in elevation in the scrub, grassland and desertscrub ecological formations. NOTES: The species, *Allionia incarnata*, was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Allionia incarnata* var. *villosa* is native to southwest-central and southern North America. *5, 6, 28 (species, color photograph of the species 652), 44 (073010), 44 (073011), 46 (species, Page 274), 63 (020613), 68 (species), **85** (020713 - color presentation), 86 (species, color photograph of the species), 115 (color presentation of the species), 124 (073011 - no record of this variety; species and genus records), 127 (species)*

***Boerhavia* C. Linnaeus: Spiderling**

COMMON NAME: Boerhavia; Boerhaavia; Pega Pega ("Stick-stick" a name also applied to species in other families and genera, Spanish: Mexico)¹⁴⁰; Spiderling; Spiderlings; Tar Vine; Tar-vine; Tarvine; Wineflower. *43 (071410), 44 (120810), 46 (Note alternate spelling: *Boerhaavia*, Pages 275-277), 63 (032807), 124 (111910), 140 (Page 164), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Boerhavia coulteri* (J.D. Hooker) S. Watson: Coulter's Spiderling**

COMMON NAMES: Coulter Boerhaavia; Coulter Boerhavia; Coulter Spiderling; Coulter's Boerhaavia; Coulter's Boerhavia; Coulter's Spiderling; Hamíp (Seri); Juaninipili (Spanish); Mochi (a name also applied to other species, Spanish); Mochis (a name also applied to other species, Spanish); Palmer Boerhaavia (var. *palmeri*); Palmer Boerhavia (var. *palmeri*); Palmer Spiderling (var. *palmeri*); Palmer's Boerhaavia (var. *palmeri*); Palmer's Boerhavia (var. *palmeri*); Palmer's Spiderling (var. *palmeri*); Red Spiderling (a name also applied to other species); Spiderling (a name also applied to other species and the genus *Boerhavia*). DESCRIPTION: Terrestrial annual forb/herb (branching decumbent, ascending and/or erect stems 8 inches to 5 feet in height/length); the stems may be pink or red; the tiny flowers may be cream, pale lavender, lavender-pink, pink, pink-magenta, pinkish-red, pinkish-white, white or white with a pinkish tinge; flowering generally takes place between late July and mid-November (additional records: one for early June and one for late June). HABITAT: Within the range of this species it has been reported from mountains; mesas; rocky canyons; rocky ridge tops; meadows; foothills; rocky hills; rocky hillsides; bouldery, rocky and gravelly slopes; alluvial fans; rocky alluvial fans; rocky bajadas; rocky outcrops; amongst boulders; plains; gravelly and sandy flats; basins; valley floors; along gravelly-sandy-loam roadsides; along rivers; along and in gravelly, gravelly-sandy and sandy washes; along drainages; sandy-silty depressions; along (sandy) banks of rivers and washes; along edges of washes; mudflats; rock shelves; sandy-loamy terraces; sandy and silty floodplains; sandy mesquite bosques; along edges of stock tanks; silty ditches; cobbly-sandy and sandy riparian areas, and disturbed areas growing in damp and dry bouldery, rocky, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly-sandy loam, sandy loam and loam ground; clay ground, and sandy silty ground, occurring from sea level to 5,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Boerhavia coulteri* is native to southwest-central and southern North America. *5, 6, 15, 16, 28 (color photograph 617), 43 (031110 - *Boerhavia coulteri* (Hook. f.) S. Watson), 44 (020713), 46 (Note alternate spelling: *Boerhaavia*, Page 276), 58, 63 (031110), 68, 77, **85** (031110 - color presentation), 140 (Page 177)*

Boerhavia erecta var. *intermediia* (see *Boerhavia intermedia*)

***Boerhavia intermedia* M.E. Jones: Fivewing Spiderling**

SYNONYMY: *Boerhavia erecta* C. Linnaeus var. *intermedia* (M.E. Jones) T.H. Kearney & R.H. Peebles. COMMON NAMES: Fine Winged Ring Stem; Fine-winged Ring Stem; Five-wing Spiderling; Five-wing Ringstem; Five-winged Ringstem; Fivewing Spiderling; Hamíp Caacöl (Seri); Intermediate Spiderling; Jone's Boerhavia ('Jone's' is an error); Jones' Boerhaavia; Jones' Boerhavia; Jones's Boerhaavia; Jones's Boerhavia; Makkom Jeej ("Mother of the Caterpillar" a name also applied to other species, Akimel O'odham & Hiá Ce□ O'odham)¹⁴⁰; Makkum Jeej ("Mother of the Caterpillar" a name also applied to other species, Akimel O'odham & Hiá Ce□ O'odham)¹⁴⁰; Mochi (a name also applied to other species, Spanish); Mochis (a name also applied to other species, Spanish); Spiderling (a name also applied to other species and the genus *Boerhavia*); Spreading Spiderling. DESCRIPTION: Terrestrial annual forb/herb (branched, spreading decumbent, ascending and/or erect stems 6 inches to 3 feet in height/length); the leaves are gray-green with purple edges; the tiny flowers may be cream, light lavender, light pink, pale pink-lavender, pink, pink-lavender, pink-white, pinkish, purple, purple-pink, reddish, rose-violet, white or white tinged with lavender and/or pink; flowering generally takes place between early July and mid-November (additional records: one for late April, one for early June and one for mid-June). HABITAT: Within the range of this species it has been reported from rocky mountains; bases of mountains; mesas; rocky canyons; gravelly canyon bottoms; sandy pockets in lava; ridges; foothills; rocky hills; rocky and gravelly hillsides; rocky, rocky-gravelly, gravelly, gravelly-loamy, sandy and silty slopes; alluvial fans; gravelly bajadas; rock outcrops; plains; silty flats; valley floors; along gravelly, gravelly-sandy-loamy and sandy-silty roadsides; within

sandy arroyos; bottoms of arroyos; ravines; along streams; along streambeds; along creeks; creekbeds; along and in gravelly, gravelly-sandy-silty and sandy washes; along drainages; sandy-silty depressions; edges of pools; loamy bottomlands; sandy floodplains; ditches; sandy riparian areas, and disturbed areas growing in dry bouldery-sandy, rocky, rocky-gravelly, shaley, gravelly and sandy ground; gravelly loam, gravelly-sandy loam and loam ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 6,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Boerhavia intermedia* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (031110), 44 (020913 - recorded as a synonym of *Boerhavia triquetera* var. *intermedia*), 46 (Note alternate spelling: *Boerhaavia*, Page 276), 58, 63 (020913), **85** (020913 - color presentation)*

***Boerhavia scandens* C. Linnaeus: Climbing Wartclub**

SYNONYMY: *Commicarpus scandens* (C. Linnaeus) P.C. Standley. COMMON NAMES: Bush Spiderling; Climbing Spiderling; Climbing Wartclub; Millona (Spanish: Mexico, Sonora, Navojoa, Rio Mayo Region); Miona (Spanish); Miona (Mayo)¹⁴⁰; Pega-polla; Sonorita (Spanish)¹⁴⁰; Wishbone Vine. DESCRIPTION: Terrestrial perennial forb/herb or vine (weak climbing, scrambling, sprawling erect stems 1 to 8 feet in height; usually found growing within and supported by other plants); the small flowers may be cream, cream-white, pale green, green, greenish, greenish-white, greenish-yellow, white, whitish-green or yellow-pink; flowering generally takes place between early April and mid-November (additional record: one for early January, two for mid-March, one for mid-December and one for late December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; cliffs; bases of cliffs; bouldery and rocky canyons; canyon walls; rocky canyon bottoms; rocky talus; buttes; rocky ledges; foothills; rocky hills; rocky hilltops; rocky hillsides; bouldery-gravelly, rocky, rocky-cobbly-gravelly, and gravelly slopes; gravelly alluvial fans; bajadas; rocky outcrops; amongst boulders; sand dunes; plains; sandy flats; basins; valley floors; beach dunes; coastal plains; coastal beaches; amongst sea-worn boulders; along gravelly-sandy and sandy roadsides; within rocky, stony, gravelly and sandy arroyos; rocky and sandy bottoms of arroyos; draws; along streambeds; along creeks; riverbeds; along and in gravelly and sandy washes; within rocky drainages; within drainage ways; ciénegas; borders of washes; edges of washes; along margins of washes; sides of washes; sandy beaches; benches; bottomlands; sandy floodplains; mesquite bosques; fencerows; rocky riparian areas, and disturbed areas growing in damp and dry bouldery, bouldery-gravelly, rocky, rocky-cobbly-gravelly, stony, gravelly, gravelly-sandy and sandy ground and gravelly loam ground, occurring from sea level to 6,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Often reported as growing up through and supported by shrubs. *Boerhavia scandens* is native to southwest-central and southern North America; Central America; South America, and coastal islands in the Caribbean Sea. *5, 6, 15, 16, 43 (031110), 44 (011111), 46 (recorded as *Commicarpus scandens* (L.) Standl., Page 277), 58 (recorded as *Commicarpus scandens* L.), 63 (020913 - color presentation), 77 (recorded as *Commicarpus scandens* (L.) Standl., color photograph #43 labeled *Commicarpus scandens*), **85** (021013 - color presentation), 115 (color presentation), 124 (110710 - no record, genus), 140 (recorded as *Commicarpus scandens* (Linnaeus) Standley, Pages 176 & 297)*

***Boerhavia spicata* J.D. Choisy: Creeping Spiderling**

SYNONYMY: *Boerhavia torreyana* (S. Watson) P.C. Standley; *Boerhavia watsonii* P.C. Standley. COMMON NAMES: Creeping Spiderling; Juanamipili (Spanish); Juananipili (Spanish); Makkumī Ha-jewe□ (“Caterpillar Their Mother [lit. Earth]” a name also applied to other species, Hiá Ce□ O’odham)¹⁴⁰; Mochi (a name also applied to other species, Spanish); Mochis (a name also applied to other species, Spanish); Spiderling (a name also applied to other species and the genus *Boerhavia*). DESCRIPTION: Terrestrial annual forb/herb (sparingly branched ascending and/or erect stems 1 to 5 feet in height/length); the leaves are green with purple margins; the tiny flowers may be cream, lavender, pale pink, pink, pinkish-white, white or white tinged with pink; the stigmas are white; flowering generally takes place between early July and early November (additional records: one for early June and one for mid-December). HABITAT: Within the range of this species it has been reported from mountains; mountain peaks; mesas; sandy rims of canyons; gravelly canyons; canyon walls; canyon bottoms; talus slopes; ridges; clayey ridgetops; meadows; foothills; rocky-gravelly hills; rocky, cindery, gravelly and sandy slopes; gravelly and sandy-loamy bajadas; bedrock and rocky outcrops; sand dunes; blow-sand deposits; gravelly, sandy-loamy and sandy plains; rocky-loamy, gravelly and sandy flats; basins; sandy valley floors; valley bottoms; along railroad right-of-ways; along gravelly-sandy, gravelly-loamy and sandy roadsides; sandy arroyos; gulches; within sandy ravines; along streambeds; along rivers; riverbeds; along and in gravelly and sandy washes; silty-clayey drainages; within drainage ways; depressions; banks of streams, rivers and washes; rocky-sandy shores of lakes; beaches; sandy benches; rocky shelves; sandy terraces; sandy bottomlands; sandy and silty floodplains; bosques; mesquite and acacia woodlands; cobbly-sandy riparian areas; waste places, and disturbed areas growing in moist and dry rocky, rocky-gravelly, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, sandy loam and silty loam ground; silty clay and clay ground, and silty ground, occurring from sea level to 6,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Boerhavia spicata* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (031210), 44 (021013 - no record of species; genus record), 46 (Note alternate spelling: *Boerhaavia*; recorded as *Boerhaavia spicata* Choisy, Page 276 and *Boerhaavia torreyana* (Wats.) Standl., Page 276), 58, 63 (021013 - color presentation), 77, **85** (021013 - color presentation), 140 (Pages 177 & 297)*

Boerhavia torreyana (see *Boerhavia spicata*)

Boerhavia triquetera var. *intermedia* (see footnote 44 under *Boerhavia intermedia*)

Boerhavia watsonii (see *Boerhavia spicata*)

Commicarpus scandens (see *Boerhavia scandens*)

Mirabilis bigelovii (see *Mirabilis laevis* var. *villosa*)

Mirabilis bigelovii var. *bigelovii* (see *Mirabilis laevis* var. *villosa*)

***Mirabilis laevis* (G. Bentham) M.C. Curran var. *villosa* (A. Kellogg) R.W. Spellenberg; Wishbone-bush**

SYNONYMY: *Mirabilis bigelovii* A. Gray; *Mirabilis bigelovii* A. Gray var. *bigelovii* A. Gray. COMMON NAMES: Bigelow Four O'clock; Desert Wishbone Bush; Piñagab (Uto-Aztec: Kawaiisu; for *M. laevis*)¹⁴⁰; Wishbone-bush; Wishbonebush. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (clumping or sprawling decumbent to erect stems 6 to 32 inches in height); the kidney-shaped leaves are dark green, the flowers are cream-white, lavender, magenta, pale pink, pink, white or whitish-cream; flowering generally takes place between late January and mid-May (additional records: one for early June, one for late June, one for mid-August, one for late August, one for early September, one for mid-September, one for late September, one for early October, two for mid-October, seven for late October, two for mid-November, three for late November and two for early December; flowering has been reported as occurring throughout the year with the heaviest show of flowers in the spring). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; cliffs; along rocky canyons; canyon bottoms; scree; bases of cliffs; crevices in rocks; buttes; rocky ridges; rocky ridgetops; meadows; rocky hills; hilltops; bouldery-rocky, rocky and gravelly hillsides; rocky slopes; gravelly bases of slopes; bajadas; bouldery outcrops; amongst boulders and rocks; plains; flats; gravelly-sandy valley floors; along roadsides; along arroyos; draws; springs; rocky-sandy streambeds; along and in gravelly-sandy and sandy washes; drainages; rocky drainage ways; borders of washes; shores of lakes; riparian areas and disturbed areas growing in dry bouldery, bouldery-rocky, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy soils and rocky loam and gravelly loam soils, occurring from below sea level to 7,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The herbage is reportedly very sticky. *Mirabilis laevis* var. *villosa* is native to southwest-central and southern North America. *5, 6, 18 (genus), 28 (recorded as *Mirabilis bigelovii*, color photograph), 43 (071010), 46 (recorded as *Mirabilis bigelovii* Gray, Page 272), 63 (071010 - color presentation), 77 (recorded as *Mirabilis bigelovii*, (color photograph #44), 85 (071010 - color presentation, unable to access species information), 115 (color presentation of the species), 140 (Page 297)*

Oleaceae: The Olive Family

***Fraxinus* C. Linnaeus: Ash**

COMMON NAMES: Ash; Ash Tree; Fresno (Spanish). *42 (062913), 43 (062913), 44 (062913), 46 (Pages 641-642), 63 (062913), 85 (062913 - color presentation), **HR***

Fraxinus pennsylvanica var. *velutina* (see *Fraxinus velutina*)

***Fraxinus velutina* J. Torrey: Velvet Ash**

SYNONYMY: *Fraxinus pennsylvanica* H. Marshall var. *velutina* (J. Torrey) G.S. Miller; *Fraxinus velutina* J. Torrey var. *coriacea* (S. Watson) A. Rehder; *Fraxinus velutina* J. Torrey var. *glabra* A. Rehder; *Fraxinus velutina* J. Torrey var. *toumeyi* (N.L. Britton) A. Rehder. COMMON NAMES: Arizona Ash; Arizona [Desert, Toumey, Velvet] Ash (English)¹⁴⁰; Arizona Velvet Ash; Arizona-Esche (German); Bitoi <pitoi> (Uto-Aztec: Akimel O'odham, Hiá Ceñ O'odham, Tohono O'odham); Botavaras (Spanish: Sonora)¹⁴⁰; Dahba' <dabbañ> (Athapascan: Navajo)¹⁴⁰; Desert Ash (a name also applied to other species); Fresno ("Ash" a name also applied to the genus *Fraxinus*, Spanish); Fresno [Terciopelo] ("[Velvet] Ash", Spanish: Arizona, New Mexico, Texas, Mexico)¹⁴⁰; Im'val (Yuman: Walapai)¹⁴⁰; Leather Leaf Ash; Leather-leaf Ash; Leather-leaved Ash; Leatherleaf Ash; MøRc (Yuman: Maricopa)¹⁴⁰; Pávlas (Uto-Aztec: Luiseño)¹⁴⁰; Piichai (Uto-Aztec: Mountain Pima)¹⁴⁰; Pimaráakârâ (Uto-Aztec: Comanche)¹⁴⁰; Pitai <potoi> (Uto-Aztec: Nevome); Pitai <petai> (Uto-Aztec: Northern Tepehuan)¹⁴⁰; Smooth Ash; Terciopelo Fresno ("Velvet Ash", Spanish: Arizona, New Mexico, Texas, Mexico); Toumey Ash; Uré (Uto-Aztec: Tarahumara)¹⁴⁰; Velvet Arizona Ash; Velvet Ash; Western Ash. DESCRIPTION: Terrestrial perennial deciduous tree (40 inches to 65 feet in height with a rounded crown of up to 30 to 40 feet in width; one plant was observed and described as being 40 inches in height with a crown about 40 inches in width, one plant was observed and described as being 8 feet in height with a crown 8 feet in width, one plant was observed and described as being 26 feet in height with a crown 26 feet in width); the fissured bark is pale gray, gray or dark gray; the leaves may be are green or yellow-green turning yellow in the fall; female (green or greenish) and male (yellow) flower parts are born on separate trees and appear before the leaves; flowering generally takes place between late February and early June (additional records: one for early July, two for mid-July, one for early August, one for mid-August, two for early October and two for early November); the oblong-ovate fruits (¾ to 1¼ inch in length) are winged samaras. HABITAT: Within the range of this species it has been reported from reported from mountains; rocky mountainsides; hanging gardens; bases of cliffs; rocky, sandy and loamy canyons; rocky, rocky-sandy, gravelly and sandy canyon bottoms; chasms; gorges; clayey and silty-clayey talus slopes; rockslides; rocky ledges; ridges; gravelly-loamy meadows; clayey-loamy foothills; rocky hills; along hillsides; rocky, rocky-gravelly, rocky-loamy, rocky-clayey-loamy, gravelly, gravelly-sandy,

gravelly-loamy, sandy-loamy and loamy slopes; amongst rocks; flats; sandy uplands; basins; valley floors; gravelly-loamy roadsides; within rocky arroyos; along arroyo bottoms; draws; rocky gulches; within bouldery ravines; bottoms of ravines; seeps; around and in springs; sandy soils along streams; along and in rocky, rocky-sandy-loamy, gravelly-sandy and sandy-loamy streambeds; along creeks; along and in rocky and gravelly-sandy creekbeds; along rivers; along bouldery-cobbly-sandy and sandy riverbeds; along and in cobbly, gravelly and sandy washes; along and in drainages; along and in drainage ways; along watercourses; around pools; dry cobbly pondbeds; ciénegas; swales; along (bouldery, rocky, gravelly-loamy and sandy) banks of streams, creeks, rivers and drainages; borders of washes; (rocky-sandy) edges of streams, creeks, creekbeds, rivers, washes and drainage ways; shores of rivers; sandy benches; terraces; rocky-sandy-loamy and sandy bottomlands; sandy floodplains; edges of reservoirs; bouldery-cobbly-sandy, gravelly-sandy and sandy riparian areas, and disturbed areas growing in muddy-sandy and moist, damp and dry (seasonally wet) bouldery, bouldery-cobbly-sandy, rocky, rocky-gravelly, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy loam, rocky-clayey loam, gravelly loam, sandy loam, clayey loam and loam ground, and silty clay and clay ground, occurring from sea level to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used in the making of tools and bows. The Yggdrasill is an evergreen ash tree which is believed to be the “world tree” of the Norse. Use as a specimen plant in a large area and as a re-vegetation plant for the areas immediately adjacent to the main channel of streams, creeks and rivers, requires regular watering. Birds and other wildlife feed on the seeds. Native Velvet Ash trees are indicators of permanent near surface water or areas of historical near surface water. When restoring the floodplains of major river systems consider including the following plants in the mix if they have been recorded from this township: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Nettle Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*) and Fremont Cottonwood (*Populus fremontii*). *Fraxinus velutina* is native to southwest-central and southern North America. *5, 6, 13, 15, 18, 26 (color photograph), 28 (recorded as *Fraxinus pennsylvanica* ssp. *velutina*, color photograph 106), 30, 43 (072609), 44 (090211), 46 (recorded as *Fraxinus velutina* Torr. var. *coriacea* (Wats.) A. Rehder; *Fraxinus velutina* Torr. var. *glabra* Rehder, and *Fraxinus velutina* Torr. var. *toumeyii* (Britton) Rehder, Page 642), 48, 52 (color photograph), 53, 58, 63 (021113 - color presentation), **85** (021113 - color presentation), 115 (color presentation), 124 (090211 - no record of species; genus record), 127, 140 (Pages 180-181 & 297)*

Fraxinus velutina var. *coriacea* (see *Fraxinus velutina*)

Fraxinus velutina var. *glabra* (see *Fraxinus velutina*)

Fraxinus velutina var. *toumeyii* (see *Fraxinus velutina*)

***Menodora scabra* A. Gray: Rough Menodora**

SYNONYMY: *Menodora scoparia* G. Engelmann ex A. Gray. COMMON NAMES: Broom Menodora; Bull Balls; Rough Desert Olive; Rough Desert-olive; Rough Menodora; Rough Twinberry; Scabrous Menodora; Twinberry (a name also applied to other species); Twinfruit; Yellow Menodora. DESCRIPTION: Terrestrial perennial deciduous forb/herb or subshrub (6 inches to 4 feet in height; one plant was observed and described as being 12 inches in height with a crown 16 inches in width, one plant was described as being 12 to 16 inches in height with a crown 8 to 12 inches in width); the older bark is dark gray; the stems are green or green-yellow; the leaves are grayish-green, green or green-yellow; the flowers are white or yellow; flowering generally takes place between early March and late November (additional record: one for mid-February). HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; rocky and stony mountainsides; bouldery crags; bouldery mesas; cliffs; rocky canyons; along rocky and gravelly canyon bottoms; gorges; rocky talus slopes; bluffs; rocky buttes, rocky-sandy and sandy ridges; rocky and shaley-cobbly ridgetops; meadows; foothills; rocky, sandy and clayey hills; talus hills; rocky and gravelly hilltops; rocky and gravelly-clayey hillsides; sandy edges of escarpments; bedrock, bouldery, rocky, rocky-gravelly, rocky-sandy, rocky-clayey, rocky-clayey-loamy, cindery, gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy, clayey and clayey-loamy slopes; gravelly and sandy bajadas; rocky outcrops; amongst rocks; sandy plains; rocky, cindery, gravelly, sandy, clayey and clayey-loamy flats; cindery valley floors; along rocky-gravelly-sandy-clayey-loamy, rocky-sandy-loamy, gravelly, gravelly-sandy and gravelly-sandy loamy roadsides; sandy arroyos; bottoms of arroyos; gullies; springs;

creekbeds; along rocky, gravelly, sandy and humusy-loamy washes; within drainages; (clayey) edges of washes and drainage ways; borders of washes; along margins of washes; benches; rocky-sandy terraces; floodplains; bouldery-cobbly-sandy riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery, bouldery-cobbly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-cobbly, shaley-sandy, stony, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy-clayey loam, rocky-sandy loam, rocky-clayey loam, gravelly loam, gravelly-sandy loam, sandy-clayey loam, clayey loam and humusy loam ground, and rocky clay, gravelly clay, silty clay and clay ground, occurring from 1,100 to 8,000 feet in elevation in the forest, woodland scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. Rough Menodora is an important browse plant for wildlife. *Menodora scabra* is native to southwest-central and southern North America. *5, 6, 13, 15, 16, 28 (color photograph 364), 43 (031310), 44 (011111), 46 (recorded as *Menodora scabra* Gray, Page 644 and *Menodora scoparia* Engelm., Page 644), 48, 63 (021113 - color presentation), 77, 85 (021113 - color presentation), 86 (color photograph), 115 (color presentation), 124 (110710 - no record of species or genus), 127, **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Menodora scoparia (see *Menodora scabra*)

Onagraceae: The Evening-primrose Family

***Camissonia californica* (T. Nuttall ex J. Torrey & A. Gray) P.H. Raven: California Suncup**

SYNONYMY: *Eulobus californicus* T. Nuttall ex J. Torrey & A. Gray; *Oenothera leptocarpa* E.L. Greene. COMMON NAMES: California Evening Primrose (a name also applied to other taxa); California Eveningprimrose (a name also applied to other taxa); California False Mustard; California False-mustard; California Mustard Evening Primrose; California Mustard Evening-primrose; California Primrose; California Suncup (a name also applied to other taxa); False-mustard Camissonia; False-mustard Primrose; Mustard Camissonia; Mustard Evening Primrose; Mustard Evening-primrose; Mustard Primrose; Mustard-like Camissonia; Mustard-like Evening Primrose; Mustard-like Evening-primrose; Mustard-like Primrose; Sun-drops (Sundrops is a name that is also applied to other taxa). DESCRIPTION: Terrestrial annual or perennial forb/herb (erect stems 2 to 69 inches in height); the foliage is gray-green; the flowers may be golden-yellow, orange-rust, orange-yellow, pink-yellow, reddish-orange, rust-orange, yellow or yellow-orange ageing to orange, pink or reddish; flowering generally takes place between late January and mid-July. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; stony mountain passes; rocky mesas; plateaus; rocky cliffs; rocky chutes; rocky-silty and gravelly canyons; along canyon walls; rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-loamy canyon bottoms; talus slopes; bouldery, rocky, rocky-sandy, shaley, stony, gravelly-sandy, sandy, clayey-loamy and loamy ridges; silty ridgetops; foothills; bouldery, rocky and sandy hills; rocky hillsides; along bouldery, bouldery-rocky-gravelly-sandy, bouldery-gravelly, bouldery-gravelly-sandy, rocky, rocky-sandy, rocky-loamy-clayey, cobbly-sandy-loamy, gravelly, gravelly-sandy, sandy, loamy-clayey, clayey and silty slopes; bases of slopes; bouldery-stony-gravelly-sandy and rocky alluvial fans; bajadas; bouldery and rocky outcrops; amongst boulders and rocks; sandy lava flows; sand dunes; gravelly and gravelly-sandy plains; gravelly-sandy and sandy flats; valley floors; coastal shorelines; along rocky-sandy-clayey, gravelly and sandy roadsides; arroyos; along bottoms of arroyos; sandy draws; around seeping streams; along streams; gravelly-sandy streambeds; in gravel and sand along creeks; along and in gravelly-sandy creekbeds; in sand along rivers; riverbeds; along and in bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; waterholes; (gravelly and sandy) banks of arroyos, creeks, rivers and washes; edges of rivers and washes; margins of washes; sand bars; rocky-sandy benches; gravelly berms; sandy terraces; bottomlands; sandy floodplains; gravelly-sandy stock tanks; within ditches; gravelly-sandy riparian areas; recently burned areas in woodlands, scrub and wetlands, and disturbed areas growing in muddy and wet, moist and dry bouldery, bouldery-rocky-gravelly, bouldery-rocky-gravelly-sandy, bouldery-stony-gravelly-sandy, bouldery-gravelly, bouldery-gravelly-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, cindery, cindery-sandy, gravelly, gravelly-sandy and sandy ground; cobbly-sandy loam, sandy loam, clayey loam and loam ground; rocky-sandy clay, rocky-loamy clay, loamy clay and clay ground, and rocky-silty and silty ground, occurring from sea level to 5,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Camissonia californica* is native to southwest-central and southern North America. *5, 6, 15, 16, 28 (color photograph), 43 (031310), 44 (021213 - records located under *Eulobus californicus*), 46 (*Oenothera leptocarpa* Greene, Page 599), 48 (genus, *Oenothera* spp.), 58, 63 (021213 - color presentation), 77 (color photograph #46), **85** (021213 - color presentation), 115 (color presentation), 140 (Page 297)*

***Camissonia chamaenerioides* (A. Gray) P.H. Raven: Longcapsule Suncup**

SYNONYMY: *Oenothera chamaenerioides* A. Gray. COMMON NAMES: Desert Evening Primrose; Long-capsule Suncup; Long-capsuled Primrose; Longcapsule Suncup; Long-fruit Suncup; Willow-herb Primrose; Willowherb Suncup. DESCRIPTION: Terrestrial annual forb/herb (erect stems 4 to 16 inches in height); the stems are pink, purple-red or red; the leaves may be green (with red spots or tipped with red), purple, red or reddish; the tiny flowers may be cream, pink, pink-white, pinkish-white, purple, white, white-cream, white-pink, whitish-yellow or yellow; flowering generally takes place between early February and early June (additional record: one for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky mesas; rock walls; bases of cliffs; rocky canyons; rocky canyon bottoms; gorges; rocky and shaley talus slopes; crevices in boulders and rocks; knolls; rocky ledges; gravelly ridges; rocky ridgetops;

gravelly-clayey-loamy foothills; gravelly hills; rocky hillsides; rocky, rocky-stony, gravelly and sandy slopes; bouldery-rocky-cobbly alluvial fans; bajadas; rocky and rocky-shaley outcrops; bases of boulders; along lava slides; breaks; gravelly, sandy and silty flats; basins; along bouldery, gravelly and sandy roadsides; rocky arroyos; rocky draws; gulches; springs; along streams; in gravel and sand along creeks; along rivers; riverbeds; along and in bouldery, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; drainages; silty depressions; (cobbly, gravelly and sandy) banks of streams and washes; (cobbly) edges of washes; margins of washes; gravelly benches; shelves; bottomlands; sandy floodplains; gravelly-sandy and silty-loamy riparian areas, and disturbed areas growing in dry stony desert pavement; bouldery, bouldery-rocky-cobbly, rocky, rocky-shaley, rocky-stony, rocky-sandy, shaley, cobbly, cindery-sandy, gravelly, gravelly-sandy, gravelly-sandy-silty and sandy ground; gravelly-clayey loam and silty loam ground, and gravelly-sandy silty and silty ground, occurring from sea level to 6,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Camissonia chamaenerioides* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (031310), 44 (073111 - no records listed under Common Names; genus record), 46 (recorded as *Oenothera chamaenerioides* Gray, Page 600), 48 (genus, *Oenothera* spp.), 63 (021213), 77, **85** (021213 - color presentation), 124 (073111 - no record of species or genus), 140 (Page 297)*

Eulobus californicus (see *Camissonia californica*)

Gaura mollis (see *Gaura parviflora*)

***Gaura parviflora* D. Douglas ex J.G. Lehmann: Velvetweed**

SYNONYMY: *Gaura mollis* T.P. James, nom. rej.; *Gaura parviflora* D. Douglas ex J.G. Lehmann var. *lachnocarpa* C.A. Weatherby; *Gaura parviflora* D. Douglas ex J.G. Lehmann var. *typica* P.A. Munz. COMMON NAMES: Butterfly Weed (a name also applied to the genus *Gaura*); Downy Gaura; Elk Antlers (Weld County, Colorado); Linda Tarde (Spanish); Lizard Tail; Lizard-tail; Lizard's Tail; Lizardtail; Lizardtail Gaura; Small-flower Gaura; Small-flowered Gaura; Smallflower Gaura; Smallflowered Gaura; Tall Gaura; Velvet Leaf Gaura; Velvet-leaf Gaura; Velvet Leaved Gaura; Velvet Weed; Velvetweed; Velvety Gaura; Willow Gaura; Willow-weed. DESCRIPTION: Terrestrial annual forb/herb (erect stems 1 to 10 feet in height); the leaves are dark green; the tiny flowers (on a spikelike raceme 8 to 12 inches in length) may be cream, creamy-white, lavender, maroon, pink, pink-orange, pinkish, purple, dark red, reddish, white or whitish-pink; the anthers may be bright pink; flowering generally takes place between mid-March and early November (additional records: one for early January and one for late January). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mesas; sandy canyons; rocky canyon walls; canyon bottoms; clayey bluffs; meadows; foothills; sand hills; rocky hillsides; slopes; sandy benches; prairies; plains; clayey flats; basins; valley floors; valley bottoms; along railroad right-of-ways; along rocky, gravelly, gravelly-sandy and gravelly-loamy roadsides; sandy arroyos; sandy bottoms of arroyos; gulches; seeps; springs; hot springs; along streams; along creeks; creekbeds; along rivers; riverbeds; along and in sandy washes; within rocky drainages; along lakes; silty playas; ciénegas; marshes; swampy areas; swales; along banks of streams, creeks and rivers; along margins of rivers and washes; (sandy) shores of rivers and lakes; benches; gravelly, sandy and loamy terraces; sandy bottomlands; clayey floodplains; lowlands; mesquite bosques; along fencerows; borders of stock tanks; along canals; along canal banks; along ditches; sandy and clayey-loamy ditch banks and edges; clayey riparian areas; waste places, and disturbed areas growing in muddy and wet, moist, damp and dry rocky, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam, clayey loam and loam ground; clay ground, and sandy-silty and silty ground, occurring from sea level to 7,800 feet in elevation in the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a dug or medication and for protection (during the Fire Dance at the Mountain Chant). *Gaura mollis* is native to south-central and southern North America. *5, 6, 15, 28 (color photograph 582), 43 (031410), 44 (021513 - no records listed under Common Names for the species or genus), 46 (Page 603), 58, 63 (021513 - color presentation), 68, 77, **85** (021613 - color presentation), 101 (color photograph), 106 (031410), 115 (color presentation), 124 (080111), 127*

Gaura parviflora var. *lachnocarpa* (see *Gaura parviflora*)

Gaura parviflora var. *typica* (see *Gaura parviflora*)

Oenothera chamaenerioides (see *Camissonia chamaenerioides*)

Oenothera leptocarpa (see *Camissonia californica*)

***Oenothera primiveris* A. Gray: Desert Evening Primrose**

COMMON NAMES: Bottle Evening Primrose; Bottle Evening-primrose; [Yellow] Desert [Evening] Primrose (English)¹⁴⁰; Desert Evening Primrose (a name also applied to other taxa); Desert Evening-primrose (a name also applied to other taxa); Desert Eveningprimrose; Early Evening Primrose; Early Evening-primrose; Flor de San Juan ("St. John's Flower", Spanish: New Mexico, Mexico)¹⁴⁰; Hierba de Asno ("Ass's Herb", Spanish: Spain)¹⁴⁰; Large Yellow Desert Evening-primrose; Large Yellow Desert Primrose; Large Yellow Primrose; Onagra (Spanish)¹⁴⁰; Poliisi <poli:si> (Uto-Aztecan: Hopi; for white-flowered species)¹⁴⁰; Spring Evening Primrose; Spring Evening-primrose; Sun-drops (subsp. *primiveris*); Sundrop; Tł'ée Gogáhá <tł'ée'yigáahii, y'é□ígahi> ("One That Becomes White", Athapascan: Western Apache)¹⁴⁰; Tł'ée'yigáhí <tł'ée'yigáahii,

y'éíghahí> (“One That Becomes White At Night”, Athapascan: Navajo)¹⁴⁰; Tlonaitzui (“Plant With Yellow Flowers”, Athapascan: Chiricahua and Mescalero Apache)¹⁴⁰; Vippi Si'idam (“Sucking At The Breast”, Uto-Aztecan: Akimel O'odham)¹⁴⁰; Wipi Si'idam (“Breast Sucker”, Uto-Aztecan: Tohono O'odham)¹⁴⁰; Yellow Desert Evening Primrose; Yellow Desert Evening-primrose; Yellow Desert Primrose (a name also applied to other taxa); Yellow Sun Cups; Yellow-flower Desert Evening-primrose. DESCRIPTION: Terrestrial annual forb/herb (tufted acaulescent and cespitose 2 to 8 inches in height; note: several skeletons were observed and described as being 15 inches in height and branched at the base); the basal rosettes of leaves are green with purple blotches or greenish-gray; the flowers may be cream, lemon-yellow (subsp. *bufonis*), white or yellow fading to pink, pinkish or white; flowering generally takes place between early January and late May (additional records: one for mid-August and one for late August); the fruits are tear-drop shaped. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; gravelly mesas; cliffs; bases of cliffs; rocky and sandy canyons; canyon bottoms; crevices in rocks; meadows; gravelly foothills; rocky, gravelly, sandy and silty hills; rocky hillsides; rocky, rocky-cobbly-gravelly, rocky-loamy, gravelly, gravelly-sandy, gravelly-sandy-silty, sandy, sandy-loamy and silty slopes; rocky and sandy alluvial fans; gravelly and sandy bajadas; rocky outcrops; amongst rocks; sand dunes; cobbly, sandy and sandy-silty plains; rocky, gravelly, sandy and sandy-loamy flats; stony-silty basins; sandy and sandy-clayey-loamy valley floors; valley bottoms; sandy coastal flats; along railroad right-of-ways; along bouldery-silty-clayey-loamy, rocky-sandy, gravelly-sandy-loamy and sandy roadsides; sandy arroyos; along gravelly bottoms of arroyos; along draws; along creeks; along and in creekbeds; along rivers; riverbeds; along and in gravelly, gravelly-sandy and sandy washes; clayey and silty playas; clayey depressions; swales; along (sandy) banks of arroyos, streams, creeks and washes; (sandy) margins of lake beds; sandy benches; gravelly, gravelly-sandy and sandy terraces; bottomlands; mesquite woodlands; gravelly-sandy and sandy riparian areas, and disturbed areas growing in moist and dry rocky, rocky-cobbly-gravelly, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; bouldery-silty-clayey loam, rocky loam, gravelly loam, sandy loam and sandy-clayey loam ground; clay ground, and stony silty, gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 9,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, the flowers open in the evening and close the following morning. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. Consider seeding this plant between Creosote Bushes in your landscaping. *Oenothera primiveris* is native to southwest-central and southern North America. *5, 6, 15, 16, 18 (genus), 28 (color photograph 338), 43 (031510), 44 (022013 - color photograph), 46 (recorded as *Oenothera primiveris* Gray, Page 598 and *Oenothera primiveris* Gray var. *caulescens* Munz, Page 598), 48 (genus, *Oenothera* spp.), 58, 63 (022013 - color presentation), 77, 85 (022113 - color presentation), 115 (color presentation), 124 (080111 - no record of species; genus record), 127, 140 (Page 182-183 & 297), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Oenothera primiveris* A. Gray subsp. *primiveris*: Desert Evening-primrose**

SYNONYMY: *Oenothera primiveris* A. Gray var. *caulescens* P.A. Munz. COMMON NAMES: Desert Evening-primrose (a name also applied to the species and to other species); Evening Primrose (a name also applied to the species, the genus *Oenothera* and to the Onagraceae); Large Yellow Desert Primrose (a name also applied to the species); Sun-drops; Sundrop (a name also applied to the species); Typical Bottle Evening Primrose; Typical Bottle Evening-primrose; Typical Early Evening Primrose; Typical Early Evening-primrose; Typical Large Yellow Desert Evening-primrose; Typical Large Yellow Desert Primrose; Typical Large Yellow Primrose; Typical Spring Evening Primrose; Typical Spring Evening-primrose; Typical Yellow Desert Evening Primrose; Typical Yellow Desert Evening-primrose; Typical Yellow Sun Cups; Typical Yellow-flower Desert Evening-primrose; Yellow Desert Primrose (a name also applied to the species and other species). DESCRIPTION: Terrestrial annual forb/herb (acaulescent and cespitose to 4 inches in height); the flowers are cream-yellowish, white or yellow; flowering generally takes place between early February and early May (additional records: two for mid-January and one for early June). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; bases of cliffs; rocky canyons; bluffs; gravelly foothills; sandy hills; rocky, sandy and sandy-loamy hillsides; rocky and gravelly slopes; gravelly bajadas; sandy lava flows; sand dunes; sandy banks; plains; rocky, gravelly and sandy flats; valley bottoms; along railroad right-of-ways; along sandy roadsides; along draws; along streams; along creeks; along rivers; sandy riverbeds; along sandy washes; (sandy) edges of creeks and riverbeds; gravelly terraces; sandy-clayey bottomlands; riparian areas, and disturbed areas growing in dry rocky, gravelly and sandy ground and gravelly loam, sandy loam and loam ground, occurring from 200 to 5,400 feet in elevation in the grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Oenothera primiveris*, was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Oenothera primiveris* subsp. *primiveris* is native to southwest-central and southern North America. *5, 6, 18 (genus), 28 (species, color photograph of the species 338), 43 (031510 - *Oenothera primiveris* var. *caulescens* Munz), 44 (022013), 46 (recorded as *Oenothera primiveris* Gray var. *caulescens* Munz, Page 598), 48 (genus, *Oenothera* spp.), 63 (022013 - color presentation), **85** (022113 - color presentation), 115 (color presentation of the species), 124 (080111 - no record of species; genus record), 127 (species)*

Oenothera primiveris var. *caulescens* (see *Oenothera primiveris* subsp. *primiveris*)

Papaveraceae: The Poppy Family

***Eschscholzia californica* L.K. von Chamisso subsp. *mexicana* (E.L. Greene) J.C. Clark: California Poppy**

SYNONYMY: *Eschscholzia mexicana* E.L. Greene. COMMON NAMES: Amapola Amarilla (a name also applied to the species, Spanish); Amapolita del Campo (Spanish); Amopola del Campo (“Poppy of the Countryside” a name also applied to the species, Hispanic); Amopola del Campo (“Wild Poppy”, Spanish: Sonora)¹⁴⁰; Atóšānat (Uto-Aztecan: Luiseño; Taróoshant in the Juaneño dialect)¹⁴⁰; California Poppy (a name also applied to the species and to the genus *Eschscholzia*); California Poppy (English)¹⁴⁰; Desert California Poppy; Desert Gold Poppy; Gold Poppy (a name also applied to the species and to the genus *Eschscholzia*); Hiyog^{iv}□ (Uto-Aztecan: Kawaiisu)¹⁴⁰; Ho:hī ‘E’es <ho:hī e’es, hahdkos> (Uto-Aztecan: Tohono O’odham)¹⁴⁰; Ho:hoi ‘E’es (“Mourning Dove’s Plant”, Uto-Aztecan: Hiá Ce□ O’odham)¹⁴⁰; Hoohi E’es (“Mourning Dove’s Plant”, Uto-Aztecan: Akimel O’odham; Arizona)¹⁴⁰; Huicoñil (Yuki: Yuki)¹⁴⁰; Mexican California Poppy; Mexican Gold; Mexican Gold Poppy; Mexican Gold-poppy; Mexican Goldpoppy; Mexican [Gold-] Poppy (English)¹⁴⁰; Mexican Golden Poppy); Mexican Poppy; Mexican-gold; Mexican Golden-poppy; Mexican Goldenpoppy; Poppy (a name also applied to the species and to the Papaveraceae); Tesinat (Uto-Aztecan: Cahuilla)¹⁴⁰; Yogobul (Uto-Aztecan: Tübatulabal)¹⁴⁰. DESCRIPTION: Terrestrial annual [usually] or perennial [sometimes] forb/herb (erect stems 1 inch to 2 feet in height); the herbage is gray-green; the flowers (fasciated and double flowers were reported) may be cream, creamy-white, golden-orange, golden-yellow, lemon-yellow, orange, orange-yellow, orange-yellow with an orange center, orangish-yellow, pink & white, pumpkin-gold, white, white-pink, yellow or yellow-orange sometimes reported with an orange base; flowering generally takes place between early January and mid-July (additional record: one for mid-September; the peak blooming period generally occurs between early March and late March reaching its peak in mid-March in the Tucson area). HABITAT: Within the range of this species it has been reported from rocky mountains; rocky mountainsides; sandy-clayey-loamy mesas; cliffs; rocky, rocky-gravelly and rocky-sandy canyons; sandy-loamy canyon bottoms; chasms; talus slopes; bases of cliffs; buttes; rocky and sandy ridges; ridgetops; foothills; rocky and gravelly-loamy hills; bouldery and rocky hillsides; along rocky, along rocky, rocky-clayey, gravelly, gravelly-sandy, sandy and loamy slopes; rocky-sandy alluvial fans; gravelly bajadas; rocky outcrops; amongst rocks and gravels; sand dunes; grassy banks; gravelly and sandy plains; rocky-clayey, gravelly, sandy and sandy-silty flats; valley floors; valley bottoms; along railroad right-of-ways; along rocky, rocky-gravelly, rocky-sandy, gravelly and sandy roadsides; sandy arroyos; along bottoms of draws; along streams; rocky-sandy creekbeds; along rivers; riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; along gravelly drainages; (gravelly-sandy, sandy, clayey and silty) banks of streams, rivers and washes; borders of washes; gravelly terraces; clayey bottomlands; mesquite bosques and woodlands; gravelly, gravelly-sandy and sandy riparian areas, and disturbed areas growing in wet and dry bouldery, rocky, rocky-gravelly, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam and loam ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 6,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The species, *Eschscholzia californica*, was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication and as a food; however, it has been reported as being poisonous to humans. This plant is food for quail, Mule Deer (*Odocoileus hemionus crooki*) and White-tailed Deer (*Odocoileus virginianus couesi*) and the Mourning Dove (*Zenaidura macroura*) feeds on the seeds. *Eschscholzia californica* subsp. *mexicana* is native to southwest-central and southern North America. *5, 6, 15, 16, 18, 28 (recorded as *Eschscholzia mexicana*, color photograph 530), 43 (031610), 44 (022713 - no listings recorded under Common Names see species records), 46 (recorded as *Eschscholzia mexicana* Greene, Page 323), 48, 58, 63 (022713 - color presentation including habitat), 77 (recorded as *Eschscholzia mexicana*, color photograph #47), 85 (030213 - color presentation), 86 (recorded as *Eschscholzia mexicana*, color photograph), 115 (color presentation), 124 (110710 - no record, genus, species), 127 (species), 140 (140 (Pages 187-188 & 297 - recorded as *Eschscholzia californica* Chamisso subsp. *mexicana* (Greene) C. Clark), 142*

Eschscholzia mexicana (see *Eschscholzia californica* subsp. *mexicana*)

***Platystemon californicus* G. Bentham: Creamcups**

COMMON NAMES: California Cream Cup; California Cream Cups; California Cream-cup; California Cream-cups; California Creamcup; California Creamcups; Californian Cream-cups; Cream Cup (a name also applied to the genus *Platystemon*); Cream Cups (a name also applied to the genus *Platystemon*); Cream-cup (a name also applied to the genus *Platystemon*); Creamcups (Cream-cup is a name also applied to the genus *Platystemon*); Creamcup (a name also applied to the genus *Platystemon*); Creamcups (Creamcup is a name also applied to the genus *Platystemon*); Kaliforniavallmo (Swedish). DESCRIPTION: Terrestrial annual forb/herb (erect many stemmed 2 to 14 inches in height); the leaves may be gray-green or are grayish-green; the wind-pollinated flowers may be pale cream, cream, cream with yellow tipped petals, cream-yellow, creamy-white, gold (rarely), white, white-cream, white-yellow, whitish, pale yellow, pale yellow-cream, yellow, bright yellow, yellow-cream or yellow & white, sometimes aging with a red tinge; flowering generally takes place between mid-February and early July (additional record: one for mid-September). HABITAT: Within the range of this species it has been reported from mountains, rocky mountainsides; plateaus; along sandy canyons; sandy canyon bottoms; ridges; sandy meadows; foothills; rocky and sandy hills; bases of hills; rocky and rocky-sandy hillsides; bouldery, rocky, rocky-gravelly-clayey, gravelly, sandy, loamy, clayey and clayey-loamy slopes; bases of slopes; sandy alluvial fans; bajadas; rocky outcrops; sand dunes; fields; sandy and loamy flats; uplands; valley floors; sandy valley bottoms; grassy roadcuts; along rocky and sandy roadsides; arroyos; within ravines; along streams; streambeds; along creeks; riverbeds; along and in gravelly and sandy washes; dried vernal pools; clayey-loamy depressions; along (gravelly) banks of streams and rivers; along (sandy) edges of streams and washes; benches; terraces; sandy bottomlands; floodplains; mesquite bosques; gravelly riparian areas; recently burned areas in chaparral and coastal sage scrub, and disturbed areas growing in moist, damp and dry bouldery, rocky, rocky-sandy, gravelly and sandy ground; clayey loam and

loam ground, and rocky-gravelly clay and clay ground, occurring from sea level to 8,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Platystemon californicus* is native to southwest-central and southern North America. *5, 6, 15, 28 (color photograph 388), 43 (031610), 44 (030313), 46 (Page 322), 63 (030313 - color presentation), 85 (030313 - color presentation), 86 (color photograph), 115 (color presentation), 124 (110710 - no record), 127, 140 (Page 297)*

Plantaginaceae: The Plantain Family

Plantago fastigiata (see *Plantago ovata*)

Plantago insularis (see *Plantago ovata*)

Plantago insularis var. *fastigiata* (see *Plantago ovata*)

***Plantago ovata* P. Forsskål: Desert Indianwheat**

SYNONYMY: *Plantago fastigiata* E.L. Morris; *Plantago insularis* A. Eastwood; *Plantago insularis* A. Eastwood var. *fastigiata* (E.L. Morris) W.L. Jepson. COMMON NAMES: Ataxén (Seri, also shown as being spelled Hataxén for *Plantago ovata* var. *fastigiata* (Morris) Meyers & Liston); Blond Plantain; Blond Psyllium; Blonde Espaghula; Blonde Ispaghula; Blonde Plantain; Blonde Psyllium; Desert Indian Wheat (not recommended); Desert Indian-wheat (not recommended); Desert Indianwheat (not recommended); Fleaseed; Fleawort; Hataxén (Seri, also shown as being spelled Ataxén for *Plantago ovata* var. *fastigiata* (Morris) Meyers & Liston); Indian Plantago; Indian Plantain; Indian Wheat (a name also applied to other taxa, not recommended); Indian-wheat (a name also applied to other taxa, not recommended); Indianwheat (a name also applied to other taxa, not recommended); Ispaghul; Ispaghula; Loqmet El-na'aga (Arabic); Mumsa (Spanish); Muumshum (Gila River Pima); Ovate Plantain; Pale Psyllium; Pastora (a name also applied to other species, Spanish); Psyllium; Spogel Seeds; Tanchagem-ovada (Portuguese: Brazil); Transagem-ovada (Portuguese: Brazil); Vitt Loppfrö (Swedish); White Psyllium; Woolly Plantain. DESCRIPTION: Terrestrial annual forb/herb (plants 2 to 14 inches in height); the basal leaves may be gray-green, grayish or sea-green; the flowers may be cream, pinkish, tan with reddish-brown mid-stripes, white, off-white or white-green; flowering generally takes place between mid-December and early June (additional records: one for early July, one for mid-July, one for early August, one for early September, one for late October, one for early November and two for mid-November). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; mountainsides; rocky, rocky-sandy and gravelly mesas; bouldery and rocky canyons; rocky canyon bottoms; sandy talus slopes; buttes; ledges; ridges; rocky and gravelly ridgetops; meadows; sandy bases of cinder cones; foothills; rocky, gravelly-sandy and sandy hills; gravelly hillocks; bouldery, rocky and stony hillsides; along bedrock, bouldery, rocky, rocky-cobbly-gravelly, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, rocky-loamy, rocky-silty-loamy, gravelly, gravelly-sandy, gravelly-loamy, gravelly-clayey and sandy slopes; sandy bases of slopes; rocky, gravelly and sandy alluvial fans; rocky, gravelly, gravelly-sandy and sandy bajadas; rocky outcrops; amongst boulders and rocks; lava flows; lava fields; sand hills; sand dunes; sand sheets; blow-sand deposits; ridges on sand dunes; sand hummocks; rocky embankments; terraces; gravelly-sandy-loamy and sandy plains; rocky-sandy, gravelly, gravelly-sandy-loamy, gravelly-silty-loamy, pebbly, sandy and silty flats; sandy basins; bolsons; gravelly and sandy valley floors; sandy valley bottoms; coastal prairies; sandy coastal plains; along rocky, rocky-sandy, gravelly-sandy, gravelly-sandy-loamy and sandy roadsides; sandy arroyos; gravelly bottoms of arroyos; gulches; seeps; along creeks; along rivers; riverbeds; along and in rocky, rocky-sandy, stony-sandy, gravelly, gravelly-sandy, gravelly-sandy-silty, sandy and clayey washes; within drainages; gravelly drainage ways; silty lakebeds; playas; silty depressions; (gravelly, gravelly-sandy and sandy) banks of streams, creeks, washes and lakes; (gravelly and sandy) edges of rivers, washes and lakes; (silty) margins of washes and playas; (sandy) shores of lakes; gravelly mudflats; gravelly-sand bars; benches; gravelly, gravelly-sandy sandy terraces; floodplains; clayey lowlands; along canals; canal banks; along edges of canals; along ditch banks; gravelly-sandy riparian areas, and disturbed areas growing in wet, moist and dry desert pavement; bouldery, rocky, rocky-cobbly-gravelly, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, stony, stony-sandy, gravelly, gravelly-sandy, pebbly and sandy ground; rocky loam, rocky-silty loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, gravelly-silty loam and sandy loam ground; gravelly-sandy clay and clay ground, and gravelly-sandy silty and silty ground, occurring from sea level to 6,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, fodder and as a drug or medication. This species was observed being eaten by a desert Tortoise (*Gopherus agassizii*) in Clark County, Nevada. *Plantago ovata* plant is native to southwestern Europe; western and southern Asia and coastal island in the Mediterranean Sea, and northern Africa and coastal islands in the North Atlantic Ocean. *5, 6, 15, 16 (recorded as *Plantago insularis* Eastw.), 43 (072509), 44 (031213), 46 (recorded as *Plantago insularis* Eastw., Page 805), 48 (genus), 63 (031213 - color presentation), 77 (recorded as *Plantago fastigiata* Morris), 85 (031213 - color presentation), 115 (color presentation), 124 (110710 - no record of species; genus record), 127, **MBJ** (recorded as *Plantago insularis*, undated record which may include landscaped material that persists without maintenance)*

Plantago ovata var. *fastigiata* (see footnote 85 under *Plantago ovata*)

***Plantago patagonica* N.J. von Jacquin: Woolly Plantain**

SYNONYMY: *Plantago patagonica* N.J. von Jacquin var. *gnaphalioides* (T. Nuttall) A. Gray; *Plantago purshii* J.J. Roemer & J.A. Schultes. COMMON NAMES: Bristle Bract Plantain; Buckhorn; Hierba del Pastor (Hispanic); Indian Wheat (a name also applied to other taxa, not recommended, Montana); Large-bract Plantain (Oklahoma); Large-bracted Plantain (Oklahoma); Muumsh (River Pima); Pastora (a name also applied to other species, Spanish); Patagonia Plantain; Patagonian Indian Wheat (not recommended); Patagonian Indianwheat (not recommended); Patagonian Plantain; Plantain (a name also applied to other taxa and to the Plantaginaceae); Prairie Plantain (a name also applied to other taxa); Pursh Indian Wheat (*P. purshii*); Pursh Plantain (*P. purshii*); Pursh's Plantain (*P. purshii*); Rabbit's Foot Plantain; Rabbit's-foot Plantain; Salt-and-pepper Plant (a name also applied to other taxa); Salt-and-pepper-plant (a name also applied to other taxa); Western Plantain (a name also applied to other taxa); Woolly Indian Wheat (not recommended); Woolly Indianwheat (not recommended); Woolly Plantain (a name also applied to other taxa); Wooly Indianwheat (not recommended); Wooly Plantain (a name also applied to other taxa). DESCRIPTION: Terrestrial annual forb/herb (plants 1 to 12 inches in height; plants were observed and described as being 2 to 4 inches in height and 2 inches in width, plants were observed and described as being 4 to 6 inches in height and 2 inches in width); the lance-shaped leaves may be gray-green or green; the tiny flowers may be buff with a brownish tinge toward the center, cream, cream-white, green, purple-gray, straw, white, off-white, dirty white, whitish, whitish-green, yellow, yellowish-white or translucent; flowering generally takes place between mid-February and early September (additional records: one for late September and one for late October). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky bases of mountains; rocky-clayey, gravelly, pebbly-sandy, rocky and clayey mesas; plateaus; cliffs; bases of cliffs; along canyon rims; rocky, gravelly-loamy, sandy and clayey canyons; rocky canyon walls; moist canyon drip-walls; bouldery-gravelly, rocky, sandy and sandy-loamy canyon bottoms; chasms; gorges; rocky talus slopes; crevices in rocks; sandy basins in rock; bluffs; rocky-gravelly-clayey, gravelly and gravelly-silty-loamy buttes; sandy pockets of soil in rock; gravelly knolls; rocky and rocky-gravelly-sandy ledges; gravelly, gravelly-clayey and clayey ridges; rocky and clayey ridgetops; ridgetines; meadows; foothills; rocky, shaley and sandy hills; sandy hilltops; rocky, rocky-gravelly and gravelly-sandy hillsides; escarpments; bouldery, rocky, rocky-gravelly, rocky-gravelly-loamy, rocky-sandy, rocky-clayey, shaley-sandy, stony, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-clayey, sandy, sandy-loamy, clayey-loamy, loamy, silty and silty-clayey slopes; rocky-sandy and sandy alluvial fans; gravelly and sandy bajadas; pediments; rocky outcrops; amongst boulders; rocky-clayey and clayey rock beds; sandy lava flows; tops of sand hills; sand dunes; sand banks; clayey bases of banks; sandy terraces; steppes; gravelly-silty-loamy, sandy, loamy, loamy-clayey, silty and silty-loamy prairies; sandy, sandy-loamy, sandy-clayey and loamy plains; sandy fields; gravelly, gravelly-sandy, sandy and clayey flats; rocky, gravelly-silty-loamy, sandy, loamy, loamy-clayey, silty and silty-loamy uplands; clayey catch basins; stony and clayey valley floors; gravelly-sandy-clayey valley bottoms; railroad right-of-ways; along rocky, gravelly, gravelly-loamy, sandy, sandy-silty, clayey and silty-loamy roadsides; along two-tracks; rocky arroyos; along sandy draws; bottoms of draws; gulches; rocky ravines; seeps; around springs; around seeping streams; along streams; gravelly-clayey and sandy streambeds; along creeks; rocky and sandy creekbeds; along rivers; riverbeds; along and in bedrock, bouldery-sandy, rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy washes; within sandy, clayey and silty-loamy drainages; sandy drainage ways; along watercourses; marshes; sandy, clayey and silty-loamy depressions; silty swales; (sandy, loamy, loamy-clayey, silty and silty-clayey) banks of rivers and washes; edges of brooks; (sandy) margins of creeks and rivers; shores of lakes; rocky-gravel bars; sandy beaches; along bouldery and sandy benches; gravelly and sandy terraces; sandy and loamy bottomlands; lowlands; bouldery and clayey floodplains; mesquite woodlands; along fencelines; gravelly-clayey-loamy ditches; around stock tanks; gravelly, gravelly-sandy, sandy and sandy-silty riparian areas; waste places, and disturbed areas growing in wet, moist and dry (includes seasonally wet) cryptogamic; bouldery, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, shaley-sandy, stony, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; rocky loam, rocky-gravelly loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, gravelly-silty loam, sandy loam, clayey loam, silty loam and loam ground; rocky clay, rocky-gravelly clay, gravelly clay, gravelly-sandy clay, sandy clay, loamy clay, silty clay and clay ground, and sandy silty and silty ground, occurring from 400 to 8,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication and as a ceremonial item. *Plantago patagonica* is native to central and southern North America and southern South America. *5, 6, 16, 28 (recorded as *Plantago purshii*, color photograph 284), 30, 43 (031810 - *Plantago patagonica* var. *gnaphalioides* (Nutt.) A. Gray), 44 (031313), 46 (recorded as *Plantago purshii* Roem. & Schult., Page 804), 48 (genus), 58, 63 (031313 - color presentation), 77 (color photograph #89), 85 (031613 - color presentation), 101 (color photograph), 115 (color presentation), 124 (110710), 127, 140 (Pages 195 & 298), **MBJ** (recorded as *Plantago purshii*, undated record which may include landscaped material that persists without maintenance)*

Plantago patagonica var. *gnaphalioides* (see *Plantago patagonica*)

Plantago purshii (see *Plantago patagonica*)

Platanus racemosa var. *wrightii* (see *Platanus wrightii*)

***Platanus wrightii* S. Watson: Arizona Sycamore**

SYNONYMY: *Platanus racemosa* T. Nuttall var. *wrightii* (S. Watson) L.D. Benson. COMMON NAMES: Álamo [Blanco] (Spanish: Chihuahua, Sonora)¹⁴⁰; Aliso (Spanish); Arizona Plane Tree; Arizona Planetree; Arizona Sycamore; Arizona [White] Sycamore (English)¹⁴⁰; Button-wood (Buttonwood is a name that is applied to the genus *Platanus*); Ciclamor (Spanish, for "sycamore")¹⁴⁰; Gashdla'é <gaastlae, k'ashdla'a> (Athapascan: Western Apache)¹⁴⁰; Havat□b□a (Uto-Aztecan: Kawaiisu)¹⁴⁰; Plane Tree (a name that is also applied to the genus *Platanus* and the Platanaceae); Répogá (Uto-Aztecan: Tarahumara)¹⁴⁰; Sá, Sá' Aka (Hispanic); Saa (Tarahumara); Sáoko (Uto-Aztecan: Hopi)¹⁴⁰; Sicomoro (Spanish); Sivé:-la <savé:-la, sevél> (Uto-Aztecan: Luiseño)¹⁴⁰; Sivil (Uto-Aztecan: Cupeño)¹⁴⁰; Sivilly <sivel, sivi-l> (Uto-Aztecan: Cahuilla)¹⁴⁰; □ohárat <□ojárat> (Uto-Aztecan: Northern Tepehuan)¹⁴⁰; □ua'har <shua'jar> (Uto-Aztecan: Mountain Pima)¹⁴⁰; Ühpúhl (Yuman: Kumiai)¹⁴⁰; Ušako <sako> (Uto-Aztecan: Tarahumara)¹⁴⁰; Ushako (Tarahumara). DESCRIPTION: Terrestrial perennial deciduous tree (13 to 83 feet in height with a spreading broad and open crown, one tree was described as being 50 feet in height and 100 feet in width); the bark on the oldest of trunks is roughly fissured and dark gray or nearly black; the bark on trunks and older branches is whitish peeling off in brownish flakes; the bark on the branches is white; the twigs are light brown; the star-shaped leaves (6 to 10 inches in length and width) are dark light green above and paler beneath and turn golden before dropping in late fall or early winter; the pistillate flower heads (to ½ inch in diameter) are green and red or purple; the staminate flower heads (to 1 inch in diameter) are reddish or yellowish-red; flowering generally takes place between late March and early June (additional records: one for late February, two for late June, two for early July, one for mid-July, two for late July, four for early August, two for mid-August, one for early September, one for mid-September, two for mid-October, one for late October and one for early November); the fruits (¾ to 1 inch in diameter) are light brown. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; escarpments; along rocky canyons; along bouldery and rocky canyon bottoms; foothills; rocky slopes; bajadas; amongst boulders; flats; valleys; rocky roadsides; along rocky arroyos; bottoms of arroyos; draws; rocky seeps; rocky springs; along streams; along bouldery, rocky-gravelly-clayey-loamy, gravelly and gravelly-sandy streambeds; along creeks; rocky and sandy creekbeds; rocky soils along rivers; riverbeds; along and in gravelly and sandy washes; drainages; along gravelly watercourses; along rocky-cobbly banks of streams and creeks; edges of springs, streams and creekbeds; floodplains, and rocky, cobbly, gravelly-sandy and sandy riparian areas growing in moist bouldery, rocky, cobbly, gravelly, gravelly-sandy and sandy ground and rocky-gravelly-clayey loam ground, occurring from 1,000 to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The Arizona sycamore is perhaps the most massive of our native Arizona trees and is reported to be fast growing. The Arizona Sycamore is valuable in preventing erosion along stream banks. Small owls, woodpeckers and other birds nest in the hollows of trunks and in the branches. *Platanus wrightii* is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Platanus racemosa* Nutt. var. *wrightii* (S. Wats.) L. Benson), 15 (color photograph with habitat Page 77), 18, 26 (recorded as *Platanus racemosa*, note and color photograph - species), 28 (color photograph 79), 30, 43 (072509), 44 (041212 - no listings under Common Names for the species; genus record), 46 (Page 371), 48, 52 (color photograph), 53, 63 (072509 - color presentation), 85 (072509 - color presentation), 115 (color presentation), 124 (041212 - no record of species; genus record), 140 (Pages 52, 195-196 & 298)*

Plumbaginaceae: The Leadwort Family

***Plumbago scandens* C. Linnaeus: Doctorbush**

COMMON NAMES: Climbing Plumbago, Devil's-herb, Doctorbush, Firicua (Hispanic), Flor de Pegajoso (Hispanic), Hierba de Alacran, Hierba del Cáncer (Hispanic), Jiricua (Hispanic), Pegajoso (Hispanic), Peñethi (Hispanic), Peñeti (Hispanic), Pitillo, Plumbago, Rochinúe (Tarahumara), Toothwort. DESCRIPTION: Terrestrial perennial evergreen subshrub, shrub or vine (sprawling semi-erect stems 1 to 10 feet in length); the foliage is green; the flowers are white or white tinged with blue; flowering generally takes place between early April and late October (additional records: one for early January, two for mid-January, one for late January, three for mid-March, one for mid-November, two for mid-December and three for late December). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky cliffs; along rocky canyons; canyon walls; along rocky canyon bottoms; bases of cliffs; shaded gaps in bluffs; ridges; ridgetops; hillsides; rocky and clayey slopes; amongst rocks; bases of boulders; cut-banks; sandy flats; along roadsides; arroyos; bottoms of arroyos; rocky gulches; seeps; springs; along streams; along rocky streambeds; along creeks; sandy riverbeds; along and in sandy washes; within rocky drainages; banks of creeks; edges of arroyos; margins of rivers; benches; floodplains; riparian areas growing in moist and dry bouldery, rocky, gravelly and sandy ground; rocky loam ground, and clay ground often in shaded areas, occurring from sea level to 4,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, displays red foliage during the fall and winter months. Contact with the leaves or roots may cause dermatitis. *Plumbago scandens* is native to south-central and southern North America; Central America and coastal islands, and northern western and eastern South America. *5, 6, 13, 15, 18, 30, 43 (071410), 46 (Page 639), 58, 63 (071410 - color presentation), 77 (color photograph #48), 85 (071410 - color presentation of dried material), 115 (color presentation)*

Polemoniaceae: The Phlox Family

***Eriastrum diffusum* (A. Gray) H.L. Mason: Miniature Woollystar**

COMMON NAMES: Blue Star (a name also applied to other species); Diffuse Eriastrum; Diffuse Woolstar; Harwood's Woollystar (*Eriastrum diffusum* var. *harwoodii* - Invalid, *Eriastrum harwoodii* - Valid); Miniature Eriastrum; Miniature Starflower; Miniature Wool Star; Miniature Wool-star; Miniature Woolly-star; Miniature Wooly-star; Miniature Woollystar; Miniature Woolstar; Miniature Woollystar; Prickly Stars; Spreading Eriastrum; Spreading Woollystar; Spreading Woolstar; Starflower (a name also applied to other species); Woollystar (a name also applied to the genus *Eriastrum*). DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect with simple to diffusely branching stems 1½ to 14 inches in height); the stems may be dark red or reddish-brown; the foliage is grayish-green; the flowers may be baby-blue with a yellow throat; pale blue, light blue & yellow, blue, blue-lavender, cream, pale lavender, lavender, lavender-white, purple, purple-blue, pale violet, violet or white; the pollen and anthers are white; flowering generally takes place between mid-February and mid-July (additional record: two for mid-August). HABITAT: Within the range of this species it has been reported from mountains; sandy mesas; plateaus; rocky canyon rims; cliffs; rocky canyons; rocky-gravelly-sandy and sandy canyon bottoms; buttes; rocky and sandy knolls, rocky ledges; sandy ridges; rocky-sandy and gravelly ridgetops; ridgelines; sandy clearings in woodlands; meadows; sandy foothills; bouldery, rocky, shaley and sandy hills; hilltops; rocky hillsides; bedrock, rocky, rocky-gravelly-sandy, rocky-sandy, rocky-sandy-loamy, gravelly-sandy, sandy and sandy-loamy slopes; rocky-sandy and sandy alluvial fans; rocky, rocky-sandy and gravelly bajadas; rocky outcrops; sand hills; sand dunes; benches; plains; stony, gravelly, gravelly-sandy-clayey, sandy, sandy-clayey and sandy-silty flats; basins; valley floors; valley bottoms; along rocky, stony, gravelly, gravelly-sandy-clayey-loamy, gravelly-clayey, sandy and clayey roadsides; sandy arroyos; draws; gulches; springs; along creeks; along rivers; sandy riverbeds; along and in rocky, stony-gravelly, gravelly, gravelly-sandy and sandy washes; within rocky-sandy, gravelly and sandy drainages; along and in rocky-sandy, gravelly and gravelly-sandy drainage ways; sandy-silty playas; banks of creeks, rivers, riverbeds and washes; among clumps of grasses at the (sandy) edges of arroyos; gravelly-sand bars; sandy and sandy-silty benches; shelves; along gravelly-sandy terraces; sandy-loamy bottomlands; sandy floodplains; silty-loamy stock tanks; along canals; sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-gravelly-sandy, rocky-sandy, shaley, stony, stony-gravelly, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-silty-clayey loam, sandy loam, clayey loam and silty loam ground; rocky clay, gravelly clay, gravelly-sandy clay, gravelly clay and sandy clay ground, and sandy silty ground, occurring from 400 to 7,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Eriastrum diffusum* is native to southwest-central and southern North America. *5, 6, 15, 16, 28 (color photograph 693), 43 (072609), 44 (080611 - color photograph), 46 (Page 685), 58, 63 (031713 - color presentation), 77 (color photograph #49), **85** (031713 - color presentation), 115 (color presentation), 124 (080611 - no record of genus or species), 140 (Page 302), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Gilia flavocincta* A. Nelson: Lesser Yellowthroat Gilia**

COMMON NAMES: Gilia (a name also applied to other species, the genus *Gilia* and to the Polemoniaceae); Gily-flower (a name also applied to other species); Lesser Yellowthroat Gilia; Lesser Yellow-throat Gily-flower; Yellowthroat Gily-flower. DESCRIPTION: Terrestrial annual forb/herb (branched stems 2 inches to 2 feet in height); the stems are hairy; the leaves are dark green; the flowers may be blue, blue-lavender, blue-yellow, bluish-purple, dark grayish-blue, lavender, lavender-pink, pink-lavender, pink-lavender-blue, pinkish-lavender, pinkish-purple, light purple, purple, purple with a yellow throat, violet, violet-blue or white; the anthers are bluish or pale blue-violet; flowering generally takes place between late January and mid-June (additional record: one for mid-September). HABITAT: Within the range of this species it has been reported from mountains; mesas; cliffs; bases of cliffs; rocky canyons; sandy canyon bottoms; along talus slopes; along rocky ridges; ridgetops; stony foothills; rocky hills; rocky and gravelly hillsides; rocky, rocky-pebbly, gravelly, gravelly-loamy, sandy, sandy-silty, clayey-loamy and silty-loamy slopes; gravelly bajadas; bouldery and rocky outcrops; rocky and sandy flats; basins; cindery valley floors; railroad right-of-ways; along rocky and sandy roadsides; rocky, rocky-loamy and sandy arroyos; bottoms of arroyos; draws; bottoms of draws; gulches; gullies; ravines; sand along streams; along and in streambeds; along creeks; bouldery-rocky, cobbly and sandy creekbeds; sandy riverbeds; along and in gravelly, gravelly-sandy and sandy washes; along and in sandy drainages; banks of rivers; edges of streambeds; sandy terraces; loamy bottomlands; floodplains; bosques; sandy riparian areas, and disturbed areas growing in moist and dry bouldery, bouldery-rocky, rocky, rocky-cobbly, rocky-pebbly, rocky-sandy, stony, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, gravelly-clayey loam, sandy loam, clayey loam, silty loam and loam ground; rocky clay ground, and gravelly silty and sandy silty ground, occurring from 600 to 7,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Gilia flavocincta* is native to southwest-central and southern North America. *5, 6, 18 (genus), 43 (031810), 44 (031813 - no record of species; genus record), 46 (*Gilia flavocincta* A. Nels., Supplement Page 1066, originally included as a possible synonym of *Gilia tenuiflora* Benth. which is known only from coastal California, Page 691), 63 (031813 - color presentation), **85** (031813 - color presentation), 124 (031211 - no record of genus or species), 140 (Page 220 & 302)*

***Gilia stellata* A.A. Heller: Star Gilia**

COMMON NAMES: Dotted-throat Gilia; Gilia (a name also applied to other species, the genus *Gilia* and to the Polemoniaceae); Star Gilia; Star Gily Flower; Star Gily-flower; Star-haired Gilia. DESCRIPTION: Terrestrial annual forb/herb

(simple to branched erect stems 3 to 28 inches in height); the flowers may be blue, blue-yellow, blue-lavender, blue-pink-lavender, blue-white, cream, pale lavender, lavender, lavender with dark purple stripes, lavender with a yellow throat, lavender-pink, lavender-pink, lavender-yellow, magenta, pink, pink with a yellow throat, pink-lavender, light purple-lavender, purple, purple-lavender, purplish-blue, purplish-lavender, pale violet, violet, yellow, white, white with yellowish throat, white-lavender, whitish or whitish-purplish; flowering generally takes place between late January and early June. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; rocky cliffs; along rocky canyons; gravelly-sandy and sandy canyon bottoms; gorges; talus slopes; bases of cliffs; cobbly knoll; sandy ridges; ridgetops; foothills; muddy, rocky, gravelly and clayey hills; sandy hilltops; muddy, rocky and gravelly hillsides; escarpments; bouldery, rocky; cobbly-sandy-loamy, gravelly, gravelly-sandy-clayey, sandy, sandy-loamy and clayey slopes; alluvial fans; gravelly, gravelly-sandy and sandy bajadas; rocky and shaley outcrops; amongst boulders; sand hills; sandy hummocks; sandy benches; breaks; plains; gravelly, sandy and silty flats; basins; valley floors; valley bottoms; rocky, gravelly and sandy roadsides; sandy arroyos; ravines; springs; along streams; streambeds; along creeks; sandy creekbeds; along and in bedrock, rocky, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-clayey-loamy washes; along and in gravelly and gravelly-sandy drainage ways; around pools; (sandy) banks of rivers and washes; along (rocky-sandy) edges of washes; margins of rivers, washes and dry lakes; shores of lakes; sand bars; gravelly and sandy benches; terraces; loamy floodplains; gravelly-sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-sandy, shaley, cobbly, cobbly-gravelly-sandy, gravelly, gravelly-sandy and sandy ground; cobbly-sandy loam, sandy loam, sandy-clayey loam, clayey loam, silty loam and loam ground; gravelly-sandy clay and clay ground, and gravelly-sandy silty and silty ground, occurring from 300 to 6,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Gilia stellata* is native to southwest-central and southern North America. *5, 6, 16, 18 (genus), 43 (031910), 44 (031813 - color photograph), 46 (Supplement Page 1066), 63 (031813 - color presentation), 77, **85** (031813 - color presentation)*

***Leptosiphon aureus* (T. Nuttall) J.M. Porter & L.A. Johnson subsp. *aureus*: Golden Linanthus**

SYNONYMY: *Linthus aureus* (T. Nuttall) E.L. Greene; *Linthus aureus* (T. Nuttall) E.L. Greene subsp. *aureus*. COMMON NAMES: Desert Gold (a name also applied to other species); Golden Desert-trumpets; Golden Deserttrumpets; Golden Linanthus (a name also applied to the species); Yellow Linanthus (a name also applied to other species). DESCRIPTION: Terrestrial annual forb/herb (2 to 7 inches in height); the stems may be red, reddish-brown or tan; the leaves are green; the flowers (to ½ inch in diameter) may be golden, golden-yellow, orangish-yellow, pale yellow, yellow-gold or yellow with an orange center; the anthers are orange; the stigma lobes are yellow; flowering generally takes place between mid-March and late June (additional records: one for early January and one for early November). HABITAT: Within the range of this species it has been reported from mountains; bases of mountains; gravelly and sandy mesas; sandy canyon bottoms; bouldery ridges; cobbly-loamy ridgetops; ridgelines; sandy openings in forests; gravelly-sandy-clayey-loamy meadows; foothills; rocky and sandy hills; rocky and sandy hillsides; rocky, stony, gravelly, gravelly-sandy, sandy and sandy-loamy slopes; alluvial fans; sandy bajadas; bedrock outcrops; amongst boulders and rocks; sandy plains; gravelly, sandy and sandy-loamy flats; rocky basins; gravelly and sandy valley floors; gravelly and sandy roadsides; along streams; along creeks; along rivers; sandy riverbeds; along and in gravelly, gravelly-sandy-silty and sandy washes; along watercourses; (gravelly) banks of arroyos and washes; (sandy-silty) margins of playas; sandy benches; lowlands; sandy riparian areas, and disturbed areas growing in moist and dry bouldery, rocky, rocky-sandy, stony, gravelly, gravelly-sandy, pebbly and sandy ground; cobbly loam, gravelly-sandy-clayey loam, gravelly-clayey loam and sandy loam ground; gravelly clay ground, and rocky-silty, gravelly-sandy silty and silty ground, occurring from 1,200 to 6,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Leptosiphon aureus* subsp. *aureus* is native to southwest-central and southern (Baja California) North America. *5, 6, 15, 28 (color photograph 365), 43 (031311), 44 (031311), 46 (Page 687), 58, 63 (031311 - color presentation), 77, **85** (031311 - color presentation), 86, 124 (031311 - no record of genus or species), 140 (Page 302)*

Linthus aureus (see *Leptosiphon aureus* subsp. *aureus*)

Linthus aureus subsp. *aureus* (see *Leptosiphon aureus* subsp. *aureus*)

Polygonaceae: The Buckwheat Family

Eriogonum A. Michaux: Buckwheat

COMMON NAMES: American Buckwheat; American Wild Buckwheat; American Wild-buckwheat; Buckwheat (a name also applied to the Polygonaceae); Ériogones (French); Eriogonum; North American Wild Buckwheat; North American Wild-buckwheat; Wild Buckwheat; Woolly Knees; Woolly Knot Weed; Woolly Knotweed. *42 (062913), 43 (062913), 44 (062913), 46 (Pages 230-243 and Supplement Page 1046), 63 (062913 - color presentation), 85 (062913 - color presentation), **MBJ** (undated record which may include landscaped material that persists without maintenance))*

Eriogonum clutei (see *Eriogonum deflexum* var. *deflexum*)

***Eriogonum deflexum* J. Torrey (var. *deflexum* is the variety reported as occurring in Arizona): Flatcrown Buckwheat**

