

Technical Report
Colorado Plateau Research Station
National Biological Survey
P.O. Box 5614, Flagstaff, AZ 86011-5614

An Annotated Vascular Plant Species List
For Montezuma Castle And Montezuma Well
National Monuments, Arizona

Prepared by
Nancy J. Brian
and
Peter G. Rowlands

for
National Park Service
Montezuma Castle and Well National Monuments

March 25, 1994

**AN ANNOTATED VASCULAR PLANT SPECIES LIST
FOR MONTEZUMA CASTLE AND MONTEZUMA WELL
NATIONAL MONUMENTS, ARIZONA**

TABLE OF CONTENTS

	Page
Part I: Plants of Montezuma Castle National Monument	2
Part II: Plants of Montezuma Well National Monument	36
Cited Literature	65
Index to Scientific and Common Names	67

AN ANNOTATED VASCULAR PLANT SPECIES LIST FOR MONTEZUMA CASTLE AND AND MONTEZUMA WELL NATIONAL MONUMENTS, ARIZONA

This annotated, vascular plant species list is for Montezuma Castle National Monument (Part I) and Montezuma Well National Monument (Part II). Both are arranged alphabetically by family name, with each species listed alphabetically. A total of 368 species, 235 genera, and 74 families are found at Montezuma Castle. A total of 311 species (including 52 infraspecific taxa of which there are five species and three varieties of questionable occurrence as they are not listed as part of the Arizona flora), 212 genera, and 72 families are found at Montezuma Well. Two species, new to the Arizona flora *Juniperus erythrocarpa* Cory (Redberry Juniper) and *Festuca arundinacea* Schreber. (Tall Fescue), are also recorded for Montezuma Well.

Each annotation gives a brief description of the plant for the non-botanist. Where available, information is given on frequency, life form, size, flowering dates and color, fruits, and other distinctive features. The frequency terms for the persistent, perennial vegetation are based upon the presence of a species in a vegetation unit encountered when relevés¹ (see Rowlands 1994) were made. For Montezuma Castle, rare species are those which were not encountered, uncommon species were found in 1-5 units, infrequent species were found in 6-11 units, frequent species were found in 12-19 units, and common species were found in