SYNONYMY: (for var. *deflexum*: *Eriogonum clutei* P.A. Rydberg; *Eriogonum deflexum* J. Torrey var. *turbinatum* (J.K. Small) J.L. Reveal). COMMON NAMES: Dugway Buckwheat (*Eriogonum deflexum* subsp. *ultrum* - Not Accepted; *Eriogonum nutans* var. *nutans* - Accepted); Flat Crown Wild Buckwheat; Flat-crown Buckwheat; Flat-crown Wild Buckwheat; Flat-crown Wild-buckwheat; Flat-crowned Buckwheat; Flat-crowned Eriogonum; Flat-topped Buckwheat (a name also applied to other taxa); Flat-topped Skeleton Weed; Flat-topped Skeleton-weed; Flatcrown Buckwheat; Flatcrown Wild Buckwheat; Flatcrowned Wild Buckwheat; Ladder Buckwheat (*Eriogonum deflexum* subsp. *exaltatum* - Not Accepted; *Eriogonum deflexum exaltatum* - Accepted. *Eriogonum deflexum* subsp. *insigne* - Not Accepted; *Eriogonum deflexum* subsp. *deflexum* - Accepted); Nevada Buckwheat (var. *nevadense*); Pagoda Buckwheat (*Eriogonum deflexum* subsp. *rixfordii* - Not Accepted; *Eriogonum rixfordii* - Accepted); Parry's Buckwheat (*Eriogonum deflexum* var. *brachypodium* - Not Accepted; *Eriogonum brachypodium* - Accepted); Skeleton Weed (a name also applied to other taxa); Skeleton Weed Eriogonum; Skeleton-weed (a name also applied to other taxa); Skeleton-weed Buckwheat; Skeleton-weed Wild Buckwheat; Skeleton-weed Wild-buckwheat; Skeletonweed (a name also applied to other taxa); Skeletonweed Buckwheat; Skeletonweed Wild Buckwheat; Skeletonweed Wild Buckwheat; Skeletonweed Wild Buckwheat; Watson's Buckwheat (*Eriogonum deflexum* subsp. *watsonii* - Not Accepted, *Eriogonum deflexum* var. *multipendunculatum* - Not Accepted, *Eriogonum deflexum* var. *watsonii* - Not Accepted; *Eriogonum watsonii* - Accepted). DESCRIPTION: Terrestrial annual forb/herb (erect to spreading stems 2 inches to 3 feet in height (records to 40 inches to 6½ feet in height have been reported); the stems may be blue-gray, gray-green, green or purple-red; the basal rosette of leaves may be blue-gray, gray-green or green; the small flowers may be cream, cream-pink, pink, pink-white, pinkish, pinkish-purple-lavender-white, purple-red, white or whitish-pink; flowering generally takes place between mid-January and late December (additional record: flowering year-round has been reported); the fruits may be bright pink. HABITAT: Within the range of this species it has been reported from mountains; gravelly mesas; plateaus; cliffs; rocky canyons; rocky, gravelly and sandy canyon bottoms; gorges; bouldery scree; talus slopes; bases of bluffs; rocky sides of buttes; knolls; rocky ridges; ridgelines; rocky foothills; rocky, rocky-gravelly, shaley, gravelly and clayey hills; rocky, gravelly and clayey hillsides; bouldery, rocky, stony-cobbly-sandy, cindery, gravelly, sandy, sandy-clayey and clayey slopes; alluvial fans; bajadas; rocky outcrops; rocky boulder fields; blow-sand deposits; cobbly, cobbly-sandy and sandy debris fans; breaks; pebbly and sandy plains; rocky, gravelly and sandy flats; basins; bolsons; valley floors; valley bottoms; roadbeds; along gravelly and sandy roadsides; within gravelly and sandy arroyos; sandy bottoms of arroyos; gulches; gravelly ravines; springs; along streams; streambeds; along creeks; creekbeds; gravelly and sandy riverbeds; along and in cobbly, gravelly, gravelly-sandy, sandy, sandy-clayey and clayey washes; drainages; drainage ways; playas; sinks; (sandy) banks of rivers; (gravelly) edges of marshes; sand bars; terraces; sandy bottomlands; floodplains; along ditches; along canal banks; gravelly-sandy and sandy riparian areas; waste places, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, stony-cobbly-sandy, cobbly, cindery, cindery-sandy, gravelly, gravelly-sandy, pebbly and sandy ground; rocky loam and gravelly loam ground, and sandy clay and clay ground, occurring from below sea level to 7,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The plants are reportedly an important source of small seed for birds; the Desert Metalmark (*Apodemia mormo* subsp. *deserti*) has been found in association with this plant. *Eriogonum deflexum* is native to southwest-central and southern North America. *5, 6, 16, 18 (genus), 42 (041013), 43 (032310), 44 (032113 - color photograph), 46 (Page 239), 48 (genus), 63 (032113 - color presentation of seed), 68, 77, 85 (032113 - color presentation), 140 (Page 302), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

***Eriogonum deflexum* J. Torrey var. *deflexum*: Flatcrown Buckwheat**

SYNONYMY: *Eriogonum clutei* P.A. Rydberg; *Eriogonum deflexum* J. Torrey var. *turbinatum* (J.K. Small) J.L. Reveal. COMMON NAMES: Flat-topped Buckwheat (a name also applied to other taxa); Skeleton Weed (a name also applied to other taxa); Skeleton-weed (a name also applied to other taxa); Skeletonweed (a name also applied to other taxa); Skeleton Weed Eriogonum; Typical Flat Crown Wild Buckwheat; Typical Flat-crown Buckwheat; Typical Flat-crown Wild Buckwheat; Typical Flat-crown Wild-buckwheat; Typical Flat-crowned Buckwheat; Typical Flat-crowned Eriogonum; Typical Flat-topped Buckwheat; Typical Flat-topped Skeleton Weed; Typical Flat-topped Skeleton-weed; Typical Flatcrown Buckwheat; Typical Flatcrown Wild Buckwheat; Typical Flatcrowned Wild Buckwheat; Typical Skeleton-weed Buckwheat; Typical Skeleton-weed Wild Buckwheat; Typical Skeleton-weed Wild-buckwheat; Typical Skeletonweed Buckwheat; Typical Skeletonweed Wild Buckwheat; Typical Skeletonweed Wild-buckwheat. DESCRIPTION: Terrestrial annual forb/herb (erect to spreading stems 2 inches to 2 feet in height (records to 40 inches to 6½ feet in height have been reported; plants were observed and described as being 12 inches in height by 12 inches in width; plants were observed and described as being 16 inches in height by 16 inches in width); the stems may be blue-gray, gray-green, green or purple-red; the basal rosette of leaves may be blue-gray, gray-green or green; the small flowers may be cream, pink, pink-white, rose-white, white or yellow; flowering generally takes place between mid-January and late December (additional record: flowering year-round has been reported); the fruits may be bright pink. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; plateaus; rocky cliffs; bouldery canyons; rocky and sandy canyon bottoms; shaley talus slopes; bluffs; rocky sides of buttes; rocky ridges; ridgelines; rocky foothills; clayey hills; rocky and gravelly hillsides; bases of hillsides; rocky, rocky-sandy, shaley, cindery, gravelly, gravelly-loamy, sandy and clayey slopes; rocky-gravelly bajadas; amongst boulders; rocky boulder fields; sand dunes; cobbly and sandy debris fans; breaks; gravelly, sandy and sandy-silty flats; basins; valley bottoms; roadbeds; along rocky, gravelly, gravelly-loamy and sandy roadsides; sandy arroyos; sandy draws; gullies; gravelly ravines; around seeping streams; along creeks; along gravelly-sandy creekbeds; along rivers; gravelly riverbeds; along and in bouldery, rocky-sandy, rocky-loamy,

gravelly, gravelly-sandy, sandy and sandy-clayey washes; drainages; depressions; swales; banks of rivers; (silty) margins of playas; sand bars; sandy bottomlands; gravelly banks and shores of reservoirs; along canal banks; along ditches; sandy riparian areas; waste places, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-gravelly, rocky-sandy, shaley, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam and gravelly-clayey loam ground; sandy clay and clay ground, and sandy silty and silty ground, occurring from below sea level to 7,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Eriogonum deflexum* var. *deflexum* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Eriogonum deflexum* Torrey var. *turbinatum* (Small) Reveal), 18 (genus), 43 (032310 - *Eriogonum deflexum* var. *turbinatum* (Small) Reveal), 44 (032113), 46 (recorded as *Eriogonum clutei* Rydb. and *Eriogonum deflexum* Torr., Page 239), 48 (genus), 58 (recorded as *Eriogonum deflexum* Torrey var. *turbinatum* (Small) Reveal), 63 (032113), 68, **85** (032113 - color presentation of dried material)*

Eriogonum deflexum var. *turbinatum* (see *Eriogonum deflexum* var. *deflexum*)

***Eriogonum thurberi* J. Torrey: Thurber's Buckwheat**

COMMON NAMES: Skeleton Weed (a name also applied to other taxa); Thurber Buckwheat; Thurber Eriogonum; Thurber Wild Buckwheat; Thurber Wild-buckwheat; Thurber's Buckwheat; Thurber's Eriogonum; Thurber's Wild Buckwheat; Thurber's Wild-buckwheat. DESCRIPTION: Terrestrial annual forb/herb (spreading stems 2 to 16 inches in height); the foliage may be greenish, grayish or reddish; the flowers may be cream, light pink, light pink-rosy, pink, dark pink, pink-red, pink-rosy, pink & white, reddish, white, white-pink or whitish-greenish-reddish; flowering generally takes place between late March and early July (additional records: one for early March, two for late July, one for early August, one for late August and one for mid-November; year-round flowering has also been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy mesas; canyons; sandy canyon bottoms; openings in chaparral and grasslands; meadows; foothills; hills; hillsides; rocky, gravelly, sandy and sandy-loamy slopes; bouldery-stony-gravelly-sandy, rocky-sandy and gravelly-sandy alluvial fans; bajadas; sand hills; sand dunes; blow-sand deposits; gravelly-sandy plains; gravelly and sandy flats; sandy valley floors; along gravelly roadsides; along streams; along rivers; sandy riverbeds; along and in sandy washes; in drainages; blow-out areas; banks of washes; sand bars; sandy benches; sandy riparian areas; recently burned areas in chaparral, and disturbed areas growing in dry bouldery, bouldery-stony-gravelly-sandy, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy ground and sandy loam ground, occurring from 300 to 4,700 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: The Thurber Buckwheat is a larval host plant of the Acmon Blue Butterfly (*Icaricia acmon*). *Eriogonum thurberi* is native to southwest-central and southern North America. *5, 6, 15, 16, 18 (genus), 43 (032310), 44 (032313), 46 (Page 239), 48 (genus), 58, 63 (032313), 77, **85** (032413 - color presentation), 124 (112010 - no record of species, genus record), 140 (Pages 221 & 302)*

***Pterostegia drymarioides* F.E. von Fischer & C.A. Meyer: Woodland Pterostegia**

COMMON NAMES: Spreading Buckwheat, Woodland Pterostegia, Woodland Threadstem. DESCRIPTION: Terrestrial annual forb/herb (clambering creeping or sprawling prostrate, ascending or erect vine-like stems to 2 inches in height and ¼ to 2 feet in length, plants ½ inch to 4 feet in diameter); the stems may be red in the sun and green in the shade; the tiny flowers are cream, green, greenish-white, pink, pinkish, white, whitish or yellow; flowering generally takes place between early February and mid-June (additional records: two for late January, one for mid-July, one for early August and one for late August, flowering ending as late as July has been reported). HABITAT: Within the range of this species it has been reported from mountains; bases of mountains; rocky and sandy cliffs; rock walls; rocky and stony canyons; canyon bottoms; bases of cliffs; crevices in boulders and rocks; bluffs; sandy bases of bluffs; rocky knobs; rocky ledges; clayey-loamy ridges; rocky ridgetops; meadows; foothills; bouldery and rocky hills; clayey hilltops; bouldery, rocky and cobbly-loamy hillsides; bouldery-gravelly, bouldery-gravelly-sandy, rocky, rocky-sandy, cobbly-sandy, cobbly-sandy-loamy, stony and loamy slopes; bases of slopes; bouldery-rocky-sandy-loamy alluvial fans; gravelly bajadas; rock outcrops; amongst boulders and rocks; around boulders and rocks; bases of boulders; recesses beneath boulders and rocks; volcanic dikes and plugs; on banks; sandy plains; gravelly flats; basins; along gravelly-sandy roadsides; bedrock arroyos; rocky gulches; gullies; along rocky ravines; around seeping streams; along streams; gravelly streambeds; along creeks; creekbeds; along rivers; along and in rocky, rocky-sandy and sandy washes; along bouldery-cobbly drainage ways; dried clayey vernal pools; along sandy banks of washes; edges of salt marshes; sandy benches, sandy terraces; loamy bottomland; floodplains; bouldery riparian areas; recently burned areas of woodland and chaparral, and disturbed areas growing in muddy and wet, moist and dry bouldery, bouldery-cobbly, bouldery-gravelly, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony, cobbly-sandy, gravelly, gravelly-sandy and sandy ground; bouldery-rocky-sandy loam, cobbly-sandy loam, cobbly loam, clayey loam and loam ground, and clay ground often in the shade beneath shrubs, rocks and boulders, occurring from sea level to 5,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Pterostegia drymarioides* is native to southwest-central and southern North America. *5, 6, 15, 43 (072310), 46 (Page 228), 63 (072310), **85** (072310 - color presentation of dried material)*

Portulacaceae: The Purselane Family

***Calandrinia ciliata* (H.R. López & J.A. Pavón) A.P. de Candolle: Fringed Redmaids**

SYNONYMY: *Calandrinia ciliata* (H.R. López & J.A. Pavón) A.P. de Candolle var. *menziesii* (W.J. Hooker) J.F. Macbride. COMMON NAMES: Ciliate Red Maids; Ciliate Red-maids; Ciliate Redmaids; Common Red Maids; Common Red-maids; Common Redmaids; Desert Rock Purslane (possibly an error, a name also applied to other species); Desert Rockpurslane (possibly an error, a name also applied to other species); Fringed Red Maid; Fringed Red Maids; Fringed Red-maid; Fringed Red-maids; Fringed Redmaid; Fringed Redmaids; Magenta Red Maid; Magenta Red Maids; Magenta Red-maid; Magenta Red-maids; Magenta Redmaids; Menzie's Red-maids (var. *menziesii*); Menzies Red-maids (var. *menziesii*); Menzies' Red-maids (var. *menziesii*); Red Maids (a name also applied to the genus *Calandrinia*); Red-maids (a name also applied to the genus *Calandrinia*); Redmaids (a name also applied to the genus *Calandrinia*); Rock Purslane (a name also applied to the genus *Calandrinia*). DESCRIPTION: Terrestrial annual forb/herb (spreading prostrate, decumbent, ascending and/or erect stems 1 to 18 inches in height/length); the leaves are green; the flowers (to ½ inch in width) may be blue-purple, magenta, magenta-pink, magenta-purple, bright pink, pink, deep pink, deep pink-maroon, pink-magenta, pink-maroon, pink-purple, deep pink-purple, pink-red, purple, purple-pink, purplish-pink, red, deep red, deep red-purple, red-pink, reddish-pink, reddish-purple, reddish-violet, rose, rose-red, violet, violet-purple, white or white-purple; flowering generally takes place between mid-January and late May (additional records: two for early September). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; sandy mesas; plateaus; along rocky canyons; rocky and sandy-loamy canyon bottoms; chasms; crevices in rocks; along rims of bluffs; bouldery knobs; ridges; ridgetops; rocky-sandy and sandy meadows; sandy and clayey foothills; bouldery and rocky, rocky-clayey-loamy and loamy hills; rocky-loamy hilltops; rocky and clayey hillsides; bouldery, bouldery-rocky-clayey, bouldery-gravelly, rocky, rocky-loamy-clayey, rocky-clayey, stony, gravelly, gravelly-loamy, gravelly-clayey, sandy, sandy-loamy, clayey and clayey-loamy slopes; bajadas; amongst rocks; sandy alluvial fans; sand dunes; sandy plains; gravelly, sandy, clayey and silty flats; basins; hollows; valley floors; loamy and clayey-loamy valley bottoms; roadbeds; along clayey-loamy roadsides; dirt tracks; bedrock and sandy arroyos; along sandy bottoms of arroyos; along draws; gulches; gullies; seeps; around seeping streams; in gravelly, gravelly-loamy, sandy and loamy soils along streams; streambeds; along creeks; bouldery-rocky, rocky-sandy and sandy creekbeds; rocky-sandy and sandy riverbeds; along and in rocky, gravelly, gravelly-sandy and sandy washes; drainages; around clayey pools; silty-clayey poolbeds; muddy and loamy-clayey depressions; swales; (rocky) banks of streams, creeks and rivers; along (clayey) edges of streams and ponds; margins of vernal marshes and pools; mudflats; terraces; rocky-sandy and sandy bottomlands; sandy-silty floodplains; sandy riparian areas; recently burned areas in chaparral, and disturbed areas growing in shallow water; muddy, and wet, moist, damp and dry bouldery, bouldery-rocky, bouldery-gravelly, rocky, rocky-sandy, stony, gravelly and sandy ground; rocky loam, rocky-clayey loam, gravelly loam, sandy loam, clayey loam and loam ground; bouldery clay, bouldery-rocky clay, rocky clay, rocky-loamy clay, gravelly clay and clay ground, and sandy-silty and silty ground, occurring from sea level to 6,300 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Calandrinia ciliata* is native to west-central and southern North America, Central America and northwestern South America. *5, 6, 15, 28 (color photographs 176 & 585), 43 (072609), 44 (040313 - color photograph), 46 (Page 288), 58, 63 (040313 - color presentation), 77, 85 (040413 - color presentation), 86 (color photograph), 101 (color photograph), 115 (color presentation), 124 (110710 - no record of species), 127, 140 (Page 302)*

Calandrinia ciliata var. *menziesii* (see *Calandrinia ciliata*)

***Claytonia perfoliata* J. Donn ex C.L. von Willdenow: Miner's Lettuce**

SYNONYMY: *Montia perfoliata* (J. Donn ex C.L. von Willdenow) T.J. Howell. COMMON NAMES: Angle-leaf Miner's Lettuce (subsp. *mexicana*); Clasp-leaf Miner's Lettuce; Clasp-leaf Miner's-lettuce; Clasp-leaf Miner's Lettuce; Clasp-leaf Miner's-lettuce; Claytonie Perfoliée (French); Common Miner's Lettuce; Common Miners Lettuce; Common Miner's-lettuce; Common Miners-lettuce; Cuban Spinach (a name also applied to other taxa); Gypsum Springbeauty (*Claytonia perfoliata* var. *nubigena* - Not Accepted, *Claytonia gysophiloides* - Accepted); Indian Lettuce (not recommended); Indian Lettuce (English)¹⁴⁰; Indian-lettuce (not recommended); Intermountain Miner's Lettuce (subsp. *intermontana*); Intermountain Miners Lettuce (subsp. *intermontana*); Intermountain Miner's-lettuce (subsp. *intermontana*); Intermountain Miners-lettuce (subsp. *intermontana*); Madrean Miner's Lettuce (subsp. *mexicana*); Madrean Miner's-lettuce (subsp. *mexicana*); Mexican Miner's Lettuce (subsp. *mexicana*); Mexican Miner's-lettuce (subsp. *mexicana*); Miner's Lettuce (a name also applied to other taxa); Miner's Lettuce (English)¹⁴⁰; Miner's-lettuce (a name also applied to other taxa); Miners-lettuce; Minerslettuce (a name also applied to other taxa); Naiad Spring Beauty; Naiad Spring-beauty; Pa'gwodzúp (Uto-Aztec: Shoshoni)¹⁴⁰; Palsingat (Uto-Aztec: Cahuilla)¹⁴⁰; Perfoliate Claytonia; Perfoliate Miner's Lettuce; Perfoliate Miners Lettuce; Perfoliate Miners-lettuce; Perfoliate Miner's-lettuce; Perfoliate Minerslettuce; Petota (a name also applied to other taxa); Petota (Spanish: California)¹⁴⁰; Portuguese Lettuce; Pourpier d'Hiver (French); Redstem Springbeauty (*Claytonia perfoliata* var. *depressa* - Not Accepted, *Claytonia rubra* ssp. *depressa* - Accepted); Shilik (Chumash: Ineseño Chumash)¹⁴⁰; Shilik' (Chumash: Barbareño Chumash)¹⁴⁰; Southern Miner's Lettuce (subsp. *mexicana*); Southern Miner's-lettuce (subsp. *mexicana*); Spanish Lettuce (a name also applied to other taxa); Spinacio di Cuba (Italian); Springbank Springbeauty (*Claytonia perfoliata* var. *parviflora* - Not Accepted, *Claytonia parviflora* ssp. *parviflora* - Accepted; *Claytonia perfoliata* var. *utahensis* - Not Accepted, *Claytonia parviflora* ssp. *utahensis* - Accepted; *Claytonia perfoliata* ssp. *vridis* - Not Accepted, *Claytonia parviflora* ssp. *vridis* - Accepted); Springbeauty (a name also applied to other taxa and the genus *Claytonia*); True Miner's Lettuce; True Miner's-lettuce; Utuk^wa□ar□b□ (Uto-Aztec: Kawaiisu)¹⁴⁰; Verdolaga de Invierno ("Winter Purslane", Spanish: Mexico)¹⁴⁰; Winter Miner's Lettuce; Winter Miners Lettuce; Winter Miner's-lettuce; Winter Miners-lettuce; Winter-portulak; Winter Purslane; Winter Purslane (English)¹⁴⁰; Winter-purslane;

Winterpurslane. DESCRIPTION: Terrestrial annual or perennial forb/herb (spreading prostrate, decumbent, ascending and/or erect stems 2 to 20 inches in height); the stems may be reddish; the leaves may be dark green or mottled green & reddish; the small flowers (¼ inch in diameter) may be pink, pink-cream, pink-lavender, pink-purple, pinkish, pinkish-white, pale purple, white, white-green, white with purplish tips; whitish, yellow or yellow-white; flowering generally takes place between mid-January and early August (additional records: one for late August, one for late September, one for mid-October, one for mid-November, one for early December and two for late December). HABITAT: Within the range of this species it has been reported from mountains; rocky-clayey and clayey mountaintops; mountainsides; mesas; plateaus; cliffs; cliff faces; bases of cliffs; rocky and rocky-silty canyons; along shaded canyon floors; rocky canyon bottoms; gorges; rockslides; scree; along talus slopes; crevices in rocks and stone; sandy bluffs; faces of rock knobs; shaded ledges; rocky ridges; ridgetops; rocky balds; rocky clearings and openings in forests and woodlands; rocky and rocky-gravelly meadows; gravelly cinder cones; foothills; rocky and loamy hills; clayey-loamy hilltops; rocky, rocky-gravelly, rocky-clayey-loamy, and loamy hillsides; bouldery-rocky-clayey, rocky, rocky-gravelly, rocky-loamy-clayey, stony, gravelly, gravelly-shale, gravelly-sandy-loamy, sandy, sandy-clayey, loamy, clayey, clayey-loamy and silty-loamy slopes; along bases of slopes; along rocky outcrops; bases of rock outcrops; amongst boulders and rocks; shaded areas beneath overhanging rocks; in leaf litter and pine needles; perched sand dunes; banks; wet areas at the base of banks; steppes; llanos; virgin fields; silty-loamy flats; rocky uplands; hollows; valley bottoms; roadcuts; along roadsides; bottoms of arroyos; draws; gulches; rocky gullies; ravines; seeps; around springs; along streams (including vernal streams); along rocky streambeds; along brooks; along creeks; rocky, rocky-sandy and rocky-loamy creekbeds; along rivers; along and in bouldery, gravelly and sandy washes; along and in drainages; rocky-sandy bases of waterfalls; sandy depressions; along (cobbly-sandy, sandy-silty and loamy) banks of springs, streams, creeks, creekbeds, rivers and washes; edges of streams and wet meadows; along margins of washes; along sides of streams and creeks; shores of lakes; sand bars; rocky-sandy and sandy benches; terraces; rocky and rocky-loamy bottomlands; sandy floodplains; along fencerows; along canals; canal banks; sandy riparian areas; waste places; recently burned areas in forests, woodlands, scrubs and grasslands, and disturbed areas (particularly following fire) growing in wet, moist (including vernal moist sites) and damp bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-shale, gravelly-sandy and sandy ground; bouldery-sandy loam, rocky loam, rocky-clayey loam, stony loam, gravelly-sandy loam, clayey loam, silty loam and loam ground; bouldery-rocky clay, rocky clay, rocky-loamy clay, sandy clay and clay ground; rocky silty and sandy-silty ground, and humusy ground often in the shade of trees, shrubs and rocks, occurring from sea level to 10,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a toy or in games and as a drug or medication. The nutritional composition of miner's-lettuce has been determined to be 37.1 percent protein, 42.5 percent total carbohydrate, and 12.4 percent crude fiber (United State Department of Agriculture Forest Service, Fire Effects Information System). Miner's-lettuce is browsed by Pocket Gophers, Mourning Doves (*Zenaidura macroura*) and California Quail (*Callipepla californica*), other seed-eating birds, including the Western Meadow Lark (*Sturnella neglecta*), feed on the fruits; the larvae of the Purslane Sawfly feed on the seeds, and this plant is a host to the Beet Western Yellows Virus. *Claytonia perfoliata* is native to northwestern, west-central and southern North America and Central America. *5, 6, 28 (color photograph 177), 43 (040513), 44 (040613 - color photograph, listed in the Montiaceae), 46 (recorded as *Montia perfoliata*, Page 290), 63 (040513 - color presentation), 80 (This species (*Montia (Claytonia) perfoliata*) is listed as a Rarely Poisonous and suspected Poisonous Range Plant. "This small, annual forb has been reported to accumulate toxic levels of nitrate."), 85 (040713 - color presentation), 115 (color presentation), 140 (recorded as *Claytonia perfoliata* Donn (*Montia perfoliata* (Donn) Howell), Pages 40, 225-226 & 302)*

Montia perfoliata (see *Claytonia perfoliata* and/or *Claytonia perfoliata* subsp. *perfoliata*)

***Portulaca oleracea* C. Linnaeus: Little Hogweed**

SYNONYMY: *Portulaca retusa* G. Engelman. COMMON NAMES: Akulikuli-kula; Baqlah (Arabic); Barbir (Arabic); Beldroega (Portuguese); Chamó (Tarahumara); Chamokó (Hispanic); Common Purslane; Common Purslain; Common Pursland; Common Purslane; Common Pursley; Common Pusley; Common Pussley; Doejipul (transcribed Korean); Duckweed (a name also applied to other taxa); Duckweed Pursley; Duckweed Purslane; Fatweed; Garden Purslain; Garden Purslane (a name also applied to other taxa); Ghol (India); Green Leaf Purslane; Green Purslane; Inland Pigweed; Kitchen-garden Purslane; Ku'umpuri (Pima Baj o); Little Hogweed; Little Hog-weed; Little Hogweed; Little Hogweed Purslane; Little-hogweed; Ma Chi Xian (transcribed Chinese); Notched Purslane; Portulak (German); Portulak Ogorodnyj (transliterated Russian); Portulak Ovosenoj (transliterated Russian); Pourpier (French); Purslane (a name also applied to other species, the genus *Portulaca* and the Portulacaceae); Pursley (a name also applied to other taxa); Pusley (a name also applied to other taxa); Rijlah (Arabic); Roughseed Purslane; Roughseed Purslane; Roughseeded Purslane; Sa' luchi (Tarahumara); Soebireum (transcribed Korean); Suberihyu (Japanese RŌmaji); Summer Purslane; Verdolaga (a name also applied to other taxa, Spanish); Verdolagas (a name also applied to other taxa, Hispanic); Verdolaguilla (Hispanic); Vildportlak (Swedish); Weed Purslain; Weed Purslane; Western Pulsey; Western Pursley; Wild Portulaca (a name also applied to other taxa); Xakua Tsirakua (Purépecha); Yiwa Xiquitú (Hispanic). DESCRIPTION: Terrestrial annual forb/herb (spreading prostrate to somewhat ascending stems 1 to 8 inches in height and 2 inches to 2 feet in length; one plant had developed into sparsely-branched mat that was described as being 8 inches in height and 6½ to 13 feet in diameter); the stems are often pink-red or reddish; the leaves may be shiny brownish-green or gray-green; the small flowers (¼ inch in width) are orange-yellow, yellow, yellow-orange or yellowish; flowering generally takes place between late April and mid-November (additional records: one for mid-January, one for early March, one for mid-March,

one for late March, one for early December and two for mid-December). HABITAT: Within the range of this species it has been reported from sandy mountains; sandy and clayey mesas; plateaus; rocky, rocky-sandy and sandy canyons; canyon walls; rocky, gravelly-sandy and sandy canyon bottoms; chasms; rocky gorges; bases of cliffs; rocky buttes; knolls; rocky ledges; clayey-loamy and silty ridges; ridgetops; ridgelines; clearings in forests; meadows; crater bottoms; foothills; rocky hills; rocky and clayey hillsides; rocky, cindery, gravelly, gravelly-sandy, gravelly-loamy, gravelly-silty-loamy, sandy and clayey slopes; bajadas; rocky outcrops; amongst boulders; along rocks; sand dunes; clay hardpans; prairies; plains; fields; cindery, sandy, sandy-clayey, clayey and clayey-loamy flats; basins; sandy hollows; sandy valley floors; valley bottoms; coasts; along cindery railroad right-of-ways; sandy roadbeds; along rocky, rocky-sandy, gravelly, gravelly-loamy, gravelly-sandy, sandy, sandy-silty and loamy-clayey roadsides; within rocky and sandy arroyos; gravelly and sandy bottoms of arroyos; draws; clayey bottoms of draws; rocky gullies; within ravines; sandy seeps; springs; along and in sandy streams; along and in gravelly, sandy and loamy-clayey streambeds; along creeks; sandy creekbeds; along and in rivers; along and in bouldery-cobbly-sandy, rocky-cobbly-sandy and sandy riverbeds; in gravelly, sandy, loamy and clayey washes; along and in rocky-sandy and sandy drainages; in sandy drainage ways; clayey lakebeds; sandy-loamy playas; freshwater marshes; swampy areas; (muddy and sandy) banks of arroyos, rivers; riverbeds and pools; (sandy and clayey) edges of streams, rivers, washes, ponds, lagoons, playas and marshes; along (muddy and sandy) margins of streams, washes and ponds; (sandy) shores of creeks and lakes; sand bars; sandy beaches; cobbly-sandy, gravelly, sandy and sandy-loamy terraces; sandy bottomlands; sandy floodplains; mesquite bosques; dams; banks and shores of reservoirs; margins of stock tanks; along canals; ditches; gravelly banks of ditches; bouldery-cobbly-sandy, rocky and sandy riparian areas; waste places, and disturbed areas growing in muddy and wet, moist and dry bouldery, bouldery-cobbly-sandy, bouldery-sandy, rocky, rocky-cobbly-sandy, rocky-sandy, cobbly-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-silty loam, sandy loam, clayey loam and loam ground; sandy clay, loamy clay and clay ground, and sandy silty and silty ground, occurring from sea level to 9,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as forage for sheep and as a drug or medication. *Portulaca oleracea* has been reported to have been introduced from Europe; however, its native range is unknown. *5, 6, 18, 28 (color photograph 341), 30, 43 (032710), 44 (040713), 46 (recorded as *Portulaca oleracea* L. and *Portulaca retusa* Engelm., Page 291), 63 (040713 - color presentation), 68, 77, **80** (*Portulaca oleracea* and others are listed as a Rarely Poisonous and Suspected Poisonous Range Plants. "These fleshy forbs accumulate toxic levels of oxalates and may cause sickness and death in livestock."), 85 (040813 - color presentation), 86 (color photograph), 101 (color photograph), 115 (color presentation), 127, 140 (Page 302), **MBJ** (correspondence dated May 13, 2013)*

Portulaca retusa (see *Portulaca oleracea*)

Primulaceae: The Primrose Family

***Androsace occidentalis* F.T. Pursh: Western Rockjasmine**

SYNONYMY: *Androsace occidentalis* F.T. Pursh var. *arizonica* (A. Gray) H. St. John. COMMON NAMES: Rock Jasmine (a name also applied to other taxa); Rock-jasmine (a name also applied to other taxa); Western Fairy Candelabra; Western Androsace; Western Fairy Candelabra; Western Fairy-candelabra; Western Rock Jasmine; Western Rock-jasmine; Western Rockjasmine. DESCRIPTION: Terrestrial annual forb/herb (stems 1 to 5 inches in height); the basal rosette leaves may be reddish; the minute flowers (1/8 inch in diameter) may be pink, purple, red, white or white with a pink, pinkish or red tinge; flowering generally takes place between early February and mid-June (additional records: one for early August and one for mid-August). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky, gravelly and sandy mesas; plateaus; cliffs; bases of cliffs; along rocky and sandy canyons; along bedrock and sandy-loamy canyon bottoms; crevices in rock; buttes; rocky and gravelly ledges; ridges; sandy ridgetops; on and around edges of volcanic balds; openings in forests; meadows; rocky foothills; rocky and sandy hills; rocky hillsides; rocky, rocky-gravelly-loamy, rocky-sandy, rocky-loamy, shaley, gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-clayey, sandy-silty, clayey and clayey-loamy slopes; rocky-sandy alluvial fans; bajadas; rocky outcrops; amongst boulders and rocks; shaded rock niches; banks; prairies; rocky-sandy plains; rocky, clayey-loamy, silty and silty-loamy flats; rocky uplands; basins; sandy valley floors; gravelly-sandy and clayey roadbeds; along roadsides; along two-tracks; within bedrock arroyos; along rocky and sandy draws; ravines; seeps; springs; around seeping streams; along rocky and sandy streams; sandy streambeds; along creeks; along and in sandy creekbeds; along rivers; riverbeds; along and in rocky, rocky-sandy, gravelly and sandy washes; drainages; depressions; (rocky and gravelly) banks of rivers and washes; margins of streams; channel bars in rivers; terraces; sandy bottomlands; clayey floodplains; lowlands; rocky mesquite bosques; banks of stock tanks; gravelly-sandy riparian areas, and disturbed areas growing in muddy; wet, moist, damp and dry cryptogamic soil; rocky, rocky-sandy, shaley, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam gravelly loam, sandy loam, clayey loam and silty loam ground; sandy clay and clay ground, and sandy silty and silty ground, occurring from 1,000 to 11,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Androsace occidentalis* is native to central and southern North America. *5, 6, 15, 16, 43 (072809), 44 (040813), 46 (Page 636), 58, 63 (040813 - color presentation), 77, **85** (040813 - color presentation), 127, 140 (Pages 227-228 & 302)*

Androsace occidentalis var. *arizonica* (see *Androsace occidentalis*)

Ranunculaceae: The Buttercup Family

***Anemone tuberosa* P.A. Rydberg (var. *tuberosa* is/was the variety reported as occurring in Arizona): Tuber Anemone**

COMMON NAMES: Desert Anemone [Windflower] (English)¹⁴⁰; Desert Pasque Flower; Desert Thimble-weed; Desert Thimbleweed; Desert Wind-flower; Desert Windflower; Okennon's Anemone (*Anemone okennonii* - Accepted; *Anemone tuberosa* var. *texana* - Not Accepted); Tuber Anemone (*Anemone tuberosa* - Accepted; *Anemone tuberosa* var. *tuberosa* - Not Accepted); Tuber Anemone (English: New Mexico)¹⁴⁰; Windflower (a name also applied to other species and the genus *Anemone*). DESCRIPTION: Terrestrial (tuberous) perennial forb/herb (aerial shoots from tubers 3 to 20 inches in height); the stems may be purplish; the flowers may be cream & pink, creamy-white, pink, pinkish, pinkish-purple, pinkish-white, purple, rose-pink, white (aging to pink or rose), white with pinkish-violet tinges, white-blue, white-lavender, white-pink, white-purple and whitish-yellow; flowering generally takes place between early January and late May. HABITAT: Within the range of this species it has been reported from reported from mountains; rocky mountainsides; rocky mesas; cliffs; bases of cliffs; rocky canyons; rocky canyon walls; rocky canyon bottoms; gorges; talus slopes; crevices in rocks; buttes; rocky ledges; rocky promontories; along bedrock, bouldery and rocky ridges; rocky ridgetops; rocky barrens; rocky foothills; bouldery-rocky and rocky hills; rocky hilltops; bouldery and rocky hillsides; rocky, rocky-gravelly-sandy, rocky-gravelly-loamy, rocky-clayey, gravelly, gravelly-sandy, gravelly-loamy and sandy-loamy slopes; bajadas; rocky outcrops; amongst and beneath rocks; boulder fields; volcanic dikes and plugs; sandy lava flows; rocky shelves; rocky, gravelly and sandy flats; rocky basins; along rocky roadsides; along rocky draws; bouldery-rocky ravines; seeps; springs; along creeks; creekbeds; along and in gravelly washes; within bouldery-cobbly and cobbly drainage ways; along banks of streams and washes; rocky benches; terraces, and riparian areas growing in wet (rarely reported) and dry bouldery, bouldery-rocky, bouldery-cobbly, rocky, rocky-gravelly, rocky-gravelly-sandy, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly loam, gravelly loam, gravelly-clayey loam and sandy loam ground, and rocky clay and clay ground, occurring from 1,400 to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Anemone tuberosa* is native to southwest-central and southern North America. *5, 6, 15, 16, 18 (genus), 28 (color photograph 246), 42 (040913), 43 (072309), 44 (031411 - color photograph), 46 (Page 311), 58, 63 (040913 - color presentation), 77 (color photograph #90), 80 (Species in the genus *Anemone* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "These perennial forbs have been suspected of causing poisoning of livestock and have caused hairballs in the digestive tract of sheep."), 85 (040913 - color presentation), 86 (color photograph), 115 (color presentation), 124 (031411 - no record of species; genus record), 140 (Page 234-235 & 303)*

Delphinium amabile (see *Delphinium parishii* subsp. *parishii*)

Delphinium amabile subsp. *apachense* (see *Delphinium parishii* subsp. *parishii*)

***Delphinium parishii* A. Gray (subsp. *parishii* is the variety reported as occurring in Arizona): Desert Larkspur**

SYNONYMY: (for subsp. *parishii*: *Delphinium amabile* I. Tidestrom; *Delphinium amabile* I. Tidestrom subsp. *apachense* (A. Eastwood) J.A. Ewan). COMMON NAMES: Chiinō Hiitpa (Uto-Aztecan: Akimel O'odham)¹⁴⁰; Colorado Desert Larkspur (subsp. *subglobosum*); Desert Larkspur (a name also applied to other taxa); Intermediate Larkspur (subsp. *subglobosum*); Larkspur (a name also applied to other taxa and the Ranunculaceae); Mojave Larkspur (subsp. *parishii*); Mount Pinos Larkspur (*Delphinium parishii* subsp. *purpureum* - Not Accepted; *Delphinium parryi* subsp. *purpureum* - Accepted); Mount Piños Larkspur (*Delphinium parishii* subsp. *purpureum* - Not Accepted; *Delphinium parryi* subsp. *purpureum* - Accepted); Mt Pinos Larkspur (*Delphinium parishii* subsp. *purpureum* - Not Accepted; *Delphinium parryi* subsp. *purpureum* - Accepted); Ocean Blue Larkspur; Ocean-blue Larkspur; Oceanblue Larkspur (subsp. *subglobosum*); Pale-flowered Larkspur (subsp. *pallidum*); Pale-flowered Parish Larkspur (subsp. *pallidum*); Pale-flowered Parish's Larkspur (subsp. *pallidum*); Paleface Delphinium; Paleface Larkspur; Pallid Larkspur (subsp. *pallidum*); Parish Desert Delphinium; Parish Desert Larkspur; Parish Larkspur; Parish's Desert Delphinium; Parish's Desert Larkspur; Parish's Larkspur; San Bernardino Larkspur (subsp. *purpureum*); Sky Blue Larkspur (subsp. *parishii*); Sky-blue Larkspur (subsp. *parishii*); Unexpected Larkspur (*Delphinium parishii* var. *inopinum* - Not Accepted; *Delphinium inopinum* - Accepted). DESCRIPTION: Terrestrial perennial forb/herb (erect stems 6½ inches to 4 feet in height); the stems may be brownish-purple; the basal rosette of leaves is dark green; the flowers may be azure-blue, light blue, light blue-lavender, blue, blue-indigo, blue-lavender, blue-purplish, blue-violet, dark blue, bluish, bluish-purple, cream-white, pale lavender, pale lavender & white, lavender, lavender-blue-violet, pink, pinkish-violet-purple, pale purple, purple, purple-blue, dark purple-blue, sky-blue, pale violet-blue, violet-blue, white or white & light to dark blue; flowering generally takes place between early February and mid-July (additional records: one for early January, one for late August and one for early September). HABITAT: Within the range of this species it has been reported from mountains; mountaintops; gravelly-sandy-loamy mountainsides; mesas; plateaus; cliffs; rocky rims of canyons; rocky canyons; rocky-gravelly-sandy canyon walls; sandy canyon bottoms; scree; talus slopes; buttes; rocky knolls; ledges; rocky and sandy ridges;

along bouldery ridgetops; meadows; rocky and gravelly foothills; rocky and gravelly hills; rocky, gravelly, sandy and clayey hillsides; along bedrock, bouldery-rocky, bouldery-rocky-gravelly-sandy, bouldery-gravelly, rocky, rocky-gravelly, rocky-sandy, rocky-clayey, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, gravelly clay, sandy and clayey slopes; alluvial fans; gravelly-sandy bajadas; bedrock, bouldery and rocky outcrops; amongst boulders and rocks; lava fields; sand dunes; benches; sandy plains; sandy flats; basins; sandy valley floors; along cindery and sandy roadsides; arroyos; clayey gulches; gullies; along ravines; springs; around seeping streams; along streams; streambeds; along creeks; creekbeds; rivers; along and in rocky, rocky-gravelly, rocky-sandy and sandy washes; within rocky drainages; marshes; (rocky, rocky-gravelly-sandy and sandy) banks of streams and washes; (rocky) edges of arroyos and washes; benches; gravelly terraces; riparian areas; recently burned areas in forests and woodlands, and disturbed areas growing in damp (rarely reported) and dry bouldery, bouldery-rocky, bouldery-rocky-gravelly-sandy, bouldery-gravelly, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, cindery, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam and loam ground; rocky clay, gravelly clay and clay ground, and sandy silty ground occurring from 600 to 12,800 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This is the most drought tolerant of the North American Larkspurs. *Delphinium parishii* is native to southwest-central and southern North America. *5, 6, 15, 28 (color photograph 758), 42 (041013), 43 (042010 - *Delphinium amabile* Tidestr. subsp. *apachense* Ewan), 44 (041013 - color photograph), 46 (*Delphinium amabile* Tideström and *Delphinium amabile* Tideström subsp. *apachense* (Eastw.) Ewan, Page 309), 48 (genus), 63 (041013 - color presentation), 80 (Four species of Larkspur are listed as Major Poisonous Range Plants; however, “All species of Larkspur in Arizona should be considered potentially dangerous. ... The most toxic period of growth is when the plant is young and prior to flowering”: May and June for Low Larkspur (*Delphinium nelsoni*, *Delphinium scaposum* and *Delphinium virescens*) and May through July for Tall Larkspur (*Delphinium scopulorum*). “Plants remain dangerous throughout their life. Cattle are the principle livestock poisoned by larkspur. Sheep apparently graze larkspur without harm. ... Since cattle will graze on larkspur even though other forage is available, management to keep them away from heavily infested areas during this period is the best control technique.” See text for additional information.), 85 (041013 - color presentation), 140 (Page 237 & 303 - recorded as *Delphinium parishii* A. Gray subsp. *parishii*)*

***Delphinium scaposum* E.L. Greene: Tall Mountain Larkspur**

COMMON NAMES: ‘Akee’ ‘Aą <k’ey ahi’> (Athapascan: Navajo)¹⁴⁰; Bare-stem Delphinium; Bare-stem Larkspur; Bare-stemmed Larkspur; Barestem Delphinium; Barestem Larkspur; Bik’ihoochijih Nteel <k’ixwootxyeelih> (Athapascan: Navajo)¹⁴⁰; Cucul i’ispul <cu:cul, chuchul-i’ispul, cuculi i’ispul, kuksho-wuuplim> (Uto-Aztecan: Tohono O’odham)¹⁴⁰; Desert Larkspur (a name also applied to other taxa); Espuelita (Spanish); Espuelita Cimarrona (“Wild Little Spurs”, Spanish: Arizona, Sonora)¹⁴⁰; Kuk□o Wu:pulim <kuk□o wu:pulim> (Uto-Aztecan: Tohono O’odham)¹⁴⁰; Larkspur (a name also applied to other taxa and the Ranunculaceae); [Tall Mountain, Bare-stem] Larkspur (English)¹⁴⁰; Low Larkspur (a name also applied to other taxa); Naked Delphinium; Scapose Delphinium; Tall Mountain Larkspur; Tcoro’si (Hopi); [Bika’] Tádidjin Doot’izh <tádidin do’is, tádidjin doot’izhii, [bika’] tididi’n do’y’is, txatitjioot’ij> (Athapascan: Navajo)¹⁴⁰; Teoro’si <teorosi> (Uto-Aztecan: Hopi)¹⁴⁰; Tl’izí ‘Azee’ <tl’izí □aze-□> (Athapascan: Navajo)¹⁴⁰; Tu’kubagúmp [Pa’gasauwinoûp] (Uto-Aztecan: Shoshoni)¹⁴⁰; Tukymisi <tukyámsi> (Uto-Aztecan: Hopi)¹⁴⁰; Wild Delphinium. DESCRIPTION: Terrestrial perennial forb/herb (erect stems 6 inches to 4 feet in height); the leafless stems may be reddish; the basal leaves may be gray-green, green, dark green or yellow-green; the flowers (to 1 inch in width) may be blue, blue & cream-white, blue-purple, blue-purple-white, blue-violet, blue & white, bright dark blue, dark blue, lavender-blue-purple, purple, dark purple-blue, dark purple-blue & white, purple-blue, royal blue-white, deep royal blue, violet, violet-blue or white; flowering generally takes place between early March and mid-July (additional record: one for early January). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; bouldery, gravelly and sandy mesas; plateaus; along rocky rims of canyons and gorges; cliff faces; bases of cliffs; rocky, rocky-sandy, rocky-clayey-loamy and sandy canyons; rocky and sandy canyon bottoms; gorges; talus slopes; bluffs; buttes; knolls; rocky ledges; ridges; clearings in forests; meadows; rocky foothills; rocky and sandy hills; rocky and sandy-loamy hillsides; bouldery, bouldery-rocky-gravelly, rocky, rocky-clayey, gravelly, gravelly-sandy, gravelly-sandy-loamy, gravelly-loamy, gravelly-clayey-loamy, sandy, sandy-clayey, loamy and clayey slopes; bajadas; bouldery and gypsum outcrops; amongst boulders; sand dunes; benches; gravelly, sandy, clayey and silty flats, basins; valley floors; along railroad right-of-ways; along rocky, gravelly-sandy and sandy roadsides; arroyos; gravelly gullies; along seeping washes; along streams; streambeds; along rivers; along rocky and sandy washes; drainages; along water courses; gravelly-silty-clayey and gravelly-clayey depressions; clayey swales; (rocky) banks of washes; borders of washes; (rocky) edges of washes; sides of rivers and washes; shores of lakes; sandy beaches; benches; gravelly-sandy terraces; sandy bottomlands, and riparian areas growing in moist (rarely reported) and dry cryptogamic soil; bouldery, bouldery-rocky-gravelly, rocky, rocky-sandy, shaley, cindery, gravelly, gravelly-sandy and sandy ground; rocky-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; rocky clay, stony-sandy clay, gravelly clay, gravelly-silty clay, sandy clay and clay ground; silty ground, and chalky ground occurring from 800 to 8,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial dye crop; it was also noted as having been used in ceremonies; as a toy or in games, and as a drug or medication. The Tall Mountain Larkspur is reportedly visited by butterflies. *Delphinium scaposum* is native to southwest-central and southern North America. *5, 6, 15, 16, 18 (genus), 28 (color photograph), 43 (042110), 44 (041013), 46 (Pages 308-309), 48 (genus), 58, 63 (041013 - color presentation including habitat), 68, 77 (color photograph #91), 80 (This species is listed as a Major Poisonous

Range Plant; however, “All species of Larkspur in Arizona should be considered potentially dangerous. ... The most toxic period of growth is when the plant is young and prior to flowering” - May and June for Low Larkspur (*Delphinium nelsoni*, *Delphinium scaposum* and *Delphinium virescens*) and May through July for Tall Larkspur (*Delphinium scopulorum*). “Plants remain dangerous throughout their life. Cattle are the principle livestock poisoned by larkspur. Sheep apparently graze larkspur without harm. ... Since cattle will graze on larkspur even though other forage is available, management to keep them away from heavily infested areas during this period is the best control technique.” See text for additional information.), **85** (041013 - color presentation), 115 (color presentation), 127, 140 (Pages 236-238 & 303)*

Resedaceae: The Mignonette Family

***Oligomeris linifolia* (M.H. Vahl) J.F. Macbride: Lineleaf Whitepuff**

COMMON NAMES: Cambess; Desert Cambess; Line Leaf Whitepuff; Line-leaf Oligomeris; Line-leaf Whitepuff; Linear-leaf Cambess; Linearleaf Cambess; Linear-leaved Cambess; Linear-leaved Oligomeris; Lineleaf Whitepuff; Narrow-leaf Oligomeris; Narrow-leaved Oligomeris; Narrowleaf Oligomeris; Oligomeris (a name also applied to the genus *Oligomeris*); Slender-leaf Cambess; Xamassa (Seri). DESCRIPTION: Terrestrial annual (rarely perennial) forb/herb (ascending and/or erect stems 3 to 18 inches in height; one plant was reported to be 15 inches in height and width); the stems may be orange; the leaves may be green or yellow-green, and turn red before dying; the tiny flowers may be cream, green, greenish, white or whitish; flowering generally takes place between late December and early June (additional record: one for late June). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky mesas; plateaus; cliffs; rocky bases of cliffs; rocky canyons; canyon sides; canyon bottoms; gravelly talus; sandy-clayey bluffs; sandy knolls; ledges; rocky ridges; ridgelines; crater walls; crater floors; rocky foothills; gravelly-loamy and sandy hills; rocky hillsides; rocky, rocky-sandy, gravelly, sandy, clayey and silty slopes; rocky, rocky-sandy, cobbly and silty-clayey alluvial fans; rocky and gravelly bajadas; amongst rocks; sandy lava flows; sand dunes; bases of sand ramps; blow-sand deposits; berms; sandy breaks; sandy mounds; gravelly-loamy and sandy plains; rocky, gravelly, gravelly-sandy, sandy, sandy-silty, clayey and silty flats; basins; bolsons; sandy valley floors; silty valley bottoms; beach dunes; sandy-silty coastal plains; coastal beaches; sandy coastlines; along gravelly-sandy-loamy and sandy roadsides; rocky-gravelly draws; along rocky gullies; seeps; springs; around seeping streams; in clay around springs; along streams; sandy riverbeds; along and in gravelly, gravelly-sandy and sandy washes; sandy and silty lakebeds; clayey and silty playas; silty depressions; sandy swales; (rocky and gravelly) banks of rivers, washes, drainages and lakes; (cobbly and sandy) edges of lakes and playas; (silty) margins of playas and ciénegas; shores of lakes; mudflats; channel bars; sandy beaches; benches; gravelly terraces; clayey bottomlands; sandy floodplains; along sandy-clayey canals; canal banks; along ditches; gravelly-sandy riparian areas; waste places, and disturbed areas growing in moist (rarely reported) dry desert pavement; rocky, rocky-gravelly, rocky-sandy, shaley, cobbly, cindery-sandy, gravelly, gravelly-sandy and sandy ground; gravelly loam and gravelly-sandy loam ground; sandy clay, silty clay and clay ground, and sandy silty and silty ground, occurring from below sea level to 5,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The stems and leaves are semi-succulent. This plant may be toxic to cattle. *Oligomeris linifolia* is native to southwest-central and southern North America; southern Europe; central and southwestern Asia, and northern Africa and coastal islands in the North Atlantic Ocean. *5, 6, 16, 43 (042210 - *Oligomeris linifolia* J.F. Macbr.), 44 (081211), 46 (Page 358), 63 (041113), 77, **85** (041113 - color presentation), 106 - 081211 - color presentation), 124 (081211 - no record of genus or species)*

Rhamnaceae: The Buckthorn Family

***Condalia globosa* I.M. Johnston var. *pubescens* I.M. Johnston: Bitter Snakewood**

COMMON NAMES: Bitter Condalia, Bitter Snakewood, Cruerilla. DESCRIPTION: Terrestrial perennial deciduous shrub or tree (2 to 20 feet in height with a trunk diameter of up to 2 feet, one plant was reported to be 5 feet in height with a crown 5 feet in width, one plant one plant was reported to be 7 feet in height with a crown 6 feet in width, one plant one plant was reported to be 13 feet in height with a crown 13 feet in width, one plant one plant was reported to be 15 feet in height with a crown 15 feet in width and a trunk 2 feet in diameter); the leaves are gray-brown, green or yellow-green; the cup-shaped flowers (sepals, no petals) yellow or yellow-green; flowering may take place throughout the year (flowering records: one for mid-March, one for mid-April, one for early June, one for late August, one for late September, two for early October, one for late October, two for early December and one for late December); the fruits are black, dark blue or purple-black. HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; canyon bottoms; talus slopes; foothills; rocky hills; rocky slopes; rock outcrops; bajadas; sandy plains; along gravelly and sandy arroyos; arroyo bottoms; ravines; along and in rocky and sandy washes; along (sandy) banks of washes; floodplains, and riparian areas growing in dry desert pavement; rocky, gravelly and sandy ground, and gravelly loam ground, occurring from 200 to 5,100 feet in elevation in the woodland, scrub, grassland and desertscrub ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The branches are spine-tipped. The flowers are reportedly sweet scented. The species, *Condalia globosa*, was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. *Condalia globosa* var. *pubescens* is native to southwest-central and southern North America. *5, 6, 13 (species, Page 150), 28 (color photograph 47), 43 (071010), 46 (Page 529), 52 (species, color photograph of species), 53, 63 (071010), **85** (071010 -

color presentation of dried material, unable to access species information), 91 (species, Pages 165-166), 124 (110710 - no record), 127 (species)*

Condalia lycioides var. *canescens* (see *Ziziphus obtusifolia* var. *canescens*)

Condalia spathulata (see footnote 46 under *Condalia warnockii* var. *kearneyana*)

***Condalia warnockii* M.C. Johnston var. *kearneyana* M.C. Johnston: Kearney's Snakewood**

COMMON NAMES: <balchata> (Uto-Aztec: Onavas Pima)¹⁴⁰; Bindó (Spanish: San Luis Potosí)¹⁴⁰; [Mexican] Buck-thorn (English)¹⁴⁰; Buckthorn (a name also applied to the Rhamnaceae); Crucillo (a name also applied to the species); Frutillo (Spanish); Guichutilla (Spanish: Sonora)¹⁴⁰; Kearney Condalia; Kearney Snakewood; Kearney's Snakewood; Lote-bush (a name also applied to other species); Mexican Buckthorn; Mexican Crucillo (English)¹⁴⁰; [Warnock's] Snakewood (English: New Mexico)¹⁴⁰; Squaw-bush (English: Arizona, New Mexico)¹⁴⁰; Squawbush (a name also applied to the species); Teconblate [Tecomblate] (Spanish: New Mexico)¹⁴⁰; U:sba□ <'u:padh, u'usba□, u:spa't> (Uto-Aztec: Tohono O'odham)¹⁴⁰; Warnock's Snakewood (a name also applied to the species). DESCRIPTION: Terrestrial perennial deciduous (considered evergreen except during periods of severe drought) shrub (diffusely branched 20 inches to 13 feet in height; one plant was observed and described as being 6½ feet in height with a crown 10 feet in width, one plant was observed and described as being 10 feet in height with a crown 10 feet width); the leaves are dark green; the minute flowers may be yellow-green or are yellowish; based on few records located, flowering generally takes place between mid-February and mid-September (flowering records: one for mid-February, two for early August, one for mid-August, one for late August and one for mid-September; however, flowering taking place throughout the year has also been reported); the fruits are black, dark purple, red or reddish-black. HABITAT: Within the range of this species it has been reported from mountains; gravelly and sandy mesas; cliff faces; canyons; canyon bottoms; rocky ledges; ridges; edges of meadows; foothills; hills; rocky, gravelly and sandy slopes; rocky and gravelly bajadas; amongst boulders; gravelly and sandy flats; basins; valley floors; rocky arroyos; gulches; along rocky washes; along and in drainages; banks of creeks; (gravelly) edges of washes and drainages; terraces; floodplains, and around gravelly-sandy stock tanks growing in dry bouldery, rocky, gravelly, gravelly-sandy and sandy ground, occurring from 200 to 5,600 feet in elevation in the grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat; older, weathered plants have considerable character. *Condalia warnockii* var. *kearneyana* is native to southwest-central and southern North America. *5, 6, 13 (Page 149), 15, 16, 28 (color photograph 843), 43 (042210), 44 (081211 - no record of variety or species; genus record), 46 (recorded as *Condalia spathulata* A. Gray, Page 530), 58, 63 (041113), 77, 85 (041113 - color presentation of dried material), 91 (Pages 166-167), 124 (081211 - no record of variety, species or genus), 140 (recorded as *Condalia warnockii* M.C. Johnston [*Condalia spathulata* of authors, not A. Gray], Pages 239-240 & 304)*

***Ziziphus obtusifolia* (W.J. Hooker ex J. Torrey & A. Gray) A. Gray: Lotebush**

COMMON NAMES: Abrojo (Spanish: Mexico)¹⁴⁰; Amole Dulce (var. *canescens*, Spanish); Bachata (Spanish: Sonora)¹⁴⁰; Barabachatas ("Dearest Bearded One", Spanish: Sonora)¹⁴⁰; Barchata (Spanish); Bluebush; Buchthorn; Ch'il Nldzig <chi gatoiljit> (Athapascan: Western Apache)¹⁴⁰; Chaparral; Chaparro (a name also applied to other species); Chaparro Prieto ("Black Thicket", Spanish: Tamaulipas)¹⁴⁰; Ciruela de Monte ("Wild Cherry", Spanish: Sonora)¹⁴⁰; Clepe; Crucillo Blanco ("Little White Cross", Spanish: Sonora)¹⁴⁰; Garambullo ("Spiny Plant", Spanish: Mayo, Sonora)¹⁴⁰; Garrapata ("Tick", Spanish: Mexico)¹⁴⁰; Gray-leafed Abrojo; Gray-leaved Abrojo; Gray Thorn; Gray-thorn; Graythorn; Graythorn Abrojo; Graythorn Aborojo; Graythorn Lotebush; Grey Thorn; Grey-thorn; Greythorn; Gumdrop Tree (English: Texas)¹⁴⁰; Huichilame (Uto-Aztec: Mayo)¹⁴⁰; Hutki <jutuqui> (Uto-Aztec: Mayo)¹⁴⁰; Jewe□ba□us <duwastba□ uus> ("Tall, Dead-looking Bush", Uto-Aztec: Onavas Pima)¹⁴⁰; Jó'otero (Uto-Aztec: Mayo)¹⁴⁰; Lote; Lote Bush; Lote-bush; Lotebush (English)¹⁴⁰; Lotebrush; Lotebush; Lotibush; Oschuvapat (Pima); Palo Blanco ("White Tree", Spanish: Mexico)¹⁴⁰; Southwestern Condalia; Texas Buckthorn; Thorn (English: Arizona)¹⁴⁰; U:s Jewe□ba□ <'us jewedhpadh, u:s tcui'tpa't> (Uto-Aztec: Tohono O'odham)¹⁴⁰; U:spa□ <'uspa□> (Uto-Aztec: Tohono O'odham)¹⁴⁰; U'us Cheva□ba□ <osite u'wutpat, u-us dji-wuht-paht> (Uto-Aztec: Akimel O'odham)¹⁴⁰; U:spa□ <u:supa□> (Uto-Aztec: Hiá Ce□ O'odham)¹⁴⁰; U's Jeve□pa□ (Uto-Aztec: Hiá Ce□ O'odham)¹⁴⁰; Uwé (Yuman: Maricopa)¹⁴⁰; White Crucillo (English)¹⁴⁰; Whitethorn (a name also applied to other species). DESCRIPTION: Terrestrial perennial drought deciduous shrub or tree (3 to 13 feet in height; one plant was observed and described as being 40 inches in height with a crown 18 inches in width, one plant was observed and described as being 7 feet in height with a crown 7 feet in width, one plant was observed and described as being 10 feet in height with a crown 10 feet in width, one plant was observed and described as being 10 feet in height with a crown 13 feet in width, one plant was observed and described as being 13 feet in height with a crown 13 feet in width, one plant was observed and described as being 13 feet in height with a crown 20 feet in width); the branches may be light gray, gray, gray-green or green; the stems may be bluish, brown, gray, gray-green, green or whitish with the branchlets ending in stout thorns; the leaves are gray-green, pale green, green or yellow-green; the inconspicuous flowers may be cream, light green, green, greenish-white, greenish-yellow, dark purple, yellow-green, white or whitish-green; flowering generally takes place between mid-May and late November (additional records: one for mid-January, one for late January, one for early March, two for mid-March, three for late March, three for mid-April and one for late April); the ripe fruits may be black, blue, dark blue or purple. HABITAT: Within range of this species it has been reported from mountains; mountainsides; gravelly mesas; rocky cliffs; bases of cliffs; rocky and gravelly canyons; sandy-clayey canyonsides; along rocky canyon bottoms; scree; talus slopes; crevices in rocks; buttes; rocky and gravelly-clayey-loamy ridges; rocky and gravelly ridgetops; ridgetines; foothills; rocky, cobbly and cobbly-gravelly-loamy hills; hilltops; rocky hillsides;

bedrock, rocky, rocky-cobbly-gravelly, rocky-gravelly-sandy, rocky-sandy, gravelly, gravelly-loamy and gravelly-clayey-loamy slopes; rocky alluvial fans; gravelly bajadas; rocky outcrops; amongst boulders, rocks and gravels; sandy dunes; breaks; prairies; gravelly, gravelly-silty, sandy-silty and silty plains; rocky, gravelly and sandy-loamy flats; uplands; basin bottoms; rocky valley floors; valley bottoms; coastal plains; coastal beaches; along gravelly, gravelly-sandy-clayey-loamy, gravelly-loamy and sandy-clayey-loamy roadsides; along rocky, gravelly, gravelly-sandy and sandy arroyos; along rocky, gravelly and sandy bottoms of arroyos; draws; gulches; ravines; bouldery bottoms of ravines; seeps; in clay around springs; along streams; along rocky streambeds; along creeks; along gravelly-sandy creekbeds; in gravels along rivers; along gravelly and gravelly-sandy rivers; sandy riverbeds; along and in rocky, sandy and sandy-clayey washes; along drainages; marshes; swales; along (bouldery-sandy, rocky, gravelly-sandy and sandy) banks of streams, creeks, rivers and washes; borders of washes; (gravelly-sandy) edges of arroyos and creeks; margins of springs; beaches; sandy benches; gravelly terraces; sandy bottomlands; gravelly-sandy floodplains; mesquite bosques; thickets of Soapberry (*Sapindus saponaria*); along fencerows; along canals; gravelly-sandy and sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-cobbly-gravelly, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; cobbly-gravelly loam, gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam and sandy-clayey loam ground; sandy clay and clay ground, and gravelly silty, sandy silty and silty ground, occurring from sea level to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder and/or beverage crop; it was also noted as having been used as a tool, as a drug or medication and as a commodity used in personal hygiene. The heartwood may be red-brown and may be honey-scented. The flowers are visited by orange-winged Spider Wasps. Gray Foxes (*Urocyon cinereoargenteus*), Raccoons (*Procyon lotor*), Ringtails (*Bassariscus astutus*), Gambel's Quail (*Callipepla gambelii*), Scaled Quail (*Callipepla squamata*), Mockingbirds (*Mimus polyglottos*), Northern Orioles (*Icterus bullockii*), Phainopeplas (*Phainopepla nitens*), Band-tailed Pigeons (*Columba fasciata*), White-necked Ravens (*Corvus cryptoleucus*), Curved-billed Thrashers (*Toxostoma curvirostre*), Golden-fronted Woodpeckers (*Melanerpes aurifrons*), White-winged Doves (*Zenaida asiatica*) and other birds feed on the fruit. The plants numerous spines provide an impenetrable refuge for birds and many species of birds make use of the Lotebush as a preferred nesting site. The Northern Bobwhite (*Colinus virginianus*) may use larger lotebushes for fall, winter and spring loafing cover. *Ziziphus obtusifolia* is native to southwest-central and southern North America. *5, 6, 13 (Pages 146-147, color photograph of *Z.o.* var. *canescens*: Plate M.2., Page 400), 28 (color photograph 848), 43 (042210), 44 (121310), 46 (recorded as *Condalia lycioides* (Gray) Weberb., Page 530), 63 (041213), 85 (041313 - color presentation), 91(Pages 421-422), 124 (110710), 127, 140 (reported as *Ziziphus obtusifolia* (Hooker ex Torrey & A. Gray) A. Gray var. *canescens* (A. Gray) M.C. Johnston [*Condalia lycioides* (A. Gray) Weberbauer var. *canescens* (A. Gray) Trelease], Pages 243-244 & 304)*

***Ziziphus obtusifolia* (W.J. Hooker ex J. Torrey & A. Gray) A. Gray var. *canescens* (A. Gray) M.C. Johnston: Lotebush**

SYNONYMY: *Condalia lycioides* (A. Gray) A. Weberbauer var. *canescens* (A. Gray) W. Trelease. COMMON NAMES: Abrojo (Spanish: Mexico)¹⁴⁰; Amole Dulce (Spanish); Bachata (Spanish: Sonora)¹⁴⁰; Barabachatas (“Dearest Bearded One”, Spanish: Sonora)¹⁴⁰; Barchata (Spanish); Buchthorn; Ch’il Nídzig <chi gatoiilit> (Athapascan: Western Apache)¹⁴⁰; Chaparro (a name also applied to other species); Chaparro Prieto (“Black Thicket”, Spanish: Tamaulipas)¹⁴⁰; Ciruela de Monte (“Wild Cherry”, Spanish: Sonora)¹⁴⁰; Clepe (a name also applied to the species); Crucillo Blanco (“Little White Cross”, Spanish: Sonora)¹⁴⁰; Garambullo (“Spiny Plant”, Spanish: Mayo, Sonora)¹⁴⁰; Garrapata (“Tick”, Spanish: Mexico)¹⁴⁰; Gray Crucillo; Gray Thorn (a name also applied to the species); Gray-leaf Condalia; Gray-leaved Abrojo (a name also applied to the species); Gray-leaved Abrojo (a name also applied to the species); Grayleaf Condalia; Gray-thorn (a name also applied to the species); Graythorn (a name also applied to the species); Graythorn Abrojo (a name also applied to the species); Graythorn Aborojo (a name also applied to the species); Graythorn Lotebush (a name also applied to the species); Grey Thorn (a name also applied to the species); Grey-leaved Abrojo; Grey-thorn (a name also applied to the species); Greythorn (a name also applied to the species); Gumdrop Tree (a name also applied to the species, Texas); Gumdrop Tree (English: Texas)¹⁴⁰; Huichilame (Uto-Aztecan: Mayo)¹⁴⁰; Hutki <jutuqui> (Uto-Aztecan: Mayo)¹⁴⁰; Jewe□ba□u:s <duwastba□ uus> (“Tall, Dead-looking Bush”, Uto-Aztecan: Onavas Pima)¹⁴⁰; Jó’otoro (Uto-Aztecan: Mayo)¹⁴⁰; Lote Bush (a name also applied to the species and to the genus *Ziziphus*); Lote-bush (a name also applied to the species and to the genus *Ziziphus*); Lotebush (a name also applied to the species and to the genus *Ziziphus*); Lotebrush (a name also applied to the species); Lotibush (a name also applied to the species); Oschuvapat (Pima); Palo Blanco (“White Tree”, Spanish: Mexico)¹⁴⁰; Southwestern Condalia (a name also applied to the species); Thorn (English: Arizona)¹⁴⁰; U:s Jewe□ba□ <‘us jewedhpadh, u:s tcui’tpa’t> (Uto-Aztecan: Tohono O’odham)¹⁴⁰; U:spa□ <‘uspa□> (Uto-Aztecan: Tohono O’odham)¹⁴⁰; U’us Cheva□ba□ <osite u’wutpat, u-us dji-wuht-paht> (Uto-Aztecan: Akimel O’odham)¹⁴⁰; ‘U:spa□ <u:supa□> (Uto-Aztecan: Hiá Ce□ O’odham)¹⁴⁰; ‘Us Jeve□pa□ (Uto-Aztecan: Hiá Ce□ O’odham)¹⁴⁰; Uwé (Yuman: Maricopa)¹⁴⁰; White Crucillo (English)¹⁴⁰; White Crucillo (a name also applied to the species). DESCRIPTION: Terrestrial perennial drought deciduous shrub or tree (3 to 13 feet in height; one plant was observed and described as being 40 inches in height with a crown 18 inches in width, one plant was observed and described as being 7 feet in height with a crown 7 feet in width, one plant was observed and described as being 10 feet in height with a crown 10 feet in width, one plant was observed and described as being 13 feet in height with a crown 13 feet in width); the stems may be bluish, gray, gray-green, green or whitish with the twigs ending in stout thorns; the leaves may be gray-green, green or yellow-green, the inconspicuous flowers may be cream, green, greenish-white, yellow, yellow-green or whitish-green; flowering generally takes

place between mid-May and late November (additional records: one for late January, one for mid-March, one for late March, one for mid-April and one for late April); the ripe fruits may be black, blue-purple, dark blue or purple. HABITAT: Within range of this species it has been reported from mountains; mountainsides; mesas; cliffs; rocky canyons; along canyon bottoms; scree; talus slopes; bases of cliffs; crevices in rocks; buttes; ridges; ridgelines; foothills; rocky hills; hilltops; rocky hillsides; rocky and gravelly slopes; rocky alluvial fans; gravelly bajadas; amongst boulders, rocks and gravels; sandy-silty plains; rocky and gravelly flats; basins; rocky valley floors; gravelly and gravelly-loamy roadsides; arroyos; bottoms of arroyos; gulches; ravines; bouldery bottoms of ravines; seeps; in clay around springs; rivulets; along streams; along rocky streambeds; along creeks; along gravelly-sandy creekbeds; along gravelly and gravelly-sandy rivers; riverbeds; along and in rocky and sandy washes; drainages; marshes; along (rocky) banks of streams, creeks, rivers and washes; borders of washes; (gravelly-sandy) edges of arroyos and creeks; beaches; sandy benches; terraces; bottomlands; floodplains; mesquite bosques; along fencerows; along canals; gravelly-sandy riparian areas, and disturbed areas growing in dry desert pavement; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, gravelly, gravelly-sandy and sandy ground; cobbly-gravelly loam, gravelly loam and gravelly-clayey loam ground; sandy clay and clay ground, and sandy silty ground, occurring from sea level to 5,500 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fodder and/or beverage (*Ziziphus obtusifolia*) crop; it was also noted as having been used as a tool, as a drug or medication and as a commodity used in personal hygiene. The flowers are visited by orange-winged Spider Wasps. Gray Foxes (*Urocyon cinereoargenteus*), Raccoons (*Procyon lotor*), Ringtails (*Bassariscus astutus*), Gambel's Quail (*Callipepla gambelii*), Scaled Quail (*Callipepla squamata*), Mockingbirds (*Mimus polyglottos*), Northern Orioles (*Icterus bullockii*), Phainopeplas (*Phainopepla nitens*), Band-tailed Pigeons (*Columba fasciata*), White-necked Ravens (*Corvus cryptoleucus*), Curved-billed Thrashers (*Toxostoma curvirostre*), Golden-fronted Woodpeckers (*Melanerpes aurifrons*), White-winged Doves (*Zenaida asiatica*) and other birds feed on the fruit. The plants numerous spines provide an impenetrable refuge for birds and many species of birds make use of the Lotebush as a preferred nesting site. *Ziziphus obtusifolia* var. *canescens* is native to southwest-central and southern North America. *5, 6, 13 (Page 147, color photograph: Plate M.2., Page 400), 15, 16, 28 (species, color photograph of species 848), 43 (042210), 44 (040211), 46 (recorded as *Condalia lycioides* (Gray) Weberb. var. *canescens* (Gray) Trel., Page 530), 58, 63 (041213), 77, 85 (041313 - color presentation), 91 (species, Pages 421-422), 124 (040211 - no record of variety; species and genus records), 127, 140 (reported as *Ziziphus obtusifolia* (Hooker ex Torrey & A. Gray) A. Gray var. *canescens* (A. Gray) M.C. Johnston [*Condalia lycioides* (A. Gray) Weberbauer var. *canescens* (A. Gray) Trelease], Pages 243-244 & 304), **HR***

Rubiaceae: The Madder Family

***Galium proliferum* A. Gray: Limestone Bedstraw**

COMMON NAMES: Bear Bedstraw; Bedstraw (a name also applied to other taxa and the genus *Galium*); Desert Annual Bed-straw; Desert Bedstraw (a name also applied to other taxa); Great Basin Bedstraw; Limestone Bedstraw (a name also applied to other taxa); Prolific Bedstraw; Slender Bedstraw (a name also applied to other taxa); Spreading Bedstraw (a name also applied to other taxa). DESCRIPTION: Terrestrial annual forb/herb (ascending and/or erect stems 4 to 12 inches in height); the herbage is dark green; the minute flowers may be cream, white or pale yellow; flowering generally takes place between early February and late May (additional records: two for mid-January and one for early December; flowering beginning as early as December and ending as late as June has been reported). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; mesas; hanging gardens; rocky canyons; rocky and sandy canyon bottoms; rocky talus slopes; along crevices in rocks; around knolls; rocky-gravelly-sandy ledges; rocky and shaley-clayey ridges; rocky ridgetops; foothills; rocky hills; rocky hillsides; along and on bedrock, bouldery, bouldery-cobbly-sandy, rocky, rocky-clayey and gravelly slopes; rocky bajadas; gravelly pediments; rocky outcrops; amongst boulders and rocks; cobbly plains; rocky and sandy flats; basins; rocky roadsides; along two-tracks; rocky arroyos; gravelly and gravelly-sandy bottoms of arroyos; gravelly draws; along streams; along streambeds; creeks; creekbeds; along rivers; along gravelly riverbeds; along and in bedrock, rocky-sandy and sandy washes; along and in rocky drainages; (rocky) banks of rivers; edges of washes; (gravelly-sandy and sandy) margins of arroyos and watercourses; floodplains; along rocky fencelines; riparian areas, and disturbed areas growing in wet, moist and dry bouldery, bouldery-cobbly-sandy, rocky, rocky-gravelly-sandy, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; clayey loam ground, and rocky clay and shaley clay ground, occurring from 700 to 7,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Galium proliferum* is native to southwest-central and southern North America. *5, 6, 15, 16, 18 (genus), 43 (042310), 44 (041413), 46 (Page 812), 58, 63 (041413), 77, **85** (041413 - color presentation), 140 (Page 304)*

***Galium stellatum* A. Kellogg (subsp. *eremicum* (M.L. Hilend & J.T. Howell) F. Ehrendorfer is the subspecies reported as occurring in Arizona): Starry Bedstraw**

SYNONYMY: (for subsp. *eremicum*: *Galium stellatum* A. Kellogg var. *eremicum* M.L. Hilend & J.T. Howell). COMMON NAMES: Bedstraw (a name also applied to other taxa and the genus *Galium*); Crevice Bedstraw (subsp. *eremicum*); Desert Bedstraw (a name also applied to other taxa); Shrubby Bedstraw; Star Bedstraw; Star Flowered Bedstraw; Star-flowered Bedstraw; Starry Bedstraw; Stellate Bedstraw. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (sprawling and spreading with densely matted [semi-prostrate in subsp. *stellatum*] woody stems 6 to 40 inches in height; one plant was observed

and described as being 20 inches in height with a crown 14 inches in width; one plant was observed and described as being 32 inches in height and width; the bark is gray; the stems are reddish; the leaves are dark green; the flowers may be cream, cream-white, gray-yellow, pale green, greenish, greenish-yellow, white, yellow-green, yellowish or yellowish-cream; flowering generally takes place between early February and mid-June (additional records: one for early July, one for mid-August, one for late August, one for early September, two for mid-September, one for late October and one for late November). HABITAT: Within the range of this species it has been reported from rocky mountains; rocky mountainsides; bases of mountains; mesas; rocky cliffs; rock walls; bases of cliffs; rocky canyons; rocky canyon walls; bouldery-gravelly-sandy and sandy canyon bottoms; chasms; gorges; scree, talus slopes; crevices in boulders and rocks; pockets of soil; bluffs; tops of bluffs; buttes; ledges; rocky and shaley ridges; gravelly-clayey ridgetops; rocky and shaley foothills; bouldery-rocky, rocky and gravelly hills; rocky, rocky-shaley, rocky-gravelly and gravelly hillsides; bouldery, bouldery-rocky, rocky, rocky-gravelly-loamy, rocky-clayey-loamy, stony, cindery and gravelly-loamy slopes; gravelly-sandy and sandy bajadas; bouldery and rocky outcrops; amongst boulders and rocks; bases of rocks; rocky alcoves; bouldery-sandy grottos; lava flows; rocky banks; uplands; valley floors; along roadsides; along arroyos; rocky gulches; gravelly ravines; seeps; springs; along streams; rivers; along and in bouldery, bouldery-rocky-sandy, rocky, gravelly and sandy washes; bouldery-cobbly drainages; drainage ways; (sandy) banks of creeks and rivers; borders of washes; margins of drainages; shores of rivers; bouldery-sand and gravel bars; rocky beaches; debris fans; sandy terraces, and riparian areas growing in dry bouldery, bouldery-rocky, bouldery-rocky-sandy, bouldery-cobbly, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-shaley, rocky-gravelly, rocky-sandy, shaley, cindery, gravelly and sandy ground; rocky-gravelly loam, rocky-clayey loam and gravelly loam ground, and gravelly clay ground, occurring from 200 to 10,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Galium stellatum* is native to southwest-central and southern North America. *5, 6, 16, 18 (genus), 28 (color photograph 174), 43 (042310 - *Galium stellatum* Kellogg, *Galium stellatum* subsp. *eremicum* (Hilend & J.T. Howell) Ehrend., *Galium stellatum* var. *eremicum* Hilend & J.T. Howell), 44 (041413), 46 (Page 811), 63 (042310), **85** (041413 - color presentation), 140 (Page 304)*

***Galium stellatum* A. Kellogg subsp. *eremicum* (M.L. Hilend & J.T. Howell) F. Ehrendorfer: Starry Bedstraw**

SYNONYMY: *Galium stellatum* A. Kellogg var. *eremicum* M.L. Hilend & J.T. Howell. COMMON NAMES: Bedstraw, Crevice Bedstraw (a name also applied to other taxa and the genus *Galium*); Desert Bedstraw (a name also applied to other taxa), Shrubby Bedstraw, Starry Bedstraw. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (sprawling and spreading with densely matted stems 6 to 40 inches in height; one plant was observed and described as being 3 feet in height and 4 feet in width); the bark is gray; the stems are reddish; the leaves are dark green; the flowers may be cream, cream-white, gray-yellow, greenish, white, yellow-green or yellowish; flowering generally takes place between mid-February and mid-June (additional records: one for mid-August, one for late August, one for early September, one for mid-September and one for late November). HABITAT: Within the range of this species it has been reported from rocky mountains; rocky mountainsides; mesas; rocky cliffs; rock walls; rocky canyons; rocky canyon walls; bouldery-gravelly-sandy and sandy canyon bottoms; chasms; gorges; bases of cliffs; pockets of soil; talus slopes; crevices in boulders and rocks; bluffs; tops of bluffs; buttes; ledges; rocky and shaley ridges; gravelly-clayey ridgetops; rocky and shaley foothills; rocky and gravelly hills; rocky, rocky-shaley, rocky-gravelly, gravelly and gravelly-clayey hillsides; bouldery, bouldery-rocky, rocky, rocky-gravelly-loamy, rocky-clayey-loamy, stony, cindery and gravelly-loamy slopes; gravelly-sandy bajadas; bouldery and rocky outcrops; amongst boulders and rocks; bases of rocks; rocky alcoves; bouldery-sandy grottos; lava flows; uplands; valley floors; along roadsides; along arroyos; rocky gulches; gravelly ravines; seeps; springs; along streams; rivers; along and in bouldery, bouldery-rocky-sandy, rocky and sandy washes; within bouldery-cobbly drainages; drainage ways; sandy banks of creeks and rivers; margins of drainages; shores of rivers; bouldery-sandy bars; rocky beaches; debris fans; sandy terraces, and riparian areas growing in dry bouldery, bouldery-rocky, bouldery-rocky-sandy, bouldery-cobbly, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-shaley, rocky-gravelly, rocky-sandy, shaley, cindery, gravelly and sandy ground; rocky-gravelly loam, rocky-clayey loam and gravelly loam ground, and gravelly clay ground, occurring from 1,100 to 6,200 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Galium stellatum* subsp. *eremicum* is native to southwest-central and southern North America. *5, 6, 18 (genus), 28 (species, color photograph of species 174), 43 (042310 - *Galium stellatum* subsp. *eremicum* (Hilend & J.T. Howell) Ehrend., *Galium stellatum* var. *eremicum* Hilend & J.T. Howell), 44 (041413 - color photograph of var. *eremicum*), 46 (Page 811), 63 (041413), 77, **85** (041413 - color presentation of dried material)*

Galium stellatum var. *eremicum* (see *Galium stellatum* subsp. *eremicum*)

Salicaceae: The Willow Family

***Populus fremontii* S. Watson: Frémont Cottonwood**

COMMON NAMES: Álamo (a name also applied to other species and the the genus *Populus*, Spanish); Alamo Cottonwood (a name also applied to other species); Arizona Cottonwood (subsp. *mesetae*); Cottonwood (a name also applied to other species, the genus *Populus* and to the Salicaceae); Fremont Alamo; Frémont Alamo; Fremont Cotton Wood; Frémont Cotton Wood; Fremont Cotton-wood; Frémont Cotton-wood; Fremont Cottonwood; Frémont Cottonwood; Fremont Poplar; Frémont Poplar; Fremont Western Cottonwood; Frémont Western Cottonwood; Fremont's Alamo; Frémont's Alamo; Fremont's Cotton Wood; Frémont's Cotton Wood; Fremont's Cotton-wood; Frémont's Cotton-wood; Fremont's Cottonwood; Frémont's Cottonwood; Fremont's Poplar; Frémont's Poplar; Fremont's Western Cottonwood; Frémont's Western Cottonwood; Meseta

Cottonwood (subsp. *mesetae*); Rio Grande Cottonwood; Riparian Forest cottonwood; Rio Grande Cottonwood (*Populus fremontii* var. *wislizeni* - Not Accepted; *Populus deltoides* subsp. *wislizeni* - Accepted); Western Cottonwood (a name also applied to other species). DESCRIPTION: Terrestrial perennial deciduous tree (20 inches to 112 feet in height with a broad, spreading flat-topped or rounded crown; one sapling was observed and described as being 20 inches in height and 8 inches in width; one large tree was observed and described as being 92 feet in height with a crown 108 feet across); the older fissured bark is brownish, gray, gray-brown, grayish-white, pale tan or whitish; the branches are gray-brown to reddish-brown; the twigs are yellow before turning a bone-white, pale gray, tan or tannish-white; the leaves are a shiny gray-green, bright green or yellow-green turning golden-yellow or lemon-yellow in autumn; the flowers (catkins with the male (1 to 3¼ inches in length) and female (2 to 5 inches in length) on separate trees) may be greenish-yellow, reddish or yellowish-green; flowering generally takes place between early February and early May (additional records: one for late August and one for mid-September); the cottony seeds are fuzzy and white. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; plateaus; hanging gardens; bases of cliffs; along bouldery, rocky and sandy canyons; along bouldery-sandy, rocky, rocky-sandy-silty and sandy canyon bottoms; chasms; bluffs; edges of meadows; foothills; along bouldery hills; rocky hillsides; bouldery-gravelly, bouldery-loamy, rocky, gravelly-sandy, sandy-clayey-loamy and silty slopes; along and amongst boulders and rocks; gravelly, gravelly-sandy-clayey, sandy and clayey flats; basins; valley floors; along valley bottoms; coastal prairies; along railroad right-of-ways; along gravelly-loamy and sandy-loamy roadsides; within stony, sandy and sandy-silty arroyos; bottoms of arroyos; draws; within seeps; along and around springs; along streams; gravelly streambeds; along creeks; rocky and sandy creekbeds; along rivers; sandy-clayey-loamy riverbeds; along and in bouldery-sandy, rocky, rocky-sandy, sandy and loamy washes; drainages; waterholes; oases; around ponds; ciénegas; freshwater marshes; along (rocky and sandy) banks of streams, creeks, rivers and washes; borders of washes; along (silty-clayey) edges of streams, creeks, rivers, washes, ponds and lakes; (sandy-clayey) margins of rivers and playas; (clayey) sides of freshwater marshes; along shores of lakes; gravel and sand bars; rocky-gravelly-sandy-loamy, rocky-sandy and gravelly benches; terraces; rocky bottomlands; gravelly-sandy and sandy floodplains; lowlands; sandy mesquite bosques; stock tanks; edges of reservoirs; along canals; along ditches; ditch banks; bouldery-gravelly-sandy, rocky-silty-loamy, sandy and silty-loamy riparian areas, and disturbed areas growing in moist, damp and dry ground (areas where subsurface water is available) in bouldery, bouldery-gravelly, bouldery-gravelly-sandy, bouldery-sandy, bouldery-loamy, rocky, rocky-gravelly-pebbly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; bouldery loam, rocky-gravelly-sandy loam, rocky-silty loam, gravelly loam, gravelly-sandy loam, sandy loam, sandy-clayey loam, silty loam and loam ground; gravelly-sandy clay, silty clay and clay ground, and rocky-sandy silty, sandy silty and silty ground, occurring from below sea level to 9,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and its rapid early growth makes it an excellent plant for use in re-vegetating riparian areas. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or fiber crop; it was also noted as having been used as an indicator of planting seasons; as tools; as musical instruments, fuel and as a drug or medication. The Frémont Cottonwood may have a life span of more than 130 year of age. It reaches reproductive maturity in 5 to 10 years. Consider planting male trees if the “cotton” produced by female trees is objectionable. The Frémont Cottonwood is very useful in slowing soil and stream bank erosion and in re-vegetating damaged riparian areas. The cottonwood provides food for Beaver (*Castor canadensis*), Elk (*Cervus elaphus*), Mule Deer (*Odocoileus hemionus*), White-tailed Deer (*Odocoileus virginianus*), and squirrels, and the Golden Eagle (*Aquila chrysaetos*), Swainson’s Hawk (*Buteo swainsoni*), Red-tailed Hawk (*Buteo jamaicensis*), Bell’s Vireo (*Vireo bellii*) build nests in the crown. Cottonwood bark is a principle food of the American Beaver (*Castor canadensis*), and the stems of poplars are used in the construction of their dams. The trees are sometimes parasitized by the Yellow (or Colorado Desert) Mistletoe (*Phoradendron macrophyllum* subsp. *macrophyllum*). Native stands of Cottonwood Trees have been decimated due to the altering of natural water flows, the clearing and development of the flood plains, stream channelization and the loss of suitable recruitment sites. When restoring the floodplains of major river systems consider including the following plants in the mix if they have been recorded from this township: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koerberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Nettleleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*) and Fremont Cottonwood (*Populus fremontii*). *Populus fremontii* subsp. *fremontii* intergrades with *Populus fremontii* subsp. *mesetae*. *Populus fremontii* is native to southwest-central and southern North America. *5, 6, 13, 18, 26 (color photograph), 28 (color photograph 57), 42 (041513), 43 (042410), 44 (041513), 46 (Pages 208-209), 48, 52 (color photograph), 53, 58, 63 (041513 - color presentation), 77, 85 (041513 - color presentation), 115 (color

presentation), 127, ADS (website November 2, 2012, Landmark S. Ariz. Cottonwood Tree Topples: this article reported that this tree was 150 years of age, it was 92 feet in height, had a crown spread of 108 feet and was 42 feet around), **HR***

***Salix exigua* T. Nuttall: Narrowleaf Willow**

SYNONYMY: (for *Salix exigua* var. *exigua*: *Salix exigua* T. Nuttall var. *nevadensis* (S. Watson) C.K. Schneider; *Salix exigua* T. Nuttall var. *stenophylla* (P.A. Rydberg) C.K. Schneider. COMMON NAMES: Acequia Willow; Basket Willow; Bila (Zuni for Willow, Bark of the Willow is Bila Tsikwa:we); Common Coyote Willow; Coyote Sand Bar Willow; Coyote Sand-bar Willow; Coyote Sandbar Willow; Coyote Willow; Coyote Willow (var. *exigua*); Coyotevide (Swedish); Desert Willow (a name also applied to other taxa); Dusky Willow (*Salix exigua* var. *gracilipes*, subsp. *melanopsis* and var. *tenerrima* - Not Accepted; *Salix melanopsis* - Accepted); Gray Willow; Hinds Willow (var. *hindsiana*); Hinds' Willow (var. *hindsiana*); Linear-leaf Willow (Oklahoma); Linear-leaved Willow (Oklahoma); Longleaf Willow; Narrow Leaf Sandbar Willow; Narrow-leaf Sandbar Willow; Narrow Leaf Willow; Narrow-leaf Willow; Narrow-leaved Hairy Willow; Narrow-leaved Sandbar Willow; Narrow-leaved Willow; Narrowleaf Willow; Narrowleaf Willow (var. *exigua*); Northwest Sandbar Willow (*Salix exigua* var. *sessilifolia* - Not Accepted; *Salix sessilifolia* - Accepted); Parish Willow; Parish' Willow; Sandbar Willow; Sandbar Willow (*Salix exigua* var. *exterior*, subsp. *interior*, var. *pedicellata* and var. *sericans* - Not Accepted; *Salix interior* - Accepted); Sauce (Spanish); Saule à Feuilles Argentées (French); Silver-leaf Willow; Silver-leaved Willow; Silverleaf Willow; Silvery Desert Willow; Slender Willow; Texas Sandbar Willow. DESCRIPTION: Terrestrial perennial winter-deciduous shrub or tree (20 inches to 56 feet in height though usually reported as growing well less than half this height); the bark may be greenish or green-gray becoming gray-brown with age; the branches may be gray-brown, red-brown or yellow-brown; the twigs may be reddish or yellow-brown aging to gray or red-brown; the leaves may be gray-green, green, silvery or yellow-green; the male flowers (catkins ½ to 1 inch in length) and female flowers (catkins ½ to 1½ inches in length), usually borne on separate trees, are yellow; the anthers are reddish (turning yellow) or yellow; flowering generally takes place between early February and mid-September (additional records: two for early October, three for mid-October, one for mid-November and two for late December; flowering occurring after leaf development in mid- to late spring reaching its peak in May and continuing sporadically through the growing season has been reported). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; plateaus; along bouldery, rocky, gravelly, sandy and clayey canyons; rocky canyon walls; along bouldery, bouldery-sandy, rocky, rocky-sandy, sandy, sandy-loamy and sandy-silty canyon bottoms; silty bases of cliffs; crevices in rocks; rocky knobs; ridges; stony and sandy-silty meadows; foothills; hills; bouldery-sandy, rocky, cindery, gravelly-clayey, sandy, sandy-loamy, clayey-loamy and silty-loamy slopes; rocky outcrops; amongst boulders; clay pans; sandy steppes; prairies; plains; cindery, gravelly-sandy-clayey, sandy, clayey, silty, silty-loamy and silty-clayey flats; upland areas; basins; hollows; sandy valley floors; bouldery-gravelly valley bottoms; sandy coastal dunes; coastal flats; railbeds; along gravelly roadsides; within rocky, stony and sandy arroyos; within loamy, loamy-clayey, clayey and silty draws; silty bottoms of draws; gulches; gullies; ravines; bottoms of ravines; stony and gravelly seeps; around springs; along and in bouldery-rocky, gravelly and sandy streams; bouldery, bouldery-stony-sandy-silty, bouldery-sandy, rocky-sandy, gravelly-clayey and sandy streambeds; along and in rocky and rocky-gravelly-sandy creeks; along and in bouldery, gravelly-clayey, sandy and silty creekbeds; along and in rivers; along and in rocky-sandy, gravelly, gravelly-sandy, sandy and clayey riverbeds; along and in bedrock, rocky, rocky-sandy, gravelly, gravelly-sandy and sandy washes; along and in rocky, gravelly-sandy, sandy-loamy and clayey-loamy drainages; drainageways; among and in pools; along and in silty ponds; along beaver ponds; pondbeds; along lakes; waterholes; backwaters; boggy areas; cienegas; freshwater marshes; silty depressions; vernal moist swales; along (rocky, shaley, sandy and clayey) banks of springs, streams, streambeds, creeks, creekbeds; rivers, riverbeds, washes and drainages; along (rocky, gravelly, sandy, sandy-loamy and silty) edges of springs, streams, creeks, rivers, riverbeds, washes, ponds, lakes, freshwater and saltwater marshes and swamps; along (rocky and rocky-sandy) margins of rivers, lakes and lakebeds; (sandy) sides of streams, creeks and lakes; along (gravelly-sandy, gravelly-clayey, clayey, clayey-loamy and silty) shores of rivers and lakes; mudflats; along rocky-sand, gravel and sand bars; beaches; sandy benches; sandy terraces; gravelly-clayey, sandy, clayey and silty bottomlands; bedrock, bouldery, bouldery-gravelly-sandy, stony-sandy, gravelly, gravelly-sandy, sandy, clayey and silty floodplains; lowlands; mesquite bosques; willow thickets; dams; edges of stock tanks; borders, edges and shorelines of reservoirs; around and in dry bottoms of reservoirs; along canals; along canal banks; along ditches; along sandy ditch banks; along muddy, bouldery, rocky-gravelly-sandy, rocky-sandy, gravelly-loamy, sandy and clayey riparian areas, and disturbed areas growing in shallow water; clay muck and muddy, and wet, moist, damp and dry (roots must be in moist soil in the hottest and lowest deserts) bouldery, bouldery-rocky, bouldery-gravelly, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-gravelly-sandy, rocky-pebbly, rocky-sandy, shaley, stony, stony-sandy, cindery, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, clayey loam, silty loam and loam ground; gravelly clay, gravelly-sandy clay, sandy clay, loamy clay, silty clay and clay ground, and bouldery-stony-sandy silty, rocky silty, shaley silty, sandy silty and silty ground, occurring from sea level to 11,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, individual stems may live to be 10 to 20 years of age, it is drought-resistant and tolerant of flooding which promotes adventitious or secondary root development. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food (candy), fodder, beverage, and/or fiber crop; it was also noted as having been used as a fuel, as tools, to make clappers and whistles, as a drug or medication and as ceremonial items. The Narrowleaf Willow may be useful in re-vegetating riparian areas and planting on stream bottoms to prevent surface erosion. It is more of a thicket-forming than a tree-forming species with individual stems having a life span of 10 to 20 years of age. Narrowleaf Willow is browsed by Moose (*Alces alces*), Elk (*Cervus elaphus*), Mule Deer (*Odocoileus hemionus*) and American Beaver (*Castor canadensis*) with the thickets providing excellent cover for birds and other wildlife. When restoring the

floodplains of major river systems consider including the following plants in the mix if they have been recorded from this township: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*) and Fremont Cottonwood (*Populus fremontii*). *Salix exigua* is native to northwestern, central and southern North America. *5, 6, 15, 18 (genus), 28 (color photograph 39), 43 (042510), 44 (041613), 46 (recorded as *Salix exigua* Nutt. including *Salix exigua* Nutt. var. *nevadensis* (Wats.) Schneid. and *Salix exigua* Nutt. var. *stenophylla* (Rydb.) Schneid., Page 211), 48 (genus), 52 (color photograph), 53, 63 (041613 - color presentation), **85** (041613 - color presentation), 124 (110810), 127, 140 (Page 304)*

Salix exigua var. *nevadensis* (see SYNONYMY under *Salix exigua*)

Salix exigua var. *stenophylla* (see SYNONYMY under *Salix exigua*)

***Salix gooddingii* C.R. Ball: Goodding's Willow**

SYNONYMY: *Salix gooddingii* C.R. Ball var. *variabilis* C.R. Ball; *Salix nigra* H. Marshall var. *vallicola* W.R. Dudley. COMMON NAMES: Black Willow (a name also applied to other taxa); Dudley Willow; Dudley Willow's; Goodding Black Willow; Goodding Willow; Goodding's Black Willow; Goodding's Willow; Gooding's Willow (error); Goodings Willow (error); Sauce (Spanish); Sauz (Spanish: Mexico, Sonora); Sáuz (Spanish: Mexico, Sonora); Southwestern Willow; Valley Willow (a name also applied to other taxa); Western Black Willow (a name also applied to other taxa). DESCRIPTION: Terrestrial perennial deciduous tree (4 to 98 feet in height with a broad rounded crown); the older bark may be gray or gray & tan and deeply furrowed; the branches are pale gray-brown to yellow-brown; the twigs may be brown, pale gray, gray-tan, yellow or yellow-brown; the leaves (2 to 4 inches in length) may be green, shiny green, yellow or yellowish-green, the leaf color may or may not be the same on both sides; the male flowers (catkins 1½ to 3 inches in length) and female flowers (catkins 1 to 2½ inches in length), usually borne on separate trees, may be cream, green, yellow or yellow-green; the anthers are yellow; flowering generally takes place between mid-December and late June (additional records: one for mid-July and one for early mid-August); the seeds are cottony. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; rocky mesas; plateaus; hanging gardens; along rocky canyons; along bedrock, bouldery-gravelly-sandy, rocky, sandy and silty canyon bottoms; meadows; foothills; rocky hillsides; bases of hills; rocky, rocky-sandy, sandy, clayey-loamy and silty slopes; bouldery-stony-gravelly-sandy and rocky-sandy-loamy alluvial fans; rock outcrops; amongst boulders and rocks; bouldery niches; gravelly, sandy, clayey, clayey-loamy and silty flats; uplands; basins; valley floors; along bouldery-sandy valley bottoms; coastal prairies; coastal beaches; along railroad right-of-ways; roadsides; along and in rocky and sandy arroyos; rocky bottoms of arroyos; along and in rocky draws; gullies; within gravelly-clayey-loamy ravines; in sand and silt about seeps; in gravel and sand around springs; in sand along and in streams; sandy streambeds; in sand along and in creeks; along and in bouldery-sandy-silty, rocky, cobbly-gravelly-silty, sandy and silty creekbeds; in gravel and sand along rivers; along and in bouldery, sandy and silty riverbeds; along and in rocky, rocky-sandy, gravelly-sandy and sandy washes; along and in bouldery, rocky, sandy and silty-clayey drainages; along and in rocky, gravelly and silty-clayey drainage ways; along rocky-sandy-clayey-loamy watercourses; sandy-clayey watersheds; around and in pools; boggy areas; ciénegas; freshwater marshes; swamps; depressions; sumps; bottoms of sumps; along (bouldery-stony-gravelly-sandy, bouldery-gravelly-sandy, gravelly-clayey, sandy and loamy) banks of streams, creeks, rivers and washes; borders of washes; along (muddy, sandy and sandy-clayey) edges of gullies, seeps, streams, creeks, rivers, pools, ponds, lakes, playas, freshwater and saltwater marshes and sloughs; (muddy, rocky and sandy) margins of basins, rivers, washes, pools, ponds, lakes, lakebeds and marshes; along shores of rivers, ponds and lakes; mudflats; gravel and sand bars; sandy beaches; sandy and silty benches; sandy terraces; bottomlands; along boulder-stony-gravelly-sandy-silty, bouldery-gravelly-sandy-loamy, rocky, cobbly-gravelly, gravelly, gravelly-sandy, gravelly-silty, sandy and silty floodplains; willow thickets; mesquite woodlands; along fencelines; along dikes; rocky edges and beds of stock tanks; banks, edges and shores of reservoirs; along canals; canal banks; along and in cindery and sandy ditches; along ditch banks; rocky, rocky-gravelly-sandy, gravelly, gravelly-sandy, gravelly-sandy-silty, sandy, sandy-clayey and silty riparian areas, and disturbed areas growing in shallow water; muddy, and wet, moist and damp bouldery, bouldery-stony-gravelly-sandy, bouldery-gravelly-sandy, bouldery-sandy, rocky, rocky-sandy, cobbly-gravelly, cindery, gravelly, gravelly-sandy and sandy ground; bouldery-gravelly-sandy loam, rocky-sandy loam, rocky-sandy-clayey loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, clayey loam and loam ground; gravelly clay, sandy clay, silty clay and clay ground, and bouldery-stony-gravelly-sandy silty, cobbly-gravelly-silty,

gravelly silty, gravelly-sandy silty and silty ground, occurring from below sea level to 8,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat and useful in the re-vegetating of disturbed riparian areas. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, beverage and/or fiber crop; it was also noted as having been used as a tool and as a drug or medication. This plant is important in stream bank protection and in controlling erosion and provides valuable shade for fish and other wildlife. The Goodding Willow provides cover and browse for wildlife, and the bark is eaten by beavers. This plant is a preferred food plant of the American Beaver (*Castor canadensis*) and is used in the building of their lodges and dens. When restoring the floodplains of major river systems consider including the following plants in the mix if they have been recorded from this township: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*) and Fremont Cottonwood (*Populus fremontii*). *Salix gooddingii* is native to southwest-central and southern North America. *5, 6, 13 (recorded as *Salix nigra* Marsh. var. *vallicola* Dudley), 15, 18 (genus), 28 (color photograph 62), 43 (042610), 44 (041713), 46 (Page 212), 48 (genus), 52 (“Goodding Willow” listed as a common name under *Salix nigra* Marsh), 53, 58, 63 (041713 - color presentation), 77, 85 (041713 - color presentation), 115 (color presentation), 124 (081411), 127, 140 (Page 304)*

Salix gooddingii var. *variabilis* (see *Salix gooddingii*)

Salix nigra var. *vallicola* (see *Salix gooddingii*)

Sapindaceae: The Soapberry Family

Dodonaea angustifolia (see *Dodonaea viscosa*)

***Dodonaea viscosa* (C. Linnaeus) N.J. von Jacquin: Florida Hopbush**

SYNONYMY: *Dodonaea angustifolia* C. Linnaeus; *Dodonaea viscosa* N.J. von Jacquin var. *angustifolia* (C. Linnaeus) G. Bentham; *Dodonaea viscosa* N.J. von Jacquin var. *linearis* (W.H. Harvey & O.W. Sonder) E.E. Sherff; *Dodonaea viscosa* N.J. von Jacquin var. *linearis* (W.H. Harvey & O.W. Sonder) E.E. Sherff forma *arizonica* (A. Nelson) E.E. Sherff. COMMON NAMES: A'ali'i; Airia; Akeake; Alamillo (“Little Winged One”, Spanish: Chihuahua, Sonora)¹⁴⁰; Aría <airia> (Spanish: Mexico)¹⁴⁰; Cachoveano (Hispanic); Chapulixctli (Hispanic); Chapuliztle; Chupuliztle <chapuliz> (Spanish)¹⁴⁰; [Hierba de la] Cucaracha (“Cockroach [Herb]”, Spanish: Durango)¹⁴⁰; Cuerno de Cabra (“Goat’s Horn”, Spanish: Oaxaca)¹⁴⁰; Faxima-vermelha (Portuguese: Brazil); Florida Hopbush; Gitarán (Spanish: Mexico, Puerto Rico)¹⁴⁰; Granadina (Spanish: Baja California)¹⁴⁰; Guachomó (Spanish: Mexico)¹⁴⁰; Guayabillo (“Little Guava”, Spanish: Baja California)¹⁴⁰; Hop Bush; Hop-bush (English: Arizona to Florida)¹⁴⁰; Hopseed Bush (English)¹⁴⁰; Hopshrub; Huesito (“Little Bone”, Spanish: Chiapas)¹⁴⁰; Jarilla [de Loma] (“[Wild] Little Arrow”, Spanish: Chihuahua, Sonora to Oaxaca)¹⁴⁰; Jirimú (Spanish: Michoacán)¹⁴⁰; Ma□cikári (Uto-Aztecan: Guarijio)¹⁴⁰; Matagusano (Hispanic); Mundito (“Little World”, Spanish: Hidalgo)¹⁴⁰; Munditos; Narrow-leaf Hopbush (*D.v.* var. *angustissima*); Ocotillo (“Little Torch”, Spanish: Guanajuato, Hidalgo)¹⁴⁰; Palomilto (Spanish: San Luis Potosí)¹⁴⁰; Pirimu (Tarascan: Purépecha)¹⁴⁰; Pirumu (Hispanic); Switch Sorrel (English: Arizona)¹⁴⁰; Switch-sorrel; Tapachile (Spanish)¹⁴⁰; Tarachico; Tarachiki (Mexican); Tarachique [Tarachico] (Spanish: Ópata, Sonora)¹⁴⁰; Taratsike (Uto-Aztecan: Ópata, Sonora)¹⁴⁰; Tonalcotl-xihuitl [Toñalokotl] (Uto-Aztecan: Náhuatl)¹⁴⁰; Varal (“Branch Thicket”, Spanish: Arizona, Hidalgo, Sonora)¹⁴⁰; Vassoura-do-campo (Portuguese: Brazil); Vassoura-vermelha (Portuguese: Brazil); Vassourão-vermelho (Portuguese: Brazil); Wedge-leaf Hopbush (*D.v.* var. *cuneata*). DESCRIPTION: Terrestrial perennial evergreen shrub or tree (ascending and/or erect stems 2 to 26 feet in height; one plant was observed and described as being 5 feet in height and 20 inches in width, one plant was observed and described as being 7 feet in height and width, one plant was observed and described as being 10 feet in height and 6 feet in width); the bark is light gray or gray; the stems are brown, reddish or reddish-brown; the leaves are green, dark green or yellow-green; the flowers are green, greenish, pale yellow, yellow-green, yellowish, yellowish-green or yellow-orange; flowering generally takes place throughout the year between early January and late December; the papery winged fruit may be brown, light golden, pinkish-red, purple, red-yellow, tan or light yellow-green drying straw-colored. HABITAT: Within the range of this

species it has been reported from mountains; mountaintops; rocky mountainsides; cliffs; bases of cliffs and rock faces; rocky canyons; canyon sides; canyon bottoms; rocky and chalky ridges; foothills; rocky and rocky-gravelly hills; rocky and sandy hillsides; rocky, rocky-loamy, gravelly and sandy-clayey-loamy slopes; bases of rocky slopes; bajadas; bouldery and rocky outcrops; amongst boulders and rocks; banks; flats; valley floors; along roadsides; arroyos; bottoms of arroyos; rocky-gravelly draws; gullies; along streams; bouldery and rocky streambeds; in creekbeds; along and in rocky washes; along and in rocky drainages; banks of streams and creeks; (rocky-sandy) edges of washes; sandy beaches; gravelly terraces; sandy bottomlands; mesquite bosques; along fencelines, and riparian areas growing in damp and dry bouldery, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, gravelly and sandy ground; rocky loam and sandy-clayey loam ground; humusy ground, and chalky ground, occurring from sea level to 7,500 feet in elevation in the forest, woodland, scrub, grassland, desert scrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Dodonaea viscosa* is native to south-central and southern North America; Central America and coastal islands in the Caribbean Sea; South America; islands in the Pacific Ocean; western, eastern and southern Asia; western, eastern and southern Africa and coastal islands in the Indian Ocean; Australia and New Zealand. *5, 6, 13 (recorded as *Dodonaea viscosa* Jacq. var. *angustifolia* (L.f.) Benth., Page 145), 18, 26 (color photograph), 28 (color photograph 841), 30, 43 (120310 - *Dodonaea angustifolia* L.f., *Dodonaea viscosa* Jacq., *Dodonaea viscosa* var. *angustifolia* (L.f.) Benth., *Dodonaea viscosa* var. *linearis* (Harv. & Sond.) Sherff), 44 (120310 - no record of genus or species), 46 (recorded as *Dodonaea viscosa* Jacq., *Dodonaea viscosa* var. *linearis* (Harv. & Sond.) Sherff forma *arizonica* (A. Nels.) Sherff, Pages 528-529), 48, 63 (102010 - color presentation), 77 (single plant a possible escape from cultivation), 85 (102010 - color presentation), 91 (recorded as *Dodonaea angustifolia* L.f., Pages 183-185), 115 (color presentation), 124 (031511 - no record of genus or species), 127, 140 (recorded as *Dodonaea viscosa* Jacquin var. *angustifolia* (Linnaeus f.) Benth., Pages 254-255 & 305)*

Dodonaea viscosa var. *angustifolia* (see *Dodonaea viscosa*)

Dodonaea viscosa var. *linearis* (see *Dodonaea viscosa*)

Dodonaea viscosa var. *linearis* forma *arizonica* (see footnote 46 under *Dodonaea viscosa*)

Sapindus drummondii (see *Sapindus saponaria* var. *drummondii*)

***Sapindus saponaria* C. Linnaeus var. *drummondii* (W.J. Hooker & G.W. Arnott) L.D. Benson: Western Soapberry**

SYNONYMY: *Sapindus drummondii* W.J. Hooker & G.W. Arnott. COMMON NAMES: Abolillo (Spanish: Mexico, Sonora); Amole (a name also applied to the species and other species); Amole <yamole, yamolli> (“Soap”, Spanish)¹⁴⁰; Amole de Bolita (“Soap Balls”, Spanish: Mexico)¹⁴⁰; Amolillo (a name also applied to the species, Spanish); Amolillo (“Little Soapy One”, Spanish: Sonora)¹⁴⁰; Arbolio (“Little Tree”, Spanish: Sonora)¹⁴⁰; Arbolillo (Spanish); Bibi <pipe, pipal> (“fruit”, Oto-Manguean: Zapotec)¹⁴⁰; Boliche (a name also applied to the species, Spanish); Boliche (Language Family Unknown: Sinaloa)¹⁴⁰; Cherioni (a name also applied to the species, Spanish); Cherrion; Chinaberry; Chirrión (a name also applied to the species, Spanish: Mexico, Sonora); Cirioni <cherioni> (Spanish: Arizona)¹⁴⁰; Drummond Soapberry; Guayul (a name also applied to the species, Spanish); Indian Soap Plant; Jaboncillo (a name also applied to the species, Spanish); Jaboncillo (“Little Soap”, Spanish: Nuevo León, San Luis Potosí, Sonora, Tamaulipas and south)¹⁴⁰; Jutuhui (Uto-Aztec: Guarijío)¹⁴⁰; Mata Muchacho (a name also applied to the species, Spanish); Matamuchacho (“Boy Killer”, Spanish: Sonora)¹⁴⁰; Mexican Soapberry; Ojo de Loro (a name also applied to the species, Spanish); Palo Blanco (a name also applied to the species, Spanish); Palo Blanco (“White Tree”, Spanish: Chihuahua)¹⁴⁰; Soap Berry (a name also applied to other taxa); Soap-berry (English)¹⁴⁰; Soapberry (a name also applied to the species, the genus *Sapindus* and the Sapindaceae); Tehistle <tehoitzli, tehuixtle, tehuitle> (“Sharp Rock”, Uto-Aztec: Náhuatl)¹⁴⁰; Tubchi <tupchi> (Uto-Aztec: Mayo, Sonora)¹⁴⁰; Western Soapberry (a name also applied to the species); Wild Chinaberry; Wild China-tree; Wild Chinatree. DESCRIPTION: Terrestrial perennial drought- and cold-deciduous shrub or tree (7 to 50 feet in height with a rounded crown 25 to 30 feet in width); the bark is gray, grayish, grayish-brown, reddish-brown or yellow-gray; the twigs are gray-brown, yellow-green or yellowish-gray; the leaflets (13 to 19) are a light green or dull yellow-green turning to yellow-gold in the fall generally without wings on the compound leaf axis; the flowers (1/8 to 1/4 inch in diameter in clusters 6 to 9 inches in length) are cream, cream-white, cream-yellow, greenish-white, white, yellow or yellowish-white; flowering generally takes place between early May and late July (additional records: one for late March and one for mid-August; flowering as late as August has been reported); the poisonous fruits (3/8 to 1/2 inch in diameter) are amber, golden, orange, orange-brown, yellowish or yellow-amber turning black or reddish-brown when dry. HABITAT: Within the range of this species it has been reported from mountains; mesas; plateaus; along rocky canyons; rocky canyon walls; canyon sides; along rocky, gravelly-clayey, sandy-loamy and loamy canyon bottoms; talus slopes; crevices in rock; meadows; foothills; hilltops; rocky and rocky-clayey hillsides; rocky, rocky-loamy, rocky-clayey, gravelly-clayey, gravelly-clayey-loamy, sandy, sandy-loamy, clayey and silty slopes; rock outcrops; amongst boulders; sand dunes; sandy-silty berms; plains; bouldery and sandy flats; valley floors; along roadsides; along and in rocky and sandy arroyos; bottoms of arroyos; within draws; gulches; ravines; springs; along rocky streams; along streambeds; along and in creeks; along and in creekbeds; bouldery and sandy riverbeds; along and in bedrock, rocky, rocky-gravelly and sandy washes; along bouldery drainages; along watercourses; along banks of streams, creeks, rivers and drainages; borders of washes; along edges of creekbeds and washes; (sandy) sides of rivers; (sandy) shores of

riverbeds; terraces; sandy bottomlands; sandy floodplains; mesquite bosques and woodlands; fencerows; edges of stock tanks; rocky riparian areas; sandy waste places, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy and sandy ground; rocky loam, gravelly-clayey loam, sandy loam and loam ground; rocky clay, gravelly clay, silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 6,500 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formation. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as tools, for making toys and as a drug or medication. Birds and Raccoons eat the fruits. When restoring the floodplains of major river systems consider including the following plants in the mix if they have been recorded from this township: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koeberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soap-tree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*) and Fremont Cottonwood (*Populus fremontii*). *Sapindus saponaria* var. *drummondii* is native to south-central and southern North America. *5, 6, 13, 15, 28 (color photograph 103), 42 (041713), 43 (042710), 44 (041713 - no record of species or genus), 46 (Page 528), 52 (recorded as *Sapindus drummondii* Hook. & Arn., color photograph), 53 (recorded as *Sapindus drummondii* Hook. & Arn.), 58, 63 (041713 - color presentation), 80 (*Sapindus saponaria* var. *drummondii* is listed as a Rarely Poisonous and Suspected Poisonous Range Plant. "This small tree growing along streams is considered poisonous but it is seldom eaten by livestock."), 85 (041713 - color presentation), 91, 115 (color presentation of the species), 127, 140 (recorded as *Sapindus drummondii* Hooker & Arnott, Pages 110, 255-257 & 305)*

Scrophulariaceae: The Figwort Family

Antirrhinum nuttallianum (see *Sairocarpus nuttallianus*)

***Castilleja exserta* (A.A. Heller) T.I. Chuang & L.R. Heckard (subsp. *exserta* is the subspecies reported as occurring in Arizona): Exserted Indian Paintbrush**

SYNONYMY: (for subsp. *exserta*: *Orthocarpus purpurascens* G. Benthams; *Orthocarpus purpurascens* G. Benthams var. *palmeri* A. Gray). COMMON NAMES: Banded Owl's Clover (subsp. *latifolia*); Banded Owl's-clover (subsp. *latifolia*); Common Owl's Clover (also applied to other taxa); Deep Pink Owl's Clover (subsp. *venusta*); Deep Pink Owl's-clover (subsp. *venusta*); Escobita ("Little Broom", Spanish); Escobita Owl Clover; Escobita Owl-clover; Escobita Owl's Clover; Escobita Owl's-clover; Escobita Owl-clover; Exserted Indian Paintbrush (not recommended for usage); Exserted Indian Paintbrush (subsp. *exserta* and *venusta*, not recommended for usage); Exserted Owl Clover; Exserted Owl-clover; Exserted Owl's Clover; Exserted Owl's-clover; Exserted Owls Clover; Exserted Owls-clover; Exserted Owls' Clover; Exserted Owls'-clover; Exserted Paintbrush; Indian Paintbrush (not recommended for usage); Mohave Owl Clover; Ornate Owl's Clover; Ornate Owl's-clover; Owl Clover (also applied to other taxa); Owl's Clover (also applied to other taxa); Pale Purple Owl-clover (*Orthocarpus purpurascens* var. *pallidus* - Not Accepted, *Castilleja exserta* subsp. *exserta* - Accepted); Purple Owl Clover; Purple Owl-clover; Purple Owl-clover; Purple Owl's Clover; Purple Owl's-clover; Purple Owls Clover; Purple Owls-clover; Purple Owls-clover; Purple Owls' Clover; Purple Owls'-clover; Red Owl Clover; Red Owl-clover; Red Owl-clover; Red Owl-clover; Red Owl's Clover; Red Owl's-clover; Rose Purple Owl's Clover; Rose-purple Owl's Clover; Rose-purple Owl's-clover; Wideleaf Indian Paintbrush (subsp. *latifolia*, not recommended for usage); Wide-leaf Paintbrush (subsp. *latifolia*); Wideleaf Paintbrush (subsp. *latifolia*). DESCRIPTION: Terrestrial annual forb/herb (erect stems 3 to 16 inches in height); the stems may be green, maroon or purple; the leaves may be green-gray, greenish, purple-green or purplish; the flowers (1 to 1¼ inches in length in broom-like spikes of bracts to 1 inch in length) may be pale lavender & yellow, lavender, lavender & white, lavender-rose, magenta, magenta & white, magenta-pink, magenta-pink-lavender, magenta-rose, pink, pink & purple, pink & yellow, dark pink & white, pink-lavender, pink-magenta, pink-purple, bright pink-purple & yellow, pink-white, pinkish-purple, pinkish-violet, purple, purple & magenta, purple & white, purple & white & yellow, purple-lavender, purple-lavender-pink, purple-pink, purple-red & yellow, purple-white-yellow, purple-yellow, red, deep red, reddish-purple, rose, rose-lavender, rose-lavender-white, rose-pink, rose-purplish, rose-white, rose-yellow, violet, white, white-purple-magenta, white-yellow, yellow or yellow-maroon; the stigmas may be purple; the anthers are yellow; flowering generally takes place between late January and early July (additional records: one for mid-September; heaviest blooming period may occur between March and May). HABITAT: Within the range of this species it

has been reported from mountains; rocky and rocky-sandy mesas; plateaus; along rocky cliffs; canyons; sandy-loamy canyon bottoms; bluffs; bedrock and gravelly knolls; rocky, shaley and clayey-loamy ridges; bedrock, rocky and clayey ridgetops; openings in forests, woodlands and scrubs; rocky-sandy and loamy-clayey meadows; foothills; bouldery, rocky, gravelly-loamy and sandy hills; rocky hilltops, rocky and cobbly hillsides; rocky, rocky-cobbly-sandy-clayey, rocky-gravelly, rocky-sandy, rocky-clayey, gravelly, sandy-loamy, clayey, clayey-loamy and silty-clayey-loamy slopes; rocky-sandy alluvial fans; gravelly and sandy bajadas; bouldery and rocky outcrops; sandy-loamy and clayey barrens; gravelly, sandy and sandy-silty plains; gravelly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy, sandy-silty and clayey flats; basins; valley floors; along coastal bluffs; coastal plains; sandy coastal strands; along railroad right-of-ways; along sandy and sandy-loamy roadsides; along gravelly arroyos; gulches; gullies; ravines; around springs; around seeping streams; creeks; along gravelly-sandy creekbeds; along rivers; sandy riverbeds; along and in rocky-sandy, gravelly and sandy washes; within drainages; vernal pools; swales; (rocky-gravelly) banks of streams, rivers and washes; (sandy) edges of rivers, riverbeds, washes, pools, vernal pools and lakes; (clayey) margins of drainages; shores of lakes; benches; gravelly and sandy terraces; sandy bottomlands; edges of stock tanks; edges of canals; gravelly-sandy and sandy riparian areas, and recently burned areas in scrubs growing in moist and dry bouldery, rocky, rocky-cobbly, rocky-gravelly, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly loam, gravelly-clayey loam, sandy loam, clayey loam, silty-clayey loam and silty loam ground; rocky clay, rocky-cobbly-sandy clay, loamy clay and clay ground, and sandy silty ground, occurring from sea level to 8,600 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Castilleja exserta* is native to southwest-central and southern North America. *5, 6, 42 (041813), 43 (042710), 44 (041813), 46 (recorded as *Orthocarpus purpurascens* Benth., Page 792 including *Orthocarpus purpurascens* Benth. var. *palmeri* Gray), 48 (genus), 63 (041813 - color presentation), 80 (Species of the genus *Castilleja* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Various species of this genus are secondary or facultative selenium absorbers."), 85 (041913 - color presentation including habitat), 115 (color presentation), 124 (110810 - no record, genus), 140 (recorded as *Castilleja exserta* (Heller) Chuang & Heckard [*Orthocarpus purpurascens* Bentham], Page 305)*

***Leucophyllum frutescens* (J.L. Berlandier) I.M. Johnston: Texas Barometer Bush**

COMMON NAMES: Barometer-bush; Ceniza; Cenizo (Spanish); Purple Sage; Purple-sage; Rain Sage; Texas Barometer Bush; Texas Barometer Plant; Texas Ranger; Texas Sage; Texas Silverleaf. DESCRIPTION: Terrestrial perennial evergreen shrub (4 to 8 feet in height and width); the branches are brownish to silvery-purple; the felt-like foliage is gray; the bell-shaped flowers (½ to 1 inch in width) have been described as being lavender, bright pink, pink-lavender, pinkish-purple, light purple, purple, rose-lavender, rose-pink or white; based on few records located flowering generally takes place between late March and late December. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; cliffs; canyons; gypsum hills; gravelly-loamy slopes; rocky plains; gravelly flats; valley bottoms; along roadsides; within arroyos; bottoms of arroyos; along rivers; washes; bottomlands; lowlands; fencerows; riparian areas, and disturbed areas growing in dry rocky, gravelly and sandy ground; gravelly loam ground, and gypsum, occurring from sea level to 5,900 feet in elevation in the in the scrub, grassland and desertscrub ecological formations. NOTES: **EXOTIC** Plant. *Leucophyllum frutescens* is native to southwest-central and southern North America. *5, 6, 18, 26 (color photograph), 42 (062913), 43 (062913), 44 (062913 - no record of species or genus), 63 (062913 - color presentation), 85 (063013 - color presentation), 86, **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Mimulus cordatus (see *Mimulus guttatus*)

***Mimulus guttatus* A.P. de Candolle: Seep Monkeyflower**

SYNONYMY: *Mimulus cordatus* E.L. Greene; *Mimulus guttatus* A.P. de Candolle var. *depauperatus* (A. Gray) A.L. Grant; *Mimulus guttatus* A.P. de Candolle var. *guttatus* A.P. de Candolle; *Mimulus nasutus* E.L. Greene; *Mimulus parishii* M. Gandoger; *Mimulus unimaculatus* F.W. Pennell. COMMON NAMES: Almizcle Amarillo (Spanish: Mexico)¹⁴⁰; Antapitsehkwana (Uto-Aztecan: Shoshoni)¹⁴⁰; Baseró (Uto-Aztecan: Tarahumara, Chihuahua)¹⁴⁰; Berro (Portuguese: Brazil); Berro ("Water Cress", Spanish: Chihuahua, Sonora)¹⁴⁰; Blunt-calyxed Monkey-flower (*Mimulus guttatus* subsp. *arvensis* - Not Accepted, *Mimulus guttatus* - Accepted); Common Large Monkey-flower; Common Large Monkeyflower; Common Monkey Flower (a name also applied to other species); Common Monkey-flower (a name also applied to other taxa); Common Monkeyflower (a name also applied to other taxa); Common [Round-leaf, Seep, Spring, Spotted, Yellow] Monkey-flower (English)¹⁴⁰; Common Stream Monkeyflower; Common Streamside Monkeyflower; Common Yellow Monkey Flower; Common Yellow Monkey-flower; Common Yellow Monkeyflower; Creek Monkey Flower; Creek Monkey-flower; Creek Monkeyflower; Creekside Monkeyflower; Golden Monkey Flower; Golden Monkey-flower; Golden Monkeyflower; Gyckelblomma (Swedish); Lama ("Mud", Spanish: Chihuahua, Sonora); Langsdorff's Yellow Monkey Flower; Langsdorff's Yellow Monkey-flower; Large Common Monkey-flower; Large Yellow Monkey-flower; Llantén <lantén> Cimmarón ("Wild *Plantago*", Spanish: Chihuahua)¹⁴⁰; Mim Gut; Mim-gut; Mimgut; Mimulo (Spanish: Mexico)¹⁴⁰; Monkey Flower (a name also applied to the genus *Mimulus* and the Phrymaceae); Monkey-flower (a name also applied to the genus *Mimulus* and the Phrymaceae); Monkeyflower (a name also applied to the genus *Mimulus* and the Phrymaceae); Paakor□b□ (Uto-Aztecan: Kawaiisu)¹⁴⁰; Parish's Monkeyflower (*Mimulus parishii* Gand. - Not Accepted, *Mimulus guttatus* - Accepted; *Mimulus parishii* Greene - Accepted); Seep Monkey-flower (a name also applied to other taxa); Seep Monkeyflower (a name also applied to other taxa); Seep Spring Mimulus; Seep Spring Monkey Flower; Seep-spring Mimulus; Seep-spring Monkey Flower; Seep-spring Monkeyflower; Shieldbract Monkeyflower (*Mimulus guttatus* subsp. *glaucescens* - Not Accepted, *Mimulus glaucescens* - Accepted); Small-

flowered Monkey-flower (*Mimulus guttatus* subsp. *micranthus* - Not Accepted, *Mimulus guttatus* - Accepted); Small Leaved Monkey-flower (*Mimulus guttatus* subsp. *microphyllus* - Not Accepted, *Mimulus microphyllus* - Accepted); Small-leaved Monkey-flower (*Mimulus guttatus* subsp. *microphyllus* - Not Accepted, *Mimulus microphyllus* - Accepted); Spotted Monkey Flower (a name also applied to other taxa); Spring Seep Mimulus; Spring-seep Monkey-flower; Spring-seep Monkeyflower; Spring-seep Mimulus; Stream Mimulus; Stream Monkey Flower; Stream Monkey-flower; Stream Monkeyflower; Streamside Monkey Flower; Streamside Monkey-flower; Streamside Monkeyflower; Suugádi Mamaradi (Uto-Aztecan: Northern Tepehuan, Chihuahua)¹⁴⁰; Tocoiahui (Uto-Aztecan: Guarijio)¹⁴⁰; Toka□oiawi (Uto-Aztecan: Mayo)¹⁴⁰; Utah Monkeyflower (*Mimulus glabratus* subsp. *utahensis* - Not Accepted, *Mimulus glabratus* - Accepted); Yellow Common Monkeyflower; Yellow Creek Monkeyflower; Yellow Monkey Flower (a name also applied to other taxa); Yellow Monkey-flower (a name also applied to other taxa); Yellow Stream Monkeyflower; Yellow-stream Monkeyflower. DESCRIPTION: Terrestrial (or semi-aquatic) annual or perennial forb/herb (sprawling decumbent and/or erect stems 2 inches to 5 feet in height); the stems are green; the leaves may be green or dark green; the flowers may be bright orange-yellow, pale yellow, yellow, yellow (with brown-red, golden, maroon, orange, orange-brown, orange-red, orangish-yellow, red, red-brown, reddish, reddish-brown or reddish-orange spots) or bright yellow; flowering generally takes place between mid-February and early October (additional records: one for early January, one for mid-January, one for late January, one for late October, one for early November, one for mid-November and one for early December; infrequent flowering has been reported as taking place in October, November and December). HABITAT: Within the range of this species it has been reported from bouldery mountains; mountaintops; rocky and gravelly-loamy mountainsides; sandy and sandy-clayey mesas; rocky plateaus; rock walls; rocky cliffs; weeping walls; hanging gardens; rocky bases of cliffs; bouldery and rocky canyons; along bedrock, rocky, rocky-sandy, gravelly-loamy, sandy and loamy-clayey canyon bottoms; rocky talus slopes; avalanche chutes; crevices in rocks; bluffs; knolls; rocky ledges; ridges; rocky clearings in forests and woodlands; gravelly-loamy, sandy-loamy, clayey and clayey-loamy meadows; rocky foothills; bouldery and rocky hills; hilltops; bouldery, rocky, rocky-loamy-clayey, rocky-clayey, shaley, shaley-gravelly and clayey hillsides; bouldery, bouldery-rocky, rocky, rocky-gravelly, rocky-gravelly-sandy, gravelly, gravelly-loamy, sandy, sandy-loamy, sandy-clayey, loamy, clayey-loamy and peaty-sandy slopes; alluvial fans; bajadas; bedrock, bouldery, rocky and clayey outcrops; along and amongst boulders and rocks; on boulders and rocks; felsenmeer; alcoves; sand dunes; sand flats; hummock fields; rocky banks; prairies; mucky, muddy, gravelly, sandy and loamy flats; uplands; rocky-gravelly-loamy basins; sandy valley floors; valley bottoms; along coastal beaches; coastal bluffs; coastal terraces; roadcuts; along rocky, gravelly and sandy roadsides; along and in bedrock and sandy-loamy arroyos; rocky bottoms of arroyos; muddy draws; bottoms of draws; gullies; along gulches; ravines; bottoms of ravines; rocky, gravelly-sandy-clayey-loamy and sandy soils along, around and in seeps; mucky, rocky-sandy, gravelly, sandy-silty and loamy soils around and in springs; spring seeps; geysers; around seeping streams; along streamlets; in bouldery-sandy rivulets; bouldery, rocky, gravelly, sandy and silty soils along and in streams; rocky, rocky-sandy, gravelly and sandy streambeds; along brooks; muddy, gravelly, sandy and loamy soils along and in creeks; along and in bouldery, rocky-sandy, cobbly, gravelly, gravelly-sandy and sandy creekbeds; along and in rivers; along and in gravelly and sandy riverbeds; along and in bedrock, rocky, rocky-sandy, stony, cobbly-gravelly, gravelly and sandy washes; within bouldery, rocky, cobbly-loamy and loamy drainages; within drainage ways; along rocky and sandy watercourses; within waterfalls; bases of waterfalls; oases; around and in pools; vernal pools; around ponds; gravelly shores of beaver ponds; along lakes; lakebeds; coves; sandy bogs; ciénegas; in freshwater marshes; rocky-sandy marshy areas; gravelly-clayey-loamy swampy areas; bedrock depressions; sinks; swales; along (muddy, rocky, stony, gravelly-sandy-clayey-loamy, sandy, sandy-clayey, clayey-loamy and loamy) banks of arroyos, springs, rivulets, streams, streambeds, brooks, creeks, creekbeds, rivers, pools and lakes; borders of creeks; along and in (muddy, rocky-sandy, gravelly, gravelly-sandy, sandy and sandy-silty) edges of springs, rivulets, streams, creeks, rivers, washes, pools, ponds, lakes, bogs and depressions; (gravelly and sandy) margins of springs, streams, creeks and ponds; (muddy and sandy) sides of streams, creeks and rivers; along (muddy and sandy) shores of rivers and lakes; mudflats; draw-down areas; along mud, rocky-sand, gravel, gravelly-sand and sand bars; sandy beaches; cobbly-sandy benches; shelves; sandy and silty-loamy terraces; along bouldery, sandy and loamy bottomlands; gravelly-sandy and sandy floodplains; clayey lowlands; dams; along beaver dams; edges of stock tanks; banks of reservoirs; canals; edges of canals; along and in ditches; rocky ditch banks; rocky-sandy, gravelly, gravelly-sandy, gravelly-sandy-loamy, sandy and humusy riparian areas, and disturbed areas growing in shallow water; mucky; muddy, and wet, moist, damp and dry bouldery, bouldery-rocky, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, shaley-gravelly, stony, cobbly, cobbly-gravelly, cobbly-sandy, gravelly, gravelly-sandy, sandy and peaty-sandy ground; rocky-gravelly loam, cobbly loam, gravelly loam, gravelly-sandy loam, gravelly-sandy-clayey loam, gravelly-clayey loam, sandy loam, clayey loam, silty loam, silty-clayey loam and loam ground; rocky-loamy clay, rocky clay, sandy clay, loamy clay and clay ground; sandy silty and silty ground, and rocky humusy and humusy ground, occurring from sea level to 13,000 feet in elevation in the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, consider planting with native mosses, sedges and violets. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop; it was also noted as having been used as a drug or medication. *Mimulus guttatus* is native to northwestern, northern, west-central and southern North America. *5, 6, 15, 28 (color photograph 516), 42 (042013), 43 (042013 - *Mimulus guttatus* var. *depauperatus* A.L. Grant), 44 (041913), 46 (Page 781), 48 (genus), 58, 63 (041913 - color presentation including habitat), 77 (color photograph #52), 85 (042013 - color presentation), 86 (color photograph), 115 (color presentation), 124 (081411), 127, 140 (placed in the Phrymaceae, Pages 261-262 & 298)*

Mimulus guttatus var. *depauperatus* (see *Mimulus guttatus*)

Mimulus guttatus var. *guttatus* (see *Mimulus guttatus*)

Mimulus nasutus (see *Mimulus guttatus*)

Mimulus parishii M. Gandoger (see *Mimulus guttatus*)

Mimulus unimaculatus (see *Mimulus guttatus*)

Orthocarpus purpurascens (see *Castilleja exserta* var. *exserta*)

Orthocarpus purpurascens var. *palmeri* (see *Castilleja exserta* var. *exserta*)

***Penstemon parryi* (A. Gray) A. Gray: Parry's Beardtongue**

COMMON NAMES: Alhelias del Campo (Spanish); Desert Penstemon; Jarritos (Spanish); Parry Beardtongue; Parry's Beardtongue; Parry Penstemon; Parry's Penstemon; Pichelitos (Spanish); San José de la Sierra (Spanish); Varita de San Jose (Spanish); Wind's Flower. DESCRIPTION: Terrestrial perennial forb/herb (2 to 5 feet in height and 1 to 3 feet in width); the foliage may be blue-green or gray-green; the flowers may be lavender, magenta, pink, pinkish-lavender, pinkish-purple, purple, purple-magenta, pink, red, rose-magenta, rose-pink or scarlet; flowering generally takes place between mid-February and late June (additional records: one for mid-July, one for late July and one for early August). HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; bases of cliffs; rocky canyons; rocky canyon bottoms; bedrock ridges; rocky ridgetops; meadows; foothills; rocky hills; rocky, rocky-gravelly and gravelly hillsides; rocky slopes; bajadas; rocky outcrops; amongst rocks; alpine fell fields; plains; gravelly flats; basins; railroad right-of-ways; along rocky, gravelly, gravelly-sandy, sandy and clayey roadsides; rocky and sandy arroyos; gullies; seeps; around streams; streambeds; sandy creekbeds; along and in rocky and sandy washes; within drainages; along (rocky) banks of creeks, rivers and washes; borders of washes; edges of washes; margins of rivers; benches; floodplains; riparian areas, and disturbed areas growing in dry rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; gravelly-sandy loam and clayey loam ground, and clay ground, occurring from 900 to 11,500 feet in elevation in the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The Broad-billed Hummingbird (*Cyanthus latirostris*) and Costa's Hummingbird (*Calypte costae*) have been observed visiting the flowers. *Penstemon parryi* is native to southwest-central and southern North America. *5, 6, 10, 15, 16, 18, 28 (color photograph 673), 43 (072909), 44 (081811 - no record of species; genus record), 46 (Page 773), 48 (genus), 58, 63 (042013 - color presentation), 77 (color photograph #95), 80 (Species of the genus *Penstemon* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Species of *Penstemon* are facultative or secondary selenium absorbers."), 85 (042013 - color presentation including habitat), 86 (color photograph), 115 (color presentation), 124 (081811 - no record of species; genus record), 140 (placed in the Plantaginaceae, Page 298)*

***Sairocarpus nuttallianus* (G. Bentham ex A.L. de Candolle) D.A. Sutton: Violet Snapdragon**

SYNONYMY: *Antirrhinum nuttallianum* G. Bentham ex A.L. de Candolle. COMMON NAMES: Nuttall Snapdragon; Violet Snapdragon; Violet Toad's-mouth. DESCRIPTION: Terrestrial annual or biennial forb/herb (erect stems 12 to 40 inches in height); the foliage is dark green, the lower leaves may be reddish; the flowers (3/8 inch in length and width) may be blue, blue-violet, blue & white, dark blue, dark blue (with a golden center), bluish, dark indigo-blue, lavender, light purple, purple, purple (with a white center), purple-lavender, dark purple-blue, purplish, purplish-blue, violet, violet & blue-purple, violet (with cream-colored markings) or dark violet; flowering generally takes place between mid-February and late June (additional records: two for late July, one for early August, two for mid-September, one for mid-October and one for mid-November). HABITAT: Within the range of this species it has been reported from mountains; rocky and sandy mesas; rocky cliffs; bases of cliffs; rocky and stony canyons; along sandy and silty canyon bottoms; talus slopes; sandy crevices in boulders and rocks; sandy pockets of soil; bluffs; ledges; ridges; rocky ridgetops; bouldery-rocky and rocky hills; bouldery-rocky, rocky and loamy hillsides; bouldery, bouldery-sandy, rocky and rocky-clayey slopes; pediments; around rocky outcrops; amongst boulders and rocks; bases of boulders; sand dunes; bouldery-rocky; flats; ocean bluffs; bases of ocean bluffs; coastal slopes; coastal flats; sandy roadsides; along stony arroyos; within rocky gullies; ravines; streambeds; along creeks; along cobbly and sandy creekbeds; within rocky and sandy washes; sandy drainages; (sandy) banks of arroyos and rivers; along (sandy) edges of streambeds and washes; margins of lakes; gravelly-sandy riparian areas; recently burned areas of chaparral and coastal sage scrub, and disturbed areas growing in wet, moist, damp and dry bouldery, bouldery-rocky, bouldery-gravelly, bouldery-sandy, rocky, rocky-sandy, stony, cobbly, gravelly-sandy and sandy ground; sandy loam and loam ground; loamy clay and rocky-clay and clay ground, and silty ground often found in shaded areas, occurring from sea level to 4,600 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. *Sairocarpus nuttallianus* is native to southwest-central and southern North America. *5, 6, 15, 28 (recorded as *Antirrhinum nuttallianum*, color photograph), 43 (072510 - *Sairocarpus nuttallianus* (A.DC.) D.A. Sutton), 46 (recorded as *Antirrhinum nuttallianum* Benth., Page 766), 63 (072510 - color presentation), 77, 85 (072510 - color presentation), 140 (Page 305)*

***Veronica peregrina* C. Linnaeus (subsp. *xalapensis* (K.S. Kunth) F.W. Pennell is the subspecies reported as occurring in Arizona): Neckweed**

SYNONYMY: (for subsp. *xalapensis*: *Veronica peregrina* C. Linnaeus var. *xalapensis* (K.S. Kunth) F.W. Pennell). COMMON NAMES: American Speedwell; Annual Smooth Speedwell; Glandular Purslane Speedwell (subsp. *xalapensis*); Hairy Purslane Speedwell (subsp. *xalapensis*); Hairy Purslane-speedwell (subsp. *xalapensis*); Jalapa Speedwell; Mushikusa (Japanese R&omac;maji); Necklace Speedwell; Necklace Weed (a name also applied to other taxa); Necklaceweed (a name also applied to other taxa); Neckweed a name also applied to other taxa; Neckweed (subsp. *peregrina*); Peregrine Veronica; Pilgrimsveronika (Swedish); Purslane Speedwell; Purslane Speedwell; Purslane Speedwell; Purslane-speedwell; Speedwell (a name also applied to the genus *Veronica*); Vernal Pool Speedwell (subsp. *xalapensis*); Vernal Pool Veronica (subsp. *xalapensis*); Vernal-pool Veronica (subsp. *xalapensis*); Verónica (Spanish); Veronica-de-xalapa (subsp. *xalapensis*, Portuguese); Wandering Speedwell (a name also applied to other taxa); Wandering Veronica; Wen Mu Cao (transcribed Chinese); Western Purslane Speedwell. DESCRIPTION: Aquatic or terrestrial annual forb/herb (ascending and/or erect stems 4 to 14 inches in height); the leaves are yellow-green; the tiny flowers may be blue, pale lavender, pink-white, purple, purple-blue, white, white-blue, white-cream or white-light pink; flowering generally takes place between early February and mid-October (additional record: one for early November); the heart-shaped fruits are reddish. HABITAT: Within the range of this species it has been reported from mountains; grassy mesas; plateaus; bases of cliffs; along bouldery and rocky canyons; bedrock and bouldery canyon bottoms; bluffs; buttes; ledges; ridges; rocky ridgetops; openings in forests; clayey, clayey-loamy and silty meadows; gravelly bases of foothills; bouldery hills; sandy hilltops; bouldery and rocky hillsides; bouldery, rocky-gravelly, shaley, gravelly-sandy, gravelly-clayey, gravelly-silty-loamy, sandy and silty slopes; rocky-sandy-loamy and gravelly-sandy alluvial fans; bouldery and rocky outcrops; amongst rocks; sand dunes; clayey hummocks; clayey-loamy prairies; plains; gravelly-clayey and loamy flats; uplands; sandy hollows; valley floors; muddy valley bottoms; coastal plains; roadcuts; along gravelly and gravelly-sandy roadsides; within bedrock arroyos; draws; bottoms of draws; gulches; grassy ravines; within muddy seeps; in gravelly-sandy-humusy soil around springs; in muddy and clayey soils along streams; along and in bouldery-sandy and sandy streambeds; along creeks; along rocky-sandy, cobbly, gravelly-sandy and sandy creekbeds; along rivers; sandy riverbeds; along and in muddy, rocky, rocky-clayey, rocky-silty, gravelly and sandy washes; along rocky, rocky-sandy and rocky-silty drainages; within drainage ways; along waterways; waterholes; around and in clayey and clayey-loamy pools; vernal pools; silty-clayey poolbeds; in rocks around silty ponds; pondbeds; in lakes; lakebeds; playas; around and in lagoons; boggy areas; ciénegas; silty marshes; mud holes; loamy-clayey depressions; sumps; along and in clayey swales; along (muddy, rocky, sandy, sandy-loamy, sandy-silty and loamy) banks of streams, creeks, rivers, pools, ponds and lakes; along (muddy and sandy) edges of streams, rivers, washes, pools, ponds, lakes and swamps; along (muddy, gravelly and clayey) margins of streamlets, streams, creeks, rivers, pools, ponds and lakes; (sandy) sides of rivers; along (mucky, muddy, rocky-gravelly and sandy) shorelines of ponds and lakes; muddy draw-down areas; gravelly-silty-loamy mudflats; rocky-sand, gravel, gravelly-sand and sand bars; rocky-sandy and sandy beaches; benches; sandy terraces; bottomlands; silty-clayey floodplains; lowlands; dams; below dikes; in silty-clayey stock tanks; sandy, muddy and silty soils around and in stock tanks (charcos, represos); muddy-rocky edges and shorelines of reservoirs; along ditches; ruts; tire-tracks; silty trenches; rocky, cobbly, gravelly-sandy, sandy and sandy-clayey riparian areas; waste places, and disturbed areas growing in shallow water; mucky; muddy, and wet, soggy, moist, damp and dry bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, cobbly, gravelly, gravelly-sandy and sandy ground; rocky-sandy loam, gravelly loam, gravelly-clayey loam, gravelly-silty loam, sandy loam, clayey loam and loam ground; rocky clay, gravelly clay, sandy clay, loamy clay, silty clay and clay ground; rocky silty, sandy silty and silty ground, and gravelly-sandy humusy ground, occurring from 100 to 10,300 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Veronica peregrina* is native to northwestern, northern, central and southern North America; Central America and coastal Islands in the Caribbean Sea, and eastern, western and southern South America. *5, 6, 18 (genus), 43 (042810 - *Veronica peregrina* var. *xalapensis* Kunth), 44 (042013 - color photograph of ssp. *xalapensis*), 46 (Page 785), 63 (042810 - color presentation), 85 (042113 - color presentation including habitat), 101 (color photograph), 124 (081811)*

Veronica peregrina var. *xalapensis* (see *Veronica peregrina* subsp. *xalapensis*)

Simmondsiaceae: The Jojoba Family

Simmondsia californica (see *Simmondsia chinensis*)

***Simmondsia chinensis* (J.H. Link) C.K. Schneider: Jojoba**

SYNONYMY: *Simmondsia californica* T. Nuttall. COMMON NAMES: California Coffee Berry; California Jojoba; Coffee Berry (a name also applied to other species); Coffeeberry (a name also applied to other species); Coffee Bush (a name also applied to other species); Coffee Bush (English)¹⁴⁰; Coffee-bush (a name also applied to other species); Deer-nut; Deer [Goat, Pig, Sheep]-nut (English)¹⁴⁰; Deernut; Goat Nut; Goat-nut (a name also given to the genus *Simmondsia*); Goatnut (a name also given to the genus *Simmondsia*); Gray Box Bush; Ho:hovai (Uto-Aztecan: Hiá Ce□ O'odham)¹⁴⁰; Ho:howai; Hohoova (Uto-Aztecan: Yaqui)¹⁴⁰; Hohowai [Ho:howai, pl.; Hohwi, sing.] (Uto-Aztecan: Tohono O'odham)¹⁴⁰; Ioligam (Tohono O'odham); Jojo Beans (a name given to the plant by seed collectors, Arizona); Jojoba (a name also applied to the genus *Simmondsia* and the Simmondsiaceae, Spanish); Jojoba (English and Spanish)¹⁴⁰; Jojoba (Swedish), Jojoba Bean; Jojoba Bush; Jojobe; Pig-nut (a name also applied to other species); Pignut (a name also applied to other species); Pnaacól (Hokan: Seri)¹⁴⁰; Pnaokt (Seri);

Qawnaxal <kowanukal> (Uto-Aztec: Cahuilla)¹⁴⁰; Quinine Plant (a name also applied to other species); Quinine Plant (English)¹⁴⁰; Quinine-plant; Sheep-nut; Sheeppnut; Wild Hazel (English)¹⁴⁰; Wild-hazel. DESCRIPTION: Terrestrial perennial, drought-resistant evergreen shrub (8 inches to 13 feet in height; one plant was observed and described as being 2 feet in height and 6½ feet in width, plants were observed and described as being 4 feet in height and 6 feet in width, plants were observed and described as being 5¼ feet in height and 5 feet in width); the stems are greenish-tan aging to reddish-brown and gray; the leaves may be blue-gray, gray-green or green; the flowers (male and female flowers are borne on separate plants) may be green, greenish-yellow, greenish-white, yellow or yellow-green; flowering may vary considerably from year to year but generally takes place between late December and mid-August (additional records: one for late September, two for early October, three for mid-October, five for late October, two for early November, four for mid-November, two for late November and two for early December; peak blooms reportedly occur February through April); the ripe fruits are tan. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; rocky mesas; plateaus; cliffs; rocky cliff faces; bouldery and rocky canyons; along rocky and gravelly canyon bottoms; rocky crevices; gravelly knolls; bouldery and rocky ridges; rocky ridgetops; rocky foothills; rocky and gravelly hills; hilltops; rocky, rocky-clayey and gravelly hillsides; bouldery, rocky, gravelly, gravelly-sandy, sandy, sandy-loamy and clayey slopes; alluvial fans; bajadas; piedmonts; rocky outcrops; amongst boulders and rocks; rocky coves; dunes; terraces; plains; sandy flats; basins; valley floors; coastal mesas; coastal terraces; coastal beach dunes; coastal plains; coastal beaches; along rocky, rocky-sandy, gravelly-sandy and clayey roadsides; along rocky arroyos; along rocky bottoms of arroyos; draws; along sandy gullies; rocky ravines; seeps; around springs; around seeping streams; along runnels; along streams; along and in streambeds; along creeks; creekbeds; along and in rocky, rocky-sandy, stony, gravelly-sandy and sandy washes; rocky-clayey drainages; along and in drainage ways; bouldery watersheds; (gravelly, gravelly-sandy and sandy) banks of creeks and washes; borders of washes; along edges of arroyos and washes; (rocky) margins of arroyos; rocky and gravelly terraces; loamy bottomlands; floodplains; mesquite bosques; riparian areas, and disturbed areas growing in dry rocky desert pavement; bouldery, rocky, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; sandy loam and loam ground, and rocky clay and clay ground, occurring from sea level to 5,400 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat, and may live to be from 100 to over 200 years of age. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or beverage crop; it was also noted as having been used as a drug or medication. Jojoba is an important browse plant for wildlife and is browsed by Desert Bighorn Sheep (*Ovis canadensis* subsp. *mexicana*), Jackrabbits (*Lepus* sp.) and Mule Deer (*Odocoileus hemionus*) and desert chipmunks, and Desert Mule Deer, gophers, mice (including the Bailey's Pocket Mouse (*Chaetodipus baileyi* subsp. *baileyi*), pack rats, Collard Peccary (*Peccari tajacu* subsp. *sonoriensis*), rabbits, ground squirrels including the Harris' Antelope Squirrel (*Ammospermophilus harrisi*) and other mammals and birds feed on the seeds. The Jojoba provides cover for many birds and small mammals, the Gambel's Quail (*Callipepla gambelii* subsp. *gambelii*) may use the Jojoba as a nesting site. The Jojoba has also been included as a member of both the Box Family (Buxaceae) and the Spurge Family (Euphorbiaceae). *Simmondsia chinensis* is native to southwest-central and southern North America and coastal islands in the Gulf of California. *5, 6, 13 (Pages 117-118), 16, 18, 26 (color photograph), 28 (color photographs 836 A&B), 43 (042910 - *Simmondsia chinensis* C.K. Schneid.), 44 (082011), 46 (included as a member of the Box Family (Buxaceae), Page 521), 48, 58, 63 (042113 - color presentation), 77, **85** (042113 - color presentation), 91 (Pages 369-372), 115 (color presentation), 124 (082011 - no record of species or genus), 127, 134, 140 (Pages 263-265 & 305), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Solanaceae: The Potato Family

***Datura discolor* J.J. Bernhardt: Desert Thorn-apple**

COMMON NAMES: Desert Datura; Desert Devil's Apple; Desert Thorn Apple; Desert Thorn-apple; Desert Thornapple; Kotadopi (Uto-Aztec: Hiá Ce□ O'odham)¹⁴⁰; Kododop (Pima: Arizona, Maricopa, Wetcamp Sacaton Reservation); Ökenspikklubba (Swedish); Poisonous Nightshade; Small Datura; Small Thorn-apple; Tehui (Mayo); Thorn Apple (a name also applied to other taxa and the genus *Datura*); Tolache; Toloache (a name also applied to the genus *Datura*, Spanish: Mexico, Sonora); Tolvache (Mexico, Sonora). DESCRIPTION: Terrestrial annual forb/herb (spreading ascending and/or erect stems 10 inches to 5 feet in height); the foliage is green or yellow-green; the trumpet-shaped flowers (2 to 6 inches in length and to 2 inches in diameter) are brownish-white, light pink, white, white with purple markings in the throat or white tinged with purple or violet; flowering generally takes place between late July and late December (additional records: one for mid-January, three for late January, two for early February, three for late February four for early March, three for mid-March, six for late March, one for early April, two for mid-April, two for early May, two for mid-May, one for late May, one for mid-June and one for late June; flowering beginning in March and ending in October has also been reported); the fruits are round (1 to 1½ inches in diameter) and thorny. HABITAT: Within the range of this species it has been reported from mountains; gravelly mesas; rocky and stony canyons; rocky canyon bottoms; rocky gorges; crater floors; foothills; rocky and gravelly hills; rocky hilltops; rocky hillsides; rocky bases of hillsides; rocky, rocky-sandy and gravelly slopes; alluvial fans; rocky and gravelly-sandy bajadas; amongst rocks; lava flows; sand dunes; blow-sand deposits; rocky-sandy and sandy plains; rocky, rocky-sandy and sandy flats; basins; sandy valley floors; valley bottoms; coastal dunes; coastlines; along roadsides; within rocky, gravelly and sandy arroyos; along sandy bottoms of arroyos; sandy-loamy gulches; along streambeds; in sand along rivers; along and in sandy riverbeds; along and in rocky, rocky-sandy, sandy and silty washes; along drainages; gravelly-sandy-silty poolbeds; playas; depressions;

silty swales; (sandy-silty) banks of arroyos and washes; (sandy-clayey) edges of swales; along margins of arroyos and washes; sand bars; rocky-cobbly-shelly and sandy beaches; sandy shelves; terraces; sandy bottomlands; sandy floodplains; mesquite bosques and woodlands; canal banks; sandy riparian areas; waste places, and disturbed areas growing in moist and dry desert pavement; rocky, rocky-cobbly, rocky-sandy, stony, gravelly, gravelly-sandy and sandy ground; sandy clay ground, and gravelly-sandy silty, sandy silty and silty ground, occurring from sea level to 5,500 feet in elevation in the forest, woodland, scrub, grassland, deserts scrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. This plant is poisonous. Hornworms feed on the leaves. *Datura discolor* is native to southwest-central and southern North America. *5, 6, 15, 16, 43 (043010 - *Datura discolor* Bernh.), 44 (042213 - color photograph), 46 (Page 760), 63 (042213 - color presentation of seeds), 68, 77, 85 (042213 - color presentation), 101 (note under *Datura inoxia* Mill.), 115 (color presentation), 124 (112010 - no record of species; genus record), 127, 140 (Page 306), **MBJ** (correspondence dated May 13, 2013)*

Datura meteloides (see *Datura wrightii*)

***Datura wrightii* E.A. von Regel: Sacred Thorn-apple**

SYNONYMY: *Datura meteloides* auct. non M.F. Dunal p.p. COMMON NAMES: A'neglakya (Language Isolate: Zuni)¹⁴⁰; Angel's Trumpet (a name also applied to other species); Angel's-trumpet (a name also applied to other species); Angel's-trumpet (English)¹⁴⁰; Belladonna (Spanish); Ch'óhojilyééh <č'óxo□'il□ēi, c'oxojilēi> ("Madness Producing", Athapascan: Navajo)¹⁴⁰; Chamico (Spanish: Yucatán)¹⁴⁰; Cmalgapit ("Ear Deaf", Yuman: Maricopa)¹⁴⁰; Dekúba <deku-ba, reku-ba> (Uto-Aztecan: Tarahumara)¹⁴⁰; Devil's Weed; Estramonio (Spanish)¹⁴⁰; Gegeda A'gama <gugudua'gama, gugurha agama> ("The One With Big Horns" or "Big Horned One", Uto-Aztecan: Nevome, Sonora)¹⁴⁰; Giant Jimson; Hairy Thorn-apple; Hakatdam <hakandam> (Uto-Aztecan: Onavas Pima)¹⁴⁰; Hoary Thorn-apple; Indian Apple (not recommended for use); Indian Apple (English)¹⁴⁰; Indian-apple (not recommended for use); Indianspikklubba (Swedish); Itanasbase ("Round Leaf", Athapascan: Chiricahua and Mescalero Apache)¹⁴⁰; <jaa ilgodó> ("Forget Yourself", Athapascan: Western Apache)¹⁴⁰; Jimson Weed (a name also applied to other species and the genus *Datura*); Jimson Weed (English)¹⁴⁰; Jimson-weed (a name also applied to other species and the genus *Datura*), Jimsonweed (a name also applied to other species and the genus *Datura*), Kiksawva'al <kikisowil> (Uto-Aztecan: Cahuilla)¹⁴⁰; Kookivuri <kokovuri> (Uto-Aztecan: Mountain Pima)¹⁴⁰; Kota□opi <kotata'p> (Uto-Aztecan: Tohono O'odham)¹⁴⁰; Kot□opi <kotodopi, kodop, kododophi, kotobi, kotdobi> (Uto-Aztecan: Akimel O'odham)¹⁴⁰; Máanet (Uto-Aztecan: Luiseño)¹⁴⁰; Main-oph-weep (Uto-Aztecan: Paiute)¹⁴⁰; Malyakatu' (Yuman: Mohave)¹⁴⁰; Mimip [Manopweep, Manop^hweep] (Uto-Aztecan: Southern Paiute)¹⁴⁰; Mo'moy (Chumash: Barbareño Chumash)¹⁴⁰; Momoht (Uto-Aztecan: Tübatulabal)¹⁴⁰; Momoy (Chumash: Ineseño and Ventureño Chumash)¹⁴⁰; Moon Flower; Moon Lily; Moop□ (Uto-Aztecan: Kawaiisu)¹⁴⁰; Muip□ <muipe> (Uto-Aztecan: Northern Paiute)¹⁴⁰; Muippuh (Uto-Aztecan: Panamint)¹⁴⁰; Navamutuda <nabamutuda> (Uto-Aztecan: Nevome, Sonora)¹⁴⁰; Ndiyiliitsoh <ntiGiliitshoh> (Athapascan: Navajo)¹⁴⁰; Pricklyburr; Recurved Thorn-apple; Sacred Datura (a name also applied to other species); Sacred Datura (English)¹⁴⁰; Sacred Thorn Apple; Sacred Thorn-apple; Sacred Thornapple; Saemp'e (Kiowa Tanoan: Tewa)¹⁴⁰; Selguacha; Shmalk Tuch (Yuman: Paipai)¹⁴⁰; □mal Ka:pí:□ (Yuman: Cocopa)¹⁴⁰; Smalgatú' ("Ear-something Inside", Yuman: Havasupai)¹⁴⁰; Smalk^atú' (Yuman: Walapai)¹⁴⁰; Southwestern Thorn Apple; Sweet Scented Datura (a name also applied to other species); Sweet-scented Datura (a name also applied to other species); Táguaro (Uto-Aztecan: Sonora)¹⁴⁰; Tañaniva (Uto-Aztecan: Northern Paiute)¹⁴⁰; Tebwi (Uto-Aztecan: Yaqui)¹⁴⁰; Tecuyani (Uto-Aztecan: Náhuatl)¹⁴⁰; Tecuyau (Spanish); Tecuyau (Uto-Aztecan: Guarijio)¹⁴⁰; Thorn Apple (a name also applied to other species and the genus *Datura*); [Sacred] Thorn Apple (English)¹⁴⁰; Thorn-apple (a name also applied to other species and the genus *Datura*); Thornapple (a name also applied to other species and the genus *Datura*); Tikúwari (Uto-Aztecan: Tarahumara)¹⁴⁰; Tlapa (Spanish)¹⁴⁰; Tókocovi <tokorhobi> (Uto-Aztecan: Nevome, Sonora)¹⁴⁰; Tokorakai (Uto-Aztecan: Northern Tepehuan)¹⁴⁰; Tokorep <tókorew> (Uto-Aztecan: Mountain Pima)¹⁴⁰; Tolache; Tolguacha; Toloache (a name also applied to the genus *Datura*, Spanish: Mexico, Sonora); Toloache <toluache, tolguacha> (Spanish)¹⁴⁰; Toloache Grande (Spanish); Tolohua-xihuitl <tologuaxihuitl> (Uto-Aztecan: Náhuatl)¹⁴⁰; Tsimona <tcimóna> (Uto-Aztecan: Hopi)¹⁴⁰; □Unupuvu (Uto-Aztecan: Ute)¹⁴⁰; Western Jimson; Western Jimson Weed; Western Jimson-weed; Western Jimsonweed; Wright Datura; Wright Jimson Weed; Wright Jimson-weed; Wright Jimsonweed; Wright's Datura; Wright's Jimson Weed; Wright's Jimson-weed; Wright's Jimsonweed. DESCRIPTION: Terrestrial annual or perennial forb/herb or subshrub (spreading or sprawling erect stems 1 to 5 feet in height sometimes spreading to 6 feet in width; one plant was observed and described as being 16 inches in height and 20 inches in width, one plant was observed and described as being 18 inches in height and 2 feet in width, two plants were observed and described as being 20 inches in height and 20 inches in width, one plant was observed and described as being 20 inches in height and 4 feet in width); the leaves may be dark green, gray-green or purplish; the trumpet-shaped flowers (2½ to 5½ inches in length and 6 to 10 inches in diameter) may be creamy-white, greenish-white, pale ivory, pale lavender, light purple, purple, white or white tinged with lavender, pink-lavender, purple, rose-purple or violet; flowering generally takes place between mid-March and early December (additional record: one for mid-February); the round and thorny fruits (1¼ to 2 inches in diameter) are green or whitish-green drying to brown. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; rocky mountainsides; sandy mesas; bases of cliffs; rocky and sandy canyons; canyon walls; sandy-silty canyon sides; sandy canyon bottoms; chasms; gorges; talus slopes; crevices in boulders and rocks; bluffs; rocky ridges; foothills; rolling hills; rocky and sandy hillsides; bouldery, rocky, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy and sandy-silty slopes; rocky-sandy-loamy alluvial fans; alluvial fans; bajadas; bouldery and rocky outcrops; amongst rocks; sandy alcoves; plains; sandy fields; bouldery, rocky-sandy, gravelly and sandy flats; sandy valley floors; sandy coastal beaches; coastal strands; along rocky, gravelly-sandy and sandy roadsides; along and in bedrock, rocky and sandy arroyos; along sandy draws; gulches;

muddy springs; along clayey streams; bouldery-loamy, gravelly-sandy and sandy streambeds; rocky-sandy and gravelly-sandy soils along and in creeks; sandy creekbeds; along rivers; rocky-sandy and sandy riverbeds; along and in gravelly and sandy washes; within sandy drainage ways; silty lakebeds; freshwater and saltwater marshes; clayey-loamy swales; (sandy) banks of arroyos, streams, rivers and washes; borders of washes; (gravelly) edges of rivers; along margins of arroyos, rivers and riverbeds; (gravelly) shorelines of lakes; gravel bars; sandy benches; gravelly and sandy shelves; sandy terraces; rocky-sandy and sandy bottomlands; along sandy floodplains; fencelines; along and in ditches; canal banks; sandy riparian areas; sandy waste places, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; bouldery loam, rocky-sandy loam, gravelly loam, sandy loam and clayey loam ground; rocky clay and clay ground, and sandy silty and silty ground, occurring from sea level to 7,900 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug, medication or narcotic. This plant is extremely poisonous and just simply touching the plant may be dangerous. Sphinx Moths have been observed visiting the flowers. *Datura wrightii* is native to southwest-central and southern North America. *5, 6, 28 (recorded as *Datura meteloides*, “All parts of the plant extremely poisonous if ingested”), color photograph 208), 43 (072909), 44 (031611), 46 (recorded as *Datura meteloides* DC., Page 760), 58, 63 (042213 - color presentation), 77, 80 (This plant is listed as a Secondary Poisonous Range Plant. “Toxicity results from the high content of several solanaceous alkaloids. Poisoning of both livestock and humans can occur from the ingestion of any part of the plant, including the seeds. ... It is rare when any livestock purposely consume any of the daturas. The ill-scented herbage makes the plants highly distasteful, and livestock literally have to be forced to eat it because of the lack of other forage.”), 85 (042313 - color presentation), 86 (color photograph), 115 (color presentation), 124 (031611), 127, 140 (Page 265-266 & 306), **HR***

Lycium C. Linnaeus: Desert-thorn

COMMON NAMES: Box Thorn; Box-thorn; Boxthorn; Desert Thorn; Desert-thorn; Desertthorn; Lycium; Matrimony Vine; Matrimony-vine; Matrimonyvine; Salicieso; Squawbush (a name not recommended for usage); Thornbush; Wolfberry. *43 (052010), 44 (120310), 46 (Pages 749-752), 63 (040207), 124 (111710), **HR***

Lycium berlandieri M.F. Dunal: Berlandier’s Wolfberry

COMMON NAMES: Bachata (Arizona, Sonora)¹⁴⁰; Barchata (var. *longistylum*, a name also applied to other species); Berlandier Lycium; Berlandier Wolfberry; Berlandier’s Wolfberry; Boxthorn (a name also applied to other species and the genus *Lycium*); Cilindrillo (var. *longistylum*, Spanish); Desert Thorn (a name also applied to other taxa); Frutilla (var. *longistylum*, a name also applied to other species, Spanish); Hosó (var. *longistylum*, Spanish); Huichutilla (Spanish); Josó (var. *longistylum*, Spanish); Salicieso (a name also applied to other species and the genus *Lycium*, Arizona and Mexico including Sonora); Silver Wolfberry; Squawberry (var. *parviflorum*, a name also applied to other taxa and the genus *Lycium*, not recommended for usage); Terrac Wolfberry; Wolfberry (a name also applied to other taxa and the genus *Lycium*). DESCRIPTION: Terrestrial perennial drought-deciduous shrub (20 inches to 10 feet in height; one plant was observed and described as being 3 feet in height with a crown 3 feet in width); the bark on the stems and branches may be almost black, brown, dark brown, gray, gray-brown, purple-brown, dark red, reddish or dark reddish-brown (noted for older stems); the leaves are dark green; the bell-shaped flowers may be bluish, cream, cream-white, cream-yellow, pale green, lavender, purple, tan, white, whitish or pale yellow; flowering generally takes place between early February and early September (additional records: two for early January, one for mid-January, two for late September, three for early October, one for mid-October, two for late November, one for early December, three for mid-December and one for late December; a main flowering period occurring between July and September with occasional flowering at other times has been reported); the mature fruits are orange, red or red-orange (reportedly tasting of tomato but more bitter-sweet). HABITAT: Within the range of this species it has been reported from mountains; mountainsides; gravelly mesas; rocky cliffs; bases of cliffs; rocky canyons; bouldery and rocky canyon bottoms; rocky talus slopes; crevices; buttes; ledges; rocky ridges; rocky and gravelly ridgetops; rocky foothills; rocky, gravelly, gravelly-sandy and sandy hills; rocky hillsides; bedrock and rocky slopes; gravelly alluvial fans; rocky, rocky-cobbly-gravelly, gravelly, gravelly-sandy and sandy bajadas; bouldery and rocky outcrops; amongst boulders and rocks; boulder fields; sand dunes; prairies; cobbly plains; rocky and gravelly, gravelly-sandy and sandy flats; rocky-gravelly basins; valley floors; valley bottoms; coastal plains; coastal beaches; along gravelly-sandy-clayey-loamy roadsides; along rocky, rocky-cobbly-gravelly, gravelly and sandy arroyos; gravelly bottoms of arroyos; ravines; streambeds; along and in sandy washes; playas; borders of washes; (rocky and sandy) edges of rivers; (sandy) sides of rivers; clayey-loamy terraces; bottomlands; floodplains; mesquite bosques; ditches; riparian areas, and disturbed areas growing in dry desert pavement; bouldery, rocky, rocky-cobbly-gravelly, rocky-gravelly, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly-sandy-clayey loam, sandy loam and clayey loam ground, and gravelly clay and loamy clay ground, occurring from sea level to 8,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This spiny shrub may be an attractive component of a restored native habitat where it might live to be over 72 years of age. The Berlandier Lycium may live to be more than 90 years of age. The Costa’s Hummingbird (*Calypte costae*) has been observed visiting the flowers and Gambel’s Quail (*Callipepla gambelii* subsp. *gambelii*) uses the plant for cover, roosting and as a feeding site. *Lycium berlandieri* is native to southwest-central and southern North America. *5, 6, 10, 13 (Page 200), 16, 18 (genus), 28 (color photograph 700), 43 (043010), 44 (042513 - no record of species; genus record), 46 (Page 752), 63 (042513), 85 (042613 - color presentation), 115 (color presentation), 124 (082111), 140 (Pages 268 & 306), **HR***

Nicotiana glauca R. Graham: Tree Tobacco

COMMON NAMES: Álamo Loco (Spanish); Blåtobak (Swedish); Blaugrüner Tabak (German); Brazilian Tree Tobacco; Buena Mosa; Buena Moza (Spanish); Cornetón (Spanish); Don Juan (Yaqui); Gigante; Glauous Tobacco; Glauous-leaf Tobacco; Juan Loco (Spanish); Juanloco (Spanish); Maraguana (Spanish); Maraquiana (Spanish); Mexican Tobacco; Mustard Tree (a name also applied to other taxa); Palo Loco (Spanish); Rape; San Juan Tree; Shrub Tobacco; Tobacco-bush; Tabaco Amarillo; Tabaco Cimarrón (Spanish); Tabaco Moro; Tree Tobacco (a name also applied to other taxa); Tronadora; Wild Tobacco (a name also applied to other taxa); Wildetabak (Afrikaans); Yellow Tree Tobacco. DESCRIPTION: Terrestrial perennial evergreen shrub or tree (1 to 26 feet in height with a crown to 10 feet in width); the bark is yellow-brown; the leaves are blue-green, bluish-green or dull green; the tubular flowers (1¼ to 2 inches in length) are pale yellow, yellow or yellow-greenish; flowering generally takes place between mid-January to late December. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; mesas; plateaus; rocky canyons; along rocky canyon bottoms; sandy ledges; foothills; rocky hills; rocky hilltops; bouldery and rocky hillsides; rocky and sandy-loamy slopes; amongst rocks; plains; sandy and silty flats; gravelly basins; valley floors; rocky coastal beaches; coastal marshes; sandy-clayey roadcuts; along rocky and sandy roadsides; rocky and sandy arroyos; gravelly bottoms of arroyos; springs; along streams; along and in streambeds; along and in creeks; along rivers; along and in rocky-sandy and sandy riverbeds; along and in sandy washes; within drainages; along and in watercourses; oases; boggy areas; (gravelly-sandy and sandy) banks of creeks, rivers and washes; borders of washes; along (sandy and sandy-silty) edges of rivers and lakes; along margins of washes; (rocky) sides of rivers; shores of creeks and lakes; terraces; bottomlands; floodplains; mesquite woodlands; fencerows; along banks of canals; along ditches; along ditch banks; along sandy riparian areas; rocky waste places, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, rocky-sandy, gravelly, gravelly-sandy and sandy ground; sandy loam ground; sandy clay ground, and sandy silty and silty ground, occurring from near sea level to 5,600 (one record at 8,200 feet) feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food and beverage and as a drug or medication. *Nicotiana glauca* is native to western and southern South America. *5, 6, 13, 16, 18, 28 (color photograph 385), 43 (050210), 44(042713), 46 (Page 761), 63 (042713 - color presentation), 68, 77, 80 (This species is listed as a Secondary Poisonous Range Plant. “The poisonous principle is the highly toxic nicotine and other alkaloids which are poisonous to all classes of livestock and to humans. The plants are generally unpalatable to range livestock but frequent losses have been reported. ... Since wild tobaccos are generally unpalatable and grow predominantly in waste places, range improvement to reduce waste areas and to provide ample forage is the best means of preventing losses.”), 85 (042713 - color presentation), 86 (color photograph), 97, 115 (color presentation), 124 (082111 - no record of genus or species), 127, **HR***

***Nicotiana obtusifolia* M. Martens & H.G. Galeotti var. *obtusifolia*: Desert Tobacco**

SYNONYMY: *Nicotiana trigonophylla* M.F. Dunal. COMMON NAMES: Ban Vivga <ban vi:v> (“Coyote Tobacco”, Uto-Aztec: Akimel O’odham)¹⁴⁰, Ban Wiwga (Uto-Aztec: Tohono O’odham)¹⁴⁰, Biy, Biba-ta (Uto-Aztec: Ópata)¹⁴⁰, Coyote Tobacco (a name also applied to the species and other taxa); Coyote [Desert] Tobacco (English)¹⁴⁰; Desert Tobacco (a name also applied to the species and other taxa); Goy Biba (Uto-Aztec: Mayo)¹⁴⁰; Ha Wiwga (“Their Tobacco”, Uto-Aztec: Tohono O’odham)¹⁴⁰; Hapis Casa (“Putrid Tobacco”, Hokan: Seri)¹⁴⁰; Hatalewah Ū’v <a’uv, aúva> (“Coyote Tobacco”, Yuman: Mohave)¹⁴⁰; Intelwayok (“Old Time Tobacco”, Yuki: Yuki)¹⁴⁰; Isily Piv’a <pivat-isil> (“Coyote’s Tobacco”, Uto-Aztec: Coahuilla)¹⁴⁰; Ka□ódn,yúva (Yuman: Havasupai)¹⁴⁰; Mela’ Ū’v (“Coyote Tobacco”, Yuman: Yuma)¹⁴⁰; Nát’oh (Athapascan: Navajo)¹⁴⁰; Nátotē (Athapascan: Jicarilla Apache)¹⁴⁰; O’odham Ha Vivka (“People’s Tobacco”, Uto-Aztec: Hiá Ce□ O’odham, Arizona Sonora)¹⁴⁰; Pahompin <pāmüpi> (Uto-Aztec: Panamint)¹⁴⁰; Pahnóbi (Uto-Aztec: Mono)¹⁴⁰; Pahnú (Uto-Aztec: Western Paiute)¹⁴⁰; Pamu (Uto-Aztec: Mono)¹⁴⁰; Pi:va-t [Piivat] (Uto-Aztec: Luiseño)¹⁴⁰; Piiva <piva, pi’va, pi:wa> (Uto-Aztec: Hopi)¹⁴⁰; Punche (“a Punch” a name also applied to the species); Q□’apl (Uto-Aztec: Southern Paiute)¹⁴⁰; Qo□ápu (Uto-Aztec: Ute)¹⁴⁰; So□o(n)d□ <soódá> (Uto-Aztec: Kawaiisu)¹⁴⁰; Tabaquillo (“Little Tobacco” a name also applied to the species); Tabaquillo de Coyote (a name also applied to the species); Tobaco Cimarrón (“Wild Tobacco”, Spanish: Sonora)¹⁴⁰; Tobaco [de] Coyote [Loco] (“Coyote [Crazy] Tobacco”, Spanish: Chihuahua, San Luis Potosí, Sonora)¹⁴⁰; Tobaquillo [de Coyote] (“Little [Coyote] Tobacco”, Spanish: Texas to Arizona, Sonora)¹⁴⁰; Tsawawap (Uto-Aztec: Southern Paiute)¹⁴⁰; □U:p <op> (Yuman: Cocopa)¹⁴⁰; ‘Úva <u:v> (Yuman: Walapai)¹⁴⁰; Uvaanál,a (Yuman: Maricopa)¹⁴⁰; Viv (Uto-Aztec: Onavas Pima)¹⁴⁰; Vivá-t (Uto-Aztec: Eudeve)¹⁴⁰; Vivai (Uto-Aztec: Northern Tephuan)¹⁴⁰; Vivam (Uto-Aztec: Yaqui)¹⁴⁰; Wiopuli <wiopulí, wiupuri, viopoli> (Uto-Aztec: Tohono O’odham)¹⁴⁰; Wipá (Uto-Aztec: Guarijío)¹⁴⁰; Wipáka <aura-ka, bawa-ra-ka, huipá, pawa-ra-ka> (Uto-Aztec: Tarahumara)¹⁴⁰; Wiw <viva> (Uto-Aztec: Mountain Pima)¹⁴⁰; Wo’i Viva (Yaqui). DESCRIPTION: Terrestrial annual, biennial or perennial forb/herb or subshrub (erect stems 1 to 3½ feet in height); the leaves may be gray-green or dark green; the flowers may be cream, cream & pale green, cream-green, cream-white, cream-yellow, greenish, greenish-white, greenish-yellow, deep purple, lemon-yellow, pale white, white, yellow, yellow-cream, yellow-green, yellow-white or yellowish-greenish; flowering generally takes place between late February and early November (additional records: one for mid-January, one for late November, one for early December, two for mid-December and one for late December, flowering probably takes place throughout the rest of the year). HABITAT: Within the range of this species it has been reported from mountains; bouldery and rocky-gravelly mountaintops; plateaus; along rims; cliffs; bases of cliffs; rocky and gravelly-loamy canyons; canyon walls; along canyon bottoms; gorges; bouldery-gravelly-silty and silty-clayey talus slopes; along crevices in boulders and rocks; rocky bluffs; rocky buttes; rocky ledges; bouldery ridges; bouldery and rocky ridgetops; edges of meadows; craters; cinder cones; foothills; rocky hills; bouldery hilltops; bouldery-rocky and rocky hillsides; bouldery escarpments; bouldery, bouldery-rocky, bouldery-gravelly, rocky, rocky-gravelly-sandy-clayey, stony, cindery, gravelly, gravelly-sandy, sandy, sandy-loam and sandy-clayey slopes; bajadas; rocky outcrops; amongst boulders, rocks and stones; bases

of boulders and rocks; sandy lava flows; dunes; debris fans; rocky plains; sandy and sandy-loamy flats; basins; valley floors; valley bottoms; rocky-sandy coastal shores; along railroad right-of-ways; along rocky, rocky-gravelly-sandy-clayey-loamy, gravelly, gravelly-sandy, gravelly-sandy-clayey-loamy and sandy roadsides; along sandy-loamy arroyos; arroyo walls; arroyo bottoms; gulches; in sand and loam around springs; loamy soil along streams; along gravelly-sandy and sandy streambeds; rocky creeks; sandy creekbeds; bouldery-sandy and sandy riverbeds; along and in bedrock, rocky, rocky-sandy, gravelly-sandy and sandy washes; drainages; bouldery drainage ways; sandy waterholes; marshy areas; sinks; (rocky, cobbly, sandy and silty) banks of creeks, rivers and washes; edges of lakes; (rocky-sandy) shores of lakes; mudflats; gravelly and sandy terraces; bottomlands; floodplains; ditches; ditch banks; sandy riparian areas; waste places, and disturbed areas growing in moist, damp and dry bouldery, bouldery-rocky, bouldery-gravelly, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, stony, cobbly, cindery, gravelly, gravelly-sandy and sandy ground; rocky-gravelly-sandy-clayey loam, gravelly loam, gravelly-sandy-clayey loam, sandy loam, clayey loam and loam ground; rocky-gravelly-sandy clay, sandy clay, silty clay and clay ground, and bouldery-gravelly silty and silty ground, occurring from sea level to 6,900 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant tends to be weedy; however, consideration could be given to using some plants in your project because the flowers are used by hummingbirds when other nectar-rich sources are not available. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used for food, beverage and/as a as a drug or medication. *Nicotiana obtusifolia* var. *obtusifolia* is native to southwest-central and southern North America. *5, 6, 15 (recorded as *Nicotiana trigonophylla* Dunal), 16 (recorded as *Nicotiana trigonophylla* Dunal), 28 (recorded as *Nicotiana trigonophylla*, color photograph 209), 43 (050310), 44 (082211 - no listings under Common Names for variety *obtusifolia*; species and genus records), 46 (recorded as *Nicotiana trigonophylla* Dunal, Page 761), 58 (recorded as *Nicotiana trigonophylla* Dunal), 63 (042713 - color presentation), 68, 77 (recorded as *Nicotiana trigonophylla* Dunal), 80 (This species is listed as a Secondary Poisonous Range Plant. “The poisonous principle is the highly toxic nicotine and other alkaloids which are poisonous to all classes of livestock and to humans. The plants are generally unpalatable to range livestock but frequent losses have been reported. ... Since wild tobaccos are generally unpalatable and grow predominantly in waste places, range improvement to reduce waste areas and to provide ample forage is the best means of preventing losses.”), 85 (082211 - color presentation), 86 (recorded as *Nicotiana trigonophylla*, color photograph), 115 (color presentation of the species), 124 (082111 - no record of genus, species or variety), 127, 140 (recorded as *Nicotiana obtusifolia* Martens & Galeotti [*N. trigonophylla* Dunal], Pages 268-269 & 306), **MBJ** (recorded as *Nicotiana trigonophylla*, undated record which may include landscaped material that persists without maintenance)*

Nicotiana trigonophylla (see *Nicotiana obtusifolia* var. *obtusifolia*)

***Physalis acutifolia* (J. Miers) N.Y. Sandwith: Sharpleaf Groundcherry**

SYNONYMY: *Physalis wrightii* A. Gray. COMMON NAMES: Groundcherry (a name also applied to the genus *Physalis*); Irrigation Groundcherry; Pointed-leaved Ground-cherry; Sharp Leaf Ground Cherry; Sharp Leaved Ground Cherry; Sharp-leaf Ground-cherry; Sharp-leaf Groundcherry; Sharpleaf Ground Cherry; Sharpleaf Groundcherry; Sharp-leaved Ground-cherry; Tomato (Mexico, Sonora); Tomatillo (a name also applied to other taxa and the genus *Physalis*, Spanish: Mexico, Sonora); Wright Ground Cherry; Wright Ground-cherry; Wright Groundcherry; Wright's Ground Cherry; Wright's Groundcherry; Wright's Groundcherry. DESCRIPTION: Terrestrial annual forb/herb (leafy branched stems 2 to 42 inches in height, one plant was described as being 20 inches in height and 40 inches in width); the foliage is bluish-green or gray-green; the wheel-shaped flowers ($\frac{1}{2}$ to $\frac{3}{4}$ inch in diameter) are cream, greenish-yellow, white or whitish (with a greenish, orange-yellow, yellow, yellowish or yellow-green center), pale yellow or yellow; the anthers are purplish; flowering generally takes place between mid-August and late November (additional records: two for mid-January, one for early June, one for late June, two for early July, one for mid-July, one for late July, one for mid-December and one for late December, flowering possibly starting as early as April and ending in late December has been reported); the berry-like seed-pods ($\frac{3}{4}$ to $1\frac{1}{4}$ inches in length) are covered with a green, papery “Chinese lantern”. HABITAT: Within the range of this species it has been reported from mountains; rocky mesas; rocky canyons; canyon bottoms; foothills; hills; rocky hillsides; rocky slopes; alluvial fans; cobbly plains; fields; clayey flats; valley floors; coastal plains; along railroad right-of-ways; roadbeds; along gravelly and gravelly-sandy-clayey-loamy roadsides; sandy arroyos; bottoms of arroyos; draws; gullies; rocky ravines; springs; along streams; in streambeds; creekbeds; along rivers; rocky-sandy and sandy riverbeds; along and in rocky and clayey washes; drainages; around ponds; pondbeds; playas; marshlands; muddy-silty swampy areas; depressions; sloughs; banks of rivers; (sandy-clayey) edges of ponds and swales; sand bars; benches; sandy bottomlands; sandy floodplains; lowlands; mesquite bosques; dikes; canals; canal banks; along ditches; ditch banks; riparian areas, and disturbed areas growing in moist and dry rocky, rocky-sandy, cobbly, gravelly and sandy soils; gravelly-sandy-clayey loam sandy loam ground; sandy clay, humusy clay and clay ground, and silty ground, occurring from sea level to 5,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food crop. Quail, White-tailed Deer (*Ovis canadensis*) and Bighorn Sheep (*Ovis canadensis*) browse this plant. *Physalis acutifolia* is native to southwest-central and southern North America. *5, 6, 16, 43 (050310), 44 (040211), 46 (recorded as *Physalis wrightii* Gray, Page 754), 58, 63 (042713 - color presentation of seed-pod), 68 (recorded as *Physalis wrightii* Gray), 77, 80 (Species of the genus *Physalis* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. “It has been suspected that animals have been poisoned by eating large quantities of the tops and unripe fruits of these forbs.”), 85 (082211 - color presentation), 101 (recorded as *Physalis wrightii* Gray, color photograph), 124 (040211 - no record of species; genus record), 127, 140 (Pages 270 & 306)*

Physalis wrightii (see *Physalis acutifolia*)

***Solanum elaeagnifolium* A.J. Cavanilles: Silverleaf Nightshade**

COMMON NAMES: Arrebenta-cavalo (Portuguese: Brazil); Ashika (Keres: Cochiti)¹⁴⁰; Buena [Mala] Mujer (“Good [Bad] Woman”, Spanish: Sonora)¹⁴⁰; Bull Nettle (a name also applied to other species, New Mexico); Bull-nettle (a name also applied to other species, New Mexico); Bull-nettle (English)¹⁴⁰; Bullnettle (a name also applied to other species); Desert Nightshade (a name also applied to other species); Gáán Bidáá <bináá> (Athapascan: Western Apache)¹⁴⁰; Ha’watapa (Language Isolate: Zuni); Horse Nettle (a name also applied to other species and the genus *Solanum*, Nebraska, New Mexico); Horse-nettle (a name also applied to other species and the genus *Solanum*, Nebraska, New Mexico); Iron-weed (English: Texas)¹⁴⁰; Melãozinho-do-campo (Portuguese: Brazil); Nááltsoí <náalshoih, □anatco-i> (Athapascan: Navajo)¹⁴⁰; Pera (“Pear”, (Spanish: Coahuila)¹⁴⁰; Prairie-berry; Prickly Nightshade (Kansas); Purple Nightshade (a name also applied to other species); Rosillo (Spanish: Sonora)¹⁴⁰; Saca Manteca (“Butter Puller”, Spanish: Arizona, Sonora)¹⁴⁰; Satansbos (Afrikaans); Silver Horse Nettle; Silver Horse-nettle; Silver Horsenettle; Silver Leaf Horse Nettle; Silver Leaf Horse-nettle; Silver Leaf Night Shade; Silver Leaf Nightshade; Silver Leafed Night Shade; Silver Leaved Horsenettle; Silver Leaved Nightshade; Silver Night Shade; Silver Nightshade; Silver Nightshade; Silver [-leaf] Nightshade (English)¹⁴⁰; Silver-leaf Horse Nettle; Silver-leaf Horse-nettle; Silver-leaf Night-shade; Silver-leaf Nightshade; Silver-leafed Night-shade; Silver-leafed Nightshade; Silver-leaved Bull Nettle; Silver-leaved Horse Nettle; Silver-leaved Horse-nettle; Silver-leaved Horsenettle; Silver-leaved Nettle; Silver-leaved Nightshade; Silverleaf Bitter-apple; Silverleaf Horsenettle; Silverleaf Nightshade; Silverleaf-nettle; Silverskatta (Swedish); Tomato Weed (a name also applied to other species); Tomatillo de Buena Mujer (“Good Woman’s Little Tomato”, Spanish: Sonora)¹⁴⁰; Trompillo (“Little Top”, Spanish: New Mexico, Texas, Chihuahua, San Luis Potosí, Sonora)¹⁴⁰; Trompillos (Mexico); Vakoa Hahaiñig (“Cracked Gourd”, Uto-Aztecan: Akimel O’odham)¹⁴⁰; Vakoa Hahaisig (“Gourd Broken Into Pieces”, Uto-Aztecan: Akimel O’odham)¹⁴⁰; Vakoa Hai (“Broken Gourd”, Uto-Aztecan: Akimel O’odham)¹⁴⁰; Vi’ul (Uto-Aztecan: Hiá Ce □ O’odham; fruits)¹⁴⁰; Wako Hahaisa (Uto-Aztecan: Tohono O’odham)¹⁴⁰; White Horse Nettle; White Horse-nettle (English: New Mexico, Texas)¹⁴⁰; White Horsenettle; White Weed (Texas), White-weed (English: Texas)¹⁴⁰; Yellow Seed Night Shade.

DESCRIPTION: Terrestrial perennial forb/herb or subshrub (spreading erect stems 8 inches to 2 feet, or possibly to 40 inches, in height; plants were observed and described as being 8 inches in height with a crown 2 to 4 inches in width, plants were observed and described as being 10 to 12 inches in height and width, plants were observed and described as being 16 inches in height with a crown 8 inches in width); the leaves may be bluish-gray, gray, gray-green, grayish-green, greenish-gray or silvery; the star-like flowers (¾ to 1½ inch in diameter) may be light blue, blue, blue-lavender, blue-purple, dark blue, deep blue-violet, bluish-purple, bluish-violet, lavender, lavender-purple, light purple, purple, dark purple, violet, deep violet, violet-purple or white; the anthers are yellow; flowering generally takes place between late March and late November (additional record: one for mid-February); the mature fruits (1/3 to 1/2 inch in diameter) are a golden, golden-brown, orange, orange-yellow or yellow berry. HABITAT: Within the range of this species it has been reported from mountains; mountaintops; sandy mesas; sandy plateaus; tablelands; bases of cliffs; rocky canyons; canyonsides; along bouldery-sandy, rocky and sandy canyon bottoms; chasms; bedrock, rocky-sandy and sandy ridges; sandy-loamy bosques; sandy meadows; rocky-sandy rims of craters; rocky foothills; clayey hills; hilltops; rocky and gravelly hillsides; along rocky, rocky-gravelly, stony, cobbly-sandy-loamy, gravelly, gravelly-sandy, gravelly-loamy and sandy slopes; sandy-clayey-loamy bajadas; clayey outcrops; sandy lava flows; sand dunes; banks; prairies; sandy plains; rocky-sandy, gravelly, gravelly-loamy, sandy, loamy, clayey, silty and silty-clayey flats; gravelly-sandy uplands; basins; shaley-silty and sandy valley floors; coastal bluffs; coastal plains; coastal beaches; along railroad right-of-ways; in roadways; along rocky, rocky-sandy, gravelly, gravelly-sandy, gravelly-sandy-clayey-loamy, gravelly-loamy, sandy and clayey roadsides; arroyos; clayey bottoms of arroyos; draws; silty bottoms of draws; springs; sandy streambeds; along creeks; rocky-gravelly-sandy and sandy creekbeds; along rivers; bouldery-cobbly-sandy and rocky-sandy riverbeds; along and in rocky, gravelly, gravelly-loamy and sandy washes; along rocky-sandy, pebbly-sandy, sandy and clayey-loamy drainages; along drainage ways; ciénegas; swampy areas; depressions; swales; (sandy and clayey) banks of arroyos and rivers; (clayey) edges of playas and ciénegas; margins of rivers and washes; sides of lakes; (rocky-sandy, gravelly and sandy-loamy) shores of ponds, lakes and playas; sandy beaches; benches; sandy terraces; sandy bottomlands; sandy and silty floodplains; mesquite bosques; fencelines; along stony and gravelly-sandy fencelines; around stock tanks; clayey levees; along ditches; along stony ditch banks; bouldery-cobbly-sandy, bouldery-sandy and sandy riparian areas; waste places, and disturbed areas growing in moist and dry bouldery-cobbly-sandy, bouldery-sandy, rocky, rocky-gravelly, rocky-gravelly-sandy, rocky-sandy, shaley, stony, gravelly, gravelly-sandy, pebbly-sandy and sandy ground; cobbly-sandy loam, gravelly loam, gravelly-sandy-clayey loam, gravelly-clayey loam, gravelly-silty loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; sandy clay, silty clay and clay ground, and rocky silty, shaley silty and silty ground, occurring from sea level to 8,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted that the berries are used as rennet in curdling milk; as a drug or medication, and the dried berries were worn as jewelry. The green fruits may be poisonous. *Solanum elaeagnifolium* is native to south-central (records exist reporting that this plant occurred in the southwestern part of Pima County, Arizona from 9,570 to 20,490 years ago) and southern North America and southern South America. *5, 6, 15, 16, 18 (genus), 28 (color photograph 703), 43 (073009), 44 (031611), 46 (Page 758), 58, 63 (043013 - color presentation), 68, 77, 80 (This species is listed as a Secondary Poisonous Range Plant. “The toxic principle in these species is a glycoalkaloid to which the name solanine is applied. The toxicity of a given species may vary considerably. ... Poisoning by *Solanum* species does not always terminate in death. In the acute poisoning, nervous symptoms rapidly build to a maximum, and death or recovery occurs within a few hours to one or two days. Death is the result of paralysis. ... Where the plants are known to

Tamarisk (also applied to *Tamarix gallica* - Accepted); Juniper Tamarix (a name also applied to other species); Kinesisk Tamarisk (Swedish); Pino Salado (a name also applied to other species, Spanish); Salt Cedar (a name also applied to other taxa and the genus *Tamarix*); Salt-cedar (a name also applied to other taxa and the genus *Tamarix*); Saltcedar (also applied to *Tamarix gallica* and *Tamarix ramosissima* - Accepted; a name also applied to other taxa and the genus *Tamarix*); Small-flowered Tamarisk (*Tamarix parviflora* - Accepted); Talaya (Spanish); Tamarisco (Spanish); Tamarisk (a name also applied to other taxa, the genus *Tamarix* and to the Tamaricaceae); Tamarix (a name also applied to other taxa, the genus *Tamarix* and to the Tamaricaceae); Tamariz (a name also applied to other species, Spanish); Taray (a name also applied to other species, Spanish). DESCRIPTION: Terrestrial perennial deciduous shrub or tree (4 to 33 feet in height); the bark may be black, brown or reddish-brown; the branches are grayish-green; the twigs are green becoming purplish or reddish; the scale-like leaves may be bluish-green, grayish-green or green; the flowers may be cream, pale pink, pink, deep pink, pinkish-white, purplish, deep purplish-pink, red, reddish-pink, white or white-pink; flowering generally takes place between early March and late November. HABITAT: Within the range of this species it has been reported from mountains; rocky canyons; rocky canyon walls; bases of canyon walls; along rocky and sandy canyon bottoms; chasms; shaley knolls; ridges; rocky and sandy hillsides; rocky, rocky-sandy, shaley, gravelly-clayey, sandy-loamy, clayey, clayey-loamy and silty slopes; alcoves; sand dunes; prairies; clayey-loamy plains; muddy, stony-cobbly, gravelly-sandy, gravelly-loamy, sandy, sandy-loamy, sandy-silty, clayey and clayey-loamy flats; rocky, rocky-sandy and sandy uplands; basins; hollows; valley floors; sandy valley bottoms; rocky-cobbly and cobbly coastal beaches; roadcuts; along sandy roadsides; silty arroyos; within sandy draws; bottoms of arroyos; draws; within gulches; bottoms of gullies; along and in gravelly-sandy ravines; broad grassy bottoms of ravines; seeps; shaley and sandy springs; bouldery and sandy along streams; along and in streambeds; along creeks; along and in sandy and loamy creekbeds; in sand along rivers; along rocky-cobbly-sandy, gravelly-sandy, sandy and silty riverbeds; along and in rocky, rocky-sandy, gravelly, gravelly-sandy, sandy, sandy-clayey and sandy-silty washes; along and in drainages; along watercourses; tanks; in moist sandy soils along ponds; along lakes; lakebeds; playas; ciénegas; marshy areas; depressions; vernal moist swales; along (muddy, rocky, rocky-gravelly-silty, shaley, gravelly-sandy, sandy and clayey) banks of gullies, streams, creeks, creekbeds, rivers, washes and ponds; borders of washes; (gravelly and sandy) edges of streams, rivers, ponds, lakes and marshes; along (wet-moist, muddy and sandy) margins of rivers, ponds, lakes and riparian areas; shorelines of ponds and lakes; clayey mudflats; cobbly, gravel, gravelly-sand, sand and silt bars; rocky-sandy and sandy beaches; sandy benches; coves; riparian ledges; terraces; sandy bottomlands; sandy floodplains; lowlands; mesquite bosques; dams; banks of stock tanks; rocky, shaley, sandy, sandy-clayey and clayey soils around and in reservoirs and dry beds; canals; along canal banks; along and in ditches; ditch banks; gravelly-sandy and sandy riparian areas, and disturbed areas growing in cryptogamic soil; rimrock pavement; shallow water; muddy, and wet, moist, damp and dry bouldery, stony-cobbly, rocky, rocky-cobbly, rocky-cobbly-sandy, rocky-sandy, shaley, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, clayey loam and loam ground, gravelly clay, sandy clay and clay ground; and rocky-gravelly silty, sandy silty and silty ground, occurring from sea level to 8,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant that poses a significant threat to our native biotic communities. *Tamarix chinensis* is native to eastern Asia from Mongolia and China to Japan (*Tamarix gallica* is native to the Mediterranean region, Saudi Arabia and the Sinai Peninsula); *Tamarix parviflora* is native to southern Europe and Asia Minor from Yugoslavia to Turkey; *Tamarix ramosissima* is native to the Ukraine and Iraq east through China and Tibet to the Korean Peninsula). *5, 6, 13, 18, 26 (note), 43 (050710), 44 (082411 - color photograph), 46 (no record of species, Tamaricaceae: Page 557), 52 (color photograph), 63 (050113 - color presentation), 68, 85 (050113 - color presentation), 91, 106 (050113 - *Tamarix gallica*), 109 (color photograph of a *Tamarix* sp.), 124 (082411), **HR***

Ulmaceae: The Elm Family

Celtis douglasii (see *Celtis laevigata* var. *reticulata*)

Celtis ehrenbergiana (see *Celtis pallida*)

***Celtis pallida* J. Torrey: Spiny Hackberry**

SYNONYMY: *Celtis ehrenbergiana* (J.F. Klotzsch) F.M. Liebmann; *Celtis tala* J. Gillies ex J. É. Planchon var. *pallida* (J. Torrey) J. É. Planchon. COMMON NAMES: Acebuche (Spanish: Coahuila, Sonora)¹⁴⁰; Bainora <vainora> (Uto-Aztec: Cahita, Sonora)¹⁴⁰; Bainoro; Capul <capui> (“Cherry or Capuli”, Spanish: Sonora, Durango, Texas)¹⁴⁰; Cumbro (Spanish); Desert Hackberry; Garabato (“Iron Hook”, Spanish: Sinaloa)¹⁴⁰; Garambullo (“Spiny Plant”, Spanish: Mayo, Sonora)¹⁴⁰; Gec Cehd (Oto-Manguan: Zapotec)¹⁴⁰; Granejo [Amarillo] (“[Yellow] Little Seed”, Spanish: Chihuahua, Durango, Nuevo León, Sonora, Tamaulipas, Texas)¹⁴⁰; Granjeno (Spanish); Guichi-bezia (Oto-Manguan: Zapotec)¹⁴⁰; Gumbro <cumbro, cúmero> (Uto-Aztec: Cahita, Mayo, Onavas Pima)¹⁴⁰; [Desert, Spiny] Hackberry [Hagberry, Hegeberry] (English)¹⁴⁰; Huasteco; [Granejo] Huasteco (“Huastec [Seeds]”, Spanish: Tamaulipas)¹⁴⁰; Jilhazhí <jilhazhi> (Jilhazí is a name that is also applied to *Celtis reticulata* and *Sambucus nigra*, Athapascan: Navajo)¹⁴⁰; K:om (Uto-Aztec: Onavas Pima), Ko:m <kohm> (Uto-Aztec: Akimel O’odham, Tohono O’odham)¹⁴⁰; Kuavulí <kókauli> (Uto-Aztec: Akimel O’odham, Hiá Ce□ O’odham)¹⁴⁰; Kunwo (Uto-Aztec: Yaqui)¹⁴⁰; Kuwavul <ku’avor> (Uto-Aztec: Tohono O’odham, Onavas Pima)¹⁴⁰; Palo de Águila (“Eagle’s Tree”, Spanish: Sonora)¹⁴⁰; Palo de Guila (Spanish); Ptaacal (Hokan: Seri)¹⁴⁰; Rompecapa (“Cape Tearer”, Spanish: Oaxaca, Sonora)¹⁴⁰; Spiny Desert Hackberry; Spiny Hackberry; Spiny [Shiny] Hackberry (English)¹⁴⁰; Suhtú (Uto-Aztec: Guarijío)¹⁴⁰; Vaino Blanco (Spanish); Wusha’i (Uto-Aztec: Onavas Pima)¹⁴⁰. DESCRIPTION: Terrestrial perennial (drought-

deciduous) evergreen shrub or tree (3 to 20 feet in height with a rounded crown; one plant was observed and described as being 7 feet in height with a crown 7 feet in width); one plant was observed and described as being 7 feet in height with a crown 13 feet in width); the bark is gray; the thorny branches are whitish-gray; the leaves are green or dark green; the inconspicuous flowers may be green, greenish-yellow, white-green or yellow, flowering generally takes place between early March and late October (flowering has also been reported as ending in November with the heaviest flowering period occurring between April and June, flowering has also been reported as occurring year-round); the ripe fruits are orange, bright red, reddish-orange or yellow. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; gravelly mesas; rocky and rocky-gravelly canyons; rocky canyon bottoms; rocky bases of cliffs; ridges; gravelly ridgetops; rocky ridgetops; foothills; rocky and gravelly hills; rocky hillsides; bedrock, bouldery, rocky, rocky-cobbly-gravelly, gravelly, gravelly-loamy and gravelly-sandy slopes; bajadas; rocky outcrops; amongst boulders; coves; terraces; cobbly plains; fields; gravelly-sandy and sandy flats; rocky-gravelly basins; valley floors; valley bottoms; along roadsides; along rocky, gravelly and sandy arroyos; rocky, gravelly and sandy bottoms of arroyos; draws; gullies; seeps; springs; along seeping streams; along streams; along and in streambeds; in sand along creeks; along rivers; bouldery-cobbly-sandy riverbeds; along and in gravelly and sandy washes; within drainages; around ponds; banks of arroyos, rivers, washes and drainages; borders of washes; (sandy) edges of rivers; along margins of arroyos and washes; (sandy) sides of rivers; benches; gravelly terraces; bottomlands; gravelly-clayey and sandy floodplains; mesquite bosques; around stock tanks (represos); riparian areas, and disturbed areas growing in muddy (rarely reported) and dry desert pavement; bouldery, bouldery-rocky, bouldery-cobbly-sandy, rocky, rocky-cobbly-gravelly, rocky-gravelly, cobbly, gravelly, gravelly-sandy and sandy ground; gravelly loam ground, and gravelly clay ground, occurring from sea level to 6,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. The small fruits are reportedly juicy and sweet. The Desert Hackberry may live to be more than 88 years of age and may be useful in controlling erosion. The Desert Hackberry is a larval food plant for the American Snout (*Libytheana carinenta*) and Empress Leilia (*Asterocampa leilia*) and is browsed by deer; the fruits are eaten by Northern Mockingbirds (*Mimus polyglottos*), Thrashers and other species of birds, small desert mammals, White-nosed Coati (*Nasua narica*), Coyotes (*Canis latrans*), foxes and Javelinas (*Peccari tajacu*). It provides a nesting site for the White-wing Dove (*Zenaida asiatica*) and cover for Gambel's Quail (*Callipepla gambelii gambelii*) as well as other birds and mammals. *Celtis pallida* is native to south-central and southern North America; Central America and coastal islands in the Caribbean Sea, and western, eastern and southern South America. *5, 6, 13 (recorded as *Celtis tala* Gillies var. *pallida* (Torrey) Planch., Pages 155-156), 15 (recorded as *Celtis pallida* Torr.), 16 (recorded as *Celtis pallida* Torr.), 18, 26 (recorded as *Celtis pallida*, color photograph), 28 (recorded as *Celtis pallida*, color photograph 69), 42 (050613), 43 (050810), 44 (120310 - no record of species; genus record), 46 (recorded as *Celtis pallida* Torr., Page 220), 48, 58 (recorded as *Celtis pallida* Torr.), 63 (050613 - recorded as *Celtis ehrenbergiana*), 77 (recorded as *Celtis pallida* Torr.), 85 (050213 - also recorded as *Celtis pallida* var. *pallida* Torrey, color presentation), 91 (recorded as *Celtis pallida* Torr., Pages 154-156), 115 (color presentation), 124 (031611 - no record of species; genus record), 140 (recorded as *Celtis pallida* Torrey, placed in the Cannabaceae, Pages 272-273, 274 & 288), **MBJ** (undated record which may include landscaped material that persists without maintenance), **WTK** (August 4, 2005)*

***Celtis laevigata* C.L. von Willdenow var. *reticulata* (J. Torrey) L.D. Benson: Netleaf Hackberry**

SYNONYMY: *Celtis douglasii* J.É. Planchon; *Celtis reticulata* J. Torrey. COMMON NAMES: ³qwá' <aqwa> (Yuman: Walapai)¹⁴⁰; Acibuche <acebuche> (Spanish: Chihuahua)¹⁴⁰; Aceituna ("Olive", Spanish)¹⁴⁰; Bainoro <vainora> (Spanish: Sonora)¹⁴⁰; Canyon Hackberry; Cúmaro (Mexico, Sonora); [Palo] Cumbro (Spanish: Sinaloa)¹⁴⁰; Cúmero <combro, cumaro, cumbro> (Uto-Aztecan: Cahita, Mayo, Sonora, Sinaloa)¹⁴⁰; Didzé Bik'□□dlizí <di□é bek□ñizí> (Athapascan: Navajo)¹⁴⁰; Douglas Hackberry; Douglas's Hackberry; False Elm; Garabato Blanco ("White Iron Hook", Spanish: Baja California)¹⁴⁰; Gumbro (Uto-Aztecan: Onavas Pima)¹⁴⁰; Hack Berry; Hackberry (a name also applied to the genus *Celtis*); [Net-leaf] Hackberry (English)¹⁴⁰; IYntlidz ("Hard Seed", Athapascan: Chiricahua and Mescalero Apache)¹⁴⁰; Jilhááze (Athapascan: Western Apache)¹⁴⁰; Jilhazi <jilxazi, tjilxájih> ("Chewing Plant" Jilhazi is a name that is also applied to *Celtis palida* and *Sambucus nigra*, Athapascan: Navajo)¹⁴⁰; Ke□moci (Uto-Aztecan: Guarijio)¹⁴⁰; Ko:m <kom> (Uto-Aztecan: Tohono O'odham)¹⁴⁰; Kumar (Uto-Aztecan: Onavas Pima)¹⁴⁰; Machaqui <uchieá> (Uto-Aztecan: Guarijio, Sonora)¹⁴⁰; Membrillo (Spanish: San Luis Potosí)¹⁴⁰; Net Leaf Hackberry; Net-leaf Hackberry; Net-leaf Sugar Hackberry; Net-leafed Hackberry; Net Leaved Hackberry; Net-leaved Hackberry; Netleaf Hackberry; Oklahoma Hackberry; Palo Blanco (a name also applied to other taxa, Spanish); Palo Blanco ("White Tree", Spanish: Arizona, Texas, Coahuila, Durango, Tamaulipas)¹⁴⁰; Palo Duro ("Hard Tree", Spanish: New Mexico)¹⁴⁰; Palo Mulato ("Mulato Tree", Spanish: Durango)¹⁴⁰; Shikai-shikai-ka (Keres: Acoma, Laguna)¹⁴⁰; Small-leaf Nettle Tree; Small-leaved Nettle Tree; Sugar-berry (a name also applied to the genus *Celtis*); Sugar-berry (English)¹⁴⁰; Sugarberry (a name also applied to the genus *Celtis*); Thick-leaf Hackberry; Thick-leaved Hackberry; Uchic (Spanish); Vaior (Spanish: Mexico)¹⁴⁰; Western Hackberry (a name also applied to other taxa); Western Hackberry (English)¹⁴⁰. DESCRIPTION: Terrestrial perennial deciduous shrub or tree (40 inches to 60 feet in height with a rounded and spreading crown; stunted shrubs or trees up to 2 feet in height were observed and reported from forests at higher elevations, one tree was observed and described as being 13 feet in height and 16 feet in width, one tree was observed and described as being 30 feet in height and width); the bark may be gray, dark gray or reddish-brown becoming "warty" with age; the twigs are reddish-brown; the upper surface of the leaves may be dark green or yellow-green and the lower surface is gray-green appearing in early April to late May developing fully in June, they turn yellow in the fall; the inconspicuous flowers are green or yellow-green; the anthers are green; the stigmas are whitish-green; flowering generally takes place between mid-March and mid-September; the fruits may be black, purplish, pale orange, orange, orange-red-brown, dark red, reddish or reddish-black. HABITAT: Within the range of

this species it has been reported from mountains; rocky mountainsides; rocky mesas; plateaus; rocky cliffs; hanging gardens; bases of cliffs; along bouldery, rocky, rocky-gravelly and gravelly-loamy canyons; canyon sides; bouldery, rocky, gravelly and gravelly-sandy-clayey canyon bottoms; chasms; gorges; bouldery talus; crevices in rocks; bluffs; ledges; rocky ridges; rocky and gravelly ridgetops; foothills; sandy and clayey hills; rocky hillsides; bouldery, bouldery-sandy, rocky, rocky-sandy-clayey-loamy, rocky-loamy, shaley, shaley-gravelly, gravelly-loamy, sandy-loamy and loamy slopes; alluvial fans; rocky and gypsum outcrops; amongst boulders and rocks; bases of rock slides; rocky and sandy alcoves; sandy lava flows; lava beds; sand dunes; shell banks; breaks; prairies; plains; sandy flats; basins; sandy valley floors; valley bottoms; along gravelly-loamy roadsides; along and in rocky, gravelly and sandy arroyos; gravelly and sandy bottoms of arroyos; bottoms of draws; gulches; rocky gullies; ravines; sandy seeps; springs; along streams; along and in bouldery, gravelly-sandy and sandy streambeds; in sand along creeks; along and in bouldery and sandy creekbeds; along rivers; riverbeds; along and in rocky, rocky-gravelly, gravelly, gravelly-sandy, sandy and sandy-clayey-loamy washes; rocky-sandy drainages; loamy drainage ways; along watercourses; oases; among and in pools; ponds; lakes; tanks; ciénegas; along (rocky) banks of arroyos, ravines, streams, streambeds, creeks, rivers, washes and drainages; borders of washes; (sandy) edges of arroyos, springs, streams and washes; along margins of rivers and ponds; shores of lakes; rocky-sandy and gravelly-sandy benches; gravelly, sandy and silty-loamy terraces; rocky and silty bottomlands; along floodplains; mesquite bosques; fencerows; gravelly canal banks; along ditches; rocky-gravelly and sandy riparian areas, and disturbed areas growing in wet, moist, damp and dry (seasonally wet) bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, shaley-gravelly, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-sandy-clayey loam, gravelly loam, sandy loam, sandy-clayey loam, silty loam and loam ground; gravelly-sandy clay and clay ground, and silty ground, occurring from 300 to 7,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations.

NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food, fiber and/or dye crop; it was also noted as having been used for tools, as a drug or medication or as a fuel. The Netleaf Hackberry may be useful in the rehabilitation of disturbed sites and suitable for planting in patios, yards and along streets in urban areas and may live to be 100 to 200 years in age. The Netleaf Hackberry provides cover and food for many species of birds and mammals; the American Beaver (*Castor canadensis*) feeds on the wood; the plant is browsed by Pronghorn (*Antilocapra americana*), Mule Deer (*Odocoileus hemionus*) and White-tailed Deer (*Odocoileus virginianus*); the fruit is eaten by wildlife; and Scrub Jays (*Aphelocoma californica*) feed on the leaf galls that form on the foliage. When restoring the floodplains of major river systems consider including the following plants in the mix if they have been recorded from this township: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koerberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*) and Fremont Cottonwood (*Populus fremontii*). *Celtis laevigata* var. *reticulata* is native to south-central and southern North America. *5, 6, 13 (Pages 154-155), 15 (recorded as *Celtis reticulata* Torr.), 18, 26 (recorded as *Celtis reticulata*, color photograph), 28 (recorded as *Celtis reticulata*, color photograph 70), 43 (120410 - *Celtis laevigata* var. *reticulata* (Torr.) L.D. Benson), 44 (050213 - Common Names listings recorded under *Celtis reticulata*), 46 (Page 220), 48, 52 (recorded as *Celtis reticulata*, color photograph), 53, 58 (recorded as *Celtis reticulata* Torr.), 63 (050213 - color presentation), 85 (050213 - color presentation), 115 (color presentation), 124 (031611), 127, 140 (recorded as *Celtis reticulata* Torrey, placed in the Cannabaceae, Pages 108, 272, 273-274 & 288), **MBJ** (undated record which may include landscaped material that persists without maintenance)*

Celtis pallida var. *pallida* (see footnote 85 under *Celtis pallida*)

Celtis reticulata (see *Celtis laevigata* var. *reticulata*)

Celtis tala var. *pallida* (see *Celtis pallida*)

Verbenaceae: The Verbena Family

***Glandularia bipinnatifida* (T. Nuttall) T. Nuttall: Dakota Mock Vervain**

COMMON NAMES: Alfombrilla (var. *bipinnatifida*, Hispanic); Alfombrilla de Campo (var. *bipinnatifida*, Hispanic); Azul Chichique (var. *bipinnatifida*, Hispanic); Dakota Mock Vervain (var. *bipinnatifida*); Dakota Mock Vervain (var. *bipinnatifida*); Dakota Mock Vervain (*Glandularia bipinnatifida* var. *brevispicata* - Not Accepted, *Glandularia bipinnatifida* var. *ciliata* - Accepted); Dakota Mock-vervain (var. *bipinnatifida*); Dakota Verbena (var. *bipinnatifida*); Dakota Vervain (var. *bipinnatifida*); Davis Mountain Mock Vervain (var. *ciliata*); Desert Vervain (var. *ciliata*); Hierba del Ojo (var. *bipinnatifida*, Hispanic); Mexican Vervain (var. *ciliata*); Moradilla (var. *bipinnatifida*, Hispanic); Prostrate Vervain (var. *ciliata*); Small-flowered Verbena (var. *bipinnatifida*); Sweet William (var. *ciliata*, a name also applied to other species); Tatsundiku Moradu (var. *bipinnatifida*, Purépecha); Valley Lavender; Verbena (a name also applied to other taxa, the genus *Verbena* and the Verbenaceae, Spanish); Vervain (a name also applied to other taxa, the genus *Verbena* and the Verbenaceae); Wright Vervain.

DESCRIPTION: Terrestrial annual or perennial forb/herb (sprawling and spreading prostrate, decumbent, ascending and/or erect stems 4 to 20 inches in height/length); the leaves may be gray, dark green or yellow-green; the flowers may be light blue, pale blue-violet, blue, blue-lavender, blue-purple, blue-purple with white eyes, bluish-lavender, bluish-purple, light lavender, lavender, lavender-blue, lavender-pink, lavender-purple, periwinkle blue, pale pink-lavender, pink, deep pink, pink-lavender, pink-purple, pale purple (aging blue), purple, purple & white, purplish-pink, rose, rose-pink, rose-purple, violet, violet-purple, white or yellow; flowering generally takes place between early February and early November (additional record: one for early December). HABITAT: Within the range of this species it has been reported from mountains; rocky mountaintops; rocky mountainsides; grassy mesas; rocky plateaus; cliffs; bases of cliffs; along rocky, gravelly and gravelly-loamy canyons; rocky canyon walls; along sandy canyon bottoms; scree; crevices in rocks; bluffs; rocky buttes; buttes; knolls; rocky and rocky-gravelly ridges; rocky and rocky-gravelly ridgetops; clearings and openings in forests; meadows; foothills; rocky, rocky-loamy, clayey and gypsum hills; rocky-gravelly-loamy hilltops; rocky, rocky-gravelly and gypsum hillsides; bouldery, rocky, rocky-loamy, rocky-clayey, rocky-clayey-loamy, shaley, stony, gravelly, gravelly-sandy, gravelly-silty, sandy, sandy-clayey, sandy-clayey-loamy, loamy, loamy-clayey, clayey and clayey-loamy slopes; bajadas; pediments; bedrock and rocky outcrops; amongst boulders; lava beds; glacial moraines; sand hills; dunes; shaley, loamy, loamy-clayey and clayey banks; breaks; bases of shaley barrens; rocky, rocky-loamy, gravelly-loamy, sandy, loamy, loamy-clayey and silty prairies; gravelly-loamy, sandy, sandy-loamy and sandy-clayey-loamy plains; sandy and sandy-clayey-loamy flats; loamy, loamy-clayey and silty uplands; sandy valley floors; along railroad right-of-ways; along and in gravelly and gravelly-loamy roadbeds; roadcuts; along rocky, rocky-silty, shaley, cindery, gravelly, gravelly-sandy-loamy, gravelly-loamy, sandy, sandy-loamy, clayey-loamy and silty roadsides; two-tracks; clayey-loamy arroyos; chutes; rocky draws; bottoms of draws; within rocky gulches; sandy bottoms of gulches; bouldery-rocky gullies; stony ravines; seeps; springs; in clay along streams; along and in rocky streambeds; in sand along creeks; sandy creekbeds; along and in rivers; along and in riverbeds; along and in gravelly and sandy washes; sandy drainages; along drainage ways; in rocks around ponds; bogs; bowls; sumps; swales; along (stony, gravelly-sandy, clayey and silty) banks of arroyos, draws, creeks, rivers and bowls; (silty) edges of streams and washes; margins of rivers and lakes; shores of lakes; terraces; sandy bottomlands; sandy floodplains; lowlands; flanks of stock tanks; sandy and clayey ditches; sandy and clayey-loamy riparian areas, and disturbed areas growing in moist, damp and dry shaley rimrock; bouldery, bouldery-sandy, rocky, rocky-gravelly, rocky-sandy, shaley, stony, stony-sandy, cindery, cindery-gravelly, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-gravelly loam, rocky-clayey loam, gravelly loam, gravelly-sandy loam, gravelly-clayey loam, sandy loam, sandy-clayey loam, clayey loam, silty loam, silty-clayey loam and loam ground; rocky clay, sandy clay, loamy clay, silty clay and clay ground; rocky silty, gravelly silty and silty ground, and rocky-gypsum and gypsum, occurring from 200 to 10,100 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. The flowers may be fragrant. *Glandularia bipinnatifida* is native to south-central and southern North America and Central America. *5, 6, 15, 18, 28 (recorded as *Verbena bipinnatifida*, color photograph 638), 30, 42 (050313), 43 (051110 - *Glandularia bipinnatifida* Nutt.), 44 (050313 - no listings recorded under Common Names for species; genus record), 46 (recorded as *Verbena bipinnatifida* Nutt., Page 727), 48 (genus), 58, 63 (050313 - color presentation), 85 (050313 - color presentation), 115 (color presentation), 124 (082611), 127, 140 (recorded as *Glandularia bipinnatifida* (Nuttall) Nuttall [*Verbena bipinnatifida* Nuttall], Page 306)*

***Tetradlea coulteri* A. Gray: Coulter's Wrinklefruit**

COMMON NAMES: Coulter Tetradlea; Coulter Wrinklefruit; Coulter's Wrinklefruit. DESCRIPTION: Terrestrial perennial forb/herb or subshrub (stems 4 to 20 inches in height); the foliage may be ash-gray or gray-green; the flowers may be pale apricot with a pale peach floral tube, cream, cream with a pinkish floral tube, cream & rose, cream-white, creamy-tan, creamy-white, greenish-white, pink-cream, white, pale yellow, yellow or yellowish-white with a reddish floral tube; the anthers may be dark brown or maroonish; flowering generally takes place between mid-March and early November. HABITAT: Within the range of this species it has been reported from mountains; bouldery mountaintops; gravelly mesas; rims of gorges; canyons; gravelly ridges; bosques; rocky foothills; hills; rocky, rocky-gravelly, rocky-gravelly-silty and gravelly hillsides; sandy bases of escarpments; rocky, rocky-gravelly-sandy-loamy, cobbly, gravelly, sandy and sandy-loamy slopes; sandy bajadas; amongst boulders; silty plains; gravelly and sandy flats; sandy basins; gravelly valley floors; gravelly-silty-loamy valley bottoms; along gravelly, gravelly-sandy-clayey-loamy, gravelly-loamy, sandy and clayey roadsides; arroyos; sandy bottoms of arroyos; along and in bedrock-rocky, rocky and sandy washes; drainages; drainage ways; swales; (rocky) banks of arroyos and washes; edges of washes; benches; ledges; sandy-loamy terraces; floodplains; ditches; in silty-clay at stock tanks, and disturbed areas growing in moist and dry bouldery, rocky, rocky-gravelly, shaley, cobbly, gravelly and sandy ground; rocky-gravelly-sandy loam, gravelly loam, gravelly-sandy-clayey loam, gravelly-silty loam, sandy loam and sandy-clayey loam ground; sandy clay, silty clay and clay

ground, and rocky-gravelly silty and silty ground, occurring from 400 to 7,500 feet in elevation in the woodland, grassland and desertscrub ecological formations. NOTES: This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. The genus *Tetradlea* is sometimes placed in the Lamiaceae (Labiatae), the Mint Family. *Tetradlea couleri* is native to southwest-central and southern North America. *5, 6, 16, 43 (051410), 44 (050413 - no record of species or genus), 46 (Page 730), 58, 63 (050413 - color presentation), 77, 85 (050413 - color presentation), 115 (color presentation), 127*

***Verbena neomexicana* (A. Gray) J.K. Small: Hillside Vervain**

COMMON NAMES: Hillside Vervain, New Mexico Verbena, New Mexico Vervain, Verbena. DESCRIPTION: Terrestrial perennial forb/herb (12 to 30 inches in height); the flowers may be light blue, blue, blue-violet, lavender, purple, purple-lavender, violet, violet-blue or white; flowering generally takes place between mid-March and early November (additional record: one for late November). HABITAT: Within the range of this species it has been reported from mountains; cliffs; rocky canyons; rocky and gravelly canyon bottoms; rocky knolls; rocky ridgetops; foothills; hillsides; rocky, gravelly, gravelly-loamy and clayey-loamy slopes; rocky outcrops; amongst boulders; along tony roadsides; along arroyos; gulches; gullies; along streams; in streambeds; along creeks; rocky creekbeds; riverbeds; along and in rocky and gravelly-sandy washes; within drainages; travertine dikes; (bouldery-cobbly-sandy) banks of creeks, rivers and washes; travertine dikes; edges of charcos (stock tanks); riparian areas; waste places, and disturbed areas growing in damp and dry bouldery, bouldery-cobbly-sandy, rocky, stony, gravelly, gravelly-sandy and sandy ground and gravelly loam and clayey loam ground, occurring from 100 to 8,700 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: This plant may be an attractive component of a restored native habitat. *Verbena neomexicana* is native to southwest-central and southern North America. *5, 6, 28 (color photograph), 43 (072510), 46 (Page 728), 48 (genus), 58, 63 (072510 - color presentation), 77, 85 (072510 - color presentation of dried material), 140 (Page 306)*

Viscaceae (Loranthaceae): The Christmas Mistletoe Family

***Phoradendron californicum* T. Nuttall: Mesquite Mistletoe**

SYNONYMY: *Phoradendron californicum* T. Nuttall var. *distans* W. Trelease. COMMON NAMES: Acacia Mistletoe; American Mistletoe (a name also applied to the genus *Phoradendron*); California Mesquite Mistletoe; California Mistletoe; Chayal (Uto-Aztecan: Cahuilla)¹⁴⁰; Chile de Espino (“Spiny Chile”, Spanish: Sonora)¹⁴⁰; Desert Mistle Toe; Desert Mistle-toe; Desert Mistletoe; Desert [Mesquite] Mistletoe (English)¹⁴⁰; Haakvo□ (Uto-Aztecan: Akimel O’odham)¹⁴⁰; Ha:hwa□; Ha:kva□ (Uto-Aztecan: Hiá Ce□ O’odham)¹⁴⁰; Ha:kwa□ <hakowa’t> (Uto-Aztecan: Tohono O’odham)¹⁴⁰; Haramkulyi (Uto-Aztecan: Mountain Pima)¹⁴⁰; Kanúc (Yuman: Maricopa)¹⁴⁰; Mesquite American Mistletoe; Mesquite Mistletoe; Mistletoe (a name also applied to other taxa, the genus *Phoradendron* and to the Viscaceae); Pohótela (“Phainopepla” because the Phainopepla disperses the seeds, Uto-Aztecan: Mayo)¹⁴⁰; Sxacál [Sxyacál] (Yuman: Cocopa)¹⁴⁰; To:kī (Uto-Aztecan: Hiá Ce□ O’odham, Arizona)¹⁴⁰; To(a)ker <toc’guer> (“On The Oak”, Uto-Aztecan: Mountain Pima)¹⁴⁰; Toji (Spanish: Sonora)¹⁴⁰; Western Dwarf Mistletoe. DESCRIPTION: Terrestrial perennial subshrub or shrub (cluster of brittle stems 8 inches to 5 feet in length; one clump was observed and described as being 16 inches in length and 36 inches in width); the stems (16 to 40 inches in length) may be brown, green, green-reddish, dark olive-green, red, red-brown, reddish, yellow-green or yellowish; the fragrant flowers may be green, greenish-yellow or yellow-green; the anthers are yellow; flowering generally takes place between late July and early June (additional records: one record for late June and one record for early July, flowering beginning in January and ending in November has also been reported); the fruits may be orange, orange-pink, pink, pink-red, pinkish, pale red, translucent red, red-orange, salmon (reported on surfaces exposed to sunlight), reddish, translucent white, white, white-pink, white-reddish or whitish to yellow-white (reported on surfaces not exposed to sunlight) with the older berries turning brown-red or red. HABITAT: This partial parasite was observed growing on Blue Paloverde, Catclaw Acacia, Foothill Paloverde and Velvet Mesquite, and is commonly reported as growing on: *Acacia* spp. (*Acacia constricta*, Whitethorn Acacia; *Acacia farnesiana*, Sweet Acacia, and *Acacia greggii*, Catclaw Acacia); *Condalia* spp. (*Condalia globosa*, Bitter Snakewood and *Condalia warnockii*, Kearney Snakewood); *Juniperus* sp., Juniper; *Larrea tridentata*, Creosote Bush; *Oleña tesota*, Desert Ironwood; *Parkinsonia* spp. (*Parkinsonia aculeata*, Jerusalem Thorn; *Parkinsonia florida*, Blue Palo Verde; *Parkinsonia microphylla*, Yellow Palo Verde, and *Parkinsonia praecox*, Sonoran Palo Verde); *Prosopis* spp. (*Prosopis glandulosa*, Honey Mesquite; *Prosopis pubescens*, Screwbean Mesquite, and *Prosopis velutina*, Velvet Mesquite); *Simmondsia chinensis*, Jojoba, and *Ziziphus obtusifolia*, Lotebush occurring from sea level to 5,100 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: When removing Mesquite Mistletoe from the trees and shrubs on your property consider leaving some of the plants for wildlife. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a food (berries) and as a drug or medication. The flowers are fragrant. The Northern Mockingbird (*Mimus polyglottos*) and Phainopepla (*Phainopepla nitens*) feed on the berries; White-wing Doves (*Zenaida asiatica*) and Verdins (*Auriparus flaviceps*) nest in the stems, and Mourning Doves (*Zenaida macroura*), Gambel’s Quail (*Callipepla gambelii*) as well as other birds take refuge in the stems. *Phoradendron californicum* is native to southwest-central and southern North America. *5, 6, 13 (Pages 285-286, color photograph: Plate U.2., Page 406), 15, 16, 28 (color photograph 799), 42 (051213), 43 (051710 - *Phoradendron californicum* var. *distans* Trel. in Trel.), 44 (050413), 46 (recorded as *Phoradendron californicum* Nutt. and *Phoradendron californicum* Nutt. var. *distans* Trelease, Page 224), 58, 63 (051213 - color presentation), 77, 80 (Species of the genus *Phoradendron* are considered to be Rarely Poisonous and Suspected Poisonous Range

Plants. "Cattle may be killed by browsing these parasitic forbs, but plants are unpalatable and poisoning is rare. Also children may be poisoned by eating the berries.", **85** (050413 - color presentation), **97**, 115 (color presentation), 124 (082611 - no record of species or genus), 127, 140 (Pages 276-278 & 305 - placed in the Santalaceae), **ADS** (Kissing plant is a tree killer, Tuesday, November 30, 2010, Section A, Pages 1&4, retort Friday, December 3, 2010, Section A, Page 17: Story missed positive points on mistletoe), **MBJ** (undated record which may include landscaped material that persists without maintenance), **WTK** (August 4, 2005)*

Phoradendron californicum var. *distans* (see *Phoradendron californicum*)

Vitaceae: The Grape Family

Vitis arizonica G. Engelmann: Canyon Grape

SYNONYMY: *Vitis arizonica* G. Engelmann var. *glabra* T.V. Munson; *Vitis treleasei* T.V. Munson ex L.H. Bailey.
COMMON NAMES: Arizona Grape; Arizona Wild Grape; Bakámai Bišáparagai (Uto-Aztecan: Northern Tepehuan)¹⁴⁰; Bemah'gut ('the Grape-vine' Longfellow's *Hiawatha*); Canyon [Arizona, Gulch, Wild] Grape (English)¹⁴⁰; Ch'il Na'atl'o'ii ('Weaving Plant', Athapascan: Navajo)¹⁴⁰; Dahts'aa' <dasts'aa, dahts'aa' benanisdizi, tach'aa> (Athapascan: Western Apache)¹⁴⁰; Dasta <dastasa> (Athapascan: Chiricahua and Mescalero Apache)¹⁴⁰; Gulch Grape; I'icamác (Yuman: Maricopa)¹⁴⁰; Idjérk'a (Yuman: Havasupai)¹⁴⁰; Isampu (Uto-Aztecan: Panamint)¹⁴⁰; Itcêq^a <i'je:qa> (Yuman: Walapai)¹⁴⁰; Jeyulí (Uto-Aztecan: Guarijío)¹⁴⁰; Jiragui (Spanish); Jirahui (Spanish); Mákwiit (Uto-Aztecan: Luiseño)¹⁴⁰; Mischiñ Uu□vis <mischiñ huu□vis> (Uto-Aztecan: Akimel O'odham)¹⁴⁰; Ó:va (Uto-Aztecan: Hopi)¹⁴⁰; Parra ("Vine", Spanish: Tamaulipas)¹⁴⁰; Parra Cimarrona (Hispanic); Parra del Monte [Silvestre] ("Wild Grape", Spanish: Arizona, Texas, Chihuahua)¹⁴⁰; Shohar U'ushi (Uto-Aztecan: Mountain Pima)¹⁴⁰; Sonótova (Uto-Aztecan: Mono)¹⁴⁰; Sq̣'̣r□'o□nap̣ (Uto-Aztecan: Ute)¹⁴⁰; Tutzé (Athapascan: Jicari-Ila Apache)¹⁴⁰; U'li (Hispanic); U:dvis (Uto-Aztecan: Hiá Ce□ O'odham)¹⁴⁰; U:□wis (Uto-Aztecan: Tohono O'odham)¹⁴⁰; U:va <uuwa> (Uto-Aztecan: Onavas Pima)¹⁴⁰; □U:vs (Yuman: Cocopa)¹⁴⁰; Uirí (Uto-Aztecan: Guarijío)¹⁴⁰; Urí <uli> (Uto-Aztecan: Tarahumara)¹⁴⁰; Uuva (Uto-Aztecan: Yaqui)¹⁴⁰; Uva [Cimarrón] ("Wild Grape", Spanish: Chihuahua, Sonora)¹⁴⁰; Uva Cimarrona (Spanish); Uva de Monte (Hispanic); Uva del Monte (Spanish); Uva Silvestre (Hispanic); Vid ("Vine", Spanish)¹⁴⁰; Wild Grape (a name also applied to other species, the genus *Vitis* and to the Vitaceae). DESCRIPTION: Terrestrial perennial deciduous vine (clambering, climbing scrambling, sprawling, spreading, trailing and/or twining stems 16 inches to 33 feet in length); the bark is red-brown; the heart-shaped leaves may be green, dark green or yellow-green; the stems may be reddish; the tiny flowers may be cream-white-yellow, cream-yellow, pale green, green-yellow, greenish, greenish-white, greenish-yellow, white, pale yellow, yellow, yellow-green or yellowish-white; flowering generally takes place between early April and mid-July (additional record: one for late August; flowering in March has also been reported); the mature fruits (¼ to ¾ inch in diameter, juicy with a few large seeds) may be black, dark blue, blue-black, dark blue-purple, deep purple or purple sometimes with a (glaucous) bloom. HABITAT: Within the range of this species it has been reported from mountains; rocky mountainsides; plateaus; cliffs; hanging gardens; bases of cliffs; along rocky, rocky-clayey, gravelly-sandy, sandy and clayey-loamy canyons; canyon walls; rocky, stony and sandy canyon bottoms; chasms; along talus; crevices; bluffs; along rocky ledges; meadows; foothills; hills; hillsides; rocky escarpments; bouldery-cobbly, rocky, rocky-sandy, rocky-loamy, gravelly, gravelly-sandy, sandy and loamy slopes; bajadas; rocky outcrops; amongst boulders and rocks; shaded alcoves; gravelly flats; sandy basins; valley floors; along gravelly roadsides; within rocky arroyos; bottoms of arroyos; within rocky draws; gulches; rocky ravines; seeps; along springs; along streams; along and in bouldery, rocky-gravelly-sandy streambeds; along and in bouldery creeks; along rocky, rocky-sandy and sandy-clayey creekbeds; riverbeds; along and in rocky and sandy washes; along watercourses; in bedrock, bouldery-rocky and rocky-sandy drainages; along and in lakes; boggy areas; along (rocky and sandy) banks of streams, creeks, creekbeds, rivers, washes and lakes; (sandy) edges of creeks, rivers and washes; margins of rivers; along (rocky) shores of lakes; benches; terraces; sandy bottomlands; floodplains; along fencelines; within ditches; ditch banks; bouldery, bouldery-sandy, rocky, sandy and sandy-clayey riparian areas, and disturbed areas growing in shallow water and wet, moist, damp and dry well drained bouldery, bouldery-rocky, bouldery-cobbly, bouldery-sandy, rocky, rocky-gravelly-sandy, rocky-sandy, shaley, stony, gravelly, gravelly-sandy and sandy ground; rocky loam, gravelly loam, sandy loam, clayey loam and loam ground, and rocky clay, sandy clay and clay ground, occurring from 1,300 to 9,200 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America and could be investigated to determine its value as a home garden or commercial food and/or beverage crop; it was also noted as having been used as a toy or in games, as a love medicine and for ceremonial items. The flowers may be fragrant, and the fruit are reportedly sweet with a slightly bitter aftertaste. The Canyon Grape may be useful in controlling erosion along drainages. Birds feed on the berries. When restoring the floodplains of major river systems consider including the following plants in the mix if they have been recorded from this township: Inland Saltgrass (*Distichlis spicata*), Vine Mesquite Grass (*Panicum obtusum*), Indian Rushpea (*Hoffmannseggia glauca*), Little Snapdragon Vine (*Maurandella antirrhiniflora*), Schott Yellowhood (*Nissolia schottii*), Fingerleaf Gourd (*Cucurbita digitata*), Red Sprangletop (*Leptochloa panicea* subsp. *brachiata*), Whiplash Pappusgrass (*Pappophorum vaginatum*), Alkali Sacaton (*Sporobolus airoides*), Big Sacaton (*Sporobolus wrightii*), Hartweg Twinevine (*Funastrum cynanchoides*), Hartweg Twinevine (*Funastrum cynanchoides* subsp. *heterophyllum*), Virginia Creeper (*Parthenocissus quinquefolia*), Canyon Grape (*Vitis arizonica*), Drummond Clematis (*Clematis drummondii*), Mojave Seablite (*Suaeda moquinii*), Prairie Acacia (*Acacia angustissima*), Allthorn (*Koerberlinia spinosa* var. *spinosa*), Desert Saltbush (*Atriplex polycarpa*), Fourwing Saltbush (*Atriplex canescens*), Wright

Lycium (*Lycium andersonii* var. *wrightii*), Torrey Lycium (*Lycium torreyi*), Arrowweed (*Pluchea sericea*), Fremont Lycium (*Lycium fremontii*), Creosote Bush (*Larrea tridentata* var. *tridentata*), Greythorn (*Ziziphus obtusifolia* var. *canescens*), Southern Cattail (*Typha domingensis*), Seep Willow (*Baccharis salicifolia*), Whitethorn Acacia (*Acacia constricta*), Desert Hackberry (*Celtis ehrenbergiana*), Catclaw Acacia (*Acacia greggii* var. *greggii*), Soaptree Yucca (*Yucca elata*), Coyote Willow (*Salix exigua*), Screwbean Mesquite (*Prosopis pubescens*), Common Cottonbush (*Cephalanthus occidentalis*), Desert Elderberry (*Sambucus nigra* ssp. *canadensis*), Blue Paloverde (*Parkinsonia florida*), Western Soapberry (*Sapindus saponaria* var. *drummondii*), Netleaf Hackberry (*Celtis laevigata* var. *reticulata*), Velvet Mesquite (*Prosopis velutina*), Western Black Willow (*Salix gooddingii*), Velvet Ash (*Fraxinus velutina*), Arizona Black Walnut (*Juglans major*) and Fremont Cottonwood (*Populus fremontii*). *Vitis arizonica* is native to southwest-central and southern North America. *5, 6, 13, 15, 18 (genus), 28 (color photograph 850), 30, 42 (050413), 43 (080209), 44 (050413 - no record of species; genus record), 46 (recorded as *Vitis arizonica* Engelm.; *Vitis arizonica* Engelm. var. *glabra* Munson, and *Vitis treleasei* Munson (note), Page 535), 48, 58, 63 (050413 - color presentation), **85** (050513 - color presentation), 115 (color presentation), 124 (041312 - no record of species; genus record), 125, 127, 140 (Pages 278-280 & 307), 153*

Vitis arizonica var. *glabra* (see *Vitis arizonica*)

Vitis treleasei (see *Vitis arizonica*)

Zygophyllaceae: The Creosote-bush Family

***Kallstroemia californica* (S. Watson) A.M. Vail: California Caltrop**

SYNONYMY: *Kallstroemia brachystylis* A.M. Vail; *Kallstroemia californica* (S. Watson) A.M. Vail var. *brachystylis* (A.M. Vail) T.H. Kearney & R.H. Peebles. COMMON NAMES: California Caltrop; California Caltrop; California Carpetweed; California Kallstroemia; Golondrina (Mexico, Baja California (Norte), a name also applied to other species including *Chamaesyce* spp. and *Euphorbia* spp.); Little Summer Poppy; Mal de Ojo (a name also applied to other species, Spanish); Yellow Kallstroemia. DESCRIPTION: Terrestrial annual forb/herb (sprawling prostrate, decumbent and/or ascending stems 2 to 8 inches in height and 2 inches to 5 feet in length); the stems may be light pink or reddish; the leaves are gray-green; the flowers ($\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter) may be pale orange, orange, dull orange, orange-yellow, yellow, yellow-orange or yellowish-orange; flowering generally takes place between early July and late November (additional records: one for early February, one for mid-March, one for mid-April, one for early June and one for late December). HABITAT: Within the range of this species it has been reported from mountains; mesas; bases of cliffs; rocky and sandy canyons; canyon bottoms; pockets of sand; meadows; bedrock foothills; hills; rocky hillsides; rocky-gravelly bases of hills; rocky, rocky-gravelly, gravelly-sandy, sandy and sandy-silty slopes; gravelly and sandy bajadas; boulder and rock outcrops; amongst rocks; sand hills; sand dunes; blow-sand deposits; sandy plains; gravelly, sandy and silty flats; basins; sandy and silty valley floors; coastal dunes; coastal shores; along rocky-gravelly, gravelly, gravelly-loamy, sandy and sandy-loamy roadsides; arroyos; along streams; along streambeds; along rivers; along and in rocky, sandy, sandy-silty, clayey and silty washes; along drainages; sandy playas; sandy-silty depressions; silty swales; along (sandy) banks of rivers and washes; along edges of washes; along margins of washes; shores of bays (bahias); mudflats; sandy beaches; sandy benches; clayey bottomlands; along sandy floodplains; lowlands; mesquite bosques; along fencelines; around stock tanks (represos); silty ditches; riparian areas; waste places, and disturbed areas growing in moist and dry desert pavement; rocky, rocky-gravelly, gravelly, gravelly-sandy and sandy ground; gravelly loam, sandy loam, sandy-clayey loam, clayey loam and loam ground; silty clay and clay ground, and sandy silty and silty ground, occurring from sea level to 7,400 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a drug or medication. *Kallstroemia californica* is native to southwest-central and southern North America. *5, 6, 15, 42 (051213), 43 (051710 - *Kallstroemia californica* Vail), 44 (050513 - color photograph), 46 (Page 492), 58, 63 (051213), 68, 77 (color photograph #100), **80** (Species of the genus *Kallstroemia* are considered to be Rarely Poisonous and Suspected Poisonous Range Plants. "Animals must be forced to eat large amounts of this unpalatable, annual forb before poisoning occurs."), **85** (050513 - color presentation), 86 (note under *Kallstroemia grandiflora*), 127*

Kallstroemia californica var. *brachystylis* (see *Kallstroemia californica*)

Larrea divaricata (see *Larrea tridentata*)

Larrea divaricata subsp. *tridentata* (see *Larrea tridentata*)

***Larrea tridentata* (A.P. de Candolle) F.V. Coville: Creosote Bush**

SYNONYMY: *Larrea divaricata* A.J. Cavanilles; *Larrea divaricata* A.J. Cavanilles subsp. *tridentata* (A.P. de Candolle) R.S. Felger & C.H. Lowe; *Larrea tridentata* (A.P. de Candolle) F.V. Coville var. *arenaria* L.D. Benson; *Larrea tridentata* (A.P. de Candolle) F.V. Coville var. *tridentata*. COMMON NAMES: Algodones Creosote Bush (*Larrea tridentata* var. *arenaria* - Not Accepted, *Larrea tridentata* - Accepted); Chaparral (a name more commonly applied to plant associations

rather than a particular species of plant); Chihuahuan Creosote; Coville Creosotebush; Creosote; Creosote Brush; Creosote Bush; Creosote Bush (*Larrea tridentata* var. *arenaria* - Not Accepted, *Larrea tridentata* - Accepted; *Larrea tridentata* var. *tridentata* - Not Accepted, *Larrea tridentata* - Accepted, a name also applied to the genus *Larrea* and the Zygophyllaceae); Creosote-bush (a name also applied to the genus *Larrea* and the Zygophyllaceae); Creosotebrush; Creosotebush (a name also applied to the genus *Larrea*); Creosotum; Cresote; Cresote Bush; Desert Larrea; Gobernadora (Spanish); Greasewood (a name also applied to other taxa); Guamis; Hediondilla ("Little Bad Smeller" a name also applied to other species, Spanish); Kreosotbuske (Swedish); Kreosotstrauch (German); Little Stinker; Shea Goi (Pima); Spreading Creosote; Z'xat (Seri). DESCRIPTION: Terrestrial perennial evergreen shrub (ascending and/or erect stems 20 inches to 13 feet in height and about the same in width; plants were observed and described as being 13 inches in height and 10 inches in width, one plant was observed and described as being 40 inches in height and 2 feet in width, plants were observed and described as being 40 inches in height and 50 inches in width, one plant was observed and described as being 4 feet in height and 5 feet in width, plants were observed and described as being 4 feet in height and 3 feet in width, one plant was observed and described as being 6 feet in height and 8 feet in width); the bark is gray; the leaves may be bright glossy green, dark green, golden-yellow (rarely), yellow-green or dark yellow-green; the flowers (½ to 1 inch in diameter) are yellow or yellow-white; flowering may take place throughout the year with the peak blooming periods occurring in the spring, between March and April, and then again between November and December; the round, fuzzy fruits (¼ inch in diameter) are gray, reddish, white or rust colored. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; bases of mountains; rocky, rocky-gravelly, rocky-clayey-loamy, gravelly and sandy mesas; plateaus; rocky cliffs; bases of cliffs; rims of canyons; rocky, sandy and clayey canyons; bouldery and rocky canyon bottoms; gorges; rocky talus slopes; crevices in rocks; sandy pockets of soil; sandy buttes; knolls; along rocky ridges; bedrock, bouldery-cobbly and rocky foothills; bouldery, rocky, rocky-sandy, gravelly and sandy hills; stony-sandy hilltops; rocky, gravelly-clayey and sandy hillsides; bedrock, bouldery, rocky, rocky-cobbly-gravelly, rocky-gravelly, rocky-sandy, rocky-clayey-loamy, stony-gravelly-sandy, stony-sandy, gravelly, gravelly-sandy, gravelly-sandy-silty, gravelly-silty, sandy, sandy-loamy and sandy-silty slopes; sandy bases of slopes; rocky alluvial fans; stony-gravelly-sandy, gravelly, sandy and sandy-silty bajadas; pediments; rocky outcrops; amongst boulders and rocks; lava fields; sandy lava beds; sand dunes; gravel banks; benches; benchlands; breaks; rocky-gravelly, gravelly and sandy plains; sandy fields; rocky, rocky-sandy, cindery-gravelly, gravelly, gravelly-sandy, gravelly-silty, sandy, sandy-clayey, sandy-silty, clayey and clayey-silty flats; basins; sandy and sandy-clayey valley floors; valley bottoms; coastal plains; coastal beaches; along rocky-sandy, stony, gravelly, gravelly-loamy and sandy roadsides; rocky, stony-gravelly-sandy and sandy arroyos; along sandy bottoms of arroyos; springs; rocky streambeds; creekbeds; along rivers; along sandy riverbeds; along and in rocky, gravelly, gravelly-sandy, gravelly-silty and sandy washes; drainages; swales; along (sandy) banks of streams, creeks, rivers and washes; borders of washes; (sandy) edges of washes, lakes and swales; (rocky) margins of washes; (rocky and rocky-sandy) shores of rivers and lakes; gravel and sand bars; benches; shelves; gravelly, sandy and sandy-silty terraces; floodplains; mesquite bosques; around margins of charcos; in gravelly-sand and sandy-clay along canals; gravelly and gravelly-sandy riparian areas, and disturbed areas growing in moist and dry rocky and cobbly-gravelly-sandy desert pavement; bouldery, bouldery-cobbly, rocky, rocky-cobbly-gravelly, rocky-gravelly, rocky-sandy, stony, stony-gravelly-sandy, stony-sandy, cindery-gravelly, cindery-sandy, gravelly, gravelly-sandy and sandy ground; rocky loam, rocky-clayey loam, gravelly loam, sandy loam and clayey loam ground; rocky clay, gravelly clay, sandy clay and clay ground, and rocky-sandy silty, gravelly-sandy silty, gravelly silty, sandy silty, clayey silty and silty ground, occurring from below sea level to 7,000 feet in elevation in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This plant may be an attractive component of a restored native habitat. This plant was reported to have been utilized by native peoples of North America, it was noted as having been used as a building material (*L.t.* var. *tridentata*), as tools, in the making of brooms, brushes and musical instruments (*L.t.* var. *tridentata*), as a drug or medication and in body art (*L.t.* var. *tridentata*). Older stems of the Creosote Bush may be 40 to 90 years of age. Using Creosote Bush in the restoration of disturbed sites may increase water infiltration and storage, transplants recommended over spot-seeding and rodent protection for the transplanted seedlings is necessary. When planting a Creosote Bush consider planting a small Desert Night-blooming Cereus (*Peniocereus greggii* var. *transmontanus*) at the base of the plant. The branches will provide support and the roots will protect the tuber of the cereus from hungry Javelinas. The Creosote Bush is the characteristic plant of the southwestern deserts in North America with its distribution very closely delineating the desert regions. As the Creosote Bush ages the older central stems of the plant die off and new stems form at the outer edge of the crown. New stems are not created at the center of the plant. As the crown of the plant expands a "clonal ring", made up of genetically identical individual shrublets, develops which continues the outward expansion of the ring eventually reaching several yards in diameter. It has been estimated that some of the older rings approach from 9,400 to 11,700 years of age. The Creosote Bush provides cover for many animals; Lac Scale insects (*Tachardiella larraeae*), jackrabbits, desert woodrats and other small mammals feed on this plant; stem galls are produced in response to the Creosote Gall midge (*Asphondylia* sp.), and the Desert Tortoise (*Gopherus agassizi*) often digs its shelter under the base of the plant where the roots help to stabilize the soil. *Larrea tridentata* is native to southwest-central and southern North America. *5, 6, 13 (Pages 120-124, color photographs of *Larrea tridentata* var. *tridentata*: Plates L.2., Page 399 and M.1., Page 400), 15 (recorded as (*Larrea tridentata* (Sesse & Moc. ex DC.) Cov. .), 16 (recorded as *Larrea divaricata* Cav. subsp. *tridentata* (Sesse & Moc. ex DC.) Felger & Lowe), 18, 26 (recorded as *Larrea tridentata*, color photograph 354), 28, (recorded as *Larrea tridentata* (*Larrea divaricata*), color photograph), 42 (050513), 43 (051710 - *Larrea divaricata* Cav. subsp. *tridentata* (Sesse & Moc. ex DC.) Felger; *Larrea tridentata* Coville; *Larrea tridentata* J.M. Coult.; *Larrea tridentata* J.M. Coult. var. *arenaria* L.D. Benson;), 44 (050513 - color photograph), 46 (recorded as *Larrea tridentata* (DC.) Coville "An outstanding xerophyte and a very important element of the perennial desert flora in southern and western Arizona. ... Creosote-bush has a strong characteristic odor, especially noticeable when the foliage is wet. The plant is ordinarily not touched by livestock, although it is reported that sheep,

especially pregnant ewes, have been killed by partaking of it. This plant is reported to cause dermatitis in exceptional persons who are allergic to it.”, Page 491), 48, 63 (050613 - recorded as *Larrea tridentata* (DC.) Coville and recognizes *Larrea tridentata* (DC.) Coville var. *arenaria* L.D. Benson and *Larrea tridentata* (DC.) Coville var. *tridentata*, color presentation), 77 (recorded as *Larrea divaricata* Cav.ssp. *tridentata* (DC.) Felger & Lowe, color photograph #101), 80 (This species is listed under Rarely Poisonous and Suspected Poisonous Range Plants. “Early reports accusing this common desert shrub of being poisonous have been proven wrong.”), 85 (050613 - recognizes *Larrea tridentata* (Sessé & Moc. ex DC.) Coville, *Larrea tridentata* var. *arenaria* L.D. Benson and *Larrea tridentata* var. *tridentata*, color presentation including habitat), 91 (recorded as *Larrea tridentata* (Moc. & Ses.) Cav. [= *L. divaricata* Cav. subsp. *tridentata* (Ses. & Moc. ex DC.) Felger & Lowe, *Covillea tridentata* (DC.) Vail], Pages 255-259), 101 (color photograph), 107, 115 (color presentation), 124 (110910 - no record of species or genus), 127, **MBJ** (recorded as *Larrea divaricata* subsp. *tridentata*, undated record which may include landscaped material that persists without maintenance)*

Larrea tridentata var. *arenaria* (see *Larrea tridentata*)

Larrea tridentata var. *tridentata* (see *Larrea tridentata*)

***Tribulus terrestris* C. Linnaeus: Puncturevine**

COMMON NAMES: Abrojos (Spanish); Abrojo de Flor Amarilla; Automobile Weed; Automobile-weed; Bemo K'yatchipba ("grass round" refers to the rounded spiny fruits, Zuni); Bull-head; Bullhead (a name also applied to other taxa); Bur Nut; Bur-nut; Burnut; Cabeza de Chivo (Spanish); Cadillo; Caltrop (a name also applied to other taxa, the genus *Kallstroemia* and the Zygophyllaceae); Cat's-head; Common Dubbeltjie; Common Dubblettjie; Common Puncture Vine; Common Puncture Weed; Common Puncture-vine; Common Puncture-weed; Common Puncturevine; Devil's-thorn (a name also applied to other taxa); Devil's-weed (a name also applied to other taxa); Espigón (Spanish); Goat Head (a name also applied to other taxa); Goat's Head (a name also applied to other taxa); Goat's Head Bur; Goat's Head Burr; Goat-heads; Goathead (a name also applied to other taxa); Goats Head Bur; Goats Head Burr; Gokhru (India); Ground Bar-nut; Ground Bur Nut; Ground Burr Nut; Ground Bur-nut; Ground Burr-nut; Ground Burnut; Ground Burrnut; Ji Li (transcribed Chinese); Land Caltrop; Land Caltraps; Mexican Sandbur; Namgasae (transcribed Korean); Puncture Vine (a name also applied to the genus *Tribulus*); Puncture Weed (a name also applied to the genus *Tribulus*); Puncture-vine (a name also applied to the genus *Tribulus*); Puncture-weed (a name also applied to the genus *Tribulus*); Puncturevine (a name also applied to the genus *Tribulus*); Puncturevine Caltrop; Punctureweed (a name also applied to the genus *Tribulus*); Raiz de Abrojo (Spanish); Sand-bur (a name also applied to other taxa); Small Caltrop; Small Caltraps; Small Caltraps; Tackbur; Tackweed (a name also applied to other taxa); Tackweed Caltrop; Texas But; Texas Sandbur; Tiggarnöt (Swedish); Toboso (Spanish); Torito (Spanish); Torrito; Tribule Terrestre (French); Tribulus (a name also applied to the genus *Tribulus*); Weedy Puncture Vine; !#&! Stickers. DESCRIPTION: Terrestrial annual forb/herb (sprawling prostrate mat-forming stems to 2 inches in height and 6 inches to 8 feet in length); the stems may be reddish; the foliage is green or dark green; the small flowers (¼ to ½ inch in diameter) may be greenish-yellow, orange or yellow; flowering generally takes place between late April and early November (additional records: one for early January (southern hemisphere), two for early February, one for late February, one for mid-March, two for late March, two for early April, one for early December and one for late December); the star-shaped seedpod is made up of 5 nutlets which separate at maturity, each of the nutlets having two very sharp, stout, vicious spines. HABITAT: Within the range of this species it has been reported from mountains; mountainsides; sandy mesas; rocky canyons; sandy-loamy canyon bottoms; talus; sandy bluffs; ridge crests; openings in woodlands; gravelly hills; rocky hillsides; rocky, rocky-gravelly, rocky-clayey, gravelly, gravelly-sandy, gravelly-sandy-loamy, sandy, sandy-loamy, clayey and clayey-loamy slopes; rocky alluvial fans; sandy bajadas; sand dunes; sand hummocks; benches; sandy terraces; sandy and clayey prairies; gravelly, sandy, clayey and clayey-loamy flats; vernaly flooded flats; cobbly-loamy and loamy hollows; clayey and silty valley floors; coastal prairies; coastlines; island beaches; along cindery railroad right-of-ways; roadcuts; rocky, gravelly and gravelly-sandy roadbeds; along gravelly, gravelly-loamy, sandy, sandy-loamy and clayey roadsides; two-tracks; within rocky-sandy-clayey arroyos; sandy bottoms of arroyos; within ravines; springs; along streams; streambeds; along creeks; clayey creekbeds; along rivers; along rocky-cobbly-sandy and sandy riverbeds; along and in gravelly, gravelly-sandy and sandy washes; sandy drainages; lakes; silty lakebeds; depressions; sinks; swales; (gravelly) banks of streams, creeks, rivers, riverbeds and washes; borders of washes; along margins of rivers, washes, ponds and lakes; (sandy-loamy) shores of ponds; mudflats; sand bars; gravelly-sandy and sandy beaches; benches; rocky-sandy-clayey, sandy-loamy and sandy terraces; bottomlands; floodplains; lowlands; sandy fencerows; banks and shores of reservoirs; along and in ditches; along gravelly and clayey-loamy ditch banks; sandy riparian areas; sandy-loamy waste places; recently burned areas of scrubs, and disturbed areas growing in dry rocky, rocky-cobbly-sandy, rocky-gravelly, rocky-sandy, cindery, gravelly, gravelly-sandy and sandy ground; cobbly loam, gravelly loam, gravelly-sandy loam, sandy loam, clayey loam and loam ground; rocky clay, rocky-sandy clay, gravelly clay, sandy clay and clay ground, and sandy silty and silty ground, occurring from sea level to 10,000 feet in elevation in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Plant. This plant was reported to have been utilized by native peoples of North America; it was noted as having been used as a ceremonial medicine. *Tribulus terrestris* is native to central, eastern and southern Europe; Asia; Africa, and Australia; however, the exact native range is obscure. *5, 6, 15, 16, 28 (color photograph 355), 42 (051213), 43 (051710), 44 (050613 - color photograph), 46 (Page 491), 58, 63 (050613 - color presentation), 68, 77, 80 (This species is listed as a Secondary Poisonous Range Plant. “Puncturevine has caused extensive losses of sheep in South Africa, Australia, and the United States due to photosensitization or bighead. In addition, the plant has caused nitrate poisoning in both sheep and cattle and the burs have produced lesions of the mouth and feet.

Symptoms of photosensitization observed in the United States include the typical swelling of the head, blindness, dying of the skin, loss of lips and ears, and high mortality among young animals. Losses may be reduced by removing animals from infested ranges, providing shade, feed and water, and keeping the animals quiet.”), 85 (050713 - color presentation), 86 (color photograph) 101 (color photograph), 115 (color presentation), 124 (110910), 127, 140 (Page 307)*

LISTING OF ANIMALS

STRICTLY ENFORCED LAWS PROTECT MANY OF ARIZONA’S NATIVE ANIMALS FROM COLLECTION AND FROM BEING DISTURBED OR KILLED

Operation GAME THIEF: 602-942-3000

Kingdom Animalia: The Animal Kingdom

Subkingdom Metazoa: The Multicellular Animals

Section Deuterostomia: The Deuterostomes

Phylum Chordata: The Chordates

Subphylum Vertebrata: The Vertebrates

CLASS AMPHIBIA: The AMPHIBIANS

Bufoidea: The Toad Family

***Anaxyrus punctatus* (Baird & Girard, 1852): Red-spotted Toad**

SYNONYMY: *Bufo punctatus* Baird & Girard, 1852. COMMON NAMES: Red-spotted Toad; Sapo Manchas Rojas (Spanish)⁴². HABITS: Feeds on algae (larvae), arachnids, carrion (larvae), cyanobacteria (larvae), organic detritus (larvae) and insects. Takes shelter in underground burrows and rock crevices. Breeding takes place in springs, reservoirs, and temporary pools associated with intermittent streams. HABITAT: Within the range of this species it has been reported from rocky areas in arroyos, canyons, flats, floodplains and oases near water in the forest, woodland, grassland, desertscrub and wetland ecological formations. *14 (041812 - recorded as *Bufo punctatus*, color presentation), 37 (recorded as *Bufo punctatus*), 42 (071912), 55 (recorded as *Bufo punctatus*), 73 (recorded as *Bufo punctatus*), 87 (recorded as *Bufo punctatus*), 106 (041812 - recorded as *Bufo punctatus*, color presentation), **MBJ** (correspondence dated May 13, 2013)*

Bufo alvarius (see *Incilius alvarius*)

Bufo punctatus (see *Anaxyrus punctatus*)

***Incilius alvarius* (Girard in Baird, 1859): Sonoran Desert Toad**

SYNONYMY: *Bufo alvarius* Girard in Baird, 1859. COMMON NAMES: Colorado River Toad; Sapo del Desierto-sonorense (Spanish)⁴²; Sonoran Desert Toad. HABITS: Feeds on beetles, grasshoppers, lizards, mice, snails, spiders and other toads. Takes shelter in underground burrows. Breeding corresponds to spring and summer rains when they congregate at temporary pools and other bodies of water. HABITAT: Within the range of this species it has been reported from near springs, streams, reservoirs, and pools in the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: Skin secretions are toxic to dogs and other animals and the mouthing a Colorado River Toad may cause temporary paralysis or death. *14 (041812 - recorded as *Bufo alvarius*, color presentation), 37 (recorded as *Bufo alvarius*), 42 (071912), 55 (recorded as *Bufo alvarius*), 73 (recorded as *Bufo alvarius*), 87 (recorded as *Bufo alvarius*), 106 (071912 - recorded as *Bufo alvarius*, color presentation), **MBJ** (correspondence dated May 13, 2013)*

CLASS AVES: The BIRDS

Accipitridae: The Eagle, Hawk, Kite and Allies Family

***Accipiter cooperii* (Bonaparte, 1828): Cooper's Hawk**

COMMON NAMES: Big Blue Darter; Chicken Hawk; Cooper's Hawk; Epervier de Cooper (French)⁴²; Épervier de Cooper (French)⁴²; Gavilán de Cooper (Spanish)⁴²; Galvilan Palomero (Hispanic)¹⁴; Gavilán Pollero (Spanish)⁹⁰; Hen Hawk; Mexican Hawk; Quail Hawk; Striker; Swift Hawk. HABITS: Feeds on small birds and mammals. Nests are platforms made of sticks located in trees. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (041912 - color presentation), 20, 42 (061812), 55, 69, 73, 84, 90, 93, 106 (041912 - color presentation), **MBJ** (correspondence dated May 13, 2013)*

***Buteo jamaicensis* (Gmelin, 1788): Red-tailed Hawk**

COMMON NAMES: Aguililla Cola Roja (Spanish)⁴²; Buse à Queue Rousse (French)⁴²; Buzzard; Buzzard Hawk; Chicken Hawk; Eastern Redtail; Gavilan Cola Roja (Hispanic)¹⁴; Gavilán Cola Roja (Spanish)⁹⁰; Harlan's Hawk (*B.j. harlani* (Audubon, 1830) - Valid); Hen Hawk; Mouse Hawk; Red Hawk; Redtail; Red-tailed Buzzard; Red-tailed Hawk; Western Redtail. HABITS: Feeds on birds, lizards and rodents. Nests are platforms made of sticks located on cliffs and in saguaro cacti and trees. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (041912 - subsp. *calurus* (Cassin); subsp. *fuertesi* (Sutton & Van Tyne); subsp. *harlani* (Audubon), color presentation), 20, 42 (061812), 55, 69, 73, 84, 90, 93, 106 (041912 - includes a listing of subspecies, color presentation), **MBJ** (correspondence dated May 13, 2013)*

***Parabuteo unicinctus* (Temminck, 1824): Harris's Hawk**

COMMON NAMES: Aguililla Cinchada (Spanish)⁹⁰; Aguililla Roja (Hispanic)¹⁴; Aguililla Rojinegra (Spanish)⁴²; Bay-winged Hawk; Buse de Harris (French)⁴²; Dusky Hawk; Harris Hawk; Harris' Hawk; Harris's Hawk; "Louisiana Hawk". HABITS: Feeds on rabbits, rodents, and birds. Nests are platforms made of sticks located in mesquites, small trees and yuccas. HABITAT: Within the range of this species it has been reported from the scrub, grassland, desertscrub and wetland ecological formations. *14 (041912 - subsp. *harrisi* (Audubon), color presentation), 20, 42 (061812), 55, 69, 73, 84, 90, 93, 106 (041912 - includes a listing of subspecies, color presentation), **MBJ** (correspondence dated May 13, 2013)*

Ardeidae: The Bittern, Egret and Heron Family

***Ardea herodias* Linnaeus, 1758: Great Blue Heron**

COMMON NAMES: Garza (Spanish)⁹⁰; Garza Ceniza (Hispanic)¹⁴; Garza Morena (Spanish)⁴²; Grand Héron (French)⁴²; Great Blue Heron; Great White Heron (*A.h. occidentalis* Audubon, 1835; a white morph of the Great Blue Heron); Shuh-shuh'gah ('the Blue Heron' Longfellow's *Hiawatha*); Treganza's Heron; Wurdemann's Heron (an intermediate morph of the Great Blue Heron which has a white head). HABITS: Feeds on amphibians, small birds, crayfish, decapods, fishes, frogs, insects, mice, mollusks, reptiles, rodents, spiders and turtles. Nests are bulky platforms made up of sticks and located on cliffs, islets, rocky islands, swamps and trees. HABITAT: Within the range of this species it has been reported from wetland ecological formations within the forest, woodland, grassland and desertscrub ecological formations. NOTES: **If disturbed, adults may abandon nests and roosting sites and quit feeding nestlings.** *14 (060312 - subsp. *herodius*; subsp. *tregansai* (Court), color presentation), 20, 42 (061812), 55, 69, 73, 84, 90, 93, 106 (060312 - includes a listing of subspecies, color presentation), 153, **MBJ** (correspondence dated May 13, 2013)*

Caprimulgidae: The Nighthawk, Nightjar and Allies Family

***Chordeiles minor* (J.R. Forster, 1771): Common Nighthawk**

COMMON NAMES: Aguador Tapacamino Comun (Hispanic)¹⁴; Booming Nighthawk; Bull-Bat (pseudonym)¹⁰⁶; Chotacabras Zumbón (Spanish)⁴²; Common Night Hawk; Common Nighthawk; Engoulevant d'Amérique (French)⁴²; Goatsucker (pseudonym)¹⁰⁶; Western Nighthawk. HABITS: Feeds mostly on flying insects. No nest, eggs are laid on the bare ground in depressions and scrapes. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (063013 - subsp. *henryi* (Cassin), subsp. *hesperis* (Grinnell), subsp. *howelli* (Oberholzer), subsp. *sennetti* (Coues), color presentation), 20, 42 (063013), 55, 69, 73, 93, 106 (063013 - color presentation), **MBJ** (correspondence dated May 13, 2013)*

Cardinalidae: The Bunting, Cardinal and Grosbeak Family

***Cardinalis cardinalis* (Linnaeus, 1758): Northern Cardinal**

SYNONYMY: *Richmondia cardinalis* (Linnaeus, 1758). COMMON NAMES: Cardenal (Hispanic)¹⁴; Cardenal Rojo (Spanish)^{42,90}; Cardinal Rouge (French)⁴²; Common Cardinal; Northern Cardinal; Redbird; Sipuk (Tohono O'odham)⁹⁰. HABITS: Feeds on small fruits, insects and seeds. Nests are loose cups of shredded bark and twigs located in a low shrubs or

thickets. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. *14 (041912 - subsp. *affinis* Nelson; subsp. *superbus* Ridgway, color presentation), 20, 42 (061812), 55, 69, 73, 84, 90, 93, 106 (041912 - color presentation), **MBJ** (correspondence dated May 13, 2013)*

***Cardinalis sinuatus* Bonaparte, 1838: Pyrrhuloxia**

SYNONYMY: *Pyrrhuloxia sinuata* Bonaparte, 1838. COMMON NAMES: Bichpod (Tohono O'odham)⁹⁰; Cardenal Gris (Spanish)⁹⁰; Cardenal Pardo (Spanish)⁴²; Cardinal Torito (Hispanic)¹⁴; Desert Cardinal; Gray Cardinal; Pyrrhuloxia. HABITS: Feeds on small fruits, insects and seeds. Nests are neat cups located in thorny bushes. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. *14 (041912 - subsp. *sinuatus* Bonaparte, color presentation), 20, 42 (061812), 55, 69, 73, 84, 90, 93, 106 (041912 - color presentation), **MBJ** (correspondence dated May 13, 2013)*

Pyrrhuloxia sinuata (see *Cardinalis sinuatus*)

Richmondia cardinalis (see *Cardinalis cardinalis*)

Cathartidae: The New World Vulture Family

***Cathartes aura* (Linnaeus, 1758): Turkey Vulture**

COMMON NAMES: Buzzard; Carrion Crow (Caribbean); Chilean Turkey Vulture (*C.a. jota* (Molina, 1782) - Valid); Eastern Turkey Vulture (*C.a. septentrionalis* Wied-Neuwied, 1839 - Valid); John Crow (Caribbean); Nuwi (Tohono O'odham)⁹⁰; Turkey Buzzard; Turkey Vulture; Urubu à Tête Rouge (French)⁴²; Western Turkey Vulture (*C.a. aura* (Linnaeus, 1758) - Valid); *C.a. meridionalis* - Invalid?; *C.a. teter* Friedmann, 1933 - Invalid); Zopilote (Spanish)^{14,90}; Zopilote Aura (Spanish)⁴². HABITS: Feeds on carrion. Little or no nest construction, eggs are laid in protected areas in crevices in rocks, on cliffs, on the ground in thickets and in tree hollows. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (041912 - subsp. *septentrionalis* Wied-Neuwied; subsp. *teter* Friedmann, color presentation), 20, 42 (061812), 55, 69, 73, 84, 90, 93, 106 (041912 - color presentation), **WTK** (August 4, 2005)*

Columbidae: The Dove and Pigeon Family

***Columba livia* Gmelin, 1789: Rock Dove**

COMMON NAMES: Blue Rock Dove; Common Pigeon; Pigeon Biset; Domestic Pigeon; Feral Pigeon; Pigeon Biset; Pigeon; Paloma Domestica (Hispanic)¹⁴; Paloma Doméstica (Spanish)⁴²; Pigeon; Pigeon Biset (French)⁴²; Rock Dove; Rock Pigeon. HABITS: Feeds on insects, green plant matter and seeds. Nests are located on buildings and cliffs. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC**. *14 (041912 - color presentation), 20, 42 (061812), 69, 73, 84, 90, 93, 106 (041912 - includes a listing of subspecies, color presentation), **MBJ** (correspondence dated May 13, 2013)*

***Columbina inca* (Lesson, 1847): Inca Dove**

SYNONYMY: *Scardafella inca* (Lesson, 1847). COMMON NAMES: Gugu (Tohono O'odham)⁹⁰; Inca Dove; Tortola (Hispanic)¹⁴; Tórtola Cola Larga (Spanish)⁴²; Tortolita Común (Spanish)⁹⁰. HABITS: Feeds on fruit, insects and seeds, Saucer shaped nests are made of mixed vegetation and located in shrubs and low trees. HABITAT: Within the range of this species it has been reported from the grassland and desertscrub ecological formations. *14 (041912 - color presentation), 20, 42 (061812), 55, 69, 73, 84, 90, 93, 106 (041912 - color presentation), **MBJ** (correspondence dated May 13, 2013)*

Scardafella inca (see *Columbina inca*)

***Zenaida asiatica* (Linnaeus, 1758): White-winged Dove**

COMMON NAMES: Mexican Dove; Okokoi (Tohono O'odham)⁹⁰; Paloma ala Blanca (Spanish)^{14,42}; Paloma de alas Blancas (Spanish)⁹⁰; Sonora Dove; Tourterelle à Ailes Blanche (French)⁴²; Western White-wing Dove (*Z.a. mearnsi* (Ridgway, 1915) - Valid); White-wing; White-winged Dove; White-winged Pigeon. HABITS: Feeds on berries, fruit, gastropods, insects, mollusks and seeds. Nests are flimsy stick platforms located in thickets and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (041912 - subsp. *grandis* (Saunders); subsp. *mearnsi* (Ridgway); subsp. *monticola* (Saunders), color presentation), 20, 42 (061812), 55, 69, 73, 84, 90, 93, 106 (041912 - color presentation), **MBJ** (correspondence dated May 13, 2013)*

***Zenaida macroura* (Linnaeus, 1758): Mourning Dove**

SYNONYMY: *Zenaidura macroura* (Linnaeus, 1758). COMMON NAMES: American Mourning Dove; Carolina Pigeon; Carolina Turtle-dove; Carolina Turtledove; Clarion Island Turtledove (*Z.m. clarionensis* (C.H. Townsend, 1890) -

Valid); Dove; Hohhi (Tohono O'odham)⁹⁰; Huilota (Hispanic)¹⁴; Mourning Dove; Paloma Huilota (Spanish)⁴²; Paloma Triste (Spanish)⁹⁰; Panama Mourning Dove; Rain Dove; Tourterelle Triste (French)⁴²; Turtle Dove; Wild Dove. HABITS: Feeds on fruit, insects and seeds. Nests are loose platforms made of forbs, grasses, leaves, rootlets, sticks and twigs located in cacti, shrubs, trees and on the ground. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (041912 - subsp. *carolinensis* (Linnaeus); subsp. *marginella* (Woodhouse), color presentation), 20, 42 (061812), 55, 69, 73, 84, 90, 93, 106 (041912 - includes a listing of subspecies, color presentation), **HR***

Zenaidura macroura (see *Zenaida macroura*)

Corvidae: The Crow, Jay, Magpie and Raven Family

***Corvus corax* Linnaeus, 1758: Common Raven**

COMMON NAMES: American Raven; Common Raven; Cuervo Común (Spanish)^{42,90}; Cuervo Grande (Hispanic)¹⁴; Grand Corbeau (French)⁴²; Hawani (Tohono O'odham)⁹⁰; Kahgahgee' ('the Raven' Longfellow's *Hiawatha*); Northern Raven Western Raven (*C.c. sinuatus* Wagler, 1829 - Valid). HABITS: Feeds on small animals and birds, berries, carrion, insects and seeds. Nests are made of bones, sticks and wool located on cliffs, saguaros and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (041912 - subsp. *sinuatus* (Wagler), color presentation), 20, 42 (061812), 55, 69, 73, 84, 90, 93, 106 (041912 - includes a listing of subspecies, color presentation), 153, **MBJ** (correspondence dated May 13, 2013)*

Cuculidae: The Ani, Cuckoo and Roadrunner Family

***Geococcyx californianus* (Lesson, 1829): Greater Roadrunner**

COMMON NAMES: Correcaminos Norteño (Spanish)^{42,90}; Greater Roadrunner; Paisano (Spanish)^{14,90}; Roadrunner; Tadaí (Tohono O'odham)⁹⁰. HABITS: Feeds on the young of ground nesting birds, insects, lizards, scorpions and snakes. Nests are course shallow cups of sticks located in cacti, mesquite trees and shrubs. HABITAT: Within the range of this species it has been reported from the forest, scrub, grassland, desertscrub and wetland ecological formations. *14 (042012 - color presentation), 20, 42 (061812), 55, 69, 73, 84, 90, 93, 106 (042012 - color presentation), **MBJ** (correspondence dated May 13, 2013)*

Emberizidae: The Junco, Longspur, Sparrow and Towhee Family

***Amphispiza bilineata* (Cassin, 1850): Black-throated Sparrow**

COMMON NAMES: Ba' I-Chukulim (Tohono O'odham)⁹⁰; Black-throated Sparrow; Desert Sparrow; Gorrion Garganta Negra (Hispanic)¹⁴; Zacatonero Garganta Negra (Spanish)^{42,90}. HABITS: Feeds on berries, buds, fruit, insects and seeds. Nests are loose cups made up of grasses, twigs and plant fibers and located in cacti and shrubs. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. *14 (060512 - subsp. *deserticola* (Ridgway); subsp. *opuntia* (Burleigh & Lowery), color presentation), 20, 42 (061812), 55, 69, 73, 84, 90, 93, 106 (060512 - color presentation), **MBJ** (correspondence dated May 13, 2013)*

Fringillidae: The Cardueline and Fringilline Finch Family

***Carpodacus mexicanus* (Statius Müller, 1776): House Finch**

COMMON NAMES: "Hollywood Finch"; House Finch; "Linnet"; Pinzón Mexicano (Spanish)^{42,90}; Roselin Familier (French)⁴². HABITS: Feeds on buds, berries, fruit, insects and seeds. Nests are tightly woven, compact cups made of debris, feathers, grasses, hair, lichens, plant tufts, sticks and twigs located in cavities and in bushes, cacti, shrubs, trees and vines, sometime uses abandoned nests of other birds. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042112 - subsp. *frontalis* (Say), color presentation), 20, 42 (061812), 55, 69, 73, 84, 90, 93, 106 (042112 - color presentation), **MBJ** (correspondence dated May 13, 2013)*

Hirundinidae: The Martin and Swallow Family

***Progne subis* (Linnaeus, 1758): Purple Martin**

COMMON NAMES: Golondrina Azulnegra (Spanish)⁴²; Hironnelle Noire (French)⁴²; Martin Azul (Hispanic)¹⁴; Purple Martin; Western Purple Martin. HABITS: Feeds on insects. Nests made of feathers, grasses, leaves, mud and stalks

located in holes in saguaros and trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, grassland, desertscrub and wetland ecological formations. *14 (060612 - subsp. *subis* (Linnaeus); subsp. *hesperia* (AZ)), 20, 42 (061912), 55, 69, 73, 84, 90, 93, 106 (060612 - includes a listing of subspecies, color presentation: "Purple Martins suffered a severe population crash in the 20th Century widely linked to the release and spread of European Starlings in North America. Starlings and House Sparrows compete with martins for nest cavities. Where Purple Martins once gathered by the thousands, by the 1980s they had all but disappeared.^{[7]b}"), **MBJ** (correspondence dated May 13, 2013)*

Mimidae: The Catbird, Mockingbird and Thrasher Family

***Mimus polyglottos* (Linnaeus, 1758): Northern Mockingbird**

COMMON NAMES: Cenzontle (Spanish)^{14,90}; Centzontle Norteño (Spanish)⁴²; Mockingbird; Moqueur Polyglotte (French)⁴²; Northern Mockingbird; Shug (Tohono O'odham)⁹⁰. HABITS: Feeds on arachnids, berries, crustaceans, fruits, gastropods, insects, mollusks, reptiles and seeds. Nests are bulky cups made of grasses, hair, leaves, mosses, plant stems, rootlets, sticks, twigs and wool and lined with fine plant material and rootlets located near ground in bushes, chollas, shrubs, thickets, dense trees and vines. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042212 - subsp. *leucopterus* (Vigors), color presentation), 20, 42 (061912), 55, 69, 73, 84, 90, 93, 106 (042212 - color presentation), **MBJ** (correspondence dated May 13, 2013)*

***Toxostoma curvirostre* (Swainson, 1827): Curve-billed Thrasher**

COMMON NAMES: Cuitlacoche; Cuitlacoche Comun (Hispanic)¹⁴; Cuitlacoche Pico Curvo (Spanish)^{42,90}; Curve-billed Thrasher; Kudwik (Tohono O'odham)⁹⁰; Palmer's Thrasher. HABITS: Feeds on arachnids, berries, crustaceans, diplopods, fruits, gastropods, insects, mollusks and seeds. Nests are woven cups made up of bark, grasses, hair, rootlets, sticks and twigs and located in bushes, cholla cacti and shrubs. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042212 - subsp. *celsum* (Moore), color presentation), 20, 42 (061912), 55, 69, 73, 84, 90, 93, 106 (042212 - color presentation), **MBJ** (correspondence dated May 13, 2013)*

Odontophoridae: The Quail Family

***Callipepla gambelii* (Gambel, 1843): Gambel's Quail**

COMMON NAMES: Arizona Quail; Codorniz Chiquiri [Spanish]⁴²; Codorniz (Gambel) Chiquiri (Spanish)⁹⁰; Codorniz de Gambel (Hispanic)¹⁴; Desert Quail; Fulvous-breasted Quail (*C.g. fulvipectis* Nelson, 1899); Gambel's Quail; Kakaichu (Tohono O'odham)⁹⁰. HABITS: Feeds on insects, plant material and seeds. Eggs are laid in scrapes or grass lined nests located on the ground under prickly-pear cacti. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042212 - subsp. *gambelii*; subsp. *ignoscens* (Friedmann); subsp. *sanus* (Mearns), color presentation), 42 (061912), 55 (recorded as *Lophortyx gambelii*), 69 (note, recorded as *Lophortyx gambelii*), 73 (recorded as *Lophortyx gambelii*), 84, 90, 93 (recorded as *Lophortyx gambelii*), 106 (042212 - includes a listing of subspecies, color presentation), **MBJ** (correspondence dated May 13, 2013)*

Passeriidae: The Old World Sparrow Family

***Passer domesticus* (Linnaeus, 1758): House Sparrow**

COMMON NAMES: English Sparrow (United States); Gorrión Casero (Spanish)^{42,90}; Gorrion Ingles (Hispanic)¹⁴; House Sparrow; O'Odopiwa (Tohono O'odham)⁹⁰; Moineau Domestique (French)⁴²; Phillip Sparrow; Zacatero (Spanish)⁹⁰. HABITS: Feeds on fruit, garbage, grain, insects (and insect larvae) and seeds; nests are bulky masses of debris, feathers, forbs, grasses, straw and twigs located in cavities, crannies, ivy, niches, rocks and suspended from trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Species, partially responsible for the near extinction of Bluebirds in the United States. The House Sparrow is an agricultural pest feeding on grains. The House Sparrow prefers agricultural and urban areas close to human habitation. *14 (042212 - color presentation), 20, 42 (061912), 55, 69, 73, 84, 93, 106 (042212 - includes a listing of subspecies, color presentation), **MBJ** (correspondence dated May 13, 2013)*

Picidae: The Woodpecker and Wryneck Family

Centurus uropygialis (see *Melanerpes uropygialis*)

***Melanerpes uropygialis* (S.F. Baird, 1854): Gila Woodpecker**

SYNONYMY: *Centurus uropygialis* S.F. Baird, 1854. COMMON NAMES: Carpintero del Desierto (Spanish)^{42,90}; Carpintero Gila (Hispanic)¹⁴; Gila Woodpecker; Hikiwigi (Tohono O'odham)⁹⁰. HABITS: Feeds on berries, fruit, honey and wood boring insects. Nests are made in hollowed out holes in saguaros and trees. HABITAT: Within the range of this species it has been reported from the desertscrub and wetland ecological formations. *14 (042212 - subsp. *uropygialis* (Baird), color presentation), 42 (061912), 55, 69, 73, 84, 90, 93, 106 (042212 - color presentation), **MBJ** (correspondence dated May 13, 2013)*

Ptilonotidae: The Silky Flycatcher Family

***Phainopepla nitens* (Swainson, 1838): Phainopepla**

COMMON NAMES: Capulinerero (Hispanic)¹⁴; Capulinerero Negro (Spanish)^{42,90}; Kuigam (Tohono O'odham)⁹⁰; Northern Phainopepla; Phainopepla. HABITS: Feeds on berries, elderberries, fruits, grapes, small insects, mistletoe berries and vegetables. Nests are shallow cups on the forks of limbs of trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042212 - subsp. *lepida* (Van Tyne), color presentation), 42 (061912), 55, 69, 73, 84, 90, 93, 106 (042212 - color presentation), **MBJ** (correspondence dated May 13, 2013)*

Remizidae: The Verdin Family

***Auriparus flaviceps* (Sundevall, 1850): Verdin**

COMMON NAMES: Baloncillo (Spanish)^{42,90}; Gisop (Tohono O'odham)⁹⁰; Verdin (Hispanic)¹⁴. HABITS: Feeds on berries, insects, insect eggs and larvae and seeds. Nests are spheres of thorny twigs lined with grasses and feathers located in bushes, chollas, shrubs, trees and the stems of the Desert Mistletoe. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (042212 - subsp. *ornatus* (Lawrence), color presentation), 20, 42 (061912), 55, 69, 73, 84, 90, 93, 106 (042212 - color presentation), **MBJ** (correspondence dated May 13, 2013)*

Strigidae: The Typical Owl Family

***Bubo virginianus* (Gmelin, 1788): Great Horned Owl**

COMMON NAMES: Baha California Great Horned Owl (*B.v. elachistus* Brewster, 1902 - Valid); Buho (Spanish)⁹⁰; Búho Cornudo (Spanish)⁴²; Californian Great Horned Owl (*B.v. pacificus* Cassin, 1854 - Valid); "Cat Owl"; Central American Great Horned Owl (*B.v. mesembrinus* (Oberholser, 1904) - Valid); Coastal Great Horned Owl (*B.v. saturatus* Rigway, 1877 - Valid); Common Great Horned Owl (*B.v. virginianus* (Gmelin, 1788) - Valid); Desert Great Horned Owl (*B.v. pallascens* Stone, 1897 - Valid); Grand-duc d'Amérique (French)⁴²; Great Horned Owl; Horned Owl; North Andean Great Horned Owl (*B.v. nigrescens* Berlepsch, 1884 - Valid); Northeastern Great Horned Owl (*B.v. heterocnemis* (Oberholser, 1904) - Valid); Northern Great Horned Owl (*B.v. subarcticus* Hoy, 1853 - Valid); Northwestern Great Horned Owl (*B.v. lagophonus* (Oberholser, 1904) - Valid); Rocky Mountains Great Horned Owl (*B.v. pinorum* (Dickerman and Johnson, 2008) - Invalid?); South American Great Horned Owl (*B.v. nacurutu* (Vieillot, 1817) - Valid); Subarctic Great Horned Owl (*B.v. subarcticus* Hoy, 1852 - Valid); Tecolote Cornudo (Spanish)⁹⁰; Tecolote Cuernudo (Hispanic)¹⁴; Tiger Owl; Yucatan Great Horned Owl (*B.v. mayensis* Nelson, 1901 - Valid). HABITS: Feeds on frogs, small birds, crayfish, decapods, fishes, insects, lizards and small mammals. Eggs are laid in the deserted nests of other birds and sometimes lining the nest with feathers located on the ground or in crevices, potholes, trees and on bluffs and cliffs. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (060913 - subsp. *occidentalis* (Stone); subsp. *pallascens* (Stone), color presentation), 20, 42 (061912), 55, 69, 73, 84, 90, 93, 106 (060912 - includes a listing of subspecies, color presentation), **MBJ** (correspondence dated May 13, 2013)*

Sturnidae: The Myna and Starling Family

***Sturnus vulgaris* Linnaeus, 1758: European Starling**

COMMON NAMES: Azores Starling (*S.v. granti*, 1903 - Invalid?); Common Starling (*S.v. vulgaris* Linnaeus, 1758 - Valid); Estornino Pinto (Spanish)⁴²; Étourneau Sansonnet (French)⁴²; European Starling; Faroese Starling (*S.v. faroensis* Feilden, 1872 - Invalid?); Shetland Starling (*S.v. zetlandicus* Hartert, 1918 - Invalid?); Starling. HABITS: Feeds on amphibians, arachnids, berries, crustaceans, decapods, fruits, grains, grubs, insects, mollusks, nectars, seeds, spiders and worms. Nests are made up of bark, dry grass, hair, leaves, lichen, moss, rootlets, straw, sticks and twigs and lined with down, feathers, soft leaves and wool and may be located in abandoned bird nests, depressions, cavities in cliffs, trees, posts, rocks, shrubs, trees and in underground burrows. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: **EXOTIC** Invasive Species. Starlings can damage crops,

cause substantial loss to feeding operations for cattle, and compete with native birds for nesting sites and food. *14 (042312 - color presentation), 20, 42 (061912), 55, 69, 73, 84, 90, 93, 106 (042312 - includes a listing of subspecies, color presentation), **MBJ** (correspondence dated May 13, 2013)*

Trochilidae: The Hummingbird Family

***Calypte anna* (Lesson, 1829): Anna's Hummingbird**

COMMON NAMES: Anna's Hummingbird; Chuparosa Anna (Hispanic)¹⁴; Colibrí Cabeza Roja (Spanish)^{42,90}; Wipismal (Tohono O'odham)⁹⁰. HABITS: Feeds on small insects and nectar collected from flowers. Nests are tiny woven cups made up of lichens, mosses and very small twigs bound together with spider silk, often being lined with down feathers and hair and located in vines, shrubs and trees. HABITAT: Within the range of this species it has been reported from the woodland, scrub, desertscrub and wetland ecological formations. *10, 14 (042312 - color presentation), 42 (061912), 55, 69, 73, 84, 90, 93, 106 (042312 - color presentation), **MBJ** (correspondence dated May 13, 2013)*

Troglodytidae: The Wren Family

***Campylorhynchus brunneicapillus* (Lafresnaye, 1835): Cactus Wren**

COMMON NAMES: Cactus Wren; Hokkad (Tohono O'odham)⁹⁰; Matraca del Desierto (Hispanic)⁹⁰; Saltapared del Disierto (Hispanic)¹⁴. HABITS: Feeds on small frogs, fruits, insects (ants, beets, grasshoppers, wasps), small reptiles, seeds and spiders. Nests are spheroid masses made up of grasses and straw and lined with feathers and hair and located in cacti, yuccas and thorny bushes. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (042312 - subsp. *couesi* (Sharpe), color presentation), 20, 42 (061912), 55, 69, 73, 84, 90, 93, 106 (042312 - color presentation), **MBJ** (correspondence dated May 13, 2013)*

Turdidae: The Bluebird, Solitaire and Thrush Family

***Turdus migratorius* Linnaeus, 1766: American Robin**

COMMON NAMES: American Robin; Merle d'Amérique (French)⁴²; Mirlo Primavera (Spanish)⁴²; North American Robin; Ope'chee ('the Robin' Longfellow's *Hiawatha*); Primavera (Hispanic)¹⁴; Robin. HABITS: Feeds on berries, earthworms, fruits, insects (caterpillars, beetle grubs, grasshoppers), small mollusks, seeds, snails and spiders. Nests are bowls made up of feathers, grasses, rootlets and small twigs and walled with mud, fine grass and soft materials; the nests are located in the forks or on the branches of shrubs or trees. The average life span for the American Robin is 2 years with 14 years being the longest lifespan known for this species. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (061012 - subsp. *migratorius*; subsp. *propinquus* (Ridgway), color presentation), 20, 42 (061912), 55, 69, 73, 84, 90, 93, 106 (061012 - includes a listing of subspecies, color presentation), 153, **MBJ** (correspondence dated May 13, 2013)*

CLASS MAMMALIA: The MAMMALS

Antilocapridae: The Pronghorn Family

***Antilocapra americana* (Ord, 1815): Pronghorn**

COMMON NAMES: American Pronghorn (*A.a. americana* (Ord, 1815) - Valid); Antelope; Berrendo (Spanish)⁴²; Chihuahuan Pronghorn (*A.a. mexicana* Merriam, 1901 - Valid); Chihuahuan Pronghorn Antelope (*A.a. mexicana* Merriam, 1901); Mexican Pronghorn (*A.a. mexicana* Merriam, 1901 - Valid); Peninsular Pronghorn (*A.a. peninsularis* Nelson, 1912 - Valid); Prong Buck; Prong-horn; Pronghorn; Pronghorn Antelope; Prong-horned Antelope; Sonoran Pronghorn (*A.a. sonoriensis* Goldman, 1945 - Valid); Sonoran Pronghorn Antelope (*A.a. sonoriensis* Goldman, 1945 - Valid). HABITS: Feeds on cacti, forbs, grasses and shrubs. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: A pioneer of Tucson, Arizona, states that in the early days it was not uncommon to have bands of antelope circling the wagon on the trip between Tucson and Nogales.⁶⁵ *8, 14 (042312 - subsp. *americana* (Ord); subsp. *mexicana* Merriam, 1901; subsp. *sonoriensis* Goldman, 1945, color presentation of *Antilocapra americana americana*), 42 (061912), **55** (recorded as *Antilocapra americana* Ord. Prong-horned Antelope. Formerly widely distributed in grassland areas throughout the state; presently restricted to areas of favorable habitat.), **65** (*Antilocapra americana mexicana*), **73**, 106 (042312 - includes a listing of subspecies, color presentation), 100 (color photograph), 110 (Sonoran Pronghorn (*Antilocapra americana sonoriensis*): Historic Range: Southwest Arizona, south of the Bill Williams River and east to the Santa Cruz River. In Mexico, the northern part of the State of Sonora.), **118** (recorded as *Antilocapra americana americana*

(Ord) - Distribution: mapping and records for northeastern and northwestern Arizona; *Antilocapra americana mexicana* Merriam - Distribution: Southeastern Arizona, and *Antilocapra americana sonoriensis* Goldman - Distribution: Southwestern Arizona. Figure 111, Page 255), 148 (color presentation)*

***Antilocapra americana* subsp. *mexicana* Merriam, 1901: Chihuahuan Pronghorn**

COMMON NAMES: "Antelope"; Chihuahuan Pronghorn; Chihuahuan Pronghorn Antelope; Mexican Pronghorn; Prong-horn; Pronghorn, Pronghorn Antelope; Prong-horned Antelope. HABITS: The species feeds on cacti, forbs, grasses and shrubs. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. NOTES: EXTIRPATED from southeastern Arizona, several reintroductions have taken place. A pioneer of Tucson, Arizona, states that in the early days it was not uncommon to have bands of antelope circling the wagon on the trip between Tucson and Nogales.⁶⁵ *8 (Historically throughout south-eastern and south-central Arizona.), 14 (042312 - subsp. *americana* (Ord); subsp. *mexicana* Merriam, 1901; subsp. *sonoriensis* Goldman, 1945, color presentation of *Antilocapra americana americana*. Historically occurred in grass-shrub valleys and grasslands of southeastern and south-central Arizona), 42 (061912), 55 (species: recorded as *Antilocapra americana* Ord. Prong-horned Antelope. Formerly widely distributed in grassland areas throughout the state; presently restricted to areas of favorable habitat.), 65 (A pioneer of Tucson, Arizona, states that in the early days it was not uncommon to have bands of antelope circling the wagon on the trip between Tucson and Nogales.), 73 (species), 100 (color photograph of species), 106 (042312), 118 (recorded as *Antilocapra americana mexicana* Merriam - Distribution: Southeastern Arizona. Figure 111, Page 255), 148 (color presentation)*

Bovidae: The Cow, Sheep and Allies Family

***Bison bison* (Linnaeus, 1758): American Bison**

SYNONYMY: *Bos bison* Linnaeus, 1758. COMMON NAMES: American Bison; American Buffalo; American Plains Bison (*B.b. bison* (Linnaeus, 1758) - Valid); American Wood Bison (*B.b. athabasca* Rhoads, 1898 - Valid; *B.b. bison* (Linnaeus, 1758) - Valid); Ancient Bison (*Bison bison antiquus* - Invalid; *Bison antiquus* Leidy, 1852 - Valid); Bison (*B.b. bison* (Linnaeus, 1758) - Valid); Bisonte (Hispanic)¹⁴; Bisonte Americano (Spanish)⁴²; Buffalo; Cibolas (term used to refer to the Buffalo and Buffalo-hunting Indians by early Mexican and Spanish explorers)¹⁴; Mountain Bison; Pezhekee' ('the Bison' Longfellow's Hiawatha; Pemi'can is the meat of the deer or buffalo dried and pounded); Plains Bison (*B.b. bison* (Linnaeus, 1758) - Valid); Prairie Bison; Tatanka (Lakota Sioux); Wood Bison (*B.b. athabasca* Rhoads, 1898 - Valid; *B.b. bison* (Linnaeus, 1758) - Valid); Woodland Bison; Zu-ke-ta kah-noo-nah (used by the Indians for the smaller southern Buffalo, Texas and the Pecos Valley)¹⁴; Zu-ta kah-noo-nah (used by the Indians for the larger northern Buffalo, ranged from the Arkansas River and northward)¹⁴. HABITS: Feeds on grasses and sedges and other herbaceous vegetation to about 5 feet in height. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Native to North America. Herds have been reduced from an estimated 30 to 200 million head in the mid-1800's to around 350,000 head at present (mostly animals being raised for human consumption) with possibly fewer than 4,000 head (brought up from fewer than 550 Plains Bison in the United States) being continuously "free-roaming" animals. The American Bison (*Bison bison*) is a direct descendant of the Ancient Bison (*Bison antiquus* Leidy, 1852) which was once hunted by the Clovis peoples along the San Pedro River in southern 'Arizona'. *8 (according to BISON-M the Arizona Game and Fish Department, Heritage Data Management System, Bison bison has been listed under the Natural Heritage Arizona State Rank "SRFSE" ("SRF" = "State Reported Falsely"; "SE" = "State Exotic"), 14 (042312 - recorded as *Bos bison* (Linnaeus) color presentation), 42 (072112), 55 (no record of species), 63 (052809), 73, 100, 106 (032213 - includes a listing of subspecies and a separate record for *Bison antiquus* Leidy, 1852, color presentation), 118 (included in the Hypothetical List of Mammals possibly occurring in Arizona, satisfactory record of which is lacking. *Bison bison* subsp. (unnamed). "Although Coues (1867) indicated that buffalo "formerly ranged over Arizona - now absent," there is no good evidence that they occurred in the state within historic times except as introductions (for example see Bailey, 1935:1)."), 148 (color presentation), 153*

Bos bison (see *Bison bison*)

***Ovis canadensis* Shaw, 1804: Rocky Mountain Bighorn Sheep**

COMMON NAMES: American Bighorn; Audubon's Bighorn Sheep (*O.c. auduboni* Merriam, 1901 - Invalid?, extinct circa 1925); Badlands Bighorn (*O.c. auduboni* Merriam, 1901 - Invalid?); Berrego Cimarron (Hispanic)¹⁴; Berrego Cimarron del Desierto (Hispanic); Big Horn; Bighorn; Bighorn Sheep (*O.c. canadensis* Shaw, 1804 - Invalid?); Borrego Cimarrón (Spanish)⁴²; California Bighorn Sheep (*O.c. californiana* Douglas, 1829 - Invalid?); Desert Bighorn (*O.c. mexicana* Merriam, 1901 - Invalid?); *O.c. nelsoni* Merriam, 1897 - Invalid?); Desert Bighorn Sheep (*O.c. mexicana* Merriam, 1901 - Invalid?); *O.c. nelsoni* Merriam, 1897 - Invalid?); Mexican Bighorn Sheep (*O.c. mexicana* Merriam, 1901 - Invalid?); Mountain Sheep; Nelson's Bighorn Sheep (*O.c. nelsoni* Merriam, 1897 - Invalid?); Peninsular Bighorn Sheep (*O.c. cremnobates* Elliot, 1904 - Invalid?); Rocky Mountain Bighorn (*O.c. canadensis* Shaw, 1804 - Invalid?); Rocky Mountain Bighorn Sheep (*O.c. canadensis* Shaw, 1804 - Invalid?); Sierra Nevada Bighorn (*O.c. sierrae* Grinnell, 1912 - Invalid?); Sierra Nevada Bighorn Sheep (*O.c. sierrae* Grinnell, 1912 - Invalid?); Texas Big Horn Sheep; Texas Bighorn Sheep; Weems' Bighorn Sheep (*O.c. weemsi* Goldman, 1937 - Invalid?). HABITS: Feeds on agave, brittle bush, bursage, bush muhly, cacti, catclaw, cholla, coffeeberry, desert fluffgrass, desert ironwood, desert thorn, fairy duster, filaree, galleta, grama, jojoba, mesquite, mallow, Nevada joint fir, plantain, prickly-pear,

ratany, ricegrass, saguaro, saltbush, threeawn and turpentine broom. Young are dropped in small scraped out depressions located in protected places on inaccessible peaks. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042312 - subsp. *canadensis*, color presentation; subsp. *mexicana* (Merriam), color presentations; subsp. *nelsoni*), 42 (061912 - no subspecies listed), 55 (recorded as *Ovis canadensis* Shaw. Bighorn. Probably formerly statewide in mountainous or rocky situations; presently restricted to scattered low desert mountains.), 65, 73, 100 (color photograph), 106 (042312 - listing of subspecies, color presentation), 118 (recorded as *Ovis canadensis mexicana* Merriam - Distribution: Probably formerly statewide in mountainous situations. Figure 112, Page 257), 148 (color presentation)*

***Ovis canadensis* subsp. *mexicana* Merriam, 1901 - Invalid?: Desert Bighorn Sheep**

COMMON NAMES: Berrego Cimarron del Desierto (Hispanic)¹⁴; Big Horn; Bighorn; Bighorn Sheep; Desert Bighorn; Desert Bighorn Sheep; Mexican Bighorn Sheep; Mountain Sheep. HABITS: The species feeds on agave, brittle bush, bursage, bush muhly, cacti, catclaw, cholla, coffeeberry, desert fluffgrass, desert ironwood, desert thorn, fairy duster, filaree, galleta, grama, jojoba, mesquite, mallow, Nevada joint fir, plantain, prickly-pear, ratany, ricegrass, saguaro, saltbush, threeawn and turpentine broom; young are dropped in small scraped out depressions located in protected places on inaccessible peaks. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042312 - subsp. *canadensis*, color presentation; subsp. *mexicana* (Merriam), color presentations; subsp. *nelsoni*), 42 (061912 - no subspecies listed), 55 (species: recorded as *Ovis canadensis* Shaw. Bighorn. Probably formerly statewide in mountainous or rocky situations; presently restricted to scattered low desert mountains.”), 65 (species), 73 (species), 100 (color photograph of species, species record), 106 (042312 - color presentation of species), 118 (recorded as *Ovis canadensis mexicana* Merriam - Distribution: Probably formerly statewide in mountainous situations. Figure 112, Page 257), 148 (color presentation)*

Canidae: The Dog and Allies Family

***Canis latrans* Say, 1823: Coyote**

COMMON NAME: American Jackal; Barking Coyote; Belize Coyote (*C.I. goldmani* Merriam, 1904 - Valid); California Valley Coyote (*C.I. ochropus* Eschscholtz, 1829 - Valid); Colima Coyote (*C.I. vigilis* Merriam, 1897 - Valid); Coyote (English, French, Hispanic, Spanish: derived from the Náhuatl word “cōyotl”^{14,42,106}); Durango Coyote (*C.I. impavidus* J.A. Allen, 1903 - Valid); Honduras Coyote (*C.I. hondurensis* Goldman, 1936 - Valid); Lower Rio Grande Coyote (*C.I. microdon* Merriam, 1897 - Valid); Mearns Coyote (*C.I. mearnsi* Merriam, 1897 - Valid); Mexican Coyote (*C.I. cagotis* C.E.H. Smith, 1839 - Valid); Mountain Coyote (*C.I. lestes* Merriam, 1897 - Valid); Northeastern Coyote (*C.I. thamnos* Jackson, 1949 - Valid); Northern Coyote (*C.I. incolatus* Hall, 1934 - Valid); Northwest Coast Coyote (*C.I. umpquensis* Jackson, 1949 - Valid); Peninsula Coyote (*C.I. peninsulae* Merriam, 1897 - Valid); Plains Coyote (*C.I. latrans* Say, 1823 - Valid); Prairie Wolf; San Pedro Martir Coyote (*C.I. clepticus* Elliot, 1903 - Valid); Salvador Coyote (*C.I. dickeyi* Nelson, 1932 - Valid); Southeastern Coyote (*C.I. frustor* Woodhouse, 1851 - Valid); Texas Plains Coyote (*C.I. texensis* Bailey, 1905 - Valid); Tiburón Island Coyote (*C.I. jamesi* Townsend, 1912 - Valid). HABITS: Feeds on amphibians, berries, birds, carrion, fruits, gophers, insects, mice, rabbits, reptiles and squirrels. The young are born in dens that may be dug in the ground or located in caves. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042412 - subsp. *lestes* (Merriam); subsp. *mearnsi* (Merriam); subsp. *texensis* (V. Bailey), color presentation), 42 (061912), 55 (recorded as *Canis latrans* Say. Coyote. Statewide (120 - 9,100 feet).), 65 (color photograph), 73, 100 (color photograph), 106 (042412 - includes a listing of subspecies, color presentation), 118 (recorded as *Canis latrans mearnsi* Merriam - Distribution: Statewide. Figure 87, Page 217), 148 (color presentation), **HR***

***Canis latrans* subsp. *mearnsi* Merriam, 1897: Coyote**

COMMON NAMES: Coyote; Mearns Coyote. HABITS: The species feeds on amphibians, berries, birds, carrion, fruits, gophers, insects, mice, rabbits, reptiles and squirrels. The young are born in dens that may be dug in the ground or located in caves. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042412 - subsp. *lestes* (Merriam); subsp. *mearnsi* (Merriam); subsp. *texensis* (V. Bailey), color presentation of species), 42 (061912), 55 (species: recorded as *Canis latrans* Say. Coyote. Statewide (120 - 9,100 feet).), 65 (color photograph of species, species record), 73 (species), 100 (color photograph of species, species record), 106 (042412 - species, color presentation of species), 118 (recorded as *Canis latrans mearnsi* Merriam - Distribution: Statewide. Figure 87, Page 217), 148 (color presentation)*

***Canis lupus* Linnaeus, 1758: Gray Wolf**

COMMON NAMES: Buffalo Wolf (*C.I. nubilus* Say, 1823 - Valid); Common Wolf; Domestic Dog (*C.I. familiaris* Linnaeus, 1758 - Valid); Dusky Wolf (*C.I. nubilus* Say, 1823 - Valid); Gray Wolf; Grey Wolf; Intermountain Gray Wolf; Great Plains Wolf (*C.I. nubilus* Say, 1823 - Valid); Intermountain Gray Wolf; Lobo (Spanish)⁶⁵; Lobo Gris (Hispanic)¹⁴; Lobo Gris (Spanish)⁴²; Lobo Mexicano (Hispanic: applied to *C.I. baileyi* Nelson and Goldman, 1929 - Valid)¹⁴; Loup (French)⁴²; Mexican Gray Wolf (*C.I. baileyi* Nelson and Goldman, 1929 - Valid); Mexican Grey Wolf (*C.I. baileyi* Nelson and Goldman, 1929 - Valid); Mexican Wolf (*C.I. baileyi* Nelson and Goldman, 1929 - Valid); Northern Plains Gray Wolf (*C.I. nubilus* Say, 1823 -

Valid); Southern Rocky Mountain Wolf (*C.l. youngi* Goldman, 1937 - Valid); Southern Rocky Mountain Gray Wolf (*C.l. youngi* Goldman, 1937 - Valid); Timber Wolf; Wolf. HABITS: Feeds on berries, birds, fish, fruits, insects, deer, elk, javelina, livestock, small mammals, bighorn sheep, pronghorn and rabbits. Maternity dens are chambers without nests usually located in the ground on high ground, under rock ledges, slopes of canyon walls or hills near water. HABITAT: Within the range of this species it has been reported from forest, woodland, grassland and wetland ecological formations. NOTES: The Mexican Gray Wolf is the smallest subspecies of gray wolf in North America. This wolf generally avoids desert areas. At one time the Mexican Gray Wolf was extirpated from Arizona; however, successful re-introduction efforts are bringing it back from near extinction. *8, 14 (042412 - subsp. *baileyi* Nelson and Goldman; subsp. *nubilus* Say; subsp. *youngi* Goldman, color presentation), 42 (061912), 55 (recorded as *Canis lupus* Frisch. Gray Wolf. Formerly throughout the eastern portions of the state, at present rare or approximately extinct.), 73, 100 (color photograph), 106 (042312 - includes a listing of subspecies, color presentation), 110 (recorded as *Canis lupus baileyi* - shows the historic range as being roughly that portion of Pima County east of the Tohono O'odham Nation), 118 (recorded as *Canis lupus baileyi* Nelson and Goldman - Distribution: Southeastern Arizona. Figure 88, Page 219), 148 (color presentation)*

***Canis lupus* subsp. *baileyi* Nelson and Goldman, 1929: Mexican Gray Wolf**

COMMON NAMES: Lobo (Spanish)⁶⁵; Lobo Mexicano (Hispanic)¹⁴; Mexican Gray Wolf; Mexican Grey Wolf; Mexican Wolf. HABITS: Feeds on berries, birds, fish, fruits, insects, deer, elk, javelina, livestock, small mammals, bighorn sheep, pronghorn and rabbits. Maternity dens are chambers without nests usually located in the ground on high ground, under rock ledges, slopes of canyon walls or hills near water. HABITAT: Within the range of this species it has been reported from forest, woodland, grassland and wetland ecological formations. NOTES: The Mexican Gray Wolf is the smallest subspecies of gray wolf in North America. This wolf generally avoids desert areas. At one time the Mexican Gray Wolf was extirpated from Arizona; however, successful re-introduction efforts are bringing it back from near extinction. *8, 14 (0042412 - subsp. *baileyi* Nelson and Goldman; subsp. *nubilus* Say; subsp. *youngi* Goldman, color presentation), 42 (061912), 55 (species: recorded as *Canis lupus* Frisch. Gray Wolf. Formerly throughout the eastern portions of the state, at present rare or approximately extinct.), 73 (species), 100 (species, color photograph of species), 106 (042312 - species, color presentation of species), 110 (recorded as *Canis lupus baileyi* - shows the historic range as being roughly that portion of Pima County east of the Tohono O'odham Nation), 118 (recorded as *Canis lupus baileyi* Nelson and Goldman - Distribution: Southeastern Arizona. Figure 88, Page 219), 148 (color presentation)*

***Urocyon cinereoargenteus* (Schreber, 1775): Common Gray Fox**

COMMON NAMES: Arizona Gray Fox (*U.c. scottii* Mearns, 1891 - Valid); Common Gray Fox; Gray Fox; Renard Gris (French)⁴²; Scott's Gray Fox (*U.c. scottii* Mearns, 1891 - Valid); Southern Gray Fox (*U.c. scottii* Mearns, 1891 - Valid); Zorra Gris (Hispanic)¹⁴; Zorra Gris (Spanish)⁴². HABITS: The species feeds on birds, desert cottontails, hackberry and prickly-pear fruits, grasses, insects (crickets and grasshoppers), juniper berries, lizards, manzanita berries, nuts, small rodents and snakes. Nests are made of bark, grasses and leaves and located in underground burrows, small caves, piles of rock, amongst boulders, crevices in cliffs and in hollows in trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: The Gray Fox climbs trees. *14 (042412 - subsp. *scottii* (Mearns), color presentation), 42 (061912), 55 (recorded as *Urocyon cinereoargenteus* (Schreber). Gray Fox. Statewide with the possible exception of the northeast portion (120 - 5,800 feet).), 65 (species, color photograph), 73, 100 (color photograph), 106 (042412 - includes a listing of subspecies, color presentation), 118 (recorded as *Urocyon cinereoargenteus scottii* Mearns - Distribution: Probably statewide. Figure 90, Page 222), 148 (color presentation)*

***Urocyon cinereoargenteus* subsp. *scottii* Mearns, 1891: Common Gray Fox**

COMMON NAMES: Arizona Gray Fox; Common Gray Fox; Gray Fox; Scott's Gray Fox; Southern Gray Fox; Zorra Gris (Hispanic)¹⁴. HABITS: The species feeds on birds, desert cottontails, hackberry and prickly-pear fruits, grasses, insects (crickets and grasshoppers), juniper berries, lizards, manzanita berries, nuts, small rodents and snakes. Nests are made of bark, grasses and leaves and located in underground burrows, small caves, piles of rock, amongst boulders, crevices in cliffs and in hollows in trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: The Gray Fox climbs trees. *14 (042412 - subsp. *scottii* (Mearns), color presentation of species), 42 (061912), 55 (species: recorded as *Urocyon cinereoargenteus* (Schreber). Gray Fox. Statewide with the possible exception of the northeast portion (120 - 5,800 feet).), 65 (species, color photograph of species), 73 (species), 100 (species, color photograph of species), 106 (042412 - species), 118 (recorded as *Urocyon cinereoargenteus scottii* Mearns - Distribution: Probably statewide. Figure 90, Page 222), 148 (color presentation)*

***Vulpes macrotis* Merriam, 1888: Kit Fox**

COMMON NAMES: Kit Fox; Desert Kit Fox (*V.m. arispus* Elliot, 1904 - Invalid?); Large-eared Kit Fox (*V.m. macrotis* Merriam, 1888 - Invalid); San Joaquin Kit Fox (*V.m. mutica* Merriam, 1902 - Invalid); Southern California Kit Fox (*V.m. macrotis* Merriam, 1888 - Invalid: extinct circa 1903); Swift-footed Fox (*V.m. arispus* Elliot, 1904 - Invalid?); Zorra del Desierto (Hispanic)¹⁴. HABITS: Feeds on berries, birds, cottontail rabbits, crickets, grasses, grasshoppers, ground squirrels, jack rabbits, kangaroo rats, lizards and pocket mice. The young are born in dens in underground burrows that have been excavated in soft soils. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Vulpes velox* (Say, 1823): The Swift Fox is generally considered a separate species by

most authors. *14 (042412 - subsp. *macrotis* (Merriam); subsp. *neomexicanus* (Merriam)), 42 (061912), 55 (recorded as *Vulpes macrotis* Merriam. Kit Fox. Widely distributed at lower elevations throughout the southern part of the state (120 - 5,000 feet.), 65, 73, 100 (color photograph), 106 (042412 - color presentation), 118 (recorded as *Vulpes macrotis arispus* Elliot - Distribution: Lower elevations in western and southern part of the state; *Vulpes macrotis neomexicana* Merriam - Distribution: Extreme southeastern Arizona. Figure 89, Page 220), 148 (color presentation)*

***Vulpes macrotis* subsp. *arispus* Elliot - Invalid?, 1904: Kit Fox**

COMMON NAMES: Desert Kit fox; Kit Fox; Swift-footed Fox; Zorra del Desierto (Hispanic)¹⁴. HABITS: The species feeds on berries, birds, cottontail rabbits, crickets, grasses, grasshoppers, ground squirrels, jack rabbits, kangaroo rats, lizards and pocket mice. The young are born in dens in underground burrows that have been excavated in soft soils. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: *Vulpes velox* (Say, 1823): The Swift Fox is generally considered a separate species by most authors. *14 (042412 - subsp. *macrotis* (Merriam); subsp. *neomexicanus* (Merriam)), 42 (061912), 55 (species: recorded as *Vulpes macrotis* Merriam. Kit Fox. Widely distributed at lower elevations throughout the southern part of the state (120 - 5,800 feet.) 65 (species), 73 (species), 100 (color photograph of species), 106 (042412 - species, color presentation of species), 118 (recorded as *Vulpes macrotis arispus* Elliot - Distribution: Lower elevations in western and southern part of the state. Figure 89, Page 220), 148 (color presentation)*

Vulpes velox (see NOTE under *Vulpes macrotis*, *Vulpes macrotis arispus* and/or *Vulpes macrotis macrostis*)

Castoridae: The Beaver Family

***Castor canadensis* Kuhl, 1820: American Beaver**

COMMON NAMES: Admiralty Beaver (*C.c. phaeus* Heller, 1909 - Invalid?); Ahmeek' ('the Beaver' Longfellow's *Hiawatha*); American Beaver; Bank Beaver; Beaver; Canadian Beaver (*C.c. canadensis* Kuhl, 1820 - Invalid?); Carolina Beaver (*C.c. carolinensis* Rhoads, 1898 - Invalid?); Castor (French)⁴²; Castor (Hispanic)¹⁴; Castor Americano (Spanish)⁴²; Castor Cat; Colorado Beaver (*C.c. concisor* Warren and Hall, 1939 - Invalid?); Cook Inlet Beaver (*C.c. belugae* Taylor, 1916 - Invalid?); Flat Tail; Missouri River Beaver (*C.c. missouriensis* Bailey, 1919 - Invalid?); New England Beaver (*C.c. acadicus* Bailey, 1942 - Invalid?); North American Beaver; Pacific Beaver (*C.c. leucodonta* Gray, 1869 - Invalid?); Rio Grande Beaver (*C.c. mexicanus* Bailey, 1913 - Invalid?); Sonora Beaver (*C.c. frondator* Mearns, 1897 - Invalid?); Texas Beaver (*C.c. texensis* Bailey, 1905 - Invalid?); Washington Beaver (*C.c. pacificus* Rhoads, 1898 - Invalid?); Woods Beaver (*C.c. michiganensis* Bailey, 1913 - Invalid?). HABITS: Feeds on bark, branches, buds, leaves or needles and twigs of alder, aspen, birch, cattail, cottonwood, maple, mesquite, tamarix and willow, and the roots of pond lilies and other tuberous plants; kits are born in lodges or dens dug into banks, nest materials include stalks and leave of tules, sedges, herbs and fine rootlets. HABITAT: Within the range of this species it has been reported that riparian habitats are required with beaver reported from creeks, streams, rivers, marshes, ciénegas, ponds and lakes in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Donald F. Hoffmeister noted in *Mammals of Arizona* that "Beaver in Arizona attempt to colonize some streams that are exceedingly small or have a very limited flow of water."¹⁴⁵ Beaver dams help reduce erosion, collect and retain organic matter and sediment and raise water tables (Las Cienegas National Conservation Area, Appendix 1, Chapter 3). Beaver dams may help to reduce flooding and provide habitat for other animals including otters and waterfowl. The full moon in November was called the 'Beaver Moon' by the earliest native peoples of northeastern North America because the beaver used the light to this moon to strengthen their dams and lodges in preparation for winter. The extent of the historical distribution of the American Beaver in Pima County is unknown; however, it has been reported that the Tohono O'odham people hunted and ate beaver. *14 (042412 - subsp. *concolor* (Warren and Hall); subsp. *frondator* Mearns; subsp. *missouriensis* V. Bailey; subsp. *mexicanus* V. Bailey), 42 (061912 - no subspecies listed), 49, 55 (recorded as *Castor canadensis* Kuhl. Beaver. formerly widespread in all of the permanent streams of the state; now restricted in distribution), 73, 100 (color photograph), 106 (042412 - includes a listing of subspecies, color presentation. "Early American exploration of the San Pedro River, like most rivers in western North America, was driven by the pursuit of beaver pelts. James Ohio Pattie and his father led a party of fur trappers down the Gila River and then down the San Pedro River in 1826 which was so successful that he called the San Pedro the Beaver River. [2] In the 19th century the river was a meandering stream with fluvial marshlands, riparian forest, *Sporobolus* grasslands and extensive beaver ponds. As the beaver were removed by fur trapping and cattle denuded the riparian vegetation, the river down-cut and then widened in a process of arroyo formation observed on many rivers in the Southwest.^[9] The beaver were finally extirpated by 1920's dynamiting of the beaver dams from soldiers from Fort Huachuca to prevent malaria. By the mid-20th century the once perennial river only flowed during the rainy season and beaver, fluvial marshlands and *Sporobolus* grasslands were uncommon.^{[9][10]} Physician naturalist Edgar Alexander Mearns' 1907 *Mammals of the Mexican boundary of the United States* reported beaver (*Castor canadensis*) on the San Pedro River and Babocomari Creek.^[11] Mearns claimed that the San Pedro River beaver represented a new subspecies *Castor canadensis frondator* or "Sonora beaver" that ranged from Mexico up to Wyoming and Montana.^[12]" from Wikipedia: [San Pedro River, Arizona](#), 118 (recorded as *Castor canadensis repentinus* Goldman - Distribution: Formerly in the Colorado River from the Grand Canyon southward to Mexico and *Castor canadensis frondator* Mearns - Distribution: Formerly San Pedro and Gila River drainages. Figure 60, Page 155), 143 (note on the Tohono O'odham hunting beaver and included beaver in their diet), 148 (color presentation), 153, ADS (on-line September 9, 2012, reprint of a

Tucson Citizen article dated August 14, 1969. Tucson Tails: Unfamiliar Critter is Beaver - included the following statement “A historian reports the Santa Cruz “was all of 10 feet deep in the early days when Father Kino was establishing the San Xavier Mission. And during days of drought, deep holes in the river provided enough water to prevent the beavers’ extinction.””), WTK (The headwaters of the Babocomari River, Cienega Creek and Sonoita Creek are located near Sonoita, Arizona. With the Beaver being plentiful in the San Pedro and Babocomari Rivers it would seem possible that they were also present in the Cienega Creek, which flows into the Pantano and Rillito Creeks, and the Sonoita Creek, which flows into the Santa Cruz River, which in turn flow into the Gila and Salt Rivers.), MIX FM (94.9 MIX fm, November 28, 2012, Bobby Rich Morning Mix: Beaver Moon)*

Cervidae: The Deer and Allies Family

Cervus canadensis (see *Cervus elaphus*)

Cervus canadensis subsp. *merriami* (see *Cervus elaphus* subsp. *merriami*)

***Cervus elaphus* Linnaeus, 1758: Elk (in Pima County report ONLY for the higher forested mountains and adjacent lower elevation wetlands)**

SYNONYMY: *Cervus canadensis* Linnaeus, 1758 / (Erxleben, 1777) - Invalid, *Cervus Cervus elaphus canadensis* Erxleben, 1777 - Valid. COMMON NAMES: Ala-Shan Wapiti (*C.e. (Cervus canadensis) alashanicus* Bobrinski and Flierov, 1935 - Invalid?); Alashan Wapiti (*C.e. (Cervus canadensis) alashanicus* Bobrinski and Flierov, 1935- Invalid?); Altai Maral (*C.e. sibirica (Cervus canadensis sibiricus)* Severtzov, 1873 - Invalid?)^{106,148}; Altai Wapiti (*C.e. (Cervus canadensis) asiaticus* Severtzov, 1873 / Lydekker, 1898 - Invalid?); American Elk; Arizona Wapiti (*C.e. (Cervus canadensis) merriami* Nelson, 1902 - Invalid?: extinct circa 1923); Atlantica Deer (*C.e. atlanticus* Lonnberg, 1906 - Invalid?); Atlas Deer (*C.e. barbarus* Bennett, 1848 - Valid); Austria Deer (*C.e. austriacus* - Invalid?); Bactrian Deer (*C.e. bactrianus* Lydekker, 1900 - Invalid?); Baikal Wapiti (*C.e. (Cervus canadensis) baicalensis* Lydekker, 1915 - Invalid?; *C.e. (Cervus canadensis) isubra* Noack, 1889 - Invalid?)¹⁴⁸; Baltic Deer (*C.e. balticus* Matschie, 1907 - Invalid?); Barasingha Deer (*C.e. hanglu* Wagner, 1844 - Valid); Barbary Deer (*C.e. barbarus* Bennett, 1848 - Valid); Barbary Stag (*C.e. barbarus* Bennett, 1848 - Valid); Bukharian Deer (*C.e. bactrianus* Lydekker, 1900 - Invalid?); California Wapiti (*C.e. (Cervus canadensis) nannodes* Merriam, 1905 - Invalid?); Canadian Wapiti (*C.e. (Cervus canadensis) roosevelti* Merriam, 1897 - Invalid?); Carpathian Red Deer (*C.e. carpathicus* Tatarinov, 1956 - Invalid?); Carpathian Red Deer (*C.e. hippelaphus* Kerr, 1792 - Invalid?); Caspian Red Deer (*C.e. maral* Ogilby, 1840 - Invalid?); Central European Red Deer (*C.e. hippelaphus* Kerr, 1792 - Invalid?); Ciervo Común (Spanish)⁴²; Common Red Deer (*C.e. elaphus* Linnaeus, 1758 - Valid); Corsican Red Deer (*C.e. corsicanus* Erxleben, 1777 - Invalid?); Dwarf Wapiti (*C.e. (Cervus canadensis) nannodes* Merriam, 1905 - Invalid?); Eastern Elk (*Cervus canadensis canadensis* Linnaeus, 1758 / (Erxleben, 1777) - Invalid?); Eastern Red Deer (*C.e. montanus* Botezat, 1903 - Invalid?); Elk; Hangul Deer (*C.e. hanglu* Wagner, 1844 - Valid); Hangul¹⁴⁸; Hangul (*C.e. (Cervus canadensis) hanglu* Wagner, 1844 - Valid)¹⁰⁶; Kansu Deer (*C.e. (Cervus canadensis) kansuensis* Pocock, 1912 - Invalid?); Kansu Red Deer (*C.e. (Cervus canadensis) kansuensis* Pocock, 1912 - Invalid?); Kashmir Deer (*C.e. hanglu* Wagner, 1844 - Valid); Kashmir Stag (*C.e. hanglu* Wagner, 1844 - Valid; *C.e. wallichii* G. Cuvier, 1823 - Invalid?); MacNeill’s Deer (*C.e. (Cervus canadensis) macneilli* Lydekker, 1909 - Invalid?); Manchurian Elk (*C.e. (Cervus canadensis) xanthopygus* Milne-Edwards, 1867 - Invalid?); Manchurian Wapiti (*C.e. (Cervus canadensis) xanthopygus* Milne-Edwards, 1867 - Invalid?)¹⁰⁶; Manitoba Elk (*C.e. (Cervus canadensis) manitobensis* Millais, 1915- Invalid?); Manitoban Elk (*C.e. (Cervus canadensis) manitobensis* Millais, 1915- Invalid?); Maral Deer (*C.e. maral* Ogilby, 1840 - Invalid?); Maral Red Deer (*C.e. maral* Gray, 1850 - Invalid?); Merriam’s Elk (*C.e. (Cervus canadensis) merriami* Nelson, 1902 - Invalid: extinct circa 1923); Merriam’s Wapiti (*C.e. (Cervus canadensis) merriami* Nelson, 1902- extinct circa 1923, Invalid?); Olympic Elk (*C.e. (Cervus canadensis) occidentalis* Hamilton Smith, 1827 - Invalid; *C.e. (Cervus canadensis) roosevelti* Merriam, 1897- Invalid?); Red Deer; Rocky Mountain Elk (*C.e. (Cervus canadensis) nelsoni* Bailey, 1935 - Invalid?); Rocky Mountain Wapiti (*C.e. (Cervus canadensis) nelsoni* Bailey, 1935 - Invalid?); Roosevelt Elk (*C.e. (Cervus canadensis) roosevelti* Merriam, 1897- Invalid?); Roosevelt Wapiti (*C.e. (Cervus canadensis) occidentalis* Hamilton Smith, 1827 - Invalid?; *C.e. (Cervus canadensis) roosevelti* Merriam, 1897- Invalid?); Roosevelt’s Wapiti (*C.e. (Cervus canadensis) roosevelti* Merriam, 1897- Invalid?); San Joaquin Valley Elk (*C.e. (Cervus canadensis) nannodes* Merriam, 1905 - Invalid?); Scottish Red Deer (*C.e. scoticus* Lonnberg, 1906 - Invalid?); Shingiel Red Deer (*C.e. (Cervus canadensis) wachei* Noack, 1902 - Invalid?); Short-faced Carpathian Red Deer (*C.e. campestris* Botezat, 1903 - Invalid?); Shou (*C.e. affinis* Hodgson, 1841 - Invalid?)¹⁴⁸; Shou (*C.e. (Cervus canadensis) wallichii* G. Cuvier, 1823 - Invalid?)¹⁰⁶; Shou Deer (*C.e. wallichii* G. Cuvier, 1823 - Invalid?); “Siberian Elk” (*C.e. sibirica (Cervus canadensis sibiricus)* Severtzov, 1873 - Invalid?); Sichuan Deer (*C.e. (Cervus canadensis) macneilli* Lydekker, 1909 - Invalid?); Sikkim Stag (*C.e. affinis* Hodgson, 1841 - Invalid?; *C.e. wallichii* G. Cuvier, 1823 - Invalid?); Spanish Red Deer (*C.e. hispanicus* Helzheimer, 1909 - Invalid?); Swedish Red Deer (*C.e. elaphus* Linnaeus, 1758 - Valid); Tian Shan Maral (*C.e. (Cervus canadensis) songaricus* Severtzov, 1873- Invalid?)¹⁰⁶; Tian Shan Wapiti (*C.e. (Cervus canadensis) songaricus* Severtzov, 1873 - Invalid?)¹⁰⁶; Tien-Shan Wapiti (*C.e. (Cervus canadensis) songaricus* Severtzov, 1873 - Invalid?)¹⁴⁸; Tibetan Red Deer (*C.e. wallichii* G. Cuvier, 1823 - Invalid?); Tule Elk (*C.e. (Cervus canadensis) nannodes* Merriam, 1905 - Invalid?); Venado Alazan (Hispanic)¹⁴; Wallich’s Deer (*C.e. wallichii* G. Cuvier, 1823 - Invalid?); Wapiti¹⁴; Wapiti (French: applied to *C.e. elaphus* Linnaeus, 1758 - Valid)⁴²; Western Elk (*C.e. (Cervus canadensis) occidentalis* Hamilton Smith, 1827 - Invalid?; *C.e. (Cervus canadensis) roosevelti* Merriam, 1897- Invalid?); Western European Red Deer (*C.e. carpathicus* Tatarinov, 1956 - Invalid?); Western European Red Deer (*C.e. elaphus* Linnaeus, 1758 - Valid); Yarkand Deer (*C.e. (Cervus canadensis) yarkandensis* Blanford, 1892 - Invalid?). HABITS: Feeds on

agaves (basal portions of fleshy leaves, green flower stalks and flowers); asters; bear grass; eriogonums; goosefoot; grasses; lupines; mushrooms; sedges, and other mountain plants and will browse aspen; cliffrose; conifer needles; manzanita; mountain mahogany; oak (acorns and leaves); rabbitbrush; sagebrush; serviceberry; snowberry, and willow. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The Elk known as *Cervus elaphus* subsp. *merriami*, which was native to Arizona, is now extinct with the last reported sighting being made in the White Mountains in 1923. This extinction was brought about by unregulated hunting. Merriam's Elk is believed to have been extirpated from New Mexico by 1900 and from Arizona in 1923. By 1913, *Cervus canadensis* subsp. *nelsoni*, were being transplanted into Arizona. *Cervus elaphus* is native to central and southern North America. *14 (042812 - subsp. *merriami* (Nelson); subsp. *nelsoni* (V. Bailey), color presentation), 42 (070313), 55 (recorded as *Cervus canadensis* (Erxleben). Elk. Formerly probably occurred in most of the higher mountains of the state; was exterminated and reintroduced (in 1913); presently occurs at higher elevations in the central part of the state.), 73, 100 (color photograph), 106 (061212 - includes a listing of subspecies, color presentation; there is a separate "page" for Wapiti - *Cervus canadensis* (Erxleben, 1777)), 118 (recorded as *Cervus canadensis merriami* Nelson - Distribution: Extinct; probably formerly occurred in most of the higher mountains of the state. Figure 108, Page 251, and *Cervus canadensis nelsoni* Bailey - Distribution: Introduced into Arizona (in 1913 and later) from Yellowstone National Park, Wyoming. Now established.), 148 (color photographs, including color photographs of many of the subspecies), 149*

***Cervus elaphus* subsp. *merriami* Nelson, 1902 - Invalid?: Merriam's Elk**

SYNONYMY: *Cervus canadensis* subsp. *merriami* Nelson, 1902 - Invalid?, 1902. COMMON NAMES: Arizona Wapiti; Merriam's Elk; Merriam's Wapiti; Wapiti¹⁴. HABITS: The species feeds on agaves (basal portions of fleshy leaves, green flower stalks and flowers); asters; bear grass; eriogonums; goosefoot; grasses; lupines; mushrooms; sedges, and other mountain plants and will browse aspen; cliffrose; conifer needles; manzanita; mountain mahogany; oak (acorns and leaves); rabbitbrush; sagebrush; serviceberry; snowberry, and willow. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations, this subspecies has been reported from forests and wetland ecological formations. NOTES: The Elk known as *Cervus elaphus* subsp. *merriami*, which was native to Arizona, is now extinct with the last reported sighting being made in the White Mountains in 1923. This extinction was brought about by unregulated hunting. Merriam's Elk is believed to have been extirpated from New Mexico by 1900 and from Arizona in 1923. By 1913, *Cervus canadensis* subsp. *nelsoni*, were being transplanted into Arizona. *14 (042812 - subsp. *merriami* (Nelson); subsp. *nelsoni* (V. Bailey)), 42 (061912 - no record of this subspecies), 55 (species: recorded as *Cervus canadensis* (Erxleben). Elk. Formerly probably occurred in most of the higher mountains of the state; was exterminated and reintroduced (in 1913); presently occurs at higher elevations in the central part of the state.), 73 (species), 100 (color photograph of species, species record), 106 (061312 - recorded as *Cervus elaphus: Cervus canadensis merriami*), 118 (recorded as *Cervus canadensis merriami* Nelson - Distribution: Extinct; probably formerly occurred in most of the higher mountains of the state. Figure 108, Page 251), 148, 149 (no record)*

***Odocoileus hemionus* (Rafinesque, 1817): Mule Deer**

COMMON NAMES: Black-tailed Deer (*O.h. columbianus* (Richardson, 1829) - Invalid?); *O.h. hemionus* (Rafinesque, 1817) - Valid; Blacktail Deer (*O.h. columbianus* (Richardson, 1829) - Invalid?); Burro (*Odocoileus hemionus crooki* Mearns, 1897 - Invalid?); Burro Mule Deer (*O.h. eremicus* Mearns, 1897 - Invalid?); California Mule Deer (*O.h. californicus* Caton, 1876 - Invalid?); Cedros Island Mule Deer (*O.h. cedrosensis* Merriam, 1898 - Invalid?); Cerros Island Mule Deer *O.h. cerrosensis* Merriam, 1898 - Valid); Columbian Black-tailed Deer (*O.h. columbianus* (Richardson, 1829) - Invalid?); Crook Black-tailed Deer (*O.h. crooki* Mearns, 1897 - Invalid?); Desert Mule Deer (*O.h. crooki* Mearns, 1897 - Invalid?); *O.h. eremicus* Mearns, 1897 - Invalid?); Inyo Mule Deer (*O.h. inyoensis* Cowan, 1933 - Invalid?); Mule Deer; Peninsula Mule Deer (*O.h. peninsulae* Lydekker, 1898 - Invalid?); Rocky Mountain Mule Deer (*O.h. hemionus* (Rafinesque, 1817) - Valid); Sitka Deer (*O.h. sitkensis* Merriam, 1898 - Invalid?); Sitka Black-tailed Deer (*O.h. sitkensis* Merriam, 1898 - Invalid?); Southern Mule Deer (*O.h. fuliginatus* Cowan, 1937 - Invalid?); Tiburon Island Mule Deer (*O.h. sheldoni* Goldman, 1939 - Invalid?); Venado Bura (Spanish)⁴²; Venado Pardo (Hispanic)¹⁴. HABITS: Feeds on acorns, beans, branches, fruits, leaves or needles, nuts, seeds and/or twigs of aspen, barberry, bitterbrush, blackberry, buckbrush, buckwheat, calliandra, ceanothus, catclaw, cedar, cliffrose, dogwood, Douglas fir, huckleberry, joint fir, jojoba, juniper, mountain mahogany, mountainlover, oak, pinyon, ponderosa pine, poplar, sagebrush, saltbush, serviceberry, thimbleberry, white fir, wild cherry, willow and yew, and grasses lupines, mistletoe, moss, mushrooms, salal, sedges and spurge. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042412 - subsp. *hemionus*; subsp. *crooki* (Mearns), color presentation), 42 (061912), 55 (recorded as *Odocoileus hemionus* (Rafinesque). Black-tailed or Mule Deer. Statewide, but not of uniform distribution (250 - 9,000 feet.), 65, 73, 100 (color photograph), 106 (042412 - includes a listing of subspecies, color presentation), 118 (recorded as *Odocoileus hemionus crooki* (Mearns) - Distribution: Northeastern, central and southeastern part of the state. Figure 109, Page 252), 148 (color presentation)*

***Odocoileus hemionus* subsp. *crooki* Mearns, 1897 - Invalid?: Mule Deer**

COMMON NAMES: Burro; Crook Black-tailed Deer; Desert Mule Deer; Mule Deer; Venado Pardo (Hispanic)¹⁴. HABITS: The species feeds on acorns, beans, branches, fruits, leaves or needles, nuts, seeds and/or twigs of aspen, barberry, bitterbrush, blackberry, buckbrush, buckwheat, calliandra, ceanothus, catclaw, cedar, cliffrose, dogwood, Douglas fir, huckleberry, joint fir, jojoba, juniper, mountain mahogany, mountainlover, oak, pinyon, ponderosa pine, poplar, sagebrush,

saltbush, serviceberry, thimbleberry, white fir, wild cherry, willow and yew, and grasses lupines, mistletoe, moss, mushrooms, salal, sedges and spurge. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042412 - subsp. *hemionus*; subsp. *crooki* (Mearns), color presentation of species), 42 (061912 - no record of this subspecies), 55 (species: recorded as *Odocoileus hemionus* (Rafinesque) Black-tailed or Mule Deer. Statewide, but not of uniform distribution (250 - 9,000 feet.), 65, 73 (species), 100 (species, color photograph of species), 106 (042412 - species, color presentation of species), **118** (recorded as *Odocoileus hemionus crooki* (Mearns) - Distribution: Northeastern, central and southeastern part of the state. Figure 109, Page 252), 148 (color presentation)*

***Odocoileus virginianus* (Zimmermann, 1780): White-tailed Deer**

COMMON NAMES: Acapulco White-tailed Deer (*O.v. acapulcensis* Caton, 1877 - Invalid?); Andean White-tailed Deer (*O.v. peruvianus* Gray, 1874 - Invalid?); Arizona White-tailed Deer (*O.v. couesi* Coues and Yarrow, 1875 - Invalid?); Arizona Whitetail (*O.v. couesi* Coues and Yarrow, 1875 - Invalid?); Avery Island White-tailed Deer (*O.v. mcilhennyi* F.W. Miller, 1928 - Invalid?); Blackbeard Island White-tailed Deer (*O.v. nigribarbis* Goldman and Kellogg, 1940 - Invalid?); Bulls Island White-tailed Deer (*O.v. taurinsulae* Goldman and Kellogg, 1940 - Invalid?); Carmen Mountains Jorge Deer (*O.v. carminis* Goldman and Kellogg, 1940 - Invalid?); Central American White-tailed Deer (*O.v. truei* Merriam, 1898 - Invalid?); Cerf de Virginie (French)⁴²; Chiapas White-tailed Deer (*O.v. nelsoni* Merriam, 1898 - Invalid?); Chiriqui White-tailed Deer (*O.v. chiriquensis* J.A. Allen, 1904 - Invalid?); Coiba Island White-tailed Deer (*O.v. rothschildi* Thomas, 1902 - Invalid?); Columbian White-tailed Deer (*O.v. leucurus* (Douglas, 1929) - Valid); Coues White-tailed (*O.v. couesi* Coues and Yarrow, 1875 - Invalid?); Coues White-tailed Deer (*O.v. couesi* Coues and Yarrow, 1875 - Invalid?); Coues' Deer (*O.v. couesi* Coues and Yarrow - Invalid?); Coues' White-tailed Deer (*O.v. couesi* Coues and Yarrow, 1875 - Invalid?); Dakota White-tailed Deer (*O.v. dacotensis* Goldman and Kellogg, 1940 - Invalid?); Desert Whitetail (*O.v. couesi* Coues and Yarrow, 1875 - Invalid?); Fantail (*O.v. couesi* Coues and Yarrow, 1875 - Invalid?); Fantail Deer (*O.v. couesi* Coues and Yarrow, 1875 - Invalid?); Florida Coastal White-tailed Deer (*O.v. osceola* Bangs, 1896 - Invalid?); Florida Keys White-tailed Deer (*O.v. clavium* Barbour and Allen, 1922 - Valid); Florida White-tailed Deer (*O.v. seminolus* Goldman and Kellogg, 1940 - Invalid?); Hilton Head Island White-tailed Deer (*O.v. hiltonensis* Goldman and Kellogg, 1940 - Invalid?); Hunting Island White-tailed Deer (*O.v. venatorius* Goldman and Kellogg, 1940 - Invalid?); Kansas White-tailed Deer (*O.v. macrourus* Rafinesque, 1817 - Invalid?); Key Deer (*O.v. clavium* Barbour and G.M. Allen, 1922 - Valid); Maso (Yaqui); Lichtenstein's White-tailed Deer (*O.v. mexicanus* Gmelin, 1788 - Invalid?); Mexican Lowland White-tailed Deer (*O.v. thomasi* Merriam, 1898 - Invalid?); Mexican White-tailed Deer (*O.v. mexicanus* Gmelin, 1788 - Invalid?); Miquihuan White-tailed Deer (*O.v. miquihuanensis* Goldman and Kellogg, 1940 - Invalid?); Nelson's White-tailed Deer (*O.v. nelsoni* Merriam, 1898 - Invalid?); Nicaragua White-tailed Deer (*O.v. truei* Merriam, 1898 - Invalid?); Northern Plains White-tailed Deer (*O.v. dacotensis* Goldman and Kellogg, 1940 - Invalid?); Northern Rocky Mountains White-tailed Deer (*O.v. ochrourus* Bailey, 1932 - Invalid?); Northern Vera Cruz White-tailed Deer (*O.v. veraecrucis* Goldman and Kellogg, 1940 - Invalid?); Northern (Woodland) White-tailed Deer (*O.v. borealis* Miller, 1900 - Invalid?); Northern Woodland White-tailed Deer (*O.v. borealis* Miller, 1900 - Invalid?); Northwest White-tailed Deer (*O.v. ochrourus* Bailey, 1932 - Invalid?); Oaxaca White-tailed Deer (*O.v. oaxacensis* Goldman and Kellogg, 1940 - Invalid?); Osceola's White-tailed Deer (*O.v. osceola* Bangs, 1896 - Invalid?); Peruvian Venado Deer (*O.v. peruvianus* Gray, 1874 - Invalid?); Plains White-tailed Deer (*O.v. macrourus* Rafinesque, 1817 - Invalid?); Rafinesque's White-tailed Deer (*O.v. macrourus* Rafinesque, 1817 - Invalid?); Rain Forest White-tailed Deer (*O.v. toltecus* Saussure, 1860 - Invalid?); Rothschild's White-tailed Deer (*O.v. rothschildi* Thomas, 1902 - Invalid?); Sandhill White-tailed Deer (*O.v. texanus* Mearns, 1898 - Invalid?); Sinaloa White-tailed Deer (*O.v. sinaloae* J.A. Allen, 1903 - Invalid?); Sonora White-tailed Deer (*O.v. couesi* Coues and Yarrow, 1875 - Invalid?); Sonoran Fantail (*O.v. couesi* Coues and Yarrow, 1875 - Invalid?); South American White-tailed Deer (*O.v. gymnotis* Wiegmann, 1833 - Invalid?); *O.v. peruvianus* Gray 1874 - Invalid?); Southern White-tailed Deer (*O.v. virginianus* (Zimmermann, 1870) - Valid); Tamaulipas White-tailed Deer (*O.v. miquihuanensis* Goldman and Kellogg, 1940 - Invalid?); Tawny Northwest White-tailed Deer (*O.v. ochrourus* Bailey, 1932 - Invalid?); Texas White-tailed Deer (*O.v. texanus* Mearns, 1898 - Invalid?); Thomas's White-tailed Deer (*O.v. thomasi* Merriam, 1898 - Invalid?); True's White-tailed Deer (*O.v. truei* Merriam, 1898 - Invalid?); Venado Cola Blanca (Hispanic)¹⁴; Venado Cola Blanca (Spanish)⁴²; Virginia Deer; Virginia White-tailed Deer (*O.v. virginianus* (Zimmermann, 1870) - Valid); Western White-tailed Deer (*O.v. macrourus* Rafinesque, 1817 - Invalid?); White-tailed Deer (*O.v. virginianus* (Zimmermann, 1870) - Valid); Whitetail; Whitetail Deer; Yucatán White-tailed Deer (*O.v. toltecus* Saussure, 1860 - Invalid?); *O.v. yucatanensis* Hays, 1872 - Invalid?). HABITS: The species feeds on fungi, grass and acorns, branches, buds, cones, fruits, leaves, mast, needles and /or twigs of alder, barberry, buckbrush, calliandra, catclaw acacia, Emory and scrub oaks and other evergreen oaks, hackberry, hemlock, holly-leaf buckthorn, juniper, mesquite, mountainlover, Oregon-grape, pinyon, ratany, sagebrush, skunkbush, spiderwort, spruce, willow, yellow-leaf silktassel. Young are generally dropped along ridges and hillsides. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042412 - subsp. *couesi* (Coues and Yarrow); subsp. *texana* (Mearns), color presentation), 42 (061912), **55** (recorded as *Odocoileus virginianus* (Zimmermann). White-tailed Deer. Southeastern Arizona (1,200 - 9,000 feet.), 65, 73, 100 (color photograph), 106 (042412 - includes a listing of subspecies, color presentation), 118 (recorded as *Odocoileus virginianus couesi* (Coues & Yarrow) - Distribution: Southern Arizona. Figure 110, Page 254), 148 (color presentation)*

***Odocoileus virginianus* subsp. *couesi* Coues & Yarrow, 1875 - Invalid?: Coues' White-tailed Deer**

COMMON NAMES: Arizona Whitetail; Arizona White-tailed Deer; Coues' Deer; Coues White-tailed; Coues' White-tailed Deer; Desert Whitetail; Fantail; Fantail Deer; Maso (Yaqui); Sonora White-tailed Deer; Sonoran Fantail; Venado Cola Blanca (Hispanic)¹⁴; Virginia Deer; Whitetail; White-tailed Deer; Whitetail Deer. HABITS: The species feeds on fungi, grass

and acorns, branches, buds, cones, fruits, leaves, mast, needles and /or twigs of alder, barberry, buckbrush, calliandra, catclaw acacia, Emory and scrub oaks and other evergreen oaks, hackberry, hemlock, holly-leaf buckthorn, juniper, mesquite, mountainlover, Oregon-grape, pinyon, ratany, sagebrush, skunkbush, spiderwort, spruce, willow, yellow-leaf silktassel. Young are generally dropped along ridges and hillsides. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042412 - subsp. *couesi* (Coues and Yarrow); subsp. *texana* (Mearns), color presentation of species), 42 (061912 - no record of this subspecies), 55 (species: recorded as *Odocoileus virginianus* (Zimmermann). White-tailed Deer. Southeastern Arizona (1,200 - 9,000 feet.), 65, 73 (species), 100 (color photograph of species), 106 (042412 - color presentation), **118** (recorded as *Odocoileus virginianus couesi* (Coues & Yarrow) - Distribution: Southern Arizona. Figure 110, Page 254), 148 (color presentation)*

Erethizontidae: The Porcupine Family

Erethizon dorsatum (see *Erethizon dorsatus*)

Erethizon dorsatum subsp. *couesi* (see *Erethizon dorsatus* subsp. *couesi*)

***Erethizon dorsatus* (Linnaeus, 1758): Common Porcupine**

SYNONYMY: *Erethizon dorsatum* (Linnaeus, 1758). COMMON NAMES: American Porcupine; Arizona Porcupine (*E.d. couesi* Mearns, 1897 - Valid); Canadian Porcupine; Canadian Tree Porcupine; Common Porcupine; Coues' Tree Porcupine (*E.d. couesi* Mearns, 1897 - Valid); Kagh (? "Give me of your quills, O Hedgehog! All your quills, O Kagh, the Hedgehog!" Longfellow's *Hiawatha*); North American Porcupine; Porc-épic d'Amérique (French)⁴²; Porcupine; Puerco Espin (Hispanic)¹⁴; Puercoespín Norteamericano (Spanish)⁴²; Rocky Mountain Porcupine (*E.d. epixanthus* Brandt, 1835 - Valid); Western Porcupine (*E.d. epixanthus* Brandt, 1835 - Valid); Yellow-haired Porcupine (*E.d. epixanthus* Brandt, 1835 - Valid). HABITS: Feeds on the bark of cedar, fir, hemlock, mesquite and pine trees and ocotillo and on acorns, apple trees, ash leaves, aspen trees, basswood, young beech trees and bechnuts, buckbrush (*Ceanothus* sp.), buds, clover, dwarf mistletoe, fungi, grass (juveniles), herbs (juveniles), leaves, lupine, oak leaves, pine needles, fruits of pricklypear cacti, skunk cabbage, sugar maples and twigs. Shelter is sought in caves, hollow logs, mine shafts, piles of rocks, rocky slopes and rock walls. The young are born in dens (no nest structure) located in the cavities of dying tree, tree stumps, caves, under rocks and man-made structures. Dens may be used for many years and generations. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042512 - subsp. *couesi* (Mearns); subsp. *epixanthus* (Brandt)), 42 (061912), **55** (recorded as *Erethizon dorsatum* Linnaeus. Porcupine. Probably statewide but more common in wooded areas (3,000 - 9,000 feet.), 65, 73, 100 (color photograph), 106 (042512 - recorded as *Erethizon dorsatum* (Linnaeus, 1758), includes a listing of subspecies, color presentation), 118 (recorded as *Erethizon dorsatum couesi* Mearns - Distribution: Statewide in mountains and riparian situations. Figure 86, Page 215), 148 (color presentation), 153*

***Erethizon dorsatus* subsp. *couesi* Mearns, 1897: Common Porcupine**

SYNONYMY: *Erethizon dorsatum* subsp. *couesi* (Mearns, 1897). COMMON NAMES: American Porcupine; Arizona Porcupine; Canadian Porcupine; Common Porcupine; Coues' Tree Porcupine; North American Porcupine; Porcupine; Puerco Espin (Hispanic)¹⁴. HABITS: Feeds on the bark of cedar, fir, hemlock, mesquite and pine trees and ocotillo and on acorns, apple trees, ash leaves, aspen trees, basswood, young beech trees and bechnuts, buckbrush (*Ceanothus* sp.), buds, clover, dwarf mistletoe, fungi, grass (juveniles), herbs (juveniles), leaves, lupine, oak leaves, pine needles, fruits of pricklypear cacti, skunk cabbage, sugar maples and twigs. Shelter is sought in caves, hollow logs, mine shafts, piles of rocks, rocky slopes and rock walls. The young are born in dens (no nest structure) located in the cavities of dying tree, tree stumps, caves, under rocks and man-made structures. Dens may be used for many years and generations. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042512 - subsp. *couesi* (Mearns); subsp. *epixanthus* (Brandt)), 42 (061912), 55 (species: recorded as *Erethizon dorsatum* Linnaeus. Porcupine. Probably statewide but more common in wooded areas (3,000 - 9,000 feet.), 65 (species), 73 (species), 100 (color photograph of species, species record), 106 (042512 - species including a listing of subspecies, color presentation of species), **118** (recorded as *Erethizon dorsatum couesi* Mearns - Distribution: Statewide in mountains and riparian situations. Figure 86, Page 215), 148 (color presentation of species)*

Felidae: The Cat Family

Felis concolor (see *Puma concolor*)

Felis concolor subsp. *azteca* (see *Puma concolor* subsp. *couguar*)

Felis concolor subsp. *browni* (see *Puma concolor* subsp. *couguar*)

Felis onca (see *Panthera onca*)

Felis onca subsp. *arizonensis* (see footnote 118 under *Panthera onca* subsp. *arizonensis*)

Felis pardalis (see *Leopardus pardalis*)

Felis pardalis subsp. *sonoriensis* (see *Leopardus pardalis* subsp. *sonoriensis*)

Felis rufus (see *Lynx rufus*)

Felis rufus subsp. *baileyi* (see footnote 118 under *Lynx rufus* subsp. *baileyi*)

Felis yaguarondi (see *Puma yagouarondi*)

Felis yaguarondi subsp. *cacomitli* (see footnote 118 under *Puma yagouarondi*)

Herpailurus yaguarondi (see *Puma yagouarondi*)

***Leopardus pardalis* (Linnaeus, 1758): Ocelot**

SYNONYMY: *Felis pardalis* (Linnaeus, 1758). COMMON NAMES: Dwarf Leopard; Leopard-cat; McKenney's Wildcat; Ocelot; Ocelote (Spanish)⁴²; Painted Leopard; Sonoran Ocelot (*L.p. sonoriensis* (Goldman, 1925) - Valid); Tiger-cat; Tigrillo (Mexico)¹⁴⁵. HABITS: (Feeds on amphibians, lesser anteaters, armadillos, birds, fish, insects, land crabs, small to medium-sized mammals (including mice, rats and rabbits among others) and reptiles (including lizards, snakes and land tortoises). Kittens are born in a nest lined with grass or other materials located in rocky bluffs, caves, rocky dens, hollow logs or dense thickets. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: EXTIRPATED. *8, 14 (042512 - subsp. *sonoriensis* is the subspecies reported as occurring in Arizona), 42 (061912), 55 (recorded as *Felis pardalis* Linnaeus. Ocelot. Formerly southeastern Arizona as far north as Fort Verde; no recent records.), 100 (color photograph), 106 (042512 - includes a listing of subspecies), 118 (recorded as *Felis pardalis sonoriensis* Goldman - Distribution: Formerly southeastern Arizona as far north as Ft. Verde. Figure 104, Page 244), 148 (color presentation)*

***Leopardus pardalis* subsp. *sonoriensis* (Goldman, 1925): Sonoran Ocelot**

SYNONYMY: *Felis pardalis* subsp. *sonoriensis* Goldman, 1925. COMMON NAMES: Dwarf Leopard; McKenney's Wildcat; Ocelot; Ocelote (Spanish); Painted Leopard; Sonoran Ocelot. HABITS: (Feeds on amphibians, lesser anteaters, armadillos, birds, fish, insects, land crabs, small to medium-sized mammals (including mice, rats and rabbits among others) and reptiles (including lizards, snakes and land tortoises). Kittens are born in a nest lined with grass or other materials located in rocky bluffs, caves, rocky dens, hollow logs or dense thickets. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: EXTIRPATED. *8 (species), 14 (042512 - subsp. *sonoriensis* is the subspecies reported as occurring in Arizona), 42 (061912), 55 (species: recorded as *Felis pardalis* Linnaeus. Ocelot. Formerly southeastern Arizona as far north as Fort Verde; no recent records.), 100 (species, color photograph of species), 106 (042512 - includes a listing of subspecies), 118 (recorded as *Felis pardalis sonoriensis* Goldman - Distribution: Formerly southeastern Arizona as far north as Ft. Verde. Figure 104, Page 244), 148 (color presentation of species)*

***Lynx rufus* (Schreber, 1777): Bobcat**

SYNONYMY: *Felis rufus* Schreber, 1777. COMMON NAMES: Bailey Bobcat (*L.r. baileyi* Merriam, 1890 - Valid); Bailey's Lynx (*L.r. baileyi* Merriam, 1890 - Valid); Bobcat (*L.r. rufus* (Schreber, 1777) - Valid); Desert Bobcat (*L.r. baileyi* Merriam, 1890 - Valid); Gato Montes (Hispanic)¹⁴; Lince Americano (Spanish)⁴²; Lynx Roux (French)⁴²; Mexican Bobcat (*L.r. escuinapae* J.A. Allen, 1903 - Valid); Plateau Bobcat (*L.r. baileyi* Merriam, 1890 - Valid); Red Lynx; Wildcat. HABITS: Feeds on almost any meat source available including ground nesting birds, carrion, domestic cats, cottontail rabbits, deer, foxes, insects, jackrabbits, lizards, small mammals, opossums, porcupines, raccoons, reptiles, rodents, bighorn sheep, skunks and woodchucks. Shelter may be taken in a rock cleft, thickets or on the branches of trees. Young are born in dens located in rocky caves, rock shelters, recesses and protected areas with nests made of leaves and other dry plant material. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042512 - subsp. *baileyi* (Merriam), color presentation), 42 (061912), 55 (recorded as *Lynx rufus* (Schreber). Bobcat. Statewide (120 - 9,300 feet).), 65, 73, 100 (color photograph), 106 (042512 - includes a listing of subspecies, color presentation), 118 (recorded as *Lynx rufus baileyi* Merriam - Distribution: Statewide. Figure 106, Page 247), 148 (color presentation), **ADS** (Bobcat's Prickly Perch, Tuesday, December 15, 2009, Section A, Page 1)*

***Lynx rufus* subsp. *baileyi* Merriam, 1890: Desert Bobcat**

COMMON NAMES: Bailey Bobcat; Bailey's Lynx; Bobcat; Desert Bobcat; Gato Montes (Hispanic)¹⁴; Plateau Bobcat; Wildcat. HABITS: Feeds on almost any meat source available including ground nesting birds, carrion, domestic cats, cottontail rabbits, deer, foxes, jackrabbits, lizards, small mammals, opossums, porcupines, raccoons, reptiles, rodents, bighorn sheep, skunks and woodchucks. Shelter may be taken in a rock cleft, thickets or on the branches of trees. Young are born in dens

located in rocky caves, rock shelters, recesses and protected areas with nests made of leaves and other dry plant material. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042512 - subsp. *baileyi* (Merriam), color presentation), 42 (061912), 55 (species: recorded as *Lynx rufus* (Schreber). Bobcat. Statewide (120 - 9,300 feet.), 65, 73 (species), 100 (species, color photograph of species), 106 (042512 - species, includes a listing of subspecies, color presentation), **118** (recorded as *Lynx rufus baileyi* Merriam - Distribution: Statewide. Figure 106, Page 247), 148 (color presentation)*

***Panthera onca* (Linnaeus, 1758): Jaguar**

SYNONYMY: *Felis onca* Linnaeus, 1758. COMMON NAMES: Amazonian Jaguar (*P.o. onca* (Linnaeus, 1758) - Valid); Arizona Jaguar (*P.o. arizonensis* (Goldman, 1932) - Valid); American Leopard; Black Panther; Blank Panther; Central American Jaguar (*P.o. centralis* (Mearns, 1901) - Valid); Goldman's Jaguar (*P.o. goldmani* (Mearns, 1901) - Valid); Hernandez's Jaguar (*P.o. hernandesii* (J.E. Gray, 1857) - Valid); Jaguar; Jaguar (Hispanic)¹⁴; Jaguar (Spanish)⁴²; Jaguarete (Spanish)⁸; Mexican Jaguar (*P.o. hernandesii* (J.E. Gray, 1857) - Valid); Mexican Tiger; Panther; Paraguayan Jaguar (*P.o. paraguensis* (Hollister, 1914) - Valid); Parana Jaguar (*P.o. palustris* (Ameghino, 1888) - Valid); Peruvian Jaguar (*P.o. peruviana* (de Blainville, 1843) - Valid); Tigre^{65,145}; Veracruz Jaguar (*P.o. veraecrucis* (Nelson and Goldman, 1933) - Valid); West Mexican Jaguar (*P.o. hernandesii* (J.E. Gray, 1857) - Valid); Yaguar⁸; Yukatan Jaguar (*P.o. goldmani* (Mearns, 1901) - Valid). HABITS: Feeds on armadillos, birds, caiman, capybaras, deer, fish, frogs, livestock, pacas, peccaries (javelina), mice, rabbits, tapirs, turtles and other vertebrates. Young are born in dens located in caves, rocky areas, dense brush and thickets. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: EXTIRPATED from Arizona. *8, 14 (042512 - subsp. *arizonensis* (Goldman)), 42 (061912), **55** (recorded as *Felis onca* Linnaeus. Jaguar. Probably formerly rare throughout the state. Today an occasional individual is found in the southern part of the state.), 65, 100 (color photograph), 106 (042512 - includes a listing of subspecies, color presentation), **118** (recorded as *Felis onca arizonensis* Goldman - Distribution: Probably formerly rare throughout the state. Today an occasional individual found in the southern part of the state. Figure 104, Page 244), 148 (color presentation)*

***Panthera onca* subsp. *arizonensis* (Goldman, 1932): Arizona Jaguar**

COMMON NAMES: Arizona Jaguar; Jaguar; Jaguar (Hispanic)¹⁴; Jaguar (Spanish)⁴². HABITS: Feeds on armadillos, birds, caiman, capybaras, deer, fish, frogs, livestock, pacas, peccaries (javelina), mice, rabbits, tapirs, turtles and other vertebrates. Young are born in dens located in caves, rocky areas, dense brush and thickets. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: EXTIRPATED from Arizona. *8, 14 (042512 - subsp. *arizonensis* Goldman), 42 (061912), 55 (species, recorded as *Felis onca* Linnaeus. Jaguar. Probably formerly rare throughout the state. Today an occasional individual is found in the southern part of the state.), 65 (species), 100 (species, color photograph of species), 106 (042512 - species, includes a listing of subspecies, color presentation), **118** (recorded as *Felis onca arizonensis* Goldman - Distribution: Probably formerly rare throughout the state. Today an occasional individual found in the southern part of the state. Figure 104, Page 244), 148 (color presentation)*

***Puma concolor* (Linnaeus, 1771): Cougar**

SYNONYMY: *Felis concolor* Linnaeus, 1771. COMMON NAMES: Adirondack Cougar (*P.c. cougar* (Kerr, 1792) - Valid); Amazon Cougar (*P.c. discolor* (Schreber, 1777) - Invalid?; *P.c. puma* Molina, 1782 - Valid); American Lion; Andes Puma (*P.c. araucanus* (Osgood, 1943) - Invalid?; *P.c. puma* Molina, 1782 - Valid?); Argentine Puma (*P.c. cabreræ* Pocock, 1940 - Valid); Anthony's Puma (*P.c. anthonyi* (Nelson and Goldman, 1931) - Valid); Baja California Cougar (*P.c. improcera* (Phillips, 1912) - Invalid; *P.c. cougar* (Kerr, 1792) - Valid); Bolivian Cougar (*P.c. osgoodi* (Nelson and Goldman, 1943) - Invalid?; *P.c. concolor* (Linnaeus, 1771) - Valid?); Brazilian Cougar (*P.c. concolor* (Linnaeus, 1771) - Valid); Brown Tiger; California Cougar (*P.c. californica* (May, 1896) - Invalid?; *P.c. cougar* (Kerr, 1792) - Valid?); California Lion; California Mountain Lion (*P.c. californica* (May, 1896) - Invalid?; *P.c. cougar* (Kerr, 1792) - Valid?); Cat-a-Mountain; Catamount; Catamount Cat (a mountain Red Tiger); Central American Puma (*P.c. costaricensis* (Merriam, 1901) - Valid); Chilean Puma (*P.c. puma* (Molina, 1782) - Valid); Columbian Cougar (*P.c. bangsi* (Merriam, 1901) - Invalid?; *P.c. concolor* (Linnaeus, 1771) - Valid?); Costa Rican Puma (*P.c. costaricensis* (Merriam, 1901) - Valid); Cougar; Deer Tiger; Eastern Cougar (*P.c. cougar* (Kerr, 1792) - Valid); Eastern Puma (*P.c. cougar* (Kerr, 1792) - Valid); Eastern South American Cougar (*P.c. capricornensis* (Merriam, 1901) - Invalid?; *P.c. anthonyi* (Nelson and Goldman, 1931) - Valid?); El Leon (Mexico); Ecuador Cougar (*P.c. soderstromii* (Lönnberg, 1913) - Invalid?; *P.c. concolor* (Linnaeus, 1771) - Valid?); Florida Cougar (*P.c. coryi* (Bangs, 1899) - Invalid; *P.c. cougar* (Kerr, 1792) - Valid); Florida Panther (*P.c. coryi* (Bangs, 1899) - Invalid; *P.c. cougar* (Kerr, 1792) - Valid); Ghost Cat; Indian Devil; Green's Puma (*P.c. greeni* (Nelson and Goldman, 1931) - Invalid?; *P.c. concolor* (Linnaeus, 1771) - Valid?); Hudson's Puma (*P.c. hudsoni* (Cabrera, 1958) - Invalid?; *P.c. cabreræ* Pocock, 1940 - Valid?); Incan Cougar (*P.c. incanum* (Nelson and Goldman, 1929) - Invalid?; *P.c. concolor* (Linnaeus, 1771) - Valid?); Kaibab Cougar (*P.c. kaibabensis* (Nelson and Goldman, 1931) - Invalid; *P.c. cougar* (Kerr, 1792) - Valid); King Cat; Leon de Montana (Hispanic); Louisiana Cougar (*P.c. arundivaga* (Hollister, 1911) - Invalid?; *P.c. cougar* (Kerr, 1792) - Valid?); Mato Grosso Cougar (*P.c. acrocodia* (Goldman, 1943) - Invalid?; *P.c. anthonyi* (Nelson and Goldman, 1931) - Valid?); Mayan Cougar (*P.c. mayensis* (Nelson and Goldman, 1929) - Invalid; *P.c. cougar* (Kerr, 1792) - Valid); Mexican Cougar (*P.c. azteca* (Merriam, 1901) - Invalid; *P.c. cougar* (Kerr, 1792) - Valid); Mexican Lion; Missoula Cougar (*P.c. missoulensis* (Goldman, 1943) - Invalid; *P.c. cougar* (Kerr, 1792) - Valid); Mountain Lion (*P.c. concolor* (Linnaeus, 1771) - Valid); Mountain Screamer; North American Cougar (*P.c. cougar* (Kerr, 1792) - Valid); Northern South American Cougar (*P.c. concolor* (Linnaeus, 1771) - Valid);

Northwestern Cougar (*P.c. oregonensis* (Rafinesque, 1832) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid); Olympic Mountains Cougar (*P.c. olympus* (Merriam, 1897) - Invalid?; *P.c. couguar* (Kerr, 1792) - Valid?); Oregon Cougar (*P.c. oregonensis* (Rafinesque, 1832) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid); Painted Cat; Painter; Panther; Patagonia Cougar (*P.c. patagonica* (Merriam, 1901) - Invalid?; *P.c. puma* Molina, 1782 - Valid?); Pearson's Puma (*P.c. pearsoni* (Thomas, 1901) - Invalid?; *P.c. puma* Molina, 1782 - Valid?); Puma; Puma (*P.c. concolor* (Linnaeus, 1771) - Valid); Puma (Spanish)⁴²; Red Tiger (Belize); Rocky Mountain Cougar (*P.c. hippolestes* (Merriam, 1897) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid); Silver Lion; Sneak Cat; Southern South American Cougar (*P.c. puma* Molina, 1782 - Valid); Texas Mountain Lion (*P.c. stanleyana* (Goldman, 1938) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid); Vancouver Island Cougar (*P.c. vancouverensis* (Nelson and Goldman, 1932) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid); Wisconsin Cougar (*P.c. schorgeri* (Jackson, 1955) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid); Yuma Cougar (*P.c. browni* (Merriam, 1903) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid); Yuma Mountain Lion (*P.c. browni* (Merriam, 1903) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid); Yuma Puma (*P.c. browni* (Merriam, 1903) - Invalid; *P.c. couguar* (Kerr, 1792) - Valid). HABITS: Feeds on beavers, bighorn sheep, birds, black bears, bobcats, cottontail rabbits, coyotes, deer (its major prey species in Arizona), elk, jackrabbits, javelina, livestock, porcupines, pronghorn, raccoons, skunks and small mammals. Kittens are born in dens located in protected areas such as shallow caves, crevices, downed logs, rock shelters and impenetrable thickets. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Running should be curtailed in areas where Mountain Lions are known to frequent, a person running may elicit an attack response from a nearby Mountain Lion. Mountain Lions are extremely agile and have great jumping power and have been reported as being able to leap to a height of 18 feet into a tree. *8 (*Puma concolor* (Linnaeus)), 14 (042512 - subsp. *azteca* (Merriam); subsp. *kaibabensis* (Nelson and Goldman); subsp. *stanleyana* (Goldman), color presentation. The Yuma Mountain Lion (*Felis concolor browni*) is included as a separate record.), 42 (062012), 55 (recorded as *Felis concolor* Linnaeus. Mountain Lion. Statewide (200 - 8,000 feet).), 65, 73, 100 (color photograph), 106 (062012 - includes a listing of subspecies, color presentation. Taken from the "Cougar" page: As with many predators, a cougar may attack if cornered, if a fleeing human stimulates their instinct to chase, or if a person "plays dead". Standing still however may cause the cougar to consider a person easy prey.^[109] Exaggerating the threat to the animal through intense eye contact, loud but calm shouting, and any other action to appear larger and more menacing, may make the animal retreat. Fighting back with sticks and rocks, or even bare hands, is often effective in persuading an attacking cougar to disengage.^{[5][73]} ... Preceding attacks on humans, cougars display aberrant behavior, such as activity during daylight hours, a lack of fear of humans, and stalking humans.^[110]), 118 (recorded as *Felis concolor azteca* Merriam - Distribution: Statewide except extreme western and northwestern parts; *Felis concolor browni* (Merriam) - Distribution: Southwestern part of the state, and *Felis concolor kaibabensis* Nelson and Goldman - Distribution: Northwestern Arizona, north and west of the Colorado River. Figure 105, Page 245), 145, 148 (color presentation)*

Puma concolor subsp. *azteca* (see *Puma concolor* subsp. *couguar*)

Puma concolor subsp. *browni* (see *Puma concolor* subsp. *couguar*)

Puma concolor subsp. *coryi* (see *Puma concolor* subsp. *couguar*)

Puma concolor subsp. *couguar* (see *Puma concolor* subsp. *couguar*)

***Puma concolor* subsp. *couguar* (Kerr, 1792): North American Cougar**

SYNONYMY: *Felis concolor* subsp. *azteca* Merriam, 1901; *Felis concolor* subsp. *browni* Merriam, 1903; *P.c.* subsp. *azteca* (Merriam, 1901); *P.c.* subsp. *browni* (Merriam, 1903); *P.c. coryi* (Bangs, 1899); *P.c. couguar* (Kerr, 1792); *P.c. hippolestes* (Merriam, 1897); *P.c. improcera* (Phillips, 1912); *P.c. kaibabensis* (Nelson and Goldman, 1931); *P.c. mayensis* (Nelson and Goldman, 1929); *P.c. missoulensis* (Goldman, 1943); *P.c. oregonensis* (Rafinesque, 1832); *P.c. schorgeri* (Jackson, 1955); *P.c. stanleyana* (Goldman, 1938); *P.c. vancouverensis* (Nelson and Goldman, 1932). COMMON NAMES: Adirondack Cougar; American Lion; Baja California Cougar; Brown Tiger; California Lion; Cat-a-Mountain; Catamount; Catamount Cat (a mountain Red Tiger); Cougar; Deer Tiger; Eastern Cougar; Eastern Puma; El Leon (Mexico); Florida Cougar; Florida Panther; Ghost Cat; Indian Devil; Kaibab Cougar; King Cat; Leon de Montana (Hispanic); Mayan Cougar; Mexican Cougar; Mexican Lion; Missoula Cougar; Mountain Lion; Mountain Screamer; North American Cougar; Northwestern Cougar; Oregon Cougar; Painted Cat; Painter; Panther; Puma; Rocky Mountain Cougar; Silver Lion; Sneak Cat; Texas Mountain Lion (*P.c. couguar* (Kerr, 1792)); Vancouver Island Cougar; Wisconsin Cougar; Yuma Cougar; Yuma Mountain Lion; Yuma Puma. HABITS: Feeds on beavers, bighorn sheep, birds, black bears, bobcats, cottontail rabbits, coyotes, deer (its major prey species in Arizona), elk, jackrabbits, javelina, livestock, porcupines, pronghorn, raccoons, skunks and small mammals. Kittens are born in dens located in protected areas such as shallow caves, crevices, downed logs, rock shelters and impenetrable thickets. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: Running should be curtailed in areas where Mountain Lions are known to frequent, a person running may elicit an attack response from a nearby Mountain Lion. Mountain Lions are extremely agile and have great jumping power and have been reported as being able to leap to a height of 18 feet into a tree. *8 (*Puma concolor* (Linnaeus)), 14 (042512 - subsp. *azteca* (Merriam); subsp. *kaibabensis* (Nelson and Goldman); subsp. *stanleyana* (Goldman), color presentation. The Yuma Mountain Lion (*Felis concolor browni*) is included as a separate record.), 42 (062012), 55 (species: recorded as *Felis concolor* Linnaeus. Mountain Lion. Statewide (200 - 8,000 feet).), 65 (species), 73 (species), 85 (052906 - species), 100 (color photograph of species,

species record), 106 (062012 - species, includes a listing of subspecies, color presentation of species. Taken from the “Cougar” page: As with many predators, a cougar may attack if cornered, if a fleeing human stimulates their instinct to chase, or if a person “plays dead”. Standing still however may cause the cougar to consider a person easy prey.^[109] Exaggerating the threat to the animal through intense eye contact, loud but calm shouting, and any other action to appear larger and more menacing, may make the animal retreat. Fighting back with sticks and rocks, or even bare hands, is often effective in persuading an attacking cougar to disengage.^{[5][73]} ... Preceding attacks on humans, cougars display aberrant behavior, such as activity during daylight hours, a lack of fear of humans, and stalking humans.^[110]), **118** (recorded as *Felis concolor azteca* Merriam - Distribution: Statewide except extreme western and northwestern parts. Figure 105, Page 245 and *Felis concolor browni* (Merriam) - Distribution: Southwestern part of the state. Figure 105, Page 245), 145, 148 (color presentation)*

Puma concolor subsp. *hippolestes* (see *Puma concolor* subsp. *couguar*)

Puma concolor subsp. *improcera* (see *Puma concolor* subsp. *couguar*)

Puma concolor subsp. *kaibabensis* (see *Puma concolor* subsp. *couguar*)

Puma concolor subsp. *mayensis* (see *Puma concolor* subsp. *couguar*)

Puma concolor subsp. *missoulensis* (see *Puma concolor* subsp. *couguar*)

Puma concolor subsp. *oregonensis* (see *Puma concolor* subsp. *couguar*)

Puma concolor subsp. *schorgeri* (see *Puma concolor* subsp. *couguar*)

Puma concolor subsp. *stanleyana* (see *Puma concolor* subsp. *couguar*)

Puma concolor subsp. *vancouverensis* (see *Puma concolor* subsp. *couguar*)

***Puma yagouaroundi* (É. Geoffroy Saint-Hilaire, 1803): Jaguarundi**

SYNONYMY: *Felis yagouaroundi* Lacépède, 1809; *Herpailurus yagouaroundi* (Lacépède, 1809). COMMON NAMES: Eyra (a name given to the red phase)¹⁰⁶, Gato Colorado (Spanish)¹⁰⁶, Gato Moro (Spanish)¹⁰⁶, Geoffroy’s Jaguarundi (*P.y. yagouaroundi* (E. Geoffroy Saint-Hilaire, 1803) - Valid); Guatemalan Jaguarundi (*P.y. fossata* (Mearns, 1901) - Valid); Gulf Coast Jaguarundi (*P.y. cacomitli* (Berlandier, 1859) - Valid); Jaguarundi (a name given to the gray phase, Spanish)¹⁰⁶; Jaguarundi Cat; Panamanian Jaguarundi (*P.y. panamensis* (J.A. Allen, 1904) - Valid); León Brenero (Spanish)¹⁰⁶; Leoncillo (“Little Lion”, Spanish)¹⁰⁶; Onza (Spanish)¹⁰⁶; Sinaloan Jaguarundi (*P.y. tolteca* (Thomas, 1898) - Valid); Tigrillo (Spanish)¹⁰⁶. HABITS: Feeds on birds, fish, fruits, small to medium-size mammals, and reptiles. Dens are located in brush, thickets and under downed trees. HABITAT: Within the range of this species it has been reported from woodland, scrub, grassland, desertscrub and wetland ecological formations. *8 (*Herpailurus yagouaroundi tolteca*), 14 (042512 - *Herpailurus yagouaroundi* subsp. *tolteca* (AZ), 42 (062112), **55** (recorded as *Felis yagouaroundi* Fischer. Jaguarundi. Rare in the southern part of the state; no recent records.), 100 (color photograph), 106 (042512 - includes a listing of subspecies, color presentation), **118** (recorded as *Felis yagouaroundi cacomitli* Berlandier - Distribution: Rare in southern part of the state. Pages 246-247), 148 (recorded as *Herpailurus yagouaroundi*, color presentation)*

Geomyidae: The Pocket Gopher Family

***Thomomys bottae* (Eydoux & Gervais, 1836): Botta’s Pocket Gopher**

COMMON NAMES: Bailey’s Pocket Gopher (*T.b. lachuguilla* Bailey, 1902 - Invalid?); Botta’s Pocket Gopher; Cebolleta Pocket Gopher (*T.b. paguatae* - Invalid?); Cervine Pocket Gopher (*T.b. cervinus* J.A. Allen, 1895 - Invalid?); Desert Pocket Gopher (*T.b. desertorum* Merriam, 1901 - Invalid?); Espanola Pocket Gopher (*T.b. pervagus* Merriam, 1901 - Invalid?); Faw-colored Pocket Gopher (*T.b. cervinus* J.A. Allen, 1895 - Invalid?); Fulvous Pocket Gopher (*T.b. fulvus* Woodhouse, 1852 - Invalid?); Golden Pocket Gopher (*T.b. aureus* J.A. Allen, 1893 - Invalid?); Graham Mountains Pocket Gopher (*T.b. grahamensis* Goldman, 1931 - Invalid?); Guadalupe Pocket Gopher (*T.b. guadalupensis* Goldman, 1936 - Invalid?); Guadalupe Southern Pocket Gopher (*T.b. guadalupensis* Goldman, 1936 - Invalid?); Harquahala Pocket Gopher (*T.b. subsimilis* Goldman, 1933 - Invalid?); Harquahala Southern Pocket Gopher (*T.b. subsimilis* Goldman, 1933 - Invalid?); Hualapai Pocket Gopher (*T.b. hualpaiensis* Goldman, 1936 - Invalid?); Juarez Pocket Gopher (*T.b. toltecus* J.A. Allen, 1893 - Invalid?); Lachuguilla Pocket Gopher (*T.b. lachuguilla* Bailey, 1902 - Invalid?); Mearns’ Pocket Gopher (*T.b. mearnsi* Baily, 1914 - Invalid?); Mearns’ Southern Pocket Gopher (*T.b. mearnsi* Baily, 1914 - Invalid?); Phoenix Pocket Gopher (*T.b. cervinus* J.A. Allen, 1895 - Invalid?); Pinal Mountains Pocket Gopher (*T.b. pinalensis* Goldman, 1938 - Invalid?); Prospect Valley Pocket Gopher (*T.b. muralis* Goldman, 1936 - Invalid?); Reddish Brown Pocket Gopher (*T.b. fulvus* Woodhouse, 1852 - Invalid?); Roaming Pocket Gopher (*T.b. pervagus* Merriam, 1901 - Invalid?); Ruidosa Pocket Gopher (*T.b. ruidosae* Hall, 1932 - Invalid?); Santa Catalina Southern Pocket Gopher (*T.b. catalinae* Goldman, 1931 - Invalid?); Searchlight Pocket Gopher (*T.b. suboles* Goldman, 1928 -

Invalid?); Southwestern Pocket Gopher; Toltec Pocket Gopher (*T.b. toltecus* J.A. Allen, 1893 - Invalid?); Tularosa Pocket Gopher (*T.b. tularosae* Hall, 1932 - Invalid?); Tuza de Botta (Hispanic)¹⁴; Tuza de Botta (Spanish)⁴²; Valley Pocket Gopher; White Pocket gopher (*T.b. albatrus* Grinnell, 1912 - Invalid?); Yellow Pocket Gopher (*T.b. aureus* J.A. Allen, 1893 - Invalid?). HABITS: Feeds on bulbs, grasses, herbaceous plants, roots and tubers. Young are born in nests in underground burrows. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042612 - subsp. *actuosus*; subsp. *albatrus*; subsp. *alexandrae*; subsp. *alienus*; subsp. *aureus*; subsp. *catalinae*; subsp. *cervinus*; subsp. *collis*; subsp. *connectens*; subsp. *cultellus*; subsp. *desertorum*; subsp. *fulvus*; subsp. *grahamensis*; subsp. *guadalupensis*; subsp. *hualpaiensis*; subsp. *lachuguilla*; subsp. *mearnsi*; subsp. *modicus*; subsp. *morulus*; subsp. *muralis*; subsp. *opulentus*; subsp. *paguatae*; subsp. *pectoralis*; subsp. *peramplus*; subsp. *pervagus*; subsp. *pinalensis*; subsp. *planirostris*; subsp. *planorum*; subsp. *pusillus*; subsp. *rufidulus*; subsp. *ruidosae*; subsp. *suboles*; subsp. *subsimitus*; *toltecus*; subsp. *tularosae*), 42 (062112), 55 (recorded as *Thomomys bottae* (Eydoux and Gervais). Valley Pocket Gopher. Widely distributed throughout the state at all elevations.), 65, 73, 100 (color photograph), 106 (042612 - color presentation), 118 (Distribution: mapping and records show numerous varieties throughout Arizona, only those shown as occurring in Pima County are listed here. *Thomomys bottae catalinae* Goldman - Distribution: Known only from the higher elevations of the Santa Catalina Mountains, Pima County. *Thomomys bottae comobabiensis* Huey - Distribution: Slopes of Comobabi Mountains, Pima County. *Thomomys bottae growlerensis* Huey - Distribution: Known from southwestern Pima County. *Thomomys bottae hueyi* Goldman - Distribution: Known only from the higher elevations in the Rincon Mountains, Pima County. *Thomomys bottae modicus* Goldman - Distribution: Known from the Santa Cruz and Altar Valleys. *Thomomys bottae phasma* Goldman - Distribution: Known from southeastern Yuma County. *Thomomys bottae proximus* Burt & Campbell - Distribution: Oak Zone of the Santa Rita and Huachuca Mountains. *Thomomys bottae pusillus* Goldman - Distribution: Known only from the region of the type locality [Coyote Mountains, 3,000 feet, Pima County, Arizona]. Figure 46, Page 107), 148 (color presentation), **HR***

***Thomomys bottae* subsp. *modicus* Goldman, 1931 - Invalid?: Botta's Pocket Gopher**

COMMON NAMES: Botta's Pocket Gopher; Southwestern Pocket Gopher; Tuza de Botta (Hispanic)¹⁴; Valley Pocket Gopher. HABITS: The species feeds on bulbs, grasses, herbaceous plants, roots and tubers. Young are born in nests in underground burrows. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042612 - subsp. *actuosus*; subsp. *albatrus*; subsp. *alexandrae*; subsp. *alienus*; subsp. *aureus*; subsp. *catalinae*; subsp. *cervinus*; subsp. *collis*; subsp. *connectens*; subsp. *cultellus*; subsp. *desertorum*; subsp. *fulvus*; subsp. *grahamensis*; subsp. *guadalupensis*; subsp. *hualpaiensis*; subsp. *lachuguilla*; subsp. *mearnsi*; subsp. *modicus*; subsp. *morulus*; subsp. *muralis*; subsp. *opulentus*; subsp. *paguatae*; subsp. *pectoralis*; subsp. *peramplus*; subsp. *pervagus*; subsp. *pinalensis*; subsp. *planirostris*; subsp. *planorum*; subsp. *pusillus*; subsp. *rufidulus*; subsp. *ruidosae*; subsp. *suboles*; subsp. *subsimitus*; *toltecus*; subsp. *tularosae*), 42 (062112 - no subspecies listed), 55 (species: recorded as *Thomomys bottae* (Eydoux and Gervais). Valley Pocket Gopher. Widely distributed throughout the state at all elevations.), 65 (species), 73 (species), 100 (species, color photograph of species), 106 (042612 - species, color presentation of species), **118** (recorded as *Thomomys bottae modicus* Goldman - Distribution: Known from the Santa Cruz and Altar Valleys. Figure 46, Page 107), 148 (color presentation of species)*

Heteromyidae: The Kangaroo Rat and Pocket Mouse Family

***Chaetodipus baileyi* (Merriam, 1894): Bailey's Pocket Mouse**

SYNONYMY: *Perognathus baileyi* Merriam, 1894. COMMON NAMES: Bailey Pocket Mouse; Bailey's Pocket Mouse; Raton de Bailey (Hispanic)¹⁴; Ratón-de Abazones Sonorense (Spanish)⁴². HABITS: The species feeds on vegetation, and fruits and seeds of cacti, grasses and other herbs. Nests are located underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, and desertscrub ecological formations. *14 (042612 - subsp. *baileyi* (Merriam)), 42 (062112), 55 (recorded as *Perognathus baileyi* Merriam. Bailey's Pocket Mouse. Widely distributed in the southern part of the state (900 - 4,700 feet).), 65 (genus), 73, 100 (color photograph), 106 (042612 - color presentation), 118 (recorded as *Chaetodipus baileyi baileyi* Merriam - Distribution: Grasslands of southeastern Arizona. Figure 51, Page 133), 148 (color presentation)*

***Chaetodipus baileyi* subsp. *baileyi* (Merriam, 1894) - Invalid?: Bailey's Pocket Mouse**

SYNONYMY: *Perognathus baileyi* subsp. *baileyi* Merriam, 1894 - Invalid?. COMMON NAMES: Bailey Pocket Mouse; Bailey's Pocket Mouse; Bailey's Pocket Mouse; Raton de Bailey (Hispanic)¹⁴. HABITS: The species feeds on vegetation, and fruits and seeds of cacti, grasses and other herbs. Nests are located underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, and desertscrub ecological formations. *14 (042612 - subsp. *baileyi* (Merriam), 42 (062112 - no subspecies listed), 55 (species: recorded as *Perognathus baileyi* Merriam. Bailey's Pocket Mouse. Widely distributed in the southern part of the state (900 - 4,700 feet).), 65 (genus), 73 (species), 100 (species, color photograph of species), 106 (042612 - species, color presentation of species), **118** (recorded as *Chaetodipus baileyi baileyi* Merriam - Distribution: Grasslands of southeastern Arizona. Figure 51, Page 133), 148 (color presentation of species)*

***Chaetodipus hispidus* (Baird, 1858): Hispid Pocket Mouse**

SYNONYMY: *Perognathus hispidus* Baird, 1858. COMMON NAME: Hispid Pocket Mouse; Ratón-de Abazones Crespo (Spanish)⁴². HABITS: Feeds on insects (grasshoppers), leaves and seeds. Nests are constructed of grasses and located in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042612 - subsp. *hispidus*; subsp. *conditi*), 42 (062112), 55 (recorded as *Perognathus hispidus* Baird. Hispid Pocket Mouse. Locally common in grasslands of southeastern part of the state; an isolated population occurs near Camp Verde (3,200 - 5,000 feet.)), 65 (genus), 73, 100, 106 (042612 - includes a listing of subspecies), 118 (recorded as *Perognathus hispidus conditi* Allen - Distribution: Grasslands of southeastern Arizona. Figure 51, Page 132), 148 (color presentation)*

***Chaetodipus hispidus* subsp. *conditi* (J.A. Allen, 1894) - Invalid?: Hispid Pocket Mouse**

SYNONYMY: *Perognathus hispidus* subsp. *conditi* J.A. Allen, 1894 - Invalid?. COMMON NAME: Hispid Pocket Mouse. HABITS: The species feeds on insects (grasshoppers), leaves and seeds. Nests are constructed of grasses and located in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042612 - subsp. *hispidus*; subsp. *conditi*), 42 (062112 - no subspecies listed), 55 (species: recorded as *Perognathus hispidus* Baird. Hispid Pocket Mouse. Locally common in grasslands of southeastern part of the state; an isolated population occurs near Camp Verde (3,200 - 5,000 feet.)), 65 (genus), 73 (species), 100 (species), 106 (042612 - species, includes a listing of subspecies), 118 (recorded as *Perognathus hispidus conditi* Allen - Distribution: Grasslands of southeastern Arizona. Figure 51, Page 132), 148 (color presentation of species)*

***Chaetodipus intermedius* (Merriam, 1889): Rock Pocket Mouse**

SYNONYMY: *Perognathus intermedius* Merriam, 1889. COMMON NAMES: Black Mountain Pocket Mouse (*C.i. nigrimontis* Blossom, 1933 - Invalid?); Gila Pocket Mouse (*C.i. phasma* Goldman, 1918 - Invalid?); Intermediate Pocket Mouse (*C.i. intermedius* Merriam, 1889 - Invalid?); Raton de Rocas de Bosla (Hispanic)¹⁴; Ratón-de Abazones de Roca (Spanish)⁴²; Rock Pocket Mouse. HABITS: Feeds on seeds. Burrows are dug in soil near to or under rocks. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042612 - subsp. *atar* Dice; *beardi*; subsp. *crititus*; subsp. *intermedius*; subsp. *nigrimontis*; subsp. *phasma*; subsp. *rupestris* Benson; subsp. *umbrosus*), 42 (062112), 55 (recorded as *Perognathus intermedius* Merriam. Rock Pocket Mouse. Widely distributed in rocky areas in the Colorado River valley, western and southern Arizona (120 - 6,000 feet.)), 65 (genus), 73 (*Perognathus intermedius*), 100, 106 (042612), 118 (recorded as *Chaetodipus intermedius crinitis* Benson - Distribution: Known from south of the upper Colorado River. *Chaetodipus intermedius intermedius* Merriam - Distribution: Known from Mohave County southward and eastward, across most of the state to Cochise County. *Chaetodipus intermedius nigrimontis* Blossom - Distribution: Known only from the vicinity of the type locality (Black Mountain, 10 mi SW Tucson). *Chaetodipus intermedius phasma* Goldman - Distribution: Known from southern Yuma County and extreme southwestern Pima County. *Chaetodipus intermedius pinicatus* Blossom - Distribution: Known from the Pinicate lava area in southern Yuma County. *Chaetodipus intermedius umbrosus* Benson - Distribution: Known from grassland area just south of the Mogollon Rim. Figure 54, Page 141), 148 (color presentation)*

***Chaetodipus intermedius* subsp. *intermedius* (Merriam, 1889) - Invalid?: Intermediate Pocket Mouse**

SYNONYMY: *Perognathus intermedius* subsp. *intermedius* Merriam, 1889 - Invalid?. COMMON NAMES: Intermediate Pocket mouse; Raton de Rocas de Bosla (Hispanic)¹⁴; Rock Pocket Mouse. HABITS: The species feeds on seeds. Burrows are dug in soil near to or under rocks. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042612 - subsp. *atar* Dice; *beardi*; subsp. *crititus*; subsp. *intermedius*; subsp. *nigrimontis*; subsp. *phasma*; subsp. *rupestris* Benson; subsp. *umbrosus*), 42 (062112 - no subspecies listed), 55 (species: recorded as *Perognathus intermedius* Merriam. Rock Pocket Mouse. Widely distributed in rocky areas in the Colorado River valley, western and southern Arizona (120 - 6,000 feet.)), 65 (genus), 73 (species, recorded as *Perognathus intermedius*), 100 (species), 106 (042612 - species), 118 (recorded as *Chaetodipus intermedius intermedius* Merriam - Distribution: Known from Mohave County southward and eastward, across most of the state to Cochise County. Figure 54, Page 141), 148 (color presentation of species)*

***Chaetodipus penicillatus* (Woodhouse, 1852): Desert Pocket Mouse**

SYNONYMY: *Perognathus penicillatus* Woodhouse, 1852. COMMON NAMES: Desert Pocket Mouse; Price Pocket Mouse (*C.p. pricei* (J.A. Allen, 1894) - Invalid?); Raton del Desierto (Hispanic)¹⁴; Ratón-de abazones Desértico (Spanish)⁴²; Sonoran Desert Pocket Mouse. HABITS: Feeds on insects, green vegetation and seeds (of broomweed, creosote bush, grasses, greythorn, herbs and mesquite). Nests are made in underground burrows. HABITAT: Within the range of this species it has been reported from the scrub, grassland, desertscrub and wetland ecological formations. *14 (042712 - subsp. *pricei* (J.A. Allen)), 42 (062112), 55 (recorded as *Perognathus penicillatus* Woodhouse. Desert Pocket Mouse. Widely distributed in desert and low grasslands of southern and western Arizona (120 - 5,200 feet.)), 65 (genus), 73 (recorded as *Perognathus penicillatus*), 100 (color photograph), 106 (061412 - color presentation), 118 (recorded as *Perognathus penicillatus angustirostris* Osgood - Distribution: Known from southern Yuma County. *Perognathus penicillatus eremicus* Mearns - Distribution: Known from extreme southeastern Arizona. *Perognathus penicillatus penicillatus* Woodhouse - Distribution: Known from southern Mohave and northern Yuma Counties. *Perognathus penicillatus pricei* Allen - Distribution: Known from south-central Arizona and

Perognathus penicillatus sobrinus Goldman - Distribution: Perhaps occurs in extreme northwestern Arizona. Figure 53, Page 137), 148 (color presentation)*

***Chaetodipus penicillatus* subsp. *pricei* (J.A. Allen, 1894) - Invalid?: Price Pocket Mouse**

SYNONYMY: *Perognathus penicillatus* subsp. *pricei* J.A. Allen, 1894 - Invalid?. COMMON NAMES: Desert Pocket Mouse; Price Pocket Mouse; Raton del Desierto (Hispanic)¹⁴; Sonoran Desert Pocket Mouse. HABITS: The species feeds on insects, green vegetation and seeds (of broomweed, creosote bush, grasses, greythorn, herbs and mesquite). Nests are made in underground burrows. HABITAT: Within the range of this species it has been reported from the scrub, grassland, desertscrub and wetland ecological formations. *14 (042712 - subsp. *pricei* (J.A. Allen)), 42 (062112 - no subspecies listed), 55 (species: recorded as *Perognathus penicillatus* Woodhouse. Desert Pocket Mouse. Widely distributed in desert and low grasslands of southern and western Arizona (120 - 5,200 feet).), 65 (genus), 73 (species, recorded as *Perognathus penicillatus*), 100 (species, color photograph of species), 106 (061412 - species, color presentation of species), **118** (recorded as *Perognathus penicillatus pricei* Allen - Distribution: Known from south-central Arizona. Figure 53, Page 137), 148 (color presentation of species)*

***Dipodomys* Gray, 1841: Kangaroo Rat**

COMMON NAMES: Kangaroo Rat. *42 (063013), 106 (063013), **HR***

***Dipodomys merriami* Mearns, 1890: Merriam's Kangaroo Rat**

COMMON NAMES: Merriam Kangaroo Rat; Merriam's Kangaroo Rat; Rata de Nopalera Merriam (Hispanic)¹⁴; Rata-canguro de Merriam (Spanish)⁴². HABITS: Feeds on ants, green plant material and seeds (of creosote bush, grama grass, mesquite, ocotillo and purselane). Nests are made in underground burrows often located under bushes. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042712 - subsp. *ambiguus* (Merriam); subsp. *olivaceus* (Swarth), color presentation), 42 (062112), **55** (recorded as *Dipodomys merriami* Mearns. Merriam's Kangaroo Rat. Widely distributed in western and southern parts of the state (120 - 5,000 feet).), 65 (color photograph), 73, 100 (color photograph), 106 (061412 - includes a listing of subspecies, color presentation), 118 (recorded as *Dipodomys merriami merriami* Mearns - Distribution: Occurs throughout most of the western and southern part of the state. *Dipodomys merriami regillus* Goldman - Distribution: Known from extreme southern Yuma County and *Dipodomys merriami vulcani* Benson - Distribution: Known from northern Arizona north of the Colorado River. Figure 56, Page 145), 148 (color presentation)*

***Dipodomys merriami* subsp. *merriami* Mearns, 1890: Merriam's Kangaroo Rat**

COMMON NAMES: Merriam Kangaroo Rat; Merriam's Kangaroo Rat; Rata de Nopalera Merriam (Hispanic)¹⁴; Rata-canguro de Merriam (Spanish)⁴². HABITS: The species feeds on ants, green plant material and seeds (of creosote bush, grama grass, mesquite, ocotillo and purselane). Nests are made in underground burrows often located under bushes. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042712 - subsp. *ambiguus* (Merriam); subsp. *olivaceus* (Swarth), color presentation of species), 42 (062112), 55 (species: recorded as *Dipodomys merriami* Mearns. Merriam's Kangaroo Rat. Widely distributed in western and southern parts of the state (120 - 5,000 feet).), 65 (species, color photograph of species), 73 (species), 100 (species, color photograph of species), 106 (061412 - includes a listing of subspecies, color presentation of species), **118** (recorded as *Dipodomys merriami merriami* Mearns - Distribution: Occurs throughout most of the western and southern part of the state. Figure 56, Page 145), 148 (color presentation)*

***Dipodomys ordii* Woodhouse, 1853: Ord's Kangaroo Rat**

COMMON NAMES: Five-toed Kangaroo Rat; Long-footed Kangaroo Rat (*D.o. longipes* Merriam, 1890 - Invalid?); Mountain Kangaroo Rat (*D.o. montanus* Baird, 1855 - Invalid?); Ord's Kangaroo Rat (*D.o. ordii* Woodhouse, 1853 - Invalid?); Painted Desert Kangaroo Rat (*D.o. longipes* Merriam, 1890 - Invalid?); Rata de Nopalera Ord (Hispanic)¹⁴; Rata-canguro Común (Spanish)⁴²; Richardson's Kangaroo Rat (*D.o. richardsoni* J.A. Allen, 1891 - Invalid?). HABITS: Feeds on fruits, subterranean fungi, insects (grasshoppers and moths), leaves, mosses, needles and seeds. The nest is made in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042812 - subsp. *longipes* (Merriam); subsp. *medius* (Setzer); subsp. *montanus* (Baird); subsp. *ordii*; subsp. *richardsoni* (J.A. Allen)), 42 (062112), **55** (recorded as *Dipodomys ordii* Woodhouse. Ord's Kangaroo Rat. Widely distributed in grasslands in northern and eastern parts of the state (2,700-7,000 feet).), 85 (082608), 100 (color photograph), 106 (042812 - color presentation), 118 (recorded as *Dipodomys ordii ordii* Woodhouse - Distribution: Grasslands of southeastern Arizona. Figure 57, Page 149), 148 (color presentation)*

***Dipodomys ordii* subsp. *ordii* Woodhouse, 1853 - Invalid?: Ord's Kangaroo Rat**

COMMON NAMES: Five-toed Kangaroo Rat; Ord's Kangaroo Rat; Rata de Nopalera Ord (Hispanic)¹⁴. HABITS: The species feeds on fruits, subterranean fungi, insects (grasshoppers and moths), leaves, needles and seeds. The nest is made in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042812 - subsp. *longipes* (Merriam); subsp. *medius* (Setzer); subsp. *montanus* (Baird); subsp. *ordii*; subsp. *richardsoni* (J.A. Allen)), 42 (062112 - no subspecies listed), 55 (species: recorded as *Dipodomys ordii* Woodhouse. Ord's Kangaroo Rat. Widely distributed in grasslands in northern and eastern parts of the state

(2,700-7,000 feet.), 73 (species), 100 (species, color photograph), 106 (042812 - species, color presentation of species), **118** (recorded as *Dipodomys ordii ordii* Woodhouse - Distribution: Grasslands of southeastern Arizona. Figure 57, Page 149), 148 (color presentation of species)*

***Dipodomys spectabilis* Merriam, 1890: Banner-tailed Kangaroo Rat**

COMMON NAMES: Bailey Kangaroo Rat (*D.s. baileyi* Goldman, 1923 - Invalid?); Banner-tailed Kangaroo Rat; Kangaroo Rat; Large Kangaroo Rat (*D.s. spectabilis* Merriam, 1890 - Invalid?); Notable Kangaroo Rat; Rata de Nopalera (Hispanic)¹⁴; Rata-canguro Cola de Bandera (Spanish)⁴². HABITS: Feeds on grasses, forbs, succulent plants, insects, rodents and seeds. Nests are made up of chaff, stems and leaves of grass located in underground burrows in firm soils. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042812 - subsp. *baileyi* (Goldman, 1923); subsp. *perblandus*; subsp. *spectabilis*), 42 (062112), **55** (recorded as *Dipodomys spectabilis* Merriam. Banner-tailed Kangaroo Rat. Locally common in grasslands of southeastern Arizona (1,300 - 5,000 feet).), 65 (color photograph), 85 (052906), 100 (color photograph), 106 (042812), 118 (recorded as *Dipodomys spectabilis perblandus* Goldman - Distribution: Known from the grasslands of southern Pinal and Pima County and *Dipodomys spectabilis spectabilis* Merriam - Distribution: Known from the grasslands of Cochise County. Figure 55, Page 143), 148 (color presentation)*

***Dipodomys spectabilis* subsp. *perblandus* Goldman, 1933 - Invalid?: Banner-tailed Kangaroo Rat**

COMMON NAMES: Banner-tailed Kangaroo Rat; Kangaroo Rat; Rata de Nopalera (Hispanic)¹⁴. HABITS: The species feeds on grasses, forbs, succulent plants, insects, rodents and seeds. Nests are made up of chaff, stems and leaves of grass located in underground burrows in firm soils. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042812 - subsp. *baileyi* (Goldman, 1923); subsp. *perblandus*; subsp. *spectabilis*), 42 (062112 - no subspecies listed), 55 (species: recorded as *Dipodomys spectabilis* Merriam. Banner-tailed Kangaroo Rat. Locally common in grasslands of southeastern Arizona (1,300 - 5,000 feet).), 65 (species, color photograph), 100 (species, color photograph), 106 (042812 - species), **118** (recorded as *Dipodomys spectabilis perblandus* Goldman - Distribution: Known from the grasslands of southern Pinal and Pima County. Figure 55, Page 143), 148 (color presentation of species)*

***Perognathus amplus* Osgood, 1900: Arizona Pocket Mouse**

COMMON NAME: Arizona Pocket Mouse; Coconino Arizona Pocket Mouse (*P.a. ammodytes* Benson, 1933 - Invalid?); Loring Pocket Mouse; Ratón-de Abazones de Arizona (Spanish)⁴²; Sonoran Pocket Mouse (*P.a. taylori* Goldman, 1932 - Invalid?); Wupatki Arizona Pocket Mouse (*P.a. cineris* Benson, 1933 - Invalid?); Yavapai Arizona Pocket Mouse (*P.a. amplus* Osgood, 1900 - Invalid?). HABITS: The species feeds on green plants, insects and seeds. Nests are located in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042812 - subsp. *ammodytes*; subsp. *amplus*; subsp. *cineris*), 42 (062112), **55** (recorded as *Perognathus amplus* Osgood. Arizona Pocket Mouse. Locally common in desert areas on south-central, western and north-central parts of the state (500 - 5,100 feet).), 65 (genus), 73, 100 (color photograph), 106 (042812), 118 (recorded as *Perognathus amplus ammodytes* Benson - Distribution: Known only from the upper part of the Colorado River; *Perognathus amplus amplus* - Distribution: Known only from the vicinity of Fort Verde, Yavapai County; *Perognathus amplus cineris* Benson - Distribution: Known only from the region of the Wupatki National Monument; *Perognathus amplus jacksoni* Goldman - Distribution: known from central Arizona; *Perognathus amplus pergracilis* Goldman - Distribution: Known from Mojave County south of the Colorado and extreme northern Yuma County [now La Paz County]; *Perognathus amplus rotundus* Goldman - Distribution: Southwestern Yuma County, and *Perognathus amplus taylori* Goldman - Distribution: Known from south central Arizona. Figure 50, Page 129), 148 (color presentation), **MBJ** (correspondence dated May 13, 2013)*

***Perognathus amplus* subsp. *taylori* Goldman, 1932 - Invalid?: Arizona Pocket Mouse**

COMMON NAME: Arizona Pocket Mouse. HABITS: The species feeds on green plants, insects and seeds. Nests are located in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042812 - subsp. *ammodytes*; subsp. *amplus*; subsp. *cineris*), 42 (062112 - no subspecies listed), 55 (species: recorded as *Perognathus amplus* Osgood. Arizona Pocket Mouse. Locally common in desert areas on south-central, western and north-central parts of the state (500 - 5,100 feet).), 65 (genus), 73 (species), 100 (species, color photograph of species), 106 (042812 - species), **118** (recorded as *Perognathus amplus taylori* Goldman. Distribution: Known from south central Arizona. Figure 50, Page 129), 148 (color presentation of species)*

Perognathus baileyi (see *Chaetodipus baileyi*)

Perognathus baileyi subsp. *baileyi* (see *Chaetodipus baileyi* subsp. *baileyi*)

***Perognathus flavus* Baird, 1855: Silky Pocket Mouse**

COMMON NAME: Baird's Pocket Mouse (*P.f. flavus* Baird, 1855 - Invalid?); Baird's Pocket Mouse; Goodpaster's Silky Pocket Mouse (*P.f. goodpasteri* Hoffmeister, 1956 - Invalid?); Hopi Silky Pocket Mouse (*P.f. hopiensis* Goldman, 1932 - Invalid?); Ratón-de Abazones Sedoso (Spanish)⁴²; Silky Pocket Mouse; Springerville Pocket Mouse (*P.f. goodpasteri*

Hoffmeister, 1956 - Invalid?). HABITS: Feeds on seeds, nuts and invertebrates (though very few are taken). Nests are located in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (061412 - subsp. *flavus* (Baird); subsp. *gilvus* (Osgood); subsp. *goodpasteri* (Hoffmeister); subsp. *hopiensis* (Goldman)), 42 (062112), 55 (recorded as *Perognathus flavus* Baird. Silky Pocket Mouse. Locally common in grasslands throughout the state (2,900 - 6,500 feet).), 65 (genus), 73, 100 (color photograph), 106 (061412), 118 (recorded as *Perognathus flavus flavus* Baird - Distribution: Southeastern part of the state. Figure 48, Page 124), 148 (color presentation)*

***Perognathus flavus* subsp. *flavus* Baird, 1855 - Invalid?: Silky Pocket Mouse**

COMMON NAME: Silky Pocket Mouse. HABITS: The species feeds on seeds, nuts and invertebrates (though very few are taken). Nests are located in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (061412 - subsp. *flavus* (Baird); subsp. *gilvus* (Osgood); subsp. *goodpasteri* (Hoffmeister); subsp. *hopiensis* (Goldman)), 42 (062112 - no subspecies listed), 55 (species: recorded as *Perognathus flavus* Baird. Silky Pocket Mouse. Locally common in grasslands throughout the state (2,900 - 6,500 feet).), 65 (genus), 73 (species), 100 (species, color photograph of species), 106 (061412 - species), 118 (recorded as *Perognathus flavus flavus* Baird - Distribution: Southeastern part of the state. Figure 48, Page 124), 148 (color presentation of species)*

Perognathus hispidus (see *Chaetodipus hispidus*)

Perognathus hispidus subsp. *conditi* (see *Chaetodipus hispidus* subsp. *conditi*)

Perognathus intermedius (see *Chaetodipus intermedius*)

Perognathus intermedius subsp. *intermedius* (see *Chaetodipus intermedius* subsp. *intermedius*)

***Perognathus longimembris* (Coues, 1875): Little Pocket Mouse**

COMMON NAME: Arizona Little Pocket Mouse (*P.l. arizonensis* Goldman, 1931 - Invalid?); Little Pocket Mouse; Pima Little Pocket Mouse (*P.l. pimensis* Huey, 1937 - Invalid?); Ratón-de Abazones Menor (Spanish)⁴²; Virgin Valley Pocket Mouse (*P.l. virginis* Huey, 1939 - Invalid?); Yuma Pocket Mouse (*P.l. bombycinus* Osgood, 1907 - Invalid?). HABITS: Feeds on greens and seeds. HABITAT: Within the range of this species it has been reported from the scrub, grassland, desertscrub and wetland ecological formations. *14 (042812), 42 (062112), 55 (recorded as *Perognathus longimembris* (Coues). Little Pocket Mouse. Known from scattered localities in the western part of the state (500 - 4,500 feet).), 65 (genus), 73, 100 (color photograph), 106 (042812 - color presentation), 118 (recorded as *Perognathus longimembris arizonensis* Goldman - Distribution: Known from north-central Arizona north of the Colorado River; *Perognathus longimembris bombycinus* Osgood - Distribution: Known only in western Yuma County; *Perognathus longimembris pimensis* Huey - Distribution: Southcentral part of the state, and *Perognathus longimembris virginis* Huey - Distribution: Known only from northwestern Mohave County. Figure 49, Page 127), 148 (color presentation)*

***Perognathus longimembris* subsp. *pimensis* Huey, 1937 - Invalid?: Pima Little Pocket Mouse**

COMMON NAME: Little Pocket Mouse; Pima Little Pocket Mouse. HABITS: Feeds on greens and seeds. HABITAT: Within the range of this species it has been reported from the scrub, grassland, desertscrub and wetland ecological formations. *14 (042812 - species), 42 (062112 - no record of this subspecies), 55 (recorded as *Perognathus longimembris* (Coues). Little Pocket Mouse. Known from scattered localities in the western part of the state (500 - 4,500 feet).), 65 (genus), 73 (species), 100 (species, color photograph of species), 106 (042812 - species), 118 (recorded as *Perognathus longimembris pimensis* Huey - Distribution: Southcentral part of the state. Figure 49, Page 127), 148 (color presentation of species)*

Perognathus penicillatus (see *Chaetodipus penicillatus*)

Perognathus penicillatus subsp. *pricei* (see *Chaetodipus penicillatus* subsp. *pricei*)

Leporidae: The Hare and Rabbit Family

***Lepus alleni* Mearns, 1890: Antelope Jackrabbit**

COMMON NAME: Allen's Jack Rabbit (*L.a. alleni* Mearns, 1890); Allen's Jackrabbit (*L.a. alleni* Mearns, 1890); Antelope Jack Rabbit; Antelope Jackrabbit; Liebre Antilope (Spanish)⁴². HABITS: Feeds on cacti, Catclaw Acacia, grasses, herbs and the bark, buds and leaves of mesquite. Young are born in a nest that is usually located above ground. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042912), 42 (062112), 55 (recorded as *Lepus alleni* (Mearns). Antelope Jack Rabbit. Occurs in the central third of the southern half of the state.), 65, 73, 100 (color photograph), 106 (042912 - includes a listing of subspecies, color

presentation), 118 (recorded as *Lepus alleni* subsp. *alleni* Mearns - Distribution: Occurs in the central third of the southern half of the state. Figure 31, Page 68), 148 (color presentation)*

***Lepus alleni* subsp. *alleni* Mearns, 1890: Allen's Jackrabbit**

COMMON NAME: Allen's Jack Rabbit; Allen's Jackrabbit; Antelope Jack Rabbit; Antelope Jackrabbit. HABITS: The species feeds on cacti, Catclaw Acacia, grasses, herbs and the bark, buds and leaves of mesquite. Young are born in a nest that is usually located above ground. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042912 - species), 42 (062112), 55 (species: recorded as *Lepus alleni* (Mearns). Antelope Jack Rabbit. Occurs in the central third of the southern half of the state.), 65 (species), 73 (species), 100 (species, color photograph of species), 106 (042912 - species, including a listing of subspecies, color presentation of species), 118 (recorded as *Lepus alleni* subsp. *alleni* Mearns - Distribution: Occurs in the central third of the southern half of the state. Figure 31, Page 68), 148 (color presentation)*

***Lepus californicus* Gray, 1837: Black-tailed Jackrabbit**

COMMON NAMES: American Desert Hare; Arizona Jackrabbit (*L.c. eremicus* J.A. Allen, 1894 - Invalid?); Black-tailed Jack Rabbit; Black-tailed Jackrabbit; Blackeared Jackrabbit (*L.c. melanotis* Mearns, 1890 - Valid); Colorado Desert Jackrabbit (*L.c. deserticola* Mearns, 1896 - Valid); Desert Jackrabbit (*L.c. deserticola* Mearns, 1896 - Valid; *L.c. eremicus* J.A. Allen, 1894 - Invalid?); Great Plains Jackrabbit (*L.c. melanotis* Mearns, 1890 - Valid); "Jackass Rabbit"; Liebre Cola Negra (Hispanic)¹⁴; Liebre Cola Negra (Spanish)⁴²; Texas Jackrabbit (*L.c. texianus* Waterhouse, 1848 - Valid); Western Desert Jackrabbit (*L.c. deserticola* Mearns, 1896 - Valid). HABITS: Feeds on grasses, mesquite leaves and prickly-pear cacti. Young are born in nests located either above or below ground in forms that have been lined with breast hair, after birth the young are moved to separate nests and cared for individually by the female. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042912 - subsp. *melanotis* (Mearns); subsp. *texianus* (Waterhouse), color presentation), 42 (062112), 55 (recorded as *Lepus californicus* Gray. Black-tailed Jack Rabbit. Statewide.), 65, 73, 100 (color photograph), 106 (042912 - includes a listing of subspecies, color presentation), 118 (recorded as *Lepus californicus deserticola* Mearns - Distribution: Occurs in the western half of the state; *Lepus californicus eremicus* J.A. Allen - Distribution: Southeastern Arizona, and *Lepus californicus texianus* Waterhouse - Distribution: Occurs in the northeastern quarter of the state. Figure 32, Page 69), 148 (color presentation), **HR***

***Lepus californicus* subsp. *eremicus* J.A. Allen, 1894 - Invalid: Desert Jackrabbit**

COMMON NAMES: Arizona Jackrabbit; Black-tailed Jack Rabbit; Desert Jackrabbit; "Jackass Rabbit". HABITS: The species feeds on grass, mesquite leaves and prickly-pear cacti. Young are born in nests located either above or below ground in forms that have been lined with breast hair, after birth the young are moved to separate nests and cared for individually by the female. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042912 - subsp. *melanotis* (Mearns); subsp. *texianus* (Waterhouse), color presentation), 42 (062112 - no record of this subspecies), 55 (species: recorded as *Lepus californicus* Gray. Black-tailed Jack Rabbit. Statewide.), 65 (species), 73 (species), 100 (species, color photograph of species), 106 (species, includes a listing of subspecies, color presentation of species), 118 (recorded as *Lepus californicus eremicus* J.A. Allen - Distribution: Southeastern Arizona. Figure 32, Page 69), 148 (color presentation)*

***Sylvilagus audubonii* (Baird, 1858): Desert Cottontail**

COMMON NAME: Arizona Cottontail (*S.a. arizonae* (Mearns, 1896) - Valid); Audubon's Cottontail; Cedar Belt Cottontail (*S.a. cedrophilus* (Nelson, 1907) - Invalid?); Colorado Cottontail (*S.a. warreni* Nelson, 1907 - Valid); Conejo del Desierto (Hispanic)¹⁴; Desert Cottontail; Desert Cottontail Rabbit; Lesser Desert Cottontail (*S.a. minor* (Mearns, 1896) - Valid); Little Cottontail (*S.a. minor* (Mearns, 1896) - Valid); New Mexico Cottontail (*S.a. neomexicana* (Nelson, 1907) - Invalid?); Sacramento Valley Cottontail (*S.a. audubonii* (Baird, 1858) - Valid). HABITS: Feeds on green plants, cacti, bark and twigs. Young are born into nests lined with forbs, grasses and the female's fur which are located on the ground and in brush piles, piles of rocks, and burrows abandoned by other animals. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042912 - subsp. *cedrophilus* (Nelson); subsp. *minor* (Mearns); subsp. *neomexicana* (Nelson), color presentation), 42 (062112), 55 (recorded as *Sylvilagus audubonii* (Baird). Desert Cottontail. Common at elevations below 6,000 feet throughout the state.), 65, 73, 100 (color photograph), 106 (042912 - color presentation), 118 (recorded as *Sylvilagus audubonii arizonae* (J.A. Allen) - Distribution: Widely distributed at elevations up to 6,000 feet in the western half of the state; *Sylvilagus audubonii minor* (Mearns) - Distribution: Known only from the southeastern part of the state, and *Sylvilagus audubonii warreni* Nelson - Distribution: Known only from the northeastern part of the state. Figure 34, Page 74), 148 (color presentation), **WTK** (August 4, 2005)*

***Sylvilagus audubonii* subsp. *arizonae* (Mearns, 1896): Arizona Cottontail**

COMMON NAME: Arizona Cottontail. HABITS: The species feeds on green plants, cacti, bark and twigs. Young are born into nests lined with forbs, grasses and the female's fur which are located on the ground and in brush piles, piles of rocks, and burrows abandoned by other animals. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (042912 - subsp. *cedrophilus* (Nelson); subsp. *minor* (Mearns); subsp. *neomexicana* (Nelson), color presentation), 42 (062112), 55 (species: recorded as *Sylvilagus audubonii*

(Baird). Desert Cottontail. Common at elevations below 6,000 feet throughout the state.), 65 (species), 73 (species), 100 (species, color photograph of species), 106 (042912 - species, color presentation of species), **118** (recorded as *Sylvilagus audubonii arizonae* (J.A. Allen) - Distribution: Widely distributed at elevations up to 6,000 feet in the western half of the state. Figure 34, Page 74), 148 (color presentation)*

Mephitidae: The Skunk Family

***Conepatus leuconotus* (Lichtenstein, 1832): Common Hog-nosed Skunk**

COMMON NAMES: American Hog-nosed Skunk; Big Thicket Hog-nosed Skunk (*C.I. telmolestes* Bailey, 1905 - Valid: extinct); Common Hog-nosed Skunk; Eastern Hog-nosed Skunk; Hog-nosed Skunk; Hognose Skunk; Mexican Hog-nosed Skunk (*C.I. leuconotus* (Lichtenstein, 1832) - Valid); Rooter Skunk; White-spotted Skunk; Zorrillo Nariz de Puerco (Hispanic)¹⁴; Zorrillo-narigón Norteño (Spanish: applied to *C.I. leuconotus* (Lichtenstein, 1832) - Valid)⁴²; Zorrillo-narigón Occidental (Spanish)⁴². HABITS: Feeds on arachnids, birds, insects, small mammals, mollusks, plant material, reptiles and worms. These skunks take refuge in caves, crevices in rocks and in the ground. Rocky areas are used for denning with the young born beneath rocks, grasses are used for nesting. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (043012 - subsp. *mearnsi* (Merriam); subsp. *venaticus* (Goldman)), 42 (062112), **55** (recorded as *Conepatus mesoleucus* Lichtenstein. Hog-nosed Skunk. Southeastern part of the state (2,000 - 6,000 feet.), 65, 73 (*Conepatus mesoleucus*), 100 (*Conepatus mesoleucus*, color photograph), 106 (043012 - includes a listing of subspecies, color presentation), 118 (recorded as *Conepatus mesoleucus venaticus* Goldman - Distribution: South central and southeastern Arizona. Figure 102, Page 241), 148 (color presentation), 149*

***Conepatus leuconotus* subsp. *leuconotus* (Lichtenstein, 1832): Common Hog-nosed Skunk**

SYNONYMY: *Conepatus leuconotus* subsp. *venaticus* (Goldman, 1922) - Invalid?; *Conepatus mesoleucus* (Lichtenstein, 1832) - Valid; *Conepatus mesoleucus* subsp. *venaticus* Goldman, 1922 - Invalid. COMMON NAMES: Common Hog-nosed Skunk; Hog-nosed Skunk; Hognose Skunk; Mexican Hog-nosed Skunk; Rooter Skunk (Texas); Zorrillo Nariz de Puerco (Hispanic)¹⁴; Zorrillo-narigón Norteño (Spanish applied to *Conepatus mesoleucus*)⁴². HABITS: The species feeds on arachnids, birds, insects, small mammals, mollusks, plant material, reptiles and worms. These skunks take refuge in caves, crevices in rocks and in the ground. Rocky areas are used for denning with the young born beneath rocks, grasses are used for nesting. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (043012 - subsp. *mearnsi* (Merriam); subsp. *venaticus* (Goldman)), 42 (062112), 55 (species, recorded as *Conepatus mesoleucus* Lichtenstein. Hog-nosed Skunk. Southeastern part of the state (2,000 - 6,000 feet.), 65 (species), 73 (species, *Conepatus mesoleucus*), 100 (species record (*Conepatus mesoleucus*), color photograph of species), 106 (043012 - species, includes a listing of subspecies, color presentation of species), **118** (recorded as *Conepatus mesoleucus venaticus* Goldman - Distribution: South central and southeastern Arizona. Figure 102, Page 241), 148 (color presentation of species), 149*

Conepatus leuconotus subsp. *venaticus* (see *Conepatus leuconotus* subsp. *leuconotus*)

Conepatus mesoleucus (see *Conepatus leuconotus* subsp. *leuconotus*)

Conepatus mesoleucus subsp. *venaticus* (see *Conepatus leuconotus* subsp. *leuconotus*)

***Mephitis macroura* Lichtenstein, 1832: Hooded Skunk**

COMMON NAMES: Hooded Skunk; Miller's Skunk (*M.m. milleri* Mearns, 1897 - Valid); Mofeta Rayada (Spanish)¹⁰⁶; Moufette à Capuchon (French)¹⁰⁶; Northern Hooded Skunk (*M.m. milleri* Mearns, 1897 - Valid); Pay (Maya)¹⁰⁶; Southern Skunk; White-sided Skunk; Zorrillo (Hispanic)^{14,106}; Zorrillo-listado del Sur (Spanish). HABITS: Feeds on small birds (and bird eggs), insects and other invertebrates, rodents and plant material (including prickly-pear). The young are born in a dens located in burrows or among rocks. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (043012 - subsp. *milleri* (Mearns)), 42 (062112), **55** (recorded as *Mephitis macroura* (Lichtenstein). Hooded Skunk. Southeastern part of the state (2,000 - 6,000 feet.), 65, 73, 100 (color photograph), 106 (043012 - color presentation), 118 (recorded as *Mephitis macroura milleri* (Mearns) - Distribution: South central and southeastern Arizona. Figure 101, Page 240), 148 (color presentation)*

***Mephitis macroura* subsp. *milleri* Mearns, 1897: Hooded Skunk**

COMMON NAMES: Hooded Skunk; Millers Skunk; Northern Hooded Skunk; Zorrillo (Hispanic)¹⁴. HABITS: The species feeds on small birds (and bird eggs), insects and other invertebrates, rodents and plant material (including prickly-pear). The young are born in a dens located in burrows or among rocks. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (043012 - subsp. *milleri* (Mearns)), 42 (062112), 55 (species: recorded as *Mephitis macroura* (Lichtenstein). Hooded Skunk. Southeastern part of the state (2,000 - 6,000 feet.), 65 (species), 73 (species), 100 (species, color photograph of species), 106 (043012 - color presentation), **118** (recorded as *Mephitis macroura milleri* (Mearns) - Distribution: South central and southeastern Arizona. Figure 101, Page 240), 148 (color presentation of species)*

***Mephitis mephitis* (Schreber, 1776): Striped Skunk**

COMMON NAMES: Arizona Skunk (*M.m. estor* Merriam, 1890 - Valid); Long-tailed Texas Skunk (*M.m. varians* Gray, 1837 - Valid); Mouffette Rayée (French)⁴²; Northern Plains Skunk (*M.m. hudsonica* Richardson, 1829 - Valid); Striped Skunk; Zorrillo Rayado (Hispanic)¹⁴; Zorrillo-listado del Norte (Spanish)⁴². HABITS: Feeds on amphibians, berries, the eggs of ground nesting birds, carrion, crayfish, earthworms, fishes, frogs, fruits, insects (ants, beetles, crickets, grasshoppers, honeybees, wasps), small mammals (mice, moles, rats, squirrels, voles), mollusks, plant material, reptiles, snails and spiders. The young are born in nests made of dried grasses and leaves located in dirt banks, underground burrows abandoned by other animals, downed logs, pits and rock outcrops. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The Striped Skunk is most active dusk through dawn. This species is the chief carrier of rabies in the United States and those active during the daylight hours frequently being found to be rabid. *14 (043012 - subsp. *estor* (Merriam); subsp. *hudsonica* (Richardson); subsp. *varians* (Gray), color presentation), 42 (062112), 55 (recorded as *Mephitis mephitis* (Schreber). Striped Skunk. Statewide (300 - 9,000 feet).), 65 (color photograph), 73, 100 (color photograph), 106 (043012 - includes a listing of subspecies, color presentation), 118 (recorded as *Mephitis mephitis estor* Merriam - Distribution: Statewide. Figure 100, Page 239), 148 (color presentation)*

***Mephitis mephitis* subsp. *estor* Merriam, 1890: Arizona Skunk**

COMMON NAMES: Arizona Skunk; Striped Skunk; Zorrillo Rayado (Hispanic)¹⁴. HABITS: The species feeds on amphibians, berries, the eggs of ground nesting birds, carrion, crayfish, earthworms, fishes, frogs, fruits, insects (ants, beetles, crickets, grasshoppers, honeybees, wasps), small mammals (mice, moles, rats, squirrels, voles), mollusks, plant material, reptiles, snails and spiders. The young are born in nests made of dried grasses and leaves located in dirt banks, underground burrows abandoned by other animals, downed logs, pits and rock outcrops. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The Striped Skunk is most active dusk through dawn. This species is the chief carrier of rabies in the United States and those active during the daylight hours frequently being found to be rabid. *14 (043012 - subsp. *estor* (Merriam); subsp. *hudsonica* (Richardson); subsp. *varians* (Gray), color presentation of species), 42 (062112), 55 (species: recorded as *Mephitis mephitis* (Schreber). Striped Skunk. Statewide (300 - 9,000 feet).), 65 (species, color photograph of species), 73 (species), 100 (species, color photograph of species), 106 (043012 - species, includes a listing of subspecies, color presentation of species), 118 (recorded as *Mephitis mephitis estor* Merriam - Distribution: Statewide. Figure 100, Page 239), 148 (color presentation)*

***Spilogale gracilis* Merriam, 1890: Western Spotted Skunk**

SYNONYMY: *Spilogale putorius* subsp. *gracilis* Merriam, 1890 - Invalid?. COMMON NAMES: Channel Islands Spotted Skunk (*S.g. amphialus* Dickey, 1929 - Valid); Spotted Skunk; Western Spotted Skunk; Zorrillo Pinto (Hispanic)¹⁴. HABITS: Feeds on arachnids, berries, birds and bird eggs, carrion, fruits, insects, small mammals, scorpions and seeds. Dens are made in rock crevices and hollow logs. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (043012 - considers *Spilogale putorius gracilis* Merriam is a synonym for *Spilogale gracilis* the Western Spotted Skunk, and *Spilogale putorius leucoparia* is a synonym for *Spilogale putorius* the Eastern Spotted Skunk), 42 (062112), 55 (recorded as *Spilogale putorius* (Linnaeus). Spotted Skunk. Probably statewide (120 - 7,000 feet).), 65 (recorded as *Spilogale putorius*), 73 (recorded as *Spilogale gracilis*), 100 (recorded as *Spilogale gracilis*, color photograph), 106 (043012 - includes a listing of subspecies, color presentation), 118 (recorded as *Spilogale putorius gracilis* Merriam - Distribution: Probably statewide. Figure 99, Page 237), 148 (color presentation)*

Spilogale putorius (see footnotes 14, 55, 65 and 85 under *Spilogale gracilis*)

Spilogale putorius subsp. *gracilis* (see *Spilogale gracilis*)

Molossidae: The Free-tailed Bat Family

***Eumops perotis* (Schinz, 1821): Western Mastiff Bat**

COMMON NAMES: Bonnet Bat; California Mastiff Bat (*E.p. californicus* Merriam, 1890); Greater Bonneted Bat; Greater Mastiff Bat; Greater Western Bonneted Bat; Greater Western Mastiff Bat (*E.p. californicus* Merriam, 1890); Mastiff Bat; Murciélago Mastiff (Hispanic); Murciélago-con bonete Mayor (Spanish); Western Bonneted Bat; Western Mastiff Bat. HABITS: Feeds on crickets, long-horned grasshoppers, moths and other small insects. Roosts in crevices and shallow caves in cliffs and rock walls at lower elevations. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8 (*Eumops perotis californicus*), 14 (050112 - subsp. *californicus*), 42 (062112), 55 (recorded as *Eumops perotis* (Schinz). Western Mastiff Bat. Rare; in small colonies in rock crevices at lower elevations in the western and southern part of the state.), 65, 73, 92, 100 (color photograph), 106 (050112 - color presentation), 118 (recorded as *Eumops perotis californicus* (Merriam) - Distribution: Probably throughout southern Arizona in the Lower Sonoran Life Zone.), 148 (color presentation)*

***Eumops perotis* subsp. *californicus* Merriam, 1890 - Invalid?: Greater Western Mastiff Bat**

COMMON NAMES: Bonnet Bat; California Mastiff Bat; Greater Mastiff Bat; Greater Western Bonneted Bat; Greater Western Mastiff Bat; Mastiff Bat; Murciélago Mastiff (Hispanic)¹⁴; Western Mastiff Bat. HABITS: The species feeds on crickets, long-horned grasshoppers, moths and other small insects. Roosts in crevices and shallow caves in cliffs and rock walls at lower elevations. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050112 - subsp. *californicus*), 42 (062112 - no subspecies listed), 55 (species: recorded as *Eumops perotis* (Schinz). Western Mastiff Bat. Rare; in small colonies in rock crevices at lower elevations in the western and southern part of the state.), 65 (species), 73 (species), 92 (species), 100 (species, color photograph of species), 106 (050112 - color presentation), **118** (recorded as *Eumops perotis californicus* (Merriam) - Distribution: Probably throughout southern Arizona in the Lower Sonoran Life Zone. Figure 29, Page 65), 148 (color presentation)*

***Nyctinomops femorosaccus* (Merriam, 1889): Pocketed Free-tailed Bat**

SYNONYMY: *Tadarida femorosacca* (Merriam) - Invalid?. COMMON NAMES: Palm Springs Free-tailed Bat; Pocketed Free-tailed Bat; Murciélago Cola Libra en Bolsa (Hispanic)¹⁴; Murciélago-cola Suelta de Bolsa (Spanish)⁴². HABITS: Feeds on ants, leafhoppers, moths, wasps and other insects. Roosts in rocky crevices. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050112), 42 (062112), 55 (recorded as *Tadarida femorosacca* (Merriam). Pocketed Free-tailed Bat. Rare; found at lower elevations in the western and southern part of the state.), 100, 106 (050112 - color presentation), **118** (recorded as *Tadarida femorosacca* (Merriam) - Distribution: Probably occurs throughout the Lower Sonoran Life Zone of southern Arizona. Figure 27, Page 63), 148 (color presentation)*

***Nyctinomops macrotis* (Gray, 1840): Big Free-tailed Bat**

SYNONYMY: *Tadarida macrotis* (Gray, 1840) - Invalid?; *Tadarida molossa* (Pallas) - Invalid?. COMMON NAMES: Big Free-tailed Bat; Cuban Free-tailed Bat; Murciélago Cola Libre (Hispanic)¹⁴; Murciélago-cola Suelta Mayor (Spanish)⁴²; Greater Broad-eared Free-tailed Bat. HABITS: Feeds on insects. Roosts in rocky cliffs, crevices, fissures, caves and holes in trees. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050112), 42 (062112), **55** (recorded as *Tadarida molossa* (Pallas). Big Free-tailed Bat. Rare; statewide, mainly at elevations below 5,000 feet.), 73, 100 (color photograph), 106 (050112 - color presentation), **118** (recorded as *Tadarida molossa* (Pallas) - Distribution: Probably occurs throughout the Lower Sonoran Life Zone of Arizona. Figure 28, Page 64), 148 (color presentation), 149*

***Tadarida brasiliensis* (I. Geoffroy, 1824) (subsp. *mexicana* (Saussure, 1860 - Invalid?) is the only subspecies reported as occurring in Arizona): Brazilian Free-tailed Bat**

COMMON NAMES: Brazilian Free-tailed Bat; Guano Bat; Mexican Free-tail Bat; Mexican Free-tailed Bat; Mexican Freetail Bat; Murciélago Braziliiano (Hispanic)¹⁴; Murciélago-cola Suelta Brasileño (Spanish)⁴². HABITS: Feeds on small insects (ants, beetles, dragonflies, flies, leafhoppers, moths, true bugs, wasps). Roosts in caverns; caves; crevices in rocks; fissures in cliffs; buildings; mines, and under bridges. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: Bacardi rum features the Mexican free-tailed bat as its icon because of the species pollination of sugar cane as well as for their consumption of insects that damage the sugar cane crop. *8, 14 (050112 - subsp. *mexicana*), 42 (062112), **55** (recorded as *Tadarida brasiliensis* (I.Geof. St.-Hilaire). Mexican Free-tailed Bat. Locally abundant throughout the state, especially at elevations below 5,000 feet.), 65, 73, 92, 100 (color photograph), 106 (050112 - includes a listing of subspecies, color presentation), 118 (recorded as *Tadarida brasiliensis mexicana* (Saussure) - Distribution: Probably statewide in some part of the year. Figure 26, Page 62), 148 (color presentation)*

***Tadarida brasiliensis* subsp. *mexicana* (Saussure, 1860) - Invalid?: Brazilian Free-tailed Bat**

COMMON NAMES: Brazilian Free-tailed Bat; Guano Bat; Mexican Free-tail Bat; Mexican Free-tailed Bat; Mexican Freetail Bat; Murciélago Braziliiano (Hispanic)¹⁴. HABITS: The species feeds on small insects (ants, beetles, dragonflies, flies, leafhoppers, moths, true bugs, wasps). HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050112 - subsp. *mexicana*), 42 (062112 - no subspecies listed), 55 (species: recorded as *Tadarida brasiliensis* (I.Geof. St.-Hilaire). Mexican Free-tailed Bat. Locally abundant throughout the state, especially at elevations below 5,000 feet.), 65 (species), 73 (species), 92 (species), 100 (species, color photograph of species), 106 (050112 - species, includes a listing of subspecies, color presentation of species), **118** (recorded as *Tadarida brasiliensis mexicana* (Saussure) - Distribution: Probably statewide in some part of the year. Figure 26, Page 62), 148 (color presentation)*

Tadarida femorosacca (see *Nyctinomops femorosaccus*)

Tadarida macrotis (see *Nyctinomops macrotis*)

Tadarida molossa (see *Nyctinomops macrotis*)

***Mus musculus* Linnaeus, 1758: House Mouse**

COMMON NAMES: House Mouse; Raton Comun (Hispanic)¹⁴; Souris Commune (French)⁴². HABITS: Feeds on insects, plants and seeds almost anything edible. Nests are made up of down, feathers, grass, hair, trash and other soft materials and are located in man-made structures. HABITAT: Within the range of this species it has been reported from areas of human habitation and in lower elevations along roadsides, floodplains, fencerows, ditchbanks, agricultural fields and orchards in the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: **EXOTIC** (native to southern Asia), a destructive animal and a carrier of disease. "Gough Island in the South Atlantic is used by 20 species of seabird for breeding, including almost all of the world's Tristan Albatross (*Diomedea dabbenena*) and Atlantic Petrel (*Pterodroma incerta*). Until house mice arrived on the island in the 19th century with seamen, the birds did not have any mammalian predators. The mice have since grown unusually large and have learned to attack albatross chicks, which can be nearly 1 m tall, but are largely immobile, by working in groups and gnawing on them until they bleed to death. The estimated 700,000 mice on the island kill over one million bird chicks per year.^{[30]:106} *14 (010512), 42 (062112), 55 (recorded as *Mus musculus* (Linnaeus). House Mouse. Introduced; often around dwellings and occasionally occurring as feral populations.), 73, 100, 106 (010512 - includes a listing of subspecies, color presentation), **118** (recorded as *Mus musculus* subsp. - Distribution: [Throughout the state in association with human habitations; many feral populations are established in various areas.](#) Page 213), 148 (color presentation)*

***Neotoma albigula* Hartley, 1894: White-throated Wood Rat**

COMMON NAMES: Colorado Valley Woodrat (*N.a. venusta* True, 1894 - Invalid?); La Plata White-throated Wood Rat (*N.a. laplataensis* F.W. Miller, 1933 - Invalid?); Packrat; Rata-cambalachera Garganta Blanca (Spanish)⁴²; Trade Rat; White-throated Packrat; White-throated Wood Rat. HABITS: Feeds on ants, beetles, cacti (flowers, fruits, stems), flowers, forbs, fruits, grasses, juniper, leaves, mesquite (bark, flowers, leaves, seeds), green plant material, reptiles, seeds and yucca leaves. Nests are built under mesquite, cholla and prickly-pear cacti, or in rocky crevices using sticks, pieces of cholla and prickly-pear cacti, and rubbish, sometimes with underground burrows. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050112 - subsp. *albigula*; subsp. *laplataensis* F.W. Miller; subsp. *melas* (Dice); subsp. *mearnsi*; subsp. *warreni* (Merriam); subsp. *venusta*, color presentation), 42 (062112), **55** (recorded as *Neotoma albigula* Hartley. White-throated Wood Rat. Widely distributed at elevations below 7,000 feet throughout all of the state south of the Colorado River (120 - 8,000 feet.), 65 (color photograph), 73, 100 (color photograph), 106 (050112 - includes a listing of subspecies, color presentation), 118 (recorded as *Neotoma albigula albigula* Hartley - Distribution: Occurs commonly south of the Mogollon Rim; *Neotoma albigula mearnsi* Goldman - Distribution: Known from southern Yuma County; *Neotoma albigula laplataensis* F.W. Miller - Distribution: Known from northeastern Arizona, and *Neotoma albigula venusta* True - Distribution: Known from western Arizona. Figure 76, Page 193), 148 (color presentation), **MBJ** (correspondence dated May 13, 2013)*

***Neotoma albigula* subsp. *albigula* Hartley, 1894 - Invalid?: White-throated Wood Rat**

COMMON NAMES: Packrat; Trade Rat; White-throated Packrat; White-throated Wood Rat. HABITS: The species feeds on ants, beetles, cacti (flowers, fruits, stems), flowers, forbs, fruits, grasses, juniper, leaves, mesquite (bark, flowers, leaves, seeds), green plant material, reptiles, seeds and yucca leaves. Nests are built under mesquite, cholla and prickly-pear cacti, or in rocky crevices using sticks, pieces of cholla and prickly-pear cacti, and rubbish, sometimes with underground burrows. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050112 - subsp. *albigula*; subsp. *laplataensis* (F.W. Miller); subsp. *melas* (Dice); subsp. *mearnsi*; subsp. *warreni* (Merriam); subsp. *venusta*, color presentation), 42 (062112 - no subspecies listed), 55 (species: recorded as *Neotoma albigula* Hartley. White-throated Wood Rat. Widely distributed at elevations below 7,000 feet throughout all of the state south of the Colorado River (120 - 8,000 feet.), 65 (species, color photograph of species), 73 (species), 100 (species, color photograph of species), 106 (050112 - species, includes a listing of subspecies, color presentation of species), **118** (recorded as *Neotoma albigula albigula* Hartley - Distribution: Occurs commonly south of the Mogollon Rim. Figure 76, Page 193), 148 (species, color presentation of species)*

***Onychomys torridus* (Coues, 1874): Southern Grasshopper Mouse**

COMMON NAMES: Raton Chapulinero del Sur (Hispanic)¹⁴; Ratón-saltamontes Sureño (Spanish)⁴²; Scorpion Mouse; Southern Grasshopper Mouse. HABITS: Feeds on arthropods, beetles, grasshoppers, insects, lizards, scorpions, seeds and small vertebrates including other species of mice. Nests are located in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050112 - subsp. *torridus* (Coues)), 42 (062112), **55** (recorded as *Onychomys torridus* (Coues). Southern Grasshopper Mouse. Widely distributed in the western and southern parts of the state (120 - 5,000 feet.), 65 (genus), 73, 100 (color photograph), 106 (050112), 118 (recorded as *Onychomys torridus longicaudus* Merriam - Distribution: Extreme northwestern Arizona; *Onychomys torridus perpallidus* Mearns - Distribution: Western Arizona, and *Onychomys torridus torridus* (Coues) - Distribution: Southeastern quarter of the state. Figure 62, Page 161), 148 (color presentation)*

***Onychomys torridus* subsp. *torridus* (Coues, 1874) - Invalid?: Southern Grasshopper Mouse**

COMMON NAMES: Raton Chapulinero del Sur (Hispanic)¹⁴; Scorpion Mouse; Southern Grasshopper Mouse. HABITS: The species feeds on arthropods, beetles, grasshoppers, insects, lizards, scorpions, seeds and small vertebrates

including other species of mice. Nests are located in underground burrows. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050112 - subsp. *torridus* (Coues)), 42 (062112 - no subspecies listed), 55 (species: recorded as *Onychomys torridus* (Coues). Southern Grasshopper Mouse. Widely distributed in the western and southern parts of the state (120 - 5,000 feet.), 65 (genus), 73 (species), 100 (species, color photograph of species), 106 (050112 - species), 118 (recorded as *Onychomys torridus torridus* (Coues) - Distribution: Southeastern quarter of the state. Figure 62, Page 161), 148 (color presentation of species)*

***Peromyscus eremicus* (Baird, 1858): Cactus Mouse**

COMMON NAMES: Anthony Desert Mouse (*P.e. anthonyi* Merriam, 1887 - Invalid?); Anthony's Cactus Mouse (*P.e. anthonyi* Merriam, 1887 - Invalid?); Apache Desert Mouse (*P.e. anthonyi* Merriam, 1887 - Invalid?); Black Mountain Cactus Mouse (*P.e. pullus* Blossom, 1933 - Invalid?); Cactus Mouse; Desert Mouse; Desert White-footed Mouse (*P.e. eremicus* Baird, 1858 - Invalid?); Pinacate Cactus Mouse (*P.e. papagensis* Goldman, 1917 - Invalid?); Raton de Cactaceas (Hispanic)¹⁴; Ratón de Cactus (Spanish)⁴². HABITS: Feeds on flowers, small fruits, insects, green plant material and seeds. Nests are made within the abandoned burrows of other animals, clumps of cacti and among rocks. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050112 - subsp. *anthonyi* Merriam; subsp. *eremicus*; subsp. *pullus*, color presentation), 42 (062112), 55 (recorded as *Peromyscus eremicus* (Baird). Cactus Mouse. Widely distributed in western and southern Arizona (120 - 6,000 feet.), 65 (genus), 73, 100 (color photograph), 106 (050112 - color presentation), 118 (recorded as *Peromyscus eremicus anthonyi* (Merriam) - Distribution: Southeastern part of the state; *Peromyscus eremicus eremicus* (Baird) - Distribution: Almost all of the western and southern part of the state; *Peromyscus eremicus papagensis* Goldman - Distribution: Known only from the Pinacate lava in southern Yuma County, and *Peromyscus eremicus pullus* Blossom - Distribution: Known only from Black Mountain 10 mi. SSW Tucson, Pima County, Arizona. Figure 67, Page 171), 148 (color presentation)*

***Peromyscus eremicus* subsp. *eremicus* (Baird, 1858) - Invalid?: Desert Mouse**

COMMON NAMES: Cactus Mouse; Desert White-footed Mouse; Raton de Cactaceas (Hispanic)¹⁴. HABITS: The species feeds on flowers, small fruits, insects, green plant material and seeds. Nests are made within the abandoned burrows of other animals, clumps of cacti and among rocks. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050112 - species, subsp. *anthonyi* Merriam; subsp. *eremicus*; subsp. *pullus*, color presentation of species), 42 (062112 - no subspecies listed), 55 (species: recorded as *Peromyscus eremicus* (Baird). Cactus Mouse. Widely distributed in western and southern Arizona (120 - 6,000 feet.), 65 (genus), 73 (species), 100 (species, color photograph of species), 106 (050112 - species, color presentation of species), 118 (recorded as *Peromyscus eremicus eremicus* (Baird) - Distribution: Almost all of the western and southern part of the state. Figure 67, Page 171), 148 (color presentation of species)*

***Peromyscus leucopus* (Rafinesque, 1818): White-footed Mouse**

COMMON NAME: Apache Wood Mouse (*P.l. arizonae* J.A. Allen, 1894 - Invalid?); Arizona White-footed Mouse (*P.l. arizonae* J.A. Allen, 1894 - Invalid?); Raton Patas Blancas (Hispanic)¹⁴; Souris à Pattes Blanches (French)⁴²; White-footed Mouse; Wood Mouse; Woodmouse (Texas). HABITS: Feeds on berries, crustaceans, fungi, insects and other invertebrates, nuts, seeds and possibly small vertebrates. Nests are made of shredded bark, feathers, forbs, grasses, hair, leaves, mosses and plant fibers located in concealed places in banks, burrows, cavities in live and dead trees, holes in the ground, under rocks, in shrubs and tree stumps and logs. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: The White-footed Mouse may live to be 8 years of age. *14 (061512 - subsp. *arizonae* (J.A. Allen); subsp. *tornillo* (Mearns)), 42 (062112), 55 (recorded as *Peromyscus leucopus* (Rafinesque. White-footed Mouse. Known from eastern and central parts of the state (2,300 - 6,500 feet.), 65 (genus), 73, 100 (color photograph), 106 (050112 - color presentation), 118 (recorded as *Peromyscus leucopus arizonae* (Allen) - Distribution: Southeastern part of the state and *Peromyscus leucopus ochraceus* Osgood - Distribution: Along the Little Colorado River and an isolated population on the south edge of the Mogollon Rim which probably represents an unnamed race. Figure 70, Page 180), 148 (color presentation)*

***Peromyscus leucopus* subsp. *arizonae* J.A. Allen, 1894 - Invalid?: Arizona White-footed Mouse**

COMMON NAME: Apache Wood Mouse; Arizona White-footed Mouse; Raton Patas Blancas (Hispanic)¹⁴; White-footed Mouse; Wood Mouse. HABITS: Feeds on berries, crustaceans, fungi, insects and other invertebrates, nuts, seeds and possibly small vertebrates. Nests are made of shredded bark, feathers, forbs, grasses, hair, leaves, mosses and plant fibers located in concealed places in banks, burrows, cavities in live and dead trees, holes in the ground, under rocks, in shrubs and tree stumps and logs. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (061512 - subsp. *arizonae* (J.A. Allen); subsp. *tornillo* (Mearns)), 42 (062112 - no subspecies listed), 55 (species: recorded as *Peromyscus leucopus* (Rafinesque. White-footed Mouse. Known from eastern and central parts of the state (2,300 - 6,500 feet.), 65 (genus), 73 (species), 100 (color photograph of species, species), 106 (050112 - species, color presentation of species), 118 (recorded as *Peromyscus leucopus arizonae* (Allen) - Distribution: Southeastern part of the state. Figure 70, Page 180), 148 (color presentation of species)*

***Peromyscus maniculatus* (Wagner, 1845): Deer Mouse**

COMMON NAMES: Arizona Wood Mouse (*P.m. rufinus* Merriam, 1890 - Invalid?); Chihuahua Deer Mouse (*P.m. blandus* Osgood, 1904 - Invalid?); Chihuahua Plains Mouse (*P.m. blandus* Osgood, 1904 - Invalid?); Deer Mouse; Gentle Field Mouse (*P.m. blandus* Osgood, 1904 - Invalid?); Prairie Deer Mouse; Raton Venado (Hispanic); Ratón Norteamericano (Spanish)⁴²; Sonoran Deer Mouse (*P.m. sonoriensis* Le Conte, 1853 - Invalid?); Sonoran White-footed Mouse (*P.m. sonoriensis* Le Conte, 1853 - Invalid?); Souris Sylvestre (French)⁴²; Tawny Field Mouse (*P.m. rufinus* Merriam, 1890 - Invalid?); Tawny White-footed Mouse (*P.m. rufinus* Merriam, 1890 - Invalid?); Wagner's Field Mouse; White-footed Mouse. HABITS: Feeds on bark, berries, bones, centipedes, earthworms, small fruits, fungi, insects, leaves, nuts and snails. Nests are built in buildings, underground burrows, rock crevices debris, in and under logs, and clumps of vegetation. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050112 - subsp. *blandus* (Osgood); subsp. *rufinus* (Merriam)), 42 (062112), 55 (recorded as *Peromyscus maniculatus* (Wagner). Deer Mouse. Statewide (120 - 11,400 feet.), 65 (genus), 73, 100 (color photograph), 106 (050112 - color presentation), 118 (recorded as *Peromyscus maniculatus blandus* Osgood - Distribution: Extreme southeastern part of the state; *Peromyscus maniculatus rufinus* (Merriam) - Distribution: Higher elevations throughout the state, and *Peromyscus maniculatus sonoriensis* (Le Conte) - Distribution: Grasslands at lower elevations throughout the state. Figure 69, Page 177), 148 (color presentation)*

***Peromyscus maniculatus* subsp. *sonoriensis* Le Conte, 1853 - Invalid?: Sonoran Deer Mouse**

COMMON NAMES: Deer Mouse; Sonoran Deer Mouse; Sonoran White-footed Mouse. HABITS: The species feeds on bark, berries, bones, centipedes, earthworms, small fruits, fungi, insects, leaves, nuts and snails. Nests are built in buildings, underground burrows, rock crevices debris, in and under logs, and clumps of vegetation. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050112 - subsp. *blandus* (Osgood); subsp. *rufinus* (Merriam)), 42 (062112 - no subspecies listed), 55 (species, recorded as *Peromyscus maniculatus* (Wagner). Deer Mouse. Statewide (120 - 11,400 feet.), 65 (genus), 73 (species), 100 (species, color photograph of species), 106 (050112 - color presentation of species), 118 (recorded as *Peromyscus maniculatus sonoriensis* (Le Conte) - Distribution: Grasslands at lower elevations throughout the state. Figure 69, Page 177), 148 (color presentation of species)*

***Peromyscus merriami* Mearns, 1896: Merriam's Mouse**

COMMON NAMES: Merriam's Mouse; Mesquite Mouse; Ratón de Merriam (Spanish)⁴²; Sonoyta Desert Mouse. HABITS: Probably feeds on invertebrates and seeds. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (050112), 42 (062112), 55 (recorded as *Peromyscus merriami* Mearns. Merriam's Mouse. Known from scattered localities is Pinal, Pima and Santa Cruz counties (1,600 - 3,600 feet.), 73 (note on species), 100, 106 (061512), 118 (recorded as *Peromyscus merriami merriami* Mearns - Distribution: Known from mesquite bosque situations in southern Arizona. Figure 68, Page 174), 148 (color presentation)*

***Peromyscus merriami* subsp. *merriami* Mearns, 1896: Merriam's Mouse**

COMMON NAMES: Merriam's Mouse; Mesquite Mouse. HABITS: The species probably feeds on invertebrates and seeds. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (050112), 42 (062112 - no subspecies listed), 55 (species, recorded as *Peromyscus merriami* Mearns. Merriam's Mouse. Known from scattered localities is Pinal, Pima and Santa Cruz counties (1,600 - 3,600 feet.), 73 (note on species), 100 (species), 106 (061512 - species), 118 (recorded as *Peromyscus merriami merriami* Mearns - Distribution: Known from mesquite bosque situations in southern Arizona. Figure 68, Page 174), 148 (color presentation of species)*

***Reithrodontomys megalotis* (Baird, 1858): Western Harvest Mouse**

COMMON NAME: Arizona Harvest Mouse (*R.m. arizonensis* Allen, 1895 - Invalid?); Aztec Harvest Mouse (*R.m. aztecus* J.A. Allen, 1893 - Invalid?); Big-eared Harvest Mouse (*R.m. megalotis* (Baird, 1858) - Invalid?); Chiricahua Western Harvest Mouse (*R.m. arizonensis* Allen, 1895 - Invalid?); Ratón-cosechero Común (Spanish)⁴²; Western Harvest Mouse. HABITS: Feeds on arachnids, grasses, insects (larvae and adults) and seeds of grasses, forbs and shrubs. Spherical nests are made of woven plant material and lined with plant fibers and can be located near the ground or above the ground in dense vegetation. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050112 - subsp. *arizonensis*; subsp. *aztecus* J.A. Allen; subsp. *megalotis*), 42 (062112), 55 (recorded as *Reithrodontomys megalotis* (Baird). Western Harvest Mouse. Statewide (120 - 8,000 feet.), 73, 100 (color photograph), 106 (050112 - color presentation), 118 (recorded as *Reithrodontomys megalotis arizonensis* (Allen) - Distribution: Known only from the region of the type locality (Chiricahua Mountains); *Reithrodontomys megalotis aztecus* (Allen) - Distribution: Extreme northeastern part of state, and *Reithrodontomys megalotis megalotis* (Baird) - Distribution: At medium and low elevations statewide except extreme northeastern part of the state. Figure 64, Page 164), 148 (color presentation)*

***Reithrodontomys megalotis* subsp. *megalotis* (Baird, 1858) - Invalid?: Chiricahua Western Harvest Mouse**

COMMON NAME: Big-eared Harvest Mouse; Western Harvest Mouse. HABITS: The species feeds on arachnids, grasses, insects (larvae and adults) and seeds of grasses forbs and shrubs. Spherical nests are made of woven plant material and lined with plant fibers and can be located near the ground or above the ground in dense vegetation. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations.

*14 (050112 - subsp. *arizonensis*; subsp. *aztecus* J.A. Allen; subsp. *megalotis*), 42 - no subspecies listed), 55 (species, recorded as *Reithrodontomys megalotis* (Baird). Western Harvest Mouse. Statewide (120 - 8,000 feet.), 73 (species), 100 (species, color photograph of species), 106 (050112 - species, color presentation of species), **118** (recorded as *Reithrodontomys megalotis megalotis* (Baird) - Distribution: At medium and low elevations statewide except extreme northeastern part of the state. Figure 64, Page 164), 148 (color presentation of species)*

***Sigmodon arizonae* subsp. *ciengae* A.B. Howell, 1919 - Invalid?: Cienega Cotton Rat**

SYNONYMY: *Sigmodon hispidus* subsp. *ciengae* A.B. Howell, 1919 - Invalid?. COMMON NAMES: Arizona Cotton Rat; Cienega Cotton Rat; Cotton Rat. HABITS: Possibly feeding on berries, carcasses, fruits, insects and seeds. The nests are made of grass. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. *14 (050112 - subsp. *arizonae* (A.B. Howell); subsp. *ciengae* (A.B. Howell); subsp. *jacksoni* (A.B. Howell)), 42 (062112 - no record of this subspecies), 55 (no record of subspecies or species, possibly recorded as *Sigmodon hispidus* Say and Ord. Hispid Cotton Rat. Known from scattered riparian and grassland areas in southern part of the state (120-5,000 feet.), 73 (note on species), 100 (species), 106 (050112 - species, includes a listing of subspecies), **118** (recorded as *Sigmodon hispidus* subsp. *ciengae* A.B. Howell - Distribution: Locally common in southeastern Arizona. Figure 74, Page 188), 148 (color presentation of species)*

Sigmodon hispidus subsp. *ciengae* (see *Sigmodon arizonae* subsp. *ciengae*)

Mustelidae: The Weasel and Allies Family

***Lontra canadensis* (Schreber, 1777): North American River Otter**

SYNONYMY: *Lutra canadensis* (Schreber, 1777). COMMON NAMES: Arizona Otter (*L.c. sonora* (Rhoads, 1898) - Valid); Arizona River Otter (*L.c. sonora* (Rhoads, 1898) - Valid); California Otter (*L.c. brevipilosus* (Grinnell, 1914) - Invalid?); Canadian River Otter (*L.c. canadensis* (Schreber, 1777) - Valid); Carolina Otter (*L.c. latrixina* (Cuvier, 1823) - Valid); Common Otter; Degenerate Otter (*L.c. degener* (Bangs, 1898) - Invalid?); Florida Otter (*L.c. vaga* (Bangs, 1898) - Invalid?); Interior Otter (*L.c. interior* (Swenk, 1920) - Invalid?); Island Otter (*L.c. periclyzomae* (Elliot, 1905) - Valid); Kodiak River Otter (*L.c. kodiacensis* (Goldman, 1935) - Valid); Loutre de Rivière (French)⁴²; Mexican Otter (*L.c. sonora* (Rhoads, 1898) - Valid); Nearctic River Otter (*L.c. latrixina* (Cuvier, 1823) - Valid; *L.c. sonora* (Rhoads, 1898) - Valid); Newfoundland Otter (*L.c. degener* (Bangs, 1898) - Invalid?); North American River Otter; Northeastern Otter (*L.c. hudsonica* (Merriam, 1899 / Desmarest, 1803) - Invalid?); Northern River Otter; Nutria-de Río Norteamericana (Spanish)⁴²; Pacific Otter (*L.c. pacifica* (J.A. Allen, 1898) - Valid); Pah-hua-pe'na (Tewa - Taos Indians)¹⁴; Queen Charlotte Otter (*L.c. periclyzomae* (Elliot, 1905) - Valid); River Otter; Sonora Otter (*L.c. sonora* (Rhoads, 1898) - Valid); Sea-Girt Otter (*L.c. periclyzomae* (Elliot, 1905) - Valid); South East Canadian River Otter (*L.c. latrixina* (Cuvier, 1823) - Valid); South West Canadian River Otter (*L.c. sonora* (Rhoads, 1898) - Valid); Southeastern River Otter (*L.c. latrixina* (Cuvier, 1823) - Valid); Southwestern River Otter (*L.c. sonora* (Rhoads, 1898) - Valid); Texas River Otter (*L.c. texensis* (Goldman, 1935) - Invalid?); Vancouver River Otter (*L.c. vancouverensis* (Goldman, 1935) - Invalid?); Yukon River Otter (*L.c. yukonensis* (Goldman, 1935) - Invalid?). HABITS: Feeds on amphibians, birds, crustaceans, fishes, large aquatic insects, small mammals, aquatic plants and turtles. Nests are made of grasses, leaves, reeds and sticks located in dens dug in banks or within abandoned beaver and nutria dens and man-made structures. HABITAT: Within the range of this species it has been reported from permanently flowing water of streams and rivers, ponds, including beaver ponds, lakes, marshes and cienegas in areas where there is overhanging bank vegetation and haul-out and slide sites for access and where dens can be established in banks in wetland ecological formations within the forest, woodland, scrub, grassland and desertscrub ecological formations. NOTES: It is believed that it formerly inhabited the Black river, Colorado River, Gila River and Salt River. The historical presence of the River Otter in Pima County is unknown. *Lontra canadensis latrixina* (Cuvier) was introduced into central Arizona during 1981 - 1983. *8 (*Lontra canadensis sonora* Rhoads), 14 (050112 - subsp. *sonora* (Rhoads); subsp. *latrixina* (Cuvier) color presentation), 42 (062112), **55** (recorded as *Lutra canadensis* (Schreber) "Formerly in all of the larger permanent river systems; now rare."), 73 (recorded as *Lutra canadensis*), 100 (recorded as *Lutra canadensis*, color photograph), 106 (050112 - includes a listing of subspecies, color presentation), 118 (recorded as *Lontra canadensis sonora* Rhoads - Distribution: Formerly occurred in the Colorado and Gila rivers and their major tributaries. Today greatly reduced in numbers. Figure 103, Page 242), 148 (color presentation)*

***Lontra canadensis* subsp. *sonora* (Rhoads, 1898): Southwestern River Otter**

SYNONYMY: *Lutra canadensis* subsp. *sonorae* Rhoads, 1898 - Invalid?. COMMON NAMES: Arizona Otter; Arizona River Otter; Common Otter; Mexican Otter; Nearctic River Otter; Pah-hua-pe'na (Tewa - Taos Indians)¹⁴; River Otter; Sonora Otter; South West Canadian River Otter; Southwestern River Otter. HABITS: Feeds on amphibians, birds, crustaceans, fishes, large aquatic insects, small mammals, aquatic plants and turtles. Nests are made of grasses, leaves, reeds and sticks located in dens dug in banks or within abandoned beaver and nutria dens and man-made structures. HABITAT: Within the range of this species it has been reported from permanently flowing water of streams and rivers, ponds, including beaver ponds, lakes, marshes and cienegas in areas where there is overhanging bank vegetation and haul-out and slide sites for access and where dens can be established in banks in wetland ecological formations within the forest, woodland, scrub, grassland and desertscrub ecological formations. NOTES: It is believed that it formerly inhabited the Black river, Colorado River, Gila River and Salt

River. The historical presence of the River Otter in Pima County is unknown. *Lontra canadensis laticincta* (Cuvier) was introduced into central Arizona during 1981 - 1983. *8 (*Lontra canadensis sonora* Rhoads), 14 (050112 - subsp. *sonora* (Rhoads); subsp. *laticincta* (Cuvier) color presentation), 42 (062112), 55 (species, recorded as *Lutra canadensis* (Schreber) “Formerly in all of the larger permanent river systems; now rare.”), 73 (species, recorded as *Lutra canadensis*), 100 (species, recorded as *Lutra canadensis*, color photograph), 106 (050112 - species, includes a listing of subspecies, color presentation of species), **118** (recorded as *Lontra canadensis sonora* Rhoads - Distribution: Formerly occurred in the Colorado and Gila rivers and their major tributaries. Today greatly reduced in numbers. Figure 103, Page 242), 148 (color presentation)*

Lutra canadensis (see *Lontra canadensis*)

Lutra canadensis subsp. *sonorae* (see *Lontra canadensis* subsp. *sonora*)

***Taxidea taxus* (Schreber, 1777): American Badger**

COMMON NAMES: American Badger; Badger; Berlandier’s Badger (*T.t. berlandieri* Baird, 1758 - Valid); North American Badger; Mexican Badger (*T.t. berlandieri* Baird, 1758 - Valid); Tejon (Hispanic)¹⁴; Tejón (“Badger”, a name also applied to the Coati, Spanish)¹⁰⁶; Texas Badger (*T.t. berlandieri* Baird, 1758 - Valid); Tlalcoyote (Spanish)^{42,106}. HABITS: Feeds on amphibians, ground dwelling birds (and eggs), carrion, fish, insects, burrowing rodents (moles, voles, gophers, ground squirrels, mice, woodrats, pack rats, prairie dogs, marmots, groundhogs), cottontails, pikas, jackrabbits, skunks, snakes and some plant material such as corn, peas, beans and mushrooms and fungi. Temporary shelter is taken in burrows. The young are born in natal dens in underground burrows. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050212 - subsp. *berlandieri* (Baird), color presentation), 42 (062112), **55** (recorded as *Taxidea taxus* (Schreber). Badger. Statewide (120 - 7,000 feet.), 65, 73, 100 (color photograph), 106 (050212 - includes a listing of subspecies, color presentation), **118** (recorded as *Taxidea taxus* - Distribution: Statewide. Figure 98, Page 235), 145, 148 (color presentation), **ADS** (Canyons Unusual Population, A bunch of Sabino badgers making themselves known, Wednesday, August 10, 2011, Section A, Page 2)*

***Taxidea taxus* subsp. *berlandieri* Baird, 1858: Berlandier’s Badger**

COMMON NAMES: Berlandier’s Badger; Mexican Badger; Tejon (Hispanic)¹⁴; Texas Badger. HABITS: The species feeds on amphibians, ground dwelling birds (and eggs), carrion, fish, insects, burrowing rodents (moles, voles, gophers, ground squirrels, mice, woodrats, pack rats, prairie dogs, marmots, groundhogs), cottontails, pikas, jackrabbits, skunks, snakes and some plant material such as corn, peas, beans and mushrooms and fungi. Temporary shelter is taken in burrows. The young are born in natal dens in underground burrows. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050212 - subsp. *berlandieri* (Baird), color presentation), 42 (062112), 55 (species, recorded as *Taxidea taxus* (Schreber). Badger. Statewide (120 - 7,000 feet.), 65 (species), 73 (species), 100 (species, color photograph of species), 106 (050212 - species, includes a listing of subspecies, color presentation of species), 118 (recorded as *Taxidea taxus* - Distribution: Statewide. Figure 98, Page 235), **145** (described the range of *Taxidea taxus berlandieri* Baird as being throughout the state but absent from higher elevations), 148 (color presentation)*

Phyllostomidae: The Leaf-nosed Bat Family

***Choeronycteris mexicana* Tschudi, 1844: Mexican Long-tongued Bat**

COMMON NAMES: Hognose Bat; Hog-nosed Bat; Long-tongued Bat; Mexican Hog-nosed Bat; Mexican Long-tongued Bat; Murciélago Lengua Larga Mexicano (Hispanic)¹⁴; Murciélago Trompudo (Spanish)⁴². HABITS: Feeds on fruits, insects, nectar and pollen. Roosts are located under bridges, and in shallow caves, rock fissures and mine tunnels. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050212), 42 (062112), 55 (recorded as *Choeronycteris mexicana* Tschudi. Mexican Long-tailed Bat. Uncommon; usually found near the fronts of shallow caves and mine tunnels. Known from Pima, Santa Cruz and Cochise counties.), 73, 92, 100 (color photograph), 106 (050212 - color presentation), **118** (recorded as *Choeronycteris mexicana* Tschudi - Distribution: Known only from the southeastern part of the state. Figure 8, Page 33), 148 (color presentation)*

Leptonycteris curasoae subsp. *yerbabuena* (see *Leptonycteris yerbabuena*)

Leptonycteris nivalis (see footnote 55 under *Leptonycteris yerbabuena*)

Leptonycteris nivalis subsp. *nivalis* (see footnote 118 under *Leptonycteris yerbabuena*)

Leptonycteris nivalis subsp. *sanborni* (see *Leptonycteris yerbabuena*)

Leptonycteris nivalis subsp. *yerbabuena* (see *Leptonycteris yerbabuena*)

Leptonycteris sanborni (see *Leptonycteris yerbabuena*)

***Leptonycteris yerbabuena* Martinez and Villa, 1940: Lesser Long-nosed Bat**

SYNONYMY: *Leptonycteris curasoae* subsp. *yerbabuena* Martinez and Villa, 1940; *Leptonycteris nivalis* subsp. *sanborni* Hoffmeister, 1957 - Invalid?; *Leptonycteris nivalis* subsp. *yerbabuena* Martinez and Villa, 1940; *Leptonycteris sanborni* Hoffmeister, 1957. COMMON NAMES: “Leptos” (a name applied by bat enthusiasts); Lesser Long-nosed Bat; Little Long-nosed Bat; Mexican Long-nosed Bat; Murciélago de Sanborn (Hispanic)¹⁴; North American Long-nosed Bat; Sanborn’s Long-nosed Bat; Sanborn’s Southern Long-nosed Bat; Southern Long-nosed Bat; Yerba Buena Long-nosed Bat. HABITS: Feeds on insects, nectar, pollen and the nectar and soft-bodied fruits of agaves and cacti. Roosts are located in caves, rock crevices, abandoned mines and tunnels. HABITAT: Within the range of this species it has been reported from the woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: Long-nosed bats are pollinators of Agaves, Cardons, Organ Pipe Cacti and Saguars. *8, 14 (0502-12 - **Populations may be compromised by roost-site disturbance, loss of food sources and direct killing by humans.**), 35 (**This species is vulnerable to disturbances at roosting sites by cave explorers.**), 42 (062112), 55 (species, recorded as *Leptonycteris nivalis* (Saussure). Long-nosed Bat. Locally common in moist caves. Known from Pinal, Pima, Santa Cruz and Cochise Counties.), 92 (recorded as *Leptonycteris sanborni*), 100 (species, recorded as *Leptonycteris curasoae* and *Leptonycteris nivalis*, color photographs), 106 (050212 - color presentation), 110 (recorded as *Leptonycteris sanborni*), **118** (recorded as *Leptonycteris nivalis nivalis* (Saussure) - Distribution: Known only from the southeastern part of the state. Figure 9, Page 35), 148 (color presentation)*

***Macrotus californicus* Baird, 1857: California Leaf-nosed Bat**

COMMON NAMES: California Big-eared Bat; California Large-eared Bat; California Leaf-nosed Bat; Leaf-nosed Bat; Leafnose Bat; Murciélago-orejón Californiano (Spanish)⁴². HABITS: Feeds on beetles, butterflies, caterpillars, cicadas, crickets, dragonflies, grasshoppers, leafhoppers, moths and other insects. Roosts are located in caves, deep grottos and abandoned mine tunnels. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. NOTE: **Human disturbance of roosting caves is a major threat.** *8, 14 (050212), 42 (062112), **55** (recorded as *Macrotus californicus* Baird. Leaf-nosed Bat. Locally common in shallow caves, mine tunnels and under bridges. Occurs widely at lower elevations in the western and southern parts of the state.”), 73, 92, 100 (color photograph), 106 (061612 - color presentation), **118** (recorded as *Macrotus californicus* Baird - Distribution: Known from lower elevations in the southern and western parts of the state. Figure 7, Page 32), 148 (color presentation)*

Procyonidae: The Raccoon and Allies Family

***Bassariscus astutus* (Lichtenstein, 1830): Ringtail**

COMMON NAMES: Arizona Ringtail (*B.a. arizonensis* Goldman, 1932 - Valid); Arizona Ring-tailed Cat (*B.a. arizonensis* Goldman, 1932 - Valid); Band-tailed Cat; Cacomistle; Cacomixtle Norteño (Spanish)⁴²; Cat Squirrel; Civet Cat; Common Raccoon-fox; Coon Cat; Gato Minero (Hispanic)¹⁴; Mexican Ring-tailed Cat (*B.a. yumanensis* Huey, 1937 - Valid); Miner’s Cat; Nevada Ring-tailed Cat (*B.a. nevadensis* Miller, 1913 - Valid); Ringtail; Ringtail Cat; Ring-tailed Cat; Tawny Raccoon-fox (*B.a. flavus* Rhoads, 1893 - Valid); Texas Ring-tailed Cat (*B.a. flavus* Rhoads, 1893 - Valid); Yuma Ringtail (*B.a. yumanensis* Huey, 1937 - Valid); Yuma Ring-tailed Cat (*B.a. yumanensis* Huey, 1937 - Valid). HABITS: Feeds on berries, birds, fruits, carrion, crickets, eggs, insects, lizards, small mammals, snakes and spiders. Nests are made of grass located in dens in underground burrows, caves, cliffs, rocky outcrops, cavities in logs, stumps and trees and man-made structures. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8 (subsp. *arizonensis*; subsp. *nevadensis*; subsp. *yumanensis*), 14 (050212- subsp. *arizonensis* (Goldman); subsp. *flavus* (Rhoads), color presentation), 42 (062112), **55** (recorded as *Bassariscus astutus* (Lichtenstein). Ringtail. Statewide (120 - 6,500 feet).), 65 (color photograph), 73, 100 (color photograph), 106 (050212 - includes a listing of subspecies, color presentation), 118 (recorded as *Bassariscus astutus arizonensis* Goldman - Distribution: Statewide except extreme southeastern and southwestern parts; *Bassariscus astutus flavus* Rhoads - Distribution: Extreme southeastern part of the state, and *Bassariscus astutus yumanensis* Huey - Distribution: Southwestern Arizona. Figure 93, Page 227), 148 (color presentation)*

***Bassariscus astutus* subsp. *arizonensis* Goldman, 1932: Arizona Ringtail**

COMMON NAMES: Arizona Ring-tailed Cat; Band-tailed Cat; Cacomistle; Civet Cat; Coon Cat; Gato Minero (Hispanic)¹⁴; Miner’s Cat; Ringtail; Ringtail Cat; Ring-tailed Cat. HABITS: The species feeds on berries, birds, fruits, carrion, crickets, eggs, insects, lizards, small mammals, snakes and spiders. Nests are made of grass located in dens in underground burrows, caves, cliffs, rocky outcrops, cavities in logs, stumps and trees and man-made structures. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050212- subsp. *arizonensis* (Goldman); subsp. *flavus* (Rhoads), color presentation), 42 (062112), 55 (species, recorded as *Bassariscus astutus* (Lichtenstein). Ringtail. Statewide (120 - 6,500 feet).), 65 (species, color photograph of species), 73 (species), 100 (species, color photograph of species), 106 (050212 - species, includes a listing of subspecies, color presentation of species), **118** (recorded as *Bassariscus astutus arizonensis* Goldman - Distribution: Statewide except extreme southeastern and southwestern parts. Figure 93, Page 227), 148 (color presentation)*

***Nasua narica* (Linnaeus, 1766): White-nosed Coati**

COMMON NAMES: Antoon¹⁰⁶; Boqueron Coati (*N.n. panamensis* Allen, 1904 - Invalid?); Chula^{14,65}; Chulo¹⁴; Coati (Indian Name)¹⁴; Coati Norteño (Spanish)⁴²; Coatimundi (generally applied to roving male Coati)¹⁰⁶; Cozumel Island Coati (*N.n. nelsoni* Merriam, 1901 - Valid); Dark Coati (*N.n. molaris* Merriam, 1902 - Valid); El Gato Solo (Los Gatos en Familia)¹⁴; Manzanillo Coati (*N.n. molaris* Merriam, 1902 - Valid); Nelson's Coati (*N.n. nelsoni* Merriam, 1901 - Valid); Pallid Coati (*N.n. molaris* Merriam, 1902 - Invalid?); Panamanian Coati (*N.n. panamensis* Allen, 1904 - Invalid?); Pizote^{14,106}; Red Coati (*N.n. rufus* Goldman, 1932 - Invalid?); Tamaulipas Coati (*N.n. molaris* Merriam, 1902 - Valid); Tejón (means Badger, but is a name that is also applied to the Coati, Spanish)¹⁰⁶; White-nosed Coati; Yucatan Coati (*N.n. yucatanica* J.A. Allen, 1904 - Valid); Yucatanian Coati (*N.n. yucatanica* J.A. Allen, 1904 - Valid). HABITS: Feeds on the berries of juniper and manzanita, birds, carrion, eggs, fruits, insects (including among others crickets and grasshoppers) and other invertebrates, prickly pear fruit, lizards, small mammals, nuts, snakes, tubers, worms and yucca fruits. Young are born in dens located in caves, crevices in rocks, mines shafts and cavities among tree roots. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050212 - color presentation), 42 (062112), 55 (recorded as *Nasua narica* (Linnaeus). Coati. In woodland situations in the Graham, Chiricahua, Huachuca, Patagonia and Pena Blanca mountains (5,000 to 7,500 feet).), 65 (Reported that "eyewitness accounts by ranchers established that they (*Nasua narica*) were in the Rincon Mountains in what is now part of the Saguaro National Monument in the very early 1900s." Page 42), 73, 100 (color photograph), 106 (050212 - includes a listing of subspecies, color presentation), 118 (recorded as *Nasua narica pallida* Allen - Distribution: Mountains of southern and southeastern part of the state. Figure 95, Page 230), 148 (color presentation), 149, **ADS** (January 24, 2010, Section A, Pages 1&3, Seen a creature like this? In Catalinas, you just may Sunday *

***Nasua narica* subsp. *molaris* Merriam, 1902: Manzanillo Coati**

SYNONYMY: *Nasua narica* subsp. *pallida* J.A. Allen, 1904 - Invalid?. COMMON NAMES: Coati (Indian Name)¹⁴; Coatimundi (applied to roving male Coati)¹⁰⁶; Dark Coati; Manzanillo Coati; Pallid Coati; Tamaulipas Coati; Tejón (means Badger, but is a name that is also applied to the Coati, Spanish). HABITS: The species feeds on the berries of juniper and manzanita, birds, carrion, eggs, fruits, insects (including among others crickets and grasshoppers) and other invertebrates, prickly pear fruit, lizards, small mammals, nuts, snakes, tubers, worms and yucca fruits. Young are born in dens located in caves, crevices in rocks, mines shafts and cavities among tree roots. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050212 - species, color presentation), 42 (062112), 55 (species, recorded as *Nasua narica* (Linnaeus). Coati. In woodland situations in the Graham, Chiricahua, Huachuca, Patagonia and Pena Blanca mountains (5,000 to 7,500 feet).), 65 (species, reported that "eyewitness accounts by ranchers established that they (*Nasua narica*) were in the Rincon Mountains in what is now part of the Saguaro National Monument in the very early 1900s." Page 42), 73 (species), 100 (species, color photograph), 106 (050212 - species, includes a listing of subspecies, color presentation of species), 118 (recorded as *Nasua narica pallida* Allen - Distribution: Mountains of southern and southeastern part of the state. Figure 95, Page 230), 148 (color presentation), 149*

Nasua narica subsp. *pallida* (see *Nasua narica* subsp. *molaris*)

***Procyon lotor* (Linnaeus, 1758): Common Raccoon**

COMMON NAMES: Ahrah-koon-em ("[the] One Who Rubs, Scrubs, and Scratches with Its Hands", Proto-Algonquian)¹⁰⁶; Alabama Raccoon (*P.l. varius* Nelson and Goldman, 1930 - Invalid?); Araiguma (transcribed Japanese)¹⁰⁶; Arathkone (transcribed Powhatan)¹⁰⁶; Aroughcun (transcribed Powhatan)¹⁰⁶; Bahama Raccoon (*P.l. maynardi* Bangs, 1898 - Valid); Bahamas Raccoon (*P.l. maynardi* Bangs, 1898 - Valid); Bahamian Raccoon (*P.l. maynardi* Bangs, 1898 - Valid); Baja California Raccoon (*P.l. grinnelli* Nelson and Goldman, 1930 - Valid); Barbados Raccoon (*P.l. gloveralleni* Nelson and Goldman, 1930 - Valid: extinct); California Raccoon (*P.l. psora* Gray, 1842 - Valid); Campeche Raccoon (*P.l. hernandezii* Wagler, 1831 - Valid); Coastal Marsh Raccoon (*P.l. lotor* (Linnaeus, 1758) - Valid); Colorado Desert Raccoon (*P.l. pallidus* Merriam, 1900 - Valid); Common Raccoon; Coon (colloquial abbreviation)¹⁰⁶; Costa Rican Raccoon (*P.l. hernandezii* Wagler, 1831 - Valid); Desert Raccoon (*P.l. pallidus* Merriam, 1900 - Valid); Dickey's Raccoon (*P.l. hernandezii* Wagler, 1831 - Valid); Eastern Raccoon (*P.l. lotor* (Linnaeus, 1758) - Valid); Florida Raccoon (*P.l. elucus* Bangs, 1898 - Valid); Guadeloupe Raccoon (*P.l. minor* Miller, 1911 - Invalid?); Hernandez Raccoon (*P.l. hernandezii* Wagler, 1831 - Valid); Hilton Head Island Raccoon (*P.l. solutus* Nelson and Goldman, 1931 - Invalid?); Isthmian Raccoon (*P.l. pumilus* Miller, 1911 - Valid); Key Vaca Raccoon (*P.l. auspicatus* Nelson, 1930 - Valid); Key West Raccoon (*P.l. incautus* Nelson, 1930 - Valid); Mapache (Spanish: from the Uto-Aztecan, Náhuatl [Aztec] word Mapachitli "[the] One Who Takes Everything in Its Hands")¹⁰⁶; Mapache Común (Spanish)⁴²; Matecumbe Key Raccoon (*P.l. inesperatus* Nelson, 1930 - Valid); Mexican Plateau Raccoon (*P.l. hernandezii* Wagler, 1831 - Valid); Mexican Raccoon (*P.l. hernandezii* Wagler, 1831 - Valid); Mississippi Delta Raccoon (*P.l. megalodous* Lowery, 1943 - Valid); Mosómedve (Hungarian)¹⁰⁶; North American Raccoon; Northern Raccoon; Orsetto Lavatore (Italian)¹⁰⁶; Pacific Raccoon (*P.l. pacificus* Merriam, 1899 - Valid); Pacific Northwest Raccoon (*P.l. pacificus* Merriam, 1899 - Valid); Pale Raccoon (*P.l. pallidus* Merriam, 1900 - Valid); Pallid Raccoon (*P.l. pallidus* Merriam, 1900 - Valid); Raccoon; Racoón; Racuno (Hispanic)¹⁴; Ratão-lavadeiro (Portuguese: Portugal)¹⁰⁶; Raton Laveur (French)^{42,106}; Saint Simon Island Raccoon (*P.l. litoreus* Nelson and Goldman, 1930 - Valid); Salvadore Raccoon (*P.l. hernandezii* Wagler, 1831 - Valid); San Diego Raccoon (*P.l. psora* Gray, 1842 - Valid); Sleepy Raccoon (*P.l. hernandezii* Wagler, 1831 - Valid); Snake River Valley Raccoon (*P.l. excelsus* Nelson and Goldman, 1930 - Valid); Southwestern Raccoon (*P.l. psora* Gray, 1842 - Valid); Ten Thousand Islands Raccoon (*P.l. marinus* Nelson, 1930 - Valid); Texas Raccoon (*P.l. fuscipes* Mearns, 1914 - Valid); Thousand Island Raccoon (*P.l. marinus* Nelson, 1930 - Valid); Torch Key Raccoon (*P.l. incautus* Nelson, 1930 - Valid); Tres Marias Raccoon (*P.l. insularis* Merriam,

1898 - Valid); Upper Mississippi Valley Raccoon (*P.I. hirtus* Nelson & Goldman, 1930 - Valid); Vancouver Raccoon (*P.I. vancouverensis* Nelson and Goldman, 1930 - Valid); Waschbär (German)¹⁰⁶. HABITS: Feeds on annelid worms, berries, birds, nestlings and eggs, carrion, crayfishes, small fishes, frogs, fruits, insects, small mammals, nuts, shellfish, turtles and turtle eggs and vegetables. Nests are made of leaves located in dens in small caves, amongst boulders, rocky crevices in cliffs and cavities in trees. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: Racoons are never very far from permanent water. *14 (050212 - subsp. *hirtus* (Nelson & Goldman); subsp. *mexicanus* (Baird); subsp. *pallidus* (Merriam)), 42 (062112), **55** (recorded as *Procyon lotor* (Linnaeus). Raccoon. Riparian situations along the Colorado, Little Colorado and Gila river systems and in the grasslands of the southeastern portion of the state (120 - 6,900 feet.), 65 (color photograph), 73, 100 (color photograph), 106 (050212 - includes a listing of subspecies, color presentation), 118 (recorded as *Procyon lotor* subsp. *mexicanus* Baird - Distribution: Southeastern Arizona; *Procyon lotor* subsp. *pallidus* Merriam - Distribution: Northern and Western Arizona. Figure 94, Page 229), 148 (color presentation), 149, **MBJ** (correspondence dated May 13, 2013)*

***Procyon lotor* subsp. *hernandezii* Wagler, 1831: Mexican Plateau Raccoon**

SYNONYMY: *Procyon lotor* subsp. *mexicana* Baird, 1858 - Invalid?; *Procyon lotor* subsp. *mexicanus* Baird, 1858 - Invalid?. COMMON NAMES: Hernandez Raccoon; Mexican Plateau Raccoon; Mexican Raccoon; Raccoon; Racuno (Hispanic)¹⁴. HABITS: Feeds on annelid worms, berries, birds, nestlings and eggs, carrion, crayfishes, small fishes, frogs, fruits, insects, small mammals, nuts, shellfish, turtles and turtle eggs and vegetables. Nests are made of leaves located in dens in small caves, amongst boulders, rocky crevices in cliffs and cavities in trees. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: Racoons are never very far from permanent water. *14 (050212 - subsp. *hirtus* (Nelson & Goldman); subsp. *mexicanus* (Baird); subsp. *pallidus* (Merriam)), 42 (062112), 55 (species, recorded as *Procyon lotor* (Linnaeus). Raccoon. Riparian situations along the Colorado, Little Colorado and Gila River systems and in the grasslands of the southeastern portion of the state (120 - 6,900 feet.), 65 (color photograph), 73 (species), 100 (species, color photograph of species), 106 (050212 - species, includes a listing of subspecies, color presentation of species), **118** (recorded as *Procyon lotor mexicanus* Baird - Distribution: Southeastern Arizona. Figure 94, Page 229), 148 (color presentation), 149*

Procyon lotor subsp. *mexicana* (see *Procyon lotor* subsp. *hernandezii*)

Procyon lotor subsp. *mexicanus* (see *Procyon lotor* subsp. *hernandezii*)

Sciuridae: The Squirrel and Allies Family

***Ammospermophilus harrisii* (Audubon and Bachman, 1854): Harris' Antelope Squirrel**

SYNONYMY: *Citellus harrisii* (Audubon and Bachman, 1854) - Invalid?. COMMON NAMES: Ardilla de Tierra Harris (Hispanic)¹⁴; Ardilla-antelope de Sonora (Spanish)⁴²; Bahia Kino Antelope Squirrel (*A.h. saxicolus* (Mearns, 1896) - Invalid?); Gray-tailed Antelope Squirrel (*A.h. harrisii* (Audubon and Bachman, 1854) - Invalid?); Harris Antelope Squirrel; Harris' Antelope Squirrel; Harris' Antelope-squirrel; Harris's Antelope Squirrel; Rock Spermophile (*A.h. saxicolus* (Mearns, 1896) - Invalid?); Yuma Antelope Squirrel (*A.h. saxicolus* (Mearns, 1896) - Invalid?). HABITS: Feeds on fruits, insects, plants and seeds. Dens are located in underground burrows. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (050212 - subsp. *harrisii*), 42 (062112), **55** (recorded as *Citellus harrisii* (Audubon & Bachman). Harris Antelope Squirrel. Southern and western parts of the state at elevations below 6,500 feet.), 65 (color photograph), 73, 100 (color photograph), 106 (050212 - color presentation), 118 (recorded as *Citellus harrisii harrisii* (Audubon & Bachman) - Distribution: Southern and western Arizona except for most of Yuma County. *Citellus harrisii saxicola* (Mearns) - Distribution: Southwestern Arizona. Figure 38, Page 85), 148 (color presentation), 149, **HR***

***Ammospermophilus harrisii* subsp. *harrisii* (Audubon and Bachman, 1854) - Invalid?: Harris' Antelope Squirrel**

SYNONYMY: *Citellus harrisii* subsp. *harrisii* (Audubon & Bachman, 1854) - Invalid?. COMMON NAMES: Ardilla de Tierra Harris (Hispanic)¹⁴; Gray-tailed Antelope Squirrel; Harris Antelope Squirrel; Harris' Antelope Squirrel; Harris' Antelope-squirrel; Harris's Antelope Squirrel;. HABITS: The species feeds on fruits, insects, plants and seeds. Dens are located in underground burrows. HABITAT: Within the range of this species it has been reported from the grassland, desertscrub and wetland ecological formations. *14 (050212 - subsp. *harrisii*), 42 (062112 - no subspecies listed), 55 (species, recorded as *Citellus harrisii* (Audubon & Bachman). Harris Antelope Squirrel. Southern and western parts of the state at elevations below 6,500 feet.), 65 (species, color photograph of species), 73 (species), 100 (species, color photograph of species), 106 (050212 - color presentation), **118** (recorded as *Citellus harrisii harrisii* (Audubon & Bachman) - Distribution: Southern and western Arizona except for most of Yuma County, Page 85), 148 (color presentation), 149*

Citellus harrisii (see *Ammospermophilus harrisii*)

Citellus harrisii subsp. *harrisii* (see *Ammospermophilus harrisii* subsp. *harrisii*)

Citellus tereticaudus (see *Spermophilus tereticaudus*)

Citellus tereticaudus subsp. *neglectus* (see footnote 118 under *Spermophilus tereticaudus*)

Citellus variegatus (see *Spermophilus variegatus*)

Citellus variegatus subsp. *grammurus* (see *Spermophilus variegatus* subsp. *grammurus*)

Otospermophilus variegatus (see *Spermophilus variegatus*)

Otospermophilus variegatus subsp. *grammurus* (see *Spermophilus variegatus* subsp. *grammurus*)

***Spermophilus tereticaudus* Baird, 1858: Round-tailed Ground Squirrel**

SYNONYMY: *Citellus tereticaudus* Baird - Invalid?. COMMON NAMES: Ardiñón Cola Redonda (Spanish)^{42,106}; Arizona Round-tailed Ground Squirrel (*S.t. neglectus* Merriam, 1889 - Invalid?); Coachella Valley Round-tailed Ground Squirrel (*S.t. chlorus* (Elliot, 1904) - Valid); Dolan Spring Ground Squirrel (*S.t. neglectus* Merriam, 1889 - Invalid?); Neglected Spermophile (*S.t. neglectus* Merriam, 1889 - Invalid?); Round-tailed Ground Squirrel. HABITS: Feeds on the buds of burroweed and mesquite; the leaves of shrubs; the flowers of ocotillo, palo verde, plantain, and saltbush; on the seeds of creosote bush and mesquite, and cacti, grasses, insects (ants, grasshoppers, termites), observed taking Gambel's Quail chicks and visiting road kill. Nests are made of plant fibers and stems and located in dens in underground burrows. HABITAT: Within the range of this species it has been reported from the desertscrub ecological formation. *14 (050212), 42 (062112), **55** (recorded as *Citellus tereticaudus* Baird. Round-tailed Ground Squirrel. Lower Sonoran Life-zone of the western part of the state (below 3,200 feet.), 65, 73, 100 (color photograph), 106 (050212 - includes a listing of subspecies, color presentation), **118** (recorded as *Citellus tereticaudus neglectus* (Merriam) - Distribution: Lower Sonoran Life Zone of southwestern Arizona. Figure 39, Page 90), 148 (color presentation), **WTK** (August 4, 2005)*

***Spermophilus variegatus* (Erxleben, 1777): Rock Squirrel**

SYNONYMY: *Citellus variegatus* (Erxleben) - Invalid?; *Otospermophilus variegatus* (Erxleben, 1777) - Invalid?. COMMON NAMES: Ardiñón Coluda (Hispanic)¹⁴; Ardiñón de Roca (Spanish)⁴²; Black-backed Rock Squirrel (*S.v. buckleyi* Slack, 1861 - Invalid?); Brown-headed Rock Squirrel (*S.v. rupestris*, (J. Allen, 1903) - Invalid?); Buckley's Spermophile (*S.v. buckleyi* Slack, 1861 - Invalid?); Bushy-tailed Spermophile (*S.v. grammurus* (Say, 1823) - Invalid?); Malpais Rock Squirrel (*S.v. tularosae* (Benson, 1932) - Invalid?); Mexican Rock Squirrel (*S.v. variegatus* (Erxleben, 1777 - Invalid?); Rock Squirrel; Say's Rock Squirrel (*S.v. grammurus* (Say, 1823) - Invalid?); Tiburon Rock Squirrel (*S.v. tiburonensis* Jones and Manning, 1989 - Invalid?); Tularosa Rock Squirrel (*S.v. tularosae* (Benson, 1932) - Invalid?); Utah Rock Squirrel (*S.v. utah* (Merriam, 1903) - Invalid?); Varied Squirrel; Walnut Rock Squirrel (*S.v. juglans* (V. Bailey, 1913) - Invalid?). HABITS: Feeds on acorns, berries, small birds, chicks and eggs, carrion, insects, fruits, small mammals, nuts and seeds. Nests are made of leaves, pine needles and plant fibers and located in dens in underground burrows between boulders, rock crevices and talus. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050212 - subsp. *grammurus* (Say); *tularosae* (Benson), color presentation), 42 (062112), **55** (recorded as *Citellus variegatus* (Erxleben). Rock Squirrel. Statewide, especially at elevations below 6,000 feet.), 65 (color photograph), 73, 100 (color photograph), 106 (050212 - color presentation), 118 (recorded as *Citellus variegatus grammurus* (Say) - Distribution: Statewide, especially common below 6000 feet. Figure 37, Page 82), 148 (color presentation), 149, **HR***

***Spermophilus variegatus* subsp. *grammurus* Say, 1823 - Invalid?: Say's Rock Squirrel**

SYNONYMY: *Citellus variegatus* subsp. *grammurus* - Invalid?; *Otospermophilus variegatus* subsp. *grammurus* Say, 1823 - Invalid?. COMMON NAMES: Ardiñón Coluda (Hispanic); Bushy-tailed Spermophile; Rock Squirrel; Say's Rock Squirrel. HABITS: The species feeds on acorns, berries, small birds, chicks and eggs, carrion, insects, fruits, small mammals, nuts and seeds burrows. Nests are made of leaves, pine needles and plant fibers and located in dens in underground burrows between boulders, rock crevices and talus. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050212 - subsp. *grammurus* (Say); *tularosae* (Benson), color presentation), 42 (062112 - no subspecies listed), 55 (species, recorded as *Citellus variegatus* (Erxleben). Rock Squirrel. Statewide, especially at elevations below 6,000 feet.), 65 (species, color photograph of species), 73 (species), 100 (species, color photograph of species), 106 (050212 - species, color presentation of species), **118** (recorded as *Citellus variegatus grammurus* (Say) - Distribution: Statewide, especially common below 6000 feet. Figure 37, Page 82), 148 (color presentation), 149*

Soricidae: The Shrew Family

***Notiosorex crawfordi* (Coues, 1877): Desert Shrew**

COMMON NAMES: Crawford's Desert Shrew (*N.c. crawfordi* (Coues, 1877) - Invalid?); Crawford's Gray Shrew; Desert Shrew; Gray Shrew; Musarana del Deseirto Crawford (Hispanic)¹⁴; Musaraña-desértica Norteña (Spanish)⁴². HABITS: Feeds on centipedes, insects, lizards, small mice, scorpions, sowbugs and spiders. Nests are made of shredded bark and leaves and located in packrat dens or under dead agaves. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, deserts scrub and wetland ecological formations. *14 (050212 - subsp. *crawfordi*, color presentation), 42 (061712), **55** (recorded as *Notiosorex crawfordi* (Coues). Desert Shrew. Locally common, widely distributed statewide at elevations below 6,000 feet, especially in riparian situations.), 65, 73, 100 (color photograph), 106 (050212 - color presentation), 118 (recorded as *Notiosorex crawfordi crawfordi* (Coues) - Distribution: Probably occurs statewide at elevations below 6000 feet. Figure 5, Page 30), 148 (color presentation)*

***Notiosorex crawfordi* subsp. *crawfordi* (Coues, 1877) - Invalid?: Crawford's Desert Shrew**

COMMON NAMES: Crawford's Desert Shrew; Crawford's Gray Shrew; Desert Shrew; Gray Shrew; Musarana del Deseirto Crawford (Hispanic)¹⁴. HABITS: The species feeds on centipedes, insects, lizards, small mice, scorpions, sowbugs and spiders. Nests are made of shredded bark and leaves and located in packrat dens or under dead agaves. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, deserts scrub and wetland ecological formations. *14 (050212 - subsp. *crawfordi*, color presentation of species), 42 (061712 - no subspecies listed), 55 (species, recorded as *Notiosorex crawfordi* (Coues). Desert Shrew. Locally common, widely distributed statewide at elevations below 6,000 feet, especially in riparian situations.), 65 (species), 73 (species), 100 (species, color photograph of species), 106 (050212 - color presentation of species), **118** (recorded as *Notiosorex crawfordi crawfordi* (Coues) - Distribution: Probably occurs statewide at elevations below 6000 feet. Figure 5, Page 30), 148 (color presentation of species)*

Tayassuidae: The Javelina Family

Dicotyles tajacu (see *Pecari tajacu*)

Dicotyles tajacu subsp. *sonoriensis* (see *Pecari tajacu* subsp. *sonoriensis*)

Pecari angulatus (see footnote 65 under *Pecari tajacu* and/or *Pecari tajacu* subsp. *sonoriensis*)

***Pecari tajacu* (Linnaeus, 1758): Collared Peccary**

SYNONYMY: *Dicotyles tajacu* (Linnaeus, 1758) - Invalid; *Tayassu tajacu* (Linnaeus, 1758). COMMON NAMES: Báquiro¹⁰⁶; Collared Peccary; Jabalina (Hispanic)¹⁴; Javelina; Mexican Hog; Musk Hog; Pecari de Collar (Spanish)⁴²; Peccary; Pigelina (Arizona); Quenk (Trinidad)¹⁰⁶; Saíno¹⁰⁶; Sonoran Collared Peccary (*P.t. sonoriensis* (Mearns, 1897) - Invalid?); Sonora Peccary (*P.t. sonoriensis* (Mearns, 1897) - Invalid?); Texan Collard Peccary (*P.t. angulatus* (Cope, 1889) - Invalid?); Wild Hog; Wild Pig. HABITS: Feeds on agaves, amphibians, berries, bulbs, fruits, fungi, grasses, insects, mesquite beans, nuts, roots, palm nuts, succulent plants, prickly-pear and other cacti, reptiles, rodents, roots, sotol, tubers and worms. Javelina bed down during the day in thick brush and prickly-pear thickets and at night in burrows usually under the roots of trees. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, deserts scrub and wetland ecological formations. *14 (050312 - subsp. *sonoriensis* (Mearns), color presentation), 42 (061712), **55** (recorded as *Tayassu tajacu* (Linnaeus), Javelina. Southeastern and central parts of the state (1,200 - 6,000 feet.), 65 (recorded as *Pecari angulatus*), 73 (recorded as *Dicotyles tajacu*), 100 (recorded as *Tayassu tajacu*, color photograph), 106 (050312 - color presentation), 118 (recorded as *Tayassu tajacu sonoriensis* (Mearns) - Distribution: Southern part of the state. Figure 107, Page 249), 148 (color presentation), 149, **WTK** (August 4, 2005)*

***Pecari tajacu* subsp. *sonoriensis* (Mearns, 1897) - Invalid?: Sonoran Collared Peccary**

SYNONYMY: *Dicotyles tajacu* subsp. *sonoriensis* (Mearns, 1897) - Invalid?; *Tayassu tajacu* subsp. *sonoriensis* (Mearns, 1897) - Invalid?. COMMON NAMES: Collared Peccary; Jabalina (Hispanic)¹⁴; Javelina; Musk Hog; Peccary; Pigelina (Arizona); Sonora Peccary; Sonoran Collared Peccary. HABITS: The species feeds on agaves, amphibians, berries, bulbs, fruits, fungi, grasses, insects, mesquite beans, nuts, roots, palm nuts, succulent plants, prickly-pear and other cacti, reptiles, rodents, roots, sotol, tubers and worms. Javelina bed down during the day in thick brush and prickly-pear thickets and at night in burrows usually under the roots of trees. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, deserts scrub and wetland ecological formations. *14 (050312 - subsp. *sonoriensis* (Mearns), color presentation), 42 (061712 - no subspecies listed), 55 (species, recorded as *Tayassu tajacu* (Linnaeus). Javelina. Southeastern and central parts of the state (1,200 - 6,000 feet.), 65 (species, recorded as *Pecari angulatus*), 73 (species, recorded as *Dicotyles tajacu*), 100 (species, recorded as *Tayassu tajacu*, color photograph of species), 106 (050312 - color presentation of species), **118** (recorded as *Tayassu tajacu sonoriensis* (Mearns) - Distribution: Southern part of the state. Figure 107, Page 249), 148 (color presentation), 149*

Tayassu tajacu (see *Pecari tajacu*)

Tayassu tajacu subsp. *sonoriensis* (see see *Pecari tajacu* subsp. *sonoriensis*)

Ursidae: The Bear Family

Euarctos americanus (see *Ursus americanus*)

Euarctos americanus subsp. *amblyceps* (see *Ursus americanus* subsp. *amblyceps*)

***Ursus americanus* Pallas, 1780: Black Bear**

SYNONYMY: *Euarctos americanus* (Pallas, 1780) - Invalid?. COMMON NAMES: Alexander Black Bear (*U.a. pugnax* Swarth, 1911 - Valid); American Black Bear (*U.a. americanus* Pallas, 1780 - Valid); Awasos (Algonquian: Abenaki)¹⁰⁶; 'Baribal' (French, Italian, Spanish)¹⁰⁶; Black Bear; Blue Bear (*U.a. emmonsii* Dall, 1895 - Valid); British Columbia Bear (*U.a. altifrontalis* Elliot, 1903 - Valid); California Black Bear (*U.a. californiensis* Miller, 1900 - Valid); Cinnamon Bear (*U.a. cinnamomum* Audubon and Bachman, 1854 - Valid); Dall Black Bear (*U.a. pugnax* Swarth, 1911 - Valid); Dall Island Black Bear (*U.a. pugnax* Swarth, 1911 - Valid); Daxpitchée (Siouan: Crow)¹⁰⁶; Desert Black Bear (*U.a. eremicus* Merriam, 1904 - Valid); Eastern Black Bear (*U.a. americanus* Pallas, 1780 - Valid); Emmons Bear (*U.a. emmonsii* Dall, 1895 - Valid); Emmons's Glacier Bear (*U.a. emmonsii* Dall, 1895 - Valid); Everglades Bear (*U.a. floidanus* Merriam, 1896 - Valid); Fighting Bear (*U.a. machetes* Elliot, 1903 - Valid); Florida Black Bear (*U.a. floidanus* Merriam, 1896 - Valid); Floridan Bear (*U.a. floidanus* Merriam, 1896 - Valid); Glacier Bear (*U.a. emmonsii* Dall, 1895 - Valid; *U.a. glacialis* Kells, 1897 - Invalid?); Gv-ni-ge-yo-na (Iroquoian: Tsalagi)¹⁰⁶; Haida Gwaii Black Bear (*U.a. carlottae* Osgood, 1901 - Valid); Hoonaw (Uto-Aztec: Hopi)¹⁰⁶; Hunter's Bear (*U.a. perniger* J.A. Allen, 1910 - Valid [*U.a. hunteri* Anderson, 1944 - Invalid?]); Jóona (Uto-Aztec: Mayo [Yoreme])¹⁰⁶; Judumi (Uto-Aztec: O'odham)¹⁰⁶; Kenai Peninsula Bear (*U.a. perniger* J.A. Allen, 1910 - Valid); Kermodé Bear (*U.a. kermodei* Hornaday, 1905 - Valid); Kenai Black Bear (*U.a. perniger* J.A. Allen, 1910 - Valid); Kiááyo (Algonquian: Blackfoot)¹⁰⁶; Kmákan (Yuman: Kiliwa)¹⁰⁶; Louisiana Black Bear (*U.a. luteolus* Griffith, 1821 - Valid); Mahkwa (Algonquian: Kickapoo)¹⁰⁶; Makwa (Algonquian)¹⁰⁶; Makwaa (Algonquian: Ojibwe)¹⁰⁶; Maskwa (Algonquian: Cree)¹⁰⁶; Mato (Siouan: Lakota [Sioux])¹⁰⁶; Mexican Black Bear (*U.a. eremicus* Merriam, 1904 - Valid); Minnesota Black Bear (*U.a. americanus* Pallas, 1780 - Valid); Mishe-Mo'kwa (? 'the Great Bear' Longfellow's *Hiawatha*); New Mexico Black Bear (*U.a. amblyceps* Baird, 1859 - Valid); Newfoundland Black Bear (*U.a. hamiltoni* Cameron, 1957 - Valid); North American Black Bear; Northwestern Black Bear (*U.a. altifrontalis* Elliot, 1903 - Valid); Ohoi (Uto-Aztec: Guarijio)¹⁰⁶; Ojuí (Uto-Aztec: Tarahumara)¹⁰⁶; Olympic Black Bear (*U.a. altifrontalis* Elliot, 1903 - Valid); Oso Negro (Hispanic)¹⁴; Oso Negro (Spanish)⁴²; Ours Noir (French)⁴²; Queen Charlotte Black Bear (*U.a. carlottae* Osgood, 1901 - Valid); S'eeek (Na-Dené: Tlingit)¹⁰⁶; Shash [Lizhinígíí] (Athabaskan: Navajo)¹⁰⁶; Shoot-zhraií (Athabaskan: Gwich'in)¹⁰⁶; Sonborger's Black Bear (*U.a. americanus* Pallas, 1780 - Valid; *U.a. songborgeri* Bangs, 1898 - Invalid?); Spirit Bear (*U.a. kermodei* Hornaday, 1905 - Valid); S□S (Athabaskan: Carrier)¹⁰⁶; Texan Black Bear (*U.a. luteolus* Griffith, 1821 - Valid); Tlācamāyeh (Uto-Aztec: Náhuatl)¹⁰⁶; Tsah (Athabaskan: Dene)¹⁰⁶; Vancouver Bear (*U.a. vancouveri* Hall, 1928 - Valid); Vancouver Island Black Bear (*U.a. vancouveri* Hall, 1928); Weda' (Uto-Aztec: Shoshone)¹⁰⁶; West Mexico Black Bear (*U.a. machetes* Elliot, 1903 - Valid); Yáaka' (Plateau Penutian: Sahaptian [Nez Perce])¹⁰⁶; Yáka (Plateau Penutian: Sahaptian [Sahaptin])¹⁰⁶. HABITS: Feeds on acorns, ants, beetles, berries, buds, carrion, crickets, currants, fish, fruits, grapes, grubs, insects, leaves, pinyon nuts, prickly-pear fruit, raspberries, sprouts, small to medium-size mammals and other vertebrates and twigs. Shelter is taken in dense cover and they climb trees to escape danger. Nests are made of grasses leaves, mud and sticks located in a den. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: Winnipeg (aka "Winnie" 1915-1934) of "Winnie the Pooh" fame was a female Black Bear cub, and Black Bear cubs were also involved in the naming of Smokey the Bear and the Teddy Bear. *14 (050312 - subsp. *amblyceps* (Baird), color presentation), 42 (061712), 55 (recorded as *Euarctos americanus* (Pallas). Black Bear. Formerly common throughout the mountainous areas of the state, now greatly reduced in numbers and distribution.), 73, 100 (color photograph), 106 (050312 - includes a listing of subspecies, color presentation), 118 (recorded as *Euarctos americanus amblyceps* (Baird) - Distribution: Probably formerly occurred throughout the state, at least in mountainous areas. Figure 91, Page 224), 148 (color presentation), 153, ADS (Bear killed in SaddleBrooke' relatively unafraid' of humans, Wednesday, June 6, 2012, Page A2)*

***Ursus americanus* subsp. *amblyceps* Baird, 1859: New Mexico Black Bear**

SYNONYMY: *Euarctos americanus* subsp. *amblyceps* (Baird, 1859) - Invalid?. COMMON NAMES: Black Bear; New Mexico Black Bear; Oso Negro (Hispanic)¹⁴. HABITS: The species feeds on acorns, ants, beetles, berries, buds, carrion, crickets, currants, fish, fruits, grapes, grubs, insects, leaves, pinyon nuts, prickly-pear fruit, raspberries, sprouts, small to medium-size mammals and other vertebrates and twigs. Shelter is taken in dense cover and they climb trees to escape danger. Nests are made of grasses leaves, mud and sticks located in a den. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050312 - subsp. *amblyceps* (Baird), color presentation), 42 (061712), 55 (species, recorded as *Euarctos americanus* (Pallas). Black Bear. Formerly common throughout the mountainous areas of the state, now greatly reduced in numbers and distribution.), 73 (species), 100 (species, color photograph of species), 106 (050312 - includes a listing of subspecies, color presentation), **118** (recorded as *Euarctos americanus amblyceps* (Baird) - Distribution: Probably formerly occurred throughout the state, at least in mountainous areas. Figure 91, Page 224), 148 (color presentation of species)*

Ursus arctos (see footnotes 14 and 100 under *Ursus arctos* subsp. *horribilis*)

***Ursus arctos* subsp. *horribilis* Ord, 1815: Grizzly Bear**

SYNONYMY: *U.a. apache* Merriam, 1916 - Invalid?; *U.a. arizonae* Merriam, 1916 - Invalid?; *U.a. bairdi* Merriam, 1914 - Invalid?; *U.a. horriaeus* Baird, 1858 - Invalid?; *U.a. kennerlyi* Merriam, 1914 - Invalid?; *U.a. navaho* Merriam, 1914 - Invalid?; *U.a. perturbans* Merriam, 1918 - Invalid?; *U.a. texensis* Merriam, 1914 - Invalid?; *Ursus horribilis* Ord, 1815 - Invalid?. COMMON NAMES: American Grizzly Bear (*U.a. horribilis* Ord, 1815 - Valid); Apache Grizzly (*U.a. horribilis* Ord, 1815 - Valid; *U.a. apache* Merriam, 1916 - Invalid?); Arizona Brown Bear (*U.a. horribilis* Ord, 1815 - Valid; *U.a. arizonae* Merriam, 1916 - Invalid?); Arizona Grizzly (*U.a. horribilis* Ord, 1815 - Valid; *U.a. arizonae* Merriam, 1916 - Invalid?); Baird Grizzly (*U.a. horribilis* Ord, 1815 - Valid; *U.a. bairdi* Merriam, 1914 - Invalid?); Big Plains Grizzly (*U.a. horribilis* Ord, 1815 - Valid); Brown Bear (*Ursus arctos* Linnaeus, 1758 - Valid; *U.a. arctos* Linnaeus, 1758 - Valid; *U.a. horribilis* Ord, 1815 - Valid; *U.a. pruinosus* Blyth, 1854 - Invalid?); Grizzly; Grizzly Bear (*Ursus arctos* Linnaeus - Valid, 1758; *U.a. horribilis* Ord, 1815 - Valid); Mishe-Mo'kwa (? 'the Great Bear' Longfellow's *Hiawatha*); Navajo Grizzly (*U.a. horribilis* Ord, 1815 - Valid; *U.a. bairdi* Merriam, 1914 - Invalid?); North American Brown Bear; Oso Gris (Hispanic)¹⁴; Silvertip (*U.a. horribilis* Ord, 1815 - Valid); Silvertip Bear; Sonora Grizzly (*U.a. horribilis* Ord, 1815 - Valid; *U.a. kennerlyi* Merriam, 1914 - Invalid?); Texas Brown Bear (*U.a. horribilis* Ord, 1815 - Valid; *U.a. texensis* Merriam, 1914 - Invalid?); Texas Grizzly (*U.a. horribilis* Ord, 1815 - Valid; *U.a. texensis* Merriam, 1914 - Invalid?). HABITS: The species feeds on berries, carrion, fish (bass, salmon and trout), fungi, grasses, insects (Army Cutworm moths), leaves, large mammals (Bison, Black Bear, Caribou, Deer, Elk, Moose and Mountain Goats) and small mammals (rodents), nuts (Whitebark Pine nuts), roots and sprouts. The Grizzly Bear beds down in depressions in thickets. Dens are excavated from under rocks or located in caves, crevices or hollow trees. HABITAT: Within the range of this species it has been reported from the tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: The last confirmed "kill" in Arizona was made on the slopes of Mount Baldy (Apache County) in the summer of 1939. Pad marks and two-colored, four inch long hairs of a Grizzly Bear were observed in the Sierra Madre of southwestern Chihuahua as late as 1959. Grizzly Bears were killed-off by American immigrants because of the risks posed to humans and livestock. The Grizzly Bear has been EXTIRPATED from Arizona. *14 (050312 - *Ursus arctos* subsp. *horriaeus* Baird, 1858 - Extinct; subsp. *perturbans* Merriam - Extinct), 39 (recorded as *Ursus horribilis* - included the following note when referring to Grizzly Bears in the Tucson Area "Jack O'Connor told us of a kill in the Catalinas in 1915. Up until 1912, there were quite a few grizzly bears in the Catalinas and also the Galiuros. The Santa Cruz River bottom was a favorite hangout of these bears, all the way from Nogales to the Tucson area. We have a few authentic reports of desert grizzlies, but Jack talked with some old timers who hunted them in the river bottom." It reported that the majority of grizzly bears in Arizona were found in the east-central part of the state. The bears entire range, however, stretched from Bill Williams Mountain southeast to Springerville, the Chuska Mountains of the Four Corners area, then south to the Chiricahuas, west to Nogales, north using the Santa Cruz River as a western boundary to the Tucson area. Also the Santa Ritas, Catalinas, Galiuros, the Pinals, Sierra Anchas, the Young country of Canyon and Cherry Creeks, the Mazatzals, Pine Mountain, the Bradshaws, Mingus Mountain, the Camp Wood area and Sycamore Canyon, south of Bill Williams Mountain. The following dates of last known "kills" were provided: Arizona on September 13, 1935 (however, there was a possible sighting in 1936); California in August 1922; New Mexico has two "last" kills one in the spring of 1923 and the other in 1933; Texas on November 2, 1890, and Utah on August 22, 1923. A grizzly bear was killed in the Sierra del Pinitos in Sonora Mexico, a few miles southeast of Nogales, Arizona, on June 18, 1955. This booklet included the listing of six subspecies taken in Arizona: *Ursus horribilis apache*, the Apache Grizzly; *Ursus horribilis arizonae* Merriam, the Arizona Grizzly; *Ursus horribilis baird*, the New Mexico Grizzly; *Ursus horribilis kennerlyi*, the Sonora Grizzly; *Ursus horribilis navajo*, the Navajo Grizzly, and *Ursus horribilis texensis*, the Texas Grizzly), 40 (recorded as *Ursus arctos* - Grizzly Bears were historically present in the Rincon and Santa Catalina Mountains and along the Santa Cruz River bottom from Nogales to Tucson.), 42 (061712), 55 (recorded as *Ursus horribilis* Ord. Grizzly Bear. Formerly throughout the mountainous areas of the state, now extinct in Arizona.), 73 (recorded as *Ursus horribilis*), 100 (species, recorded as *Ursus arctos*, color photograph), 106 (050312 - color presentation), 118 (recorded as *Ursus horribilis* - Distribution: Formerly statewide, now extinct in Arizona. Figure 92, Page 225), 139, ADS (Monday, January 30, 2012, Series reminds: Once grizzlies roamed nearby, Section A, Pages 1&4. This article reported that Grizzlies occurred in the Rincon Mountains until the 1920's. It also reported the trapping and killing of a grizzly in 1921 just south of Rincon Peak at 8,000 feet in elevation.), 148 (color presentation), 149, 153*

Ursus horribilis (see *Ursus arctos* subsp. *horribilis*)

Ursus horribilis subsp. *apache* (see *Ursus arctos* subsp. *horribilis*)

Ursus horribilis subsp. *arizonae* (see *Ursus arctos* subsp. *horribilis*)

Ursus horribilis subsp. *bairdi* (see *Ursus arctos* subsp. *horribilis*)

Ursus horribilis subsp. *kennerlyi* (see *Ursus arctos* subsp. *horribilis*)

Ursus horribilis subsp. *navaho* (see *Ursus arctos* subsp. *horribilis*)

Ursus horribilis subsp. texensis (see *Ursus arctos subsp. horribilis*)

Vespertilionidae: The Plain-nosed Bat Family

***Antrozous pallidus* (Le Conte, 1856): Pallid Bat**

COMMON NAMES: Big-eared Pale Bat; Desert Bat; Desert Palid Bat (*A.p. pallidus* Le Conte, 1856 - Invalid?); Le Conte's Palid Bat (*A.p. pallidus* Le Conte, 1856 - Invalid?); Murciélago Palid (Hispanic)¹⁴; Murciélago-desértico Norteño (Spanish)⁴²; Pale Bat (*A.p. pallidus* Le Conte, 1856 - Invalid?); Pallid Bat. HABITS: Feeds on flightless arthropods on the ground, insects, scorpions, lizards and nectar. Roosts under bridges, buildings, in caves, crevices in cliffs, rocky outcrops, under slabs of rocks, hollow trees and tunnels. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050312 - subsp. *pallidus*), 42 (062212), 55 (recorded as *Antrozous pallidus* (Le Conte). Pallid Bat. Locally common throughout the state.), 73, 92 (color photograph), 100 (color photograph), 106 (050312 - color presentation), 118 (recorded as *Antrozous pallidus pallidus* (Le Conte) - Distribution: Statewide. Figure 25, Page 60), 148 (color presentation)*

***Antrozous pallidus subsp. pallidus* (Le Conte, 1756) - Invalid?: Pallid Bat**

COMMON NAMES: Desert Palid Bat; Le Conte's Palid Bat; Murciélago Pallid (Hispanic)¹⁴; Pale Bat; Pallid Bat. HABITS: The species feeds on flightless arthropods on the ground, insects, lizards and nectar. Roosts under bridges, buildings, in caves, crevices in cliffs, rocky outcrops, under slabs of rocks, hollow trees and tunnels. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050312 - subsp. *pallidus*), 42 (061712 - no subspecies listed), 55 (species, recorded as *Antrozous pallidus* (Le Conte). Pallid Bat. Locally common throughout the state.), 73 (species), 92 (species, color photograph of species), 100 (species, color photograph of species), 106 (050312 - species, color presentation of species), 118 (recorded as *Antrozous pallidus pallidus* (Le Conte) - Distribution: Statewide. Figure 25, Page 60), 148 (color presentation)*

Corynorhinus townsendii (see *Plecotus townsendii*)

Corynorhinus townsendii subsp. pallescens (see *Plecotus townsendii subsp. pallescens*)

Dasypterus ega (see *Lasiurus ega*)

***Eptesicus fuscus* (Beauvois, 1796): Big Brown Bat**

COMMON NAMES: Big Brown Bat; Grande Chauve-souris Brune (French)⁴²; Murciélago Cafe' Grande (Hispanic)¹⁴; Murciélago-moreno Norteamericano (Spanish)⁴²; Pallid Brown Bat (*E.f. pallidus* (Young, 1908) - Invalid?). HABITS: Feeds on insects (beetles, moths, mosquitoes, wasps). Roosts under bridges, in buildings, caves, crevices in cliff faces, mines and holes in saguaros and trees. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050312 - subsp. *pallidus* (Young)), 42 (062212), 55 (recorded as *Eptesicus fuscus* (Palisot de Beauvois). Big Brown Bat. Locally common throughout the state.), 73, 92 (color photograph), 100 (color photograph), 106 (050312 - includes a listing of subspecies, color presentation), 118 (recorded as *Eptesicus fuscus pallidus* (Young) - Distribution: Statewide. Figure 20, Page 52), 148 (color presentation)*

***Eptesicus fuscus subsp. pallidus* (Young, 1908) - Invalid?: Pallid Brown Bat**

COMMON NAMES: Big Brown Bat; Murciélago Cafe' Grande (Hispanic)¹⁴; Pallid Brown Bat. HABITS: The species feeds on insects (beetles, moths, mosquitoes, wasps). Roosts under bridges, in buildings, caves, crevices in cliff faces, mines and holes in saguaros and trees. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050312 - subsp. *pallidus* (Young)), 42 (061712 - no subspecies listed), 55 (species, recorded as *Eptesicus fuscus* (Palisot de Beauvois). Big Brown Bat. Locally common throughout the state.), 73 (species), 92 (species, color photograph of species), 100 (species, color photograph of species), 106 (050312 - species, includes a listing of subspecies, color presentation of species), 118 (recorded as *Eptesicus fuscus pallidus* (Young) - Distribution: Statewide. Figure 20, Page 52), 148 (color presentation)*

Euderma maculata (see *Euderma maculatum*)

***Euderma maculatum* (J.A. Allen, 1891): Spotted Bat**

SYNONYMY: *Euderma maculata* (J.A. Allen, 1891) - Invalid?. COMMON NAMES: Death's Head Bat; Jackass Bat; Murciélago Pinto (Hispanic)¹⁴; Murciélago Pinto (Spanish)⁴²; Pinto Bat; Spotted Bat; Spotted Great-eared Bat. HABITS: Feeds on insects (mainly grasshoppers and moths). Roosts in cracks and crevices in caves, cliffs and ledges, and under loose rock in rocky situations, possibly in close proximity to water. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: This bat is rarely encountered. Riparian habitats seem to be important to this species. *8, 14 (050312 - color presentation), 42 (061712), 55 (recorded as *Euderma maculata* (J.A. Allen). Spotted Bat. Extremely rare; known from four specimens, Maricopa and Yuma counties.), 73,

92, 100 (color photograph), 106 (050312 - color presentation), **118** (recorded as *Euderma maculata* (J.A. Allen) - Distribution: Can be expected almost anywhere in the state although recorded from only four localities. Figure 23, Page 57), 148 (color presentation)*

***Lasionycteris noctivagans* (LeConte, 1831): Silver-haired Bat**

COMMON NAMES: Chauve-souris Argentée (French)⁴²; Murciélago Plateado (Hispanic)¹⁴; Murciélago Pelo Plateado (Spanish)⁴²; Night-wandering Bat; Silver-haired Bat; Silvery-haired Bat; Silverwings. HABITS: Feeds on caddis flies, flies, moths and other insects. Uncommon tree dwelling bat found under bark, in bird nests, dead trees, fissures in rock ledges, tree hollows, and woodpecker holes. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050312), 42 (061712), 55 (recorded as *Lasionycteris noctivagans* (Le Conte). Silver-haired Bat. Uncommon solitary tree-dwelling bat found throughout the state at elevations above 5,000 feet), 73, 92 (color photograph), 100 (color photograph), 106 (050312 - color presentation), **118** (recorded as *Lasionycteris noctivagans* (Le Conte) - Distribution: Probably statewide, at least during certain seasons of the year. Figure 18, Page 48), 148 (color presentation)*

***Lasiurus blossevillii* (Lesson and Garnot, 1826): Western Red Bat**

COMMON NAMES: California Red Bat (*L.b. teliotis* (H. Allen, 1891) - Invalid?); Desert Red Bat; Lesser Red Bat; Murciélago Rojo (Hispanic)¹⁴; Murciélago-cola Peluda de Blosssevillii (Spanish)⁴²; Red Bat; Western Red Bat (*L.b. teliotis* (H. Allen, 1891) - Invalid?). HABITS: Feeds on insects (ants, beetles, cicadas, crickets, flies, moths, true bugs). Roosts in the foliage of herbs, shrubs and trees, saguaro boots and sometimes under leaf litter on the ground. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grasslands, desertscrub and wetland ecological formations. NOTES: The Red Bat feeds on moths including many crop pests. In Arizona this bat is associated with riparian corridors and wooded areas. *8, 14 (050312), 42 (061712), **55** (recorded as *Lasiurus borealis* (Muller). Red Bat. Uncommon solitary tree bat throughout the state in the region of trees.), 73 (recorded as *Lasiurus borealis*), 92 (recorded as *Lasiurus borealis*, color photograph of *Lasiurus borealis*), 100 (recorded as *Lasiurus borealis*, color photograph of *Lasiurus borealis*), 106 (050312 - color presentation), 118 (recorded as *Lasiurus borealis teliotis* (H. Allen) - Distribution: Probably statewide in riparian communities of the Upper Sonoran and Transitional Life Zones. Figure 21, Page 54), 148 (color presentation), 149*

***Lasiurus blossevillii* subsp. *teliotis* (H. Allen, 1891) - Invalid?: Western Red Bat**

SYNONYMY: *Lasiurus borealis teliotis* (H. Allen, 1891) - Invalid?. COMMON NAMES: Desert Red Bat; Red Bat; Western Red Bat. HABITS: The species feeds on insects (ants, beetles, cicadas, crickets, flies, moths, true bugs). Roosts in the foliage of herbs, shrubs and trees, saguaro boots and sometimes under leaf litter on the ground. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grasslands, desertscrub and wetland ecological formations. NOTES: The Red Bat feeds on moths including many crop pests. In Arizona this bat is associated with riparian corridors and wooded areas. *8, 14 (050312), 42 (061712 - no subspecies listed), 55 (recorded as *Lasiurus borealis* (Muller). Red Bat. Uncommon solitary tree bat throughout the state in the region of trees.), 73 (recorded as *Lasiurus borealis*), 92 (recorded as *Lasiurus borealis*, color photograph of *Lasiurus borealis*), 100 (recorded as *Lasiurus borealis*, color photograph of *Lasiurus borealis*), 106 (050312 - species, color presentation of species), **118** (recorded as *Lasiurus borealis teliotis* (H. Allen) - Distribution: Probably statewide in riparian communities of the Upper Sonoran and Transitional Life Zones. Figure 21, Page 54), 148 (color presentation of species), 149*

Lasiurus borealis subsp. *teliotis* (see *Lasiurus blossevillii* subsp. *teliotis*)

***Lasiurus cinereus* (Beauvois, 1796): Hoary Bat**

COMMON NAMES: Chauve-souris Cendrée (French)⁴²; Hawaiian Hoary Bat (*L.c. semotus* H. Allen, 1890); Hoary Bat; Murciélago (Hispanic); Murciélago-cola Peluda Canoso (Spanish)⁴². HABITS: Feeds primarily on moths. Roosts in buildings, caves, mines, in dense foliage in shrubs and trees and under leaves on the ground. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050412 - subsp. *cinereus* (Palisot de Beauvois)), 42 (061712), **55** (recorded as *Lasiurus cinereus* (Palisot de Beauvois). Hoary Bat. Uncommon tree dwelling bat found throughout the state in the region of trees.), 73, 92 (color photograph), 100 (color photograph), 106 (050412 - color presentation), 118 (recorded as *Lasiurus cinereus cinereus* (Beauvois) - Distribution: Statewide. Figure 22, Page 55), 148 (color presentation)*

***Lasiurus cinereus* subsp. *cinereus* (Beauvois, 1796): Northern Hoary Bat**

COMMON NAMES: Chauve-souris Cendrée (French)⁴²; Hoary Bat; Murciélago (Hispanic)¹⁴; Northern Hoary Bat; Murciélago-cola Peluda Canoso (Spanish)⁴². HABITS: The species feeds primarily on moths. Roosts in buildings; caves; mines; in dense foliage in shrubs and trees, and under leaves on the ground. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050412 - subsp. *cinereus* (Palisot de Beauvois)), 42 (061712), 55 (species, recorded as *Lasiurus cinereus* (Palisot de Beauvois). Hoary Bat. Uncommon tree dwelling bat found throughout the state in the region of trees.), 73 (species), 92 (species, color photograph of species), 100 (species, color photograph of species), 106 (050412 - color presentation of species), **118** (recorded as *Lasiurus cinereus cinereus* (Beauvois) - Distribution: Statewide. Figure 22, Page 55), 148 (color presentation)*

***Lasiurus ega* (Gervais, 1856): Western Yellow Bat**

SYNONYMY: *Dasypterus ega xanthinus* (Thomas, 1897) - Invalid?; *Lasiurus ega* subsp. *xanthinus* (Thomas, 1897) - Invalid?; *Lasiurus xanthinus* (Thomas, 1897). COMMON NAMES: Murcielago Amarillo (Hispanic)¹⁴; Murciélago-cola Peluda de La Laguna (Spanish)⁴²; Southern Yellow Bat; Western Yellow Bat; Yellow Bat. HABITS: Feeds on insects. Roosts in within dead fronds (skirts) encircling palm trees, in shrubs and trees (Arizona White Oak [*Quercus arizonica*], Arizona Sycamore [*Platanus wrightii*] and Frémont Cottonwood [*Populus fremontii*]) and under vines. HABITAT: Within the range of this species it has been reported from the woodland, grassland, desertscrub and wetland ecological formations. *14 (050412 - recorded as *Lasiurus xanthinus* (Thomas)), 42 (061712), **55** (recorded as *Dasypterus ega* (Gervais). Yellow Bat. Rare; known only from two specimens from Tucson.), 73, 92 (color photograph), 100, 106 (050412 -color presentation), 118 (recorded in the Hypothetical List as *Dasypterus ega xanthinus* Thomas - possibly may occur in southwestern Arizona as it has been recorded from southern California to the west and from Sonora to the southward., Page 258), 148 (color presentation), 149 (recorded as *Lasiurus* (*Dasypterus*) *ega* Gervais, 1856, Southern Yellow Bat; *Lasiurus* (*Dasypterus*) *xanthinus* Thomas, 1897, Western Yellow Bat)*

Lasiurus ega subsp. *xanthinus* (see *Lasiurus ega*)

Lasiurus xanthinus (see *Lasiurus ega*)

***Myotis californicus* (Audubon and Bachman, 1842): California Myotis Bat**

COMMON NAMES: California Bat; California Myotis; California Myotis Bat; Little California Bat (*M.c. californicus* Audubon and Bachman, 1842 - Invalid?); Miotis Californiano (Spanish)⁴²; Murcielago de California (Hispanic)¹⁴; Stephen's Brown Bat (*M.c. stephensi* Dalquest, 1946 - Invalid?). HABITS: Feeds on arachnids and insects. Roosts in crevices and cracks in cliffs and canyon walls, caves, mine shafts and manmade shelters. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8 (*Myotis californicus* N. Miller), 14 (050412 - subsp. *californicus*; subsp. *stephensi* (Dalquest)), 42 (061712), **55** (recorded as *Myotis californicus* Audubon & Bachman. California Myotis. Locally common throughout the state.), 73, 100 (color photograph), 106 (050412 - color presentation), 118 (recorded as *Myotis californicus californicus* (Audubon & Bachman) - Distribution: Eastern and southeastern Arizona, and *Myotis californicus stephensi* Dalquest - Distribution: Northern and western part of the state. Figure 16, Page 45), 148 (color presentation), 149*

***Myotis californicus* subsp. *californicus* Audubon and Bachman, 1842 - Invalid?: California Myotis Bat**

COMMON NAMES: California Bat; California Myotis; California Myotis Bat; Little California Bat; Murcielago de California (Hispanic)¹⁴. HABITS: The species feeds on arachnids and insects. Roosts in crevices and cracks in cliffs and canyon walls, caves, mine shafts and manmade shelters. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8 (species: *Myotis californicus* N. Miller), 14 (051007 - subsp. *californicus* (Audubon & Bachman) and *stephensi* (Dalquest)), 42 (061712 - no subspecies listed), 55 (species, recorded as *Myotis californicus* Audubon & Bachman. California Myotis. Locally common throughout the state.), 73 (species), 100 (species, color photograph of species), 106 (050412 - species, color presentation of species), **118** (recorded as *Myotis californicus californicus* (Audubon & Bachman) - Distribution: Eastern and southeastern Arizona. Figure 16, Page 45), 148 (color presentation), 149*

Myotis ciliolabrum (see *Myotis leibii*)

Myotis ciliolabrum subsp. *melanorhinus* (see footnote 14 under *Myotis leibii*)

***Myotis leibii* (Audubon and Bachman, 1842): Western Small-footed Myotis**

SYNONYMY: *Myotis ciliolabrum* (Merriam, 1886); *Myotis subulatus* subsp. *melanorhinus* (Merriam) - Invalid? ; *Myotis subulatus* subsp. *subulatus* Say - Invalid?. COMMON NAMES: Chauve-souris Pygmée (French)⁴²; Eastern Small-footed Bat (applied to *Myotis leibii*); Eastern Small-footed Myotis (applied to *Myotis leibii* after the splitting of *Myotis subulatus* (Small-footed Myotis) into two species *Myotis ciliolabrum* and *Myotis leibii* in 1984)¹⁴; Least Brown Bat; Miotis Cara Negra (Spanish: applied to *Myotis ciliolabrum*)⁴²; Murcielago Patas Chicas (Hispanic: applied to *Myotis ciliolabrum*)¹⁴; Small-footed Bat; Small-footed Myotis; Western Small-footed Bat (applied to *Myotis ciliolabrum*); Western Small-footed Myotis (applied to *Myotis ciliolabrum* after the splitting of *Myotis subulatus* (Small-footed Myotis) into two species *Myotis ciliolabrum* and *Myotis leibii* in 1984)¹⁴; Western Small-footed Myotis. HABITS: Feeds on flying insects including bugs, flies and moths. Hibernates in caves and mines and roosts under bark, in buildings, rock bluffs, burrows, caves, cavities in cliffs, cracks; rock crevices, holes, mine shafts, hollow trees, and amongst and under rocks, and snags. Den sites may be buildings; caves; under rocks and trees. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: This bat may live to be from 5 to 12 years of age. Populations may be in decline. *8, 14 (061712 - recorded as *Myotis ciliolabrum*: subsp. *melanorhinus* (Merriam); subsp. *subulatus* (Say), color presentation), 42 (061712), **55** (recorded as *Myotis subulatus* Say. Small-footed Myotis. Uncommon but distributed throughout the state.), 100, 106 (061712 - recorded as *Myotis leibii*, color presentation and *Myotis ciliolabrum*, color presentation), **118** (recorded as *Myotis subulatus melanorhinus* (Merriam) - Distribution: Probably at higher elevations throughout the state. Figure 17, Page 46)*

Myotis subulatus subsp. *melanorhinus* (see *Myotis leibii*)

Myotis subulatus subsp. *subulatus* (see *Myotis leibii*)

***Myotis velifer* (J.A. Allen, 1890): Cave Myotis Bat**

COMMON NAMES: Cave Bat; Cave Myotis; Cave Myotis Bat; Mexican Brown Bat; Miotis Mexicano (Spanish)⁴²; Murciélago de Cueva (Hispanic)¹⁴; Southwestern Cave Myotis (*M.v. brevis* Vaughan, 1954 - Invalid?). HABITS: Feeds on small moths and other small insects. Roosts in holes and pockets in caves, crevices, bridges, buildings, abandoned mine shafts, tunnels, and trees. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8 (recorded as *Myotis velifer velifer* (J.A. Allen)), 14 (050412 - subsp. *brevis* (Vaughan); subsp. *incautus* (J.A. Allen)), 42 (061712 - no record of subspecies), 55 (recorded as *Myotis velifer* (J.A. Allen). Cave Myotis. Locally abundant in summer months at lower elevations (below 5,000 feet) throughout the southern and western parts of the state.), 73, 92, 100 (color photograph), 106 (050412 - color presentation), 118 (recorded as *Myotis velifer brevis* Vaughan - Distribution: Probably statewide. Figure 11, Page 37), 148 (color presentation)*

***Myotis velifer* subsp. *brevis* (Vaughan, 1954) - Invalid?: Southwestern Cave Myotis**

COMMON NAMES: Cave Bat; Cave Myotis; Cave Myotis Bat; Mexican Brown Bat; Murciélago de Cueva (Hispanic)¹⁴; Southwestern Cave Myotis. HABITS: The species feeds on small moths and other small insects. Roosts in holes and pockets in caves, crevices, bridges, buildings, abandoned mine shafts, tunnels, and trees. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *14 (050412 - subsp. *brevis* (Vaughan); subsp. *incautus* (J.A. Allen); subsp. *grandis* (Hayward)), 42 (061712 - no subspecies listed), 55 (species, recorded as *Myotis velifer* (J.A. Allen). Cave Myotis. Locally abundant in summer months at lower elevations (below 5,000 feet) throughout the southern and western parts of the state.), 73 (species), 92 (species), 100 (species, color photograph of species), 106 (050412 - species, color presentation of species), 118 (recorded as *Myotis velifer brevis* Vaughan - Distribution: Probably statewide. Figure 11, Page 37), 148 (color presentation of species)*

***Myotis yumanensis* (H. Allen, 1864): Yuma Myotis Bat**

COMMON NAMES: Fort Yuma Bat; Miotis de Yuma (Spanish)⁴²; Murciélago de Yuma (Hispanic)¹⁴; Yuma Myotis; Yuma Myotis Bat. HABITS: Feeds on small soft-bodied insects (mainly moths). Roosts in caves, crevices and swallow nests in cliffs and rocky walls, tree cavities, under bridges and in buildings in close proximity to water. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050412 - subsp. *yumanensis* (H. Allen), color presentation), 42 (061812), 55 (recorded as *Myotis yumanensis* (H. Allen). Yuma Myotis. Locally common, statewide in distribution.), 73, 100 (color photograph), 106 (050412), 118 (recorded as *Myotis yumanensis yumanensis* (H. Allen) - Distribution: Probably statewide at low and medium elevation. Figure 10, Page 36), 148 (color presentation)*

***Myotis yumanensis* subsp. *yumanensis* (H. Allen) - Invalid?: Yuma Myotis Bat**

COMMON NAMES: Murciélago de Yuma (Hispanic)¹⁴; Yuma Bat; Yuma Myotis; Yuma Myotis Bat. HABITS: The species feeds on small soft-bodied insects (mainly moths). Roosts in caves, crevices and swallow nests in cliffs and rocky walls, tree cavities, under bridges and in buildings in close proximity to water. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050412 - subsp. *yumanensis* (H. Allen), color presentation), 42 (061812 - no subspecies listed), 55 (species, recorded as *Myotis yumanensis* (H. Allen). Yuma Myotis. Locally common, statewide in distribution.), 73 (species), 100 (species, color photograph of species), 106 (050412), 118 (recorded as *Myotis yumanensis yumanensis* (H. Allen) - Distribution: Probably statewide at low and medium elevation. Figure 10, Page 36), 148 (color presentation of species)*

***Pipistrellus hesperus* (H. Allen, 1864): Western Pipistrelle Bat**

COMMON NAMES: Canyon Bat (*P.h. hesperus* H. Allen, 1864 - Invalid?); Flittermouse; Murciélago del Poniente (Hispanic)¹⁴; Pipistrello del Oeste Americano (Spanish)⁴²; Swift Bat (*P.h. apus* Elliot, 1904 - Invalid?); Western Bat (*P.h. hesperus* H. Allen, 1864 - Invalid?); Western Pipistrelle; Western Pipistrelle Bat. HABITS: Feeds on insects. Roosts in buildings, rock crevices in canyon walls, caves, cliffs, rocky outcrops, under rocks and in mine shafts. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. *8, 14 (050412 - subsp. *hesperus*; subsp. *maximus* (Hatfield)), 42 (061812), 55 (recorded as *Pipistrellus hesperus* (H. Allen). Western Pipistrelle. Common throughout the state.), 73, 100 (color photograph), 106 (050412 - color presentation), 118 (recorded as *Pipistrellus hesperus apus* Elliot - Distribution: Southeastern Arizona, and *Pipistrellus hesperus hesperus* (H. Allen) - Distribution: Northern and western Arizona. Figure 19, Page 49), 148 (color presentation)*

Pipistrellus hesperus subsp. *apus* (see *Pipistrellus hesperus* subsp. *hesperus*)

***Pipistrellus hesperus* subsp. *hesperus* H. Allen, 1864 - Invalid?: Western Pipistrelle Bat**

SYNONYMY: *Pipistrellus hesperus* subsp. *apus* Elliot, 1904 - Invalid?. COMMON NAMES: Canyon Bat; Flittermouse; Murcielago del Poniente (Hispanic)¹⁴; Western Bat; Western Pipistrelle; Western Pipistrelle Bat. HABITS: The species feeds on insects. Roosts in buildings, rock crevices in canyon walls, caves, cliffs, rocky outcrops, under rocks and in mine shafts. HABITAT: Within the range of this species it has been reported from forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: This is the smallest of the western bats. *8, 14 (050412 - subsp. *hesperus*; subsp. *maximus* (Hatfield)), 42 (061812 - no subspecies listed), 55 (species, recorded as *Pipistrellus hesperus* (H. Allen). Western Pipistrelle. Common throughout the state.), 73 (species), 100 (species, color photograph of species), 106 (050412 - species, color presentation of species), **118** (recorded as *Pipistrellus hesperus apus* Elliot - Distribution: Southeastern Arizona. Figure 19, Page 49; *Pipistrellus hesperus hesperus* (H. Allen) - Distribution: Northern and western Arizona. Figure 19, Page 49), 148 (color presentation of species)*

***Plecotus townsendii* Cooper, 1837 (subsp. *pallescens* (Miller, 1897) is the subspecies reported as occurring in Arizona): Townsend's Big-eared Bat**

SYNONYMY: *Corynorhinus townsendii* (Cooper, 1837). COMMON NAMES: Lump-nosed Bat; Mule-eared Bat; Murcielago de Townsend (Hispanic)¹⁴; Ozark Big-eared Bat (*P.t. ingens* Handley, 1955 - Valid); Pale Lumped-nosed Bat (*P.t. pallescens* (Miller, 1897) - Valid); Pale Townsend's Big-eared Bat (*P.t. pallescens* (Miller, 1897) - Valid); Pallid Western Big-eared Bat (*P.t. pallescens* (Miller, 1897) - Valid); Townsend's Big-eared Bat (*P.t. townsendii* Cooper, 1837 - Valid); Virginia Big-eared Bat (*P.t. virginianus* Handley, 1955 - Valid); Western Big-eared Bat; Western Long-eared Bat; Western Lump-nosed Bat. HABITS: The species feeds on small moths and other small insects; roosts on open ceilings in caves and rock shelters, and under bridges and in water diversion tunnels, abandoned mines, mine tunnels and buildings. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: **The Pale Townsend's Big-eared Bat is a rather sedentary species that is extremely sensitive to human disturbance and the vandalism of roost caves.** *14 (061812 - recorded as *Corynorhinus townsendii* subsp. *pallescens* (Miller)), 42 (061812), **55** (recorded as *Plecotus townsendii* (Cooper). Lump-nosed Bat. Locally common throughout the state at elevations above 5,000 feet; rare at lower elevations.), 73, 92 (color photograph), 100 (color photograph), 106 (050512 - recorded as *Corynorhinus townsendii*, includes a listing of subspecies, color presentation), 118 (recorded as *Corynorhinus townsendii pallescens* Miller - Distribution: Probably more or less state wide but more abundant in the Upper Sonoran and Transitional Life Zones. Figure 24, Page 58), 148 (recorded as *Corynorhinus townsendii*, color presentation)*

Plecotus townsendii subsp. *intermedius* (see *Plecotus townsendii* subsp. *pallescens*)

***Plecotus townsendii* subsp. *pallescens* (Miller, 1897): Pale Townsend's Big-eared Bat**

SYNONYMY: *Corynorhinus townsendii* subsp. *pallescens* Miller, 1897; *Plecotus townsendii* subsp. *intermedius* (H.W. Grinnell, 1914). COMMON NAMES: Lump-nosed Bat; Mule-eared Bat; Murcielago de Townsend (Hispanic)¹⁴; Pale Lumped-nosed Bat; Pale Townsend's Big-eared Bat; Pallid Western Big-eared Bat; Western Big-eared Bat; Western Long-eared Bat; Western Lump-nosed Bat. HABITS: The species feeds on small moths and other small insects; roosts on open ceilings in caves and rock shelters, and under bridges and in water diversion tunnels, abandoned mines, mine tunnels and buildings. HABITAT: Within the range of this species it has been reported from tundra, forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTE: **The Pale Townsend's Big-eared Bat is a rather sedentary species that is extremely sensitive to human disturbance and the vandalism of roost caves.** *14 (061812 - recorded as *Corynorhinus townsendii* subsp. *pallescens* (Miller)), 42 (061812), 55 (species, recorded as *Plecotus townsendii* (Cooper). Lump-nosed Bat. Locally common throughout the state at elevations above 5,000 feet; rare at lower elevations.), 73 (species), 92 (species, color photograph of species), 100 (species, color photograph of species), 106 (050512 - species, recorded as *Corynorhinus townsendii*, includes a listing of subspecies, color presentation of species), **118** (recorded as *Corynorhinus townsendii pallescens* Miller - Distribution: Probably more or less state wide but more abundant in the Upper Sonoran and Transitional Life Zones. Figure 24, Page 58), 148 (recorded as *Corynorhinus townsendii* subsp. *pallescens*, color presentation)*

CLASS REPTILIA: The REPTILES

Colubridae: The Colubrid Family

***Pituophis catenifer* (Blainville, 1835): Gopher Snake**

COMMON NAMES: Baja Gopher Snake (*Pituophis catenifer vertebralis* - Invalid?, *Pituophis melanoleucus vertebralis* - Invalid?); Bull Snake; Bullsnake; Bullsnake (*Pituophis melanoleucus sayi* (Schlegel, 1837) - Invalid, *P.c. sayi* (Schlegel, 1837) - Valid); Cape Gopher Snake (*Pituophis catenifer vertebralis* - Invalid?, *Pituophis melanoleucus vertebralis* - Invalid?); Central Baja California Gopher Snake (*Pituophis catenifer bimarisi* - Invalid?, *Pituophis melanoleucus bimarisi* - Invalid?); Coast Gopher Snake; Gopher Snake; Great Basin Gopher Snake (*Pituophis melanoleucus deserticola* Stejneger, 1893 - Invalid, *P.c. deserticola* Stejneger, 1893 - Valid); Pacific Gopher Snake (*Pituophis melanoleucus catenifer* Blainville, 1835 - Invalid, *P.c. catenifer* Blainville, 1835 - Valid); Pine Snake (applied to *Pituophis melanoleucus*); San Diego Gopher Snake

(*Pituophis melanoleucus annectens* Baird & Girard, 1853 - Invalid, *P.c. annectens* Baird & Girard, 1853 - Valid); Santa Cruz Gopher Snake (*Pituophis melanoleucus pumilis* Klauber, 1946 - Invalid, *P.c. pumilis* Klauber, 1946 - Valid); Sonoran Gopher Snake (*Pituophis melanoleucus affinis* Hallowell, 1852 - Invalid, *P.c. affinis* Hallowell, 1852 - Valid); Western Gopher Snake. HABITS: Feeds on small birds and bird eggs, lizards and small mammals. Takes shelter in underground burrows and under logs and rocks. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: In many texts the Gopher snake has been recorded as *Pituophis melanoleucus* (Daudin, 1803). *14 (063013 - subsp. *P.c. affinis* (Hallowell, 1852): Sonoran Gopher Snake and subsp. *P.c. sayi* (Schlegel, 1837): Bullsnake, color presentation), 37 (recorded as *Pituophis melanoleucus*), 42 (063013), 55 (recorded as *Pituophis melanoleucus* (Daudin)), 73 (recorded as *Pituophis melanoleucus*), 87 (recorded as *Pituophis melanoleucus*), 106 (063013 - includes a listing of subspecies, color presentation), **MBJ** (correspondence dated May 13, 2013)*

Pituophis melanoleucus (see NOTES under *Pituophis cantenifer*)

Viperidae: The Pit Viper Family

It has been suggested that if bitten by a rattlesnake you should call 911. Remain calm, remove all jewelry (including watches), immobilize extremity, keep at level below the heart, decrease total body activity, and transport to a medical facility. Do not apply ice to the bitten area, do not use an incision of any kind, do not use a tourniquet, do not administer drugs or alcohol, and do not use electric shock treatment (Tucson Herpetological Society. 1995.

Living with Rattlesnakes. Tucson, Arizona, 8751-1531. BISON-M).

<http://www.pharmacy.arizona.edu/outreach/poison>

If bitten contact the Arizona Poison and Drug Information Center: 1-800-222-1222.

***Crotalus atrox* Baird and Girard, 1853: Western Diamondback Rattlesnake**

COMMON NAME: Adobe Snake; Arizona Diamond Rattlesnake; Buzzworm; Coon Tail; Desert Diamond Rattlesnake; Desert Diamond-back; Fierce Rattlesnake; Spitting Rattlesnake; Texan Rattlesnake; Texas Diamond-back; Vibora-cascabel de Diamantes (Spanish)⁴²; Western Diamond-backed Rattlesnake; Western Diamondback Rattlesnake. HABITS: Feeds on birds, bird's eggs and young birds, frogs, gophers, lizards, mice, prairie dogs, rabbits, rats, squirrels and toads. Takes shelter in underground burrows, crevices in arroyo walls, rocky outcrops, thickets and woodrat nests. HABITAT: Within the range of this species it has been reported from the forest, woodland, scrub, grassland, desertscrub and wetland ecological formations. NOTES: A venomous and dangerous snake. *14 (063013 - color presentation) 37, 42 (063013), 54, 55, 73, 87, 106 (063013 - color presentation), ADS (1 bite already reported; here are tips for safety, Tuesday, March 9, 2010, Section A, Pages 1&4), **MBJ** (correspondence dated May 13, 2013)*

ACKNOWLEDGEMENTS

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ERRORS

In the early Species Distribution Listings posted to the Sonoran Desert Conservation Plan website there were a number of errors, primarily in the authority associated with the naming the species, hopefully the current listing updates correct this problem.

FOOTNOTES and REFERENCES

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Arizona Atlas & Gazetteer. 2002. DeLorme.
www.delorme.com

National Geographic Arizona Seamless USGS Topographic Maps. Maps created with TOPO! RC 2002 National Geographic.

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(2) Physiographic Province Mapping:

Walker, Henry P. and Don Bufkin. 1979. Historical Atlas of Arizona, University of Oklahoma Press, Norman, Page 4A and Map.

(3) Soils Mapping:

Arizona General Soil Map, July 1975, United States Department of Agriculture, Soil Conservation Service and the University of Arizona Agricultural Experiment Station, compiled by J.E. Jay, Y.H. Havens, D.M. Hendricks, D.F. Post and C.W. Guernsey.

Richardson, M.L. and M.L. Miller. March 1974. United States Department of Agriculture - Soil Conservation Service in cooperation with the Pima County Natural Resource Conservation District, Report and Interpretations for the General Soil Map of Pima County, Arizona and General Soil Map Pima County Arizona. Arizona General Soil Map, July 1975, United States Department of Agriculture - Soil Conservation Service and the University of Arizona Agricultural Experiment Station, compiled by J.E. Jay, Y.H. Havens, D.M. Hendricks, D.F. Post and C.W. Guernsey.

(4) Biotic Communities Mapping and Definitions

Ecological formations used in the listings follow those presented in the mapping for the Biotic Communities of the Southwest.

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(5) Nomenclature:

for Plants:

Generally follows that presented by The Biota of North America Program of the North Carolina Botanical Garden (BONAP) with A Synonymized Checklist of the Vascular Flora of the United States, Puerto Rico and the Virgin Islands, Full Index 1998.

<http://www.bonap.org/>
<http://www.csd.tamu.edu/FLORA/b98/check98.htm>

The International Plant Names Index (2004, 2005)
Published on the Internet:
<http://www.ipni.org> [accessed 2004, 2005, 2006]

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Section on Arizona Habitats, The University of Arizona Press, Tucson, Arizona and E. Lendell Cockrum. 1960. The Recent Mammals of Arizona: Their Taxonomy and Distribution, The University of Arizona Press, Tucson, Arizona.

Biota Information System of New Mexico (BISON-M), New Mexico Game and Fish, New Mexico Natural Heritage Program

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Arizona Game and Fish Department. Unpublished Abstracts Compiled and Edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ.

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(6) Growth Habits of Plants:

Generally coincides with that presented by the National Plants Database. USDA, NRCS. 2004. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA. Common names identified in the USDA NRCS database have been printed in bold lettering. A few of the plants were not provided with a common name in the USDA NRCS database.

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Vascular Plants of Ragged Top, compiled by John F. Wiens from 1987 - 2000, The Arizona Native Plant Society, The Plant Press, Volume 25 Number 1, Spring 2001. *102*

(7) Arid Zone Trees, A Resource for Landscape Professionals, dedicated to providing quality trees to the Landscape Industries that are appropriate to the Desert Southwest

<http://www.aridzonetrees.com/index.htm>

(8) Arizona Game and Fish Department. Unpublished abstracts compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ.

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Birds: 2003. *Accipiter gentilis*, American Goshawk; 2003. *Aimophila quinquestriata*, Five-striped Sparrow; 2002. *Aimophila ruficeps* subsp. *rupicola*, Yuma Rufous-crowned Sparrow; 2001. *Ammodramus bairdii*, Baird's Sparrow; 2001. *Ammodramus savannarum* subsp. *ammolegus*, Arizona Grasshopper Sparrow; 2001. *Anthus spragueii*, Sprague's Pipit; 2002. *Aquila chrysaetos*, Golden Eagle; 2000. *Asturina nitida*, Northern Grey Hawk; 2001. *Athene cucularia* subsp. *hypugaea*, Western Burrowing Owl; 2001. *Buteo regalis*, Ferruginous Hawk; 2001. *Buteo swainsoni*, Swainson's Hawk; 2005. *Buteogallus anthracinus*, Common Black-hawk; 2003. *Caracara cheriway*, Crested Caracara; 2002. *Ceryle alcyon*, Belted Kingfisher; 2001. *Chloroceryle americana*, Green Kingfisher; 2002. *Coccyzus americanus* subsp. *occidentalis*, Western Yellow-billed Cuckoo; 2001-08-27. *Colinus virginianus* subsp. *ridgwayi*, Masked Bobwhite; 2002. *Dendrocygna autumnalis*, Black-bellied Whistling-duck; 2001. *Dendrocygna bicolor*, Fulvous Whistling-duck; 2002. *Dolichonyx oryzivorus*, Bobolink; 2002. *Egretta thula*, Snowy Egret; 2002. *Elanus leucurus*, White-tailed Kite; 2003. *Empidonax fulvifrons* subsp. *pygmaeus*, Northern Buff-breasted Flycatcher; 2003. *Empidonax hammondi*, Hammond's Flycatcher; 2002. *Empidonax traillii* subsp. *extimus*, Southwestern Willow Flycatcher; 1998. *Falco peregrinus* subsp. *anatum*, American Peregrine Falcon; 2001. *Glaucidium brasilianum* subsp. *cactorum*, Cactus Ferruginous Pigmy-owl; 2002. *Haliaeetus leucocephalus*, Bald Eagle; 2004. *Lanius ludovicianus*, Loggerhead Shrike; 2005. *Otus flammeolus*, Flammulated Owl; 2002. *Pandion haliaetus*, Osprey; 2002. *Plegadis chihi*, White-faced Ibis; 2002. *Poliophtila nigriceps*, Black-capped Gnatcatcher; 2001. *Rallus longirostris* P. Boddaert subsp. *yumanensis*, Yuma Clapper Rail; 2002. *Setophaga ruticilla*, American Redstart; 2005. *Strix occidentalis* subsp. *lucida*, Mexican Spotted Owl; 2001. *Trogon elegans*, Elegant Trogon; 2003. *Tyrannus melancholicus*, Tropical Kingbird, and 2002. *Vireo bellii* subsp. *arizonae*, Arizona Bell's Vireo.

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Fishes: 2002. *Agosia chrysogaster*, Longfin Dace; 2002. *Catostomus clarki*, Desert Sucker; 2002. *Catostomus insignis*, Sonora Sucker; 2001. *Cyprinodon eremus*, Quitobaquito Pupfish; 2001. *Cyprinodon macularius*, Desert Pupfish; 2002. *Gila intermedia*, Gila Chub; 2002. *Gila robusta*, Roundtail Chub; 2001. *Poeciliopsis occidentalis* subsp. *occidentalis*, Gila Topminnow, and 2001. *Poeciliopsis occidentalis* subsp. *sonorensis*, Yaqui Topminnow.

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(AHS) Arizona Historical Society

(ANN) Anonymous

(JFW) John F. Wiens

(MBJ) Matthew B. Johnson, Program Manager and Curator of the Desert Legume Program - Boyce Thompson Southwestern Arboretum

(PCM) Personal Communication (Date)

(PDJ) Philip D. Jenkins, Assistant Curator of the University of Arizona Herbarium

(RGM) G. Meades

(TBL) Township Bird Listing

(WTK) William T. Kendall

(ANPS) Arizona Native Plant Society

(KGUN) Channel 9 (ABC - Month Day, Year & Program)

(KOLD) Channel 13 (CBS - Month Day, Year & Program)

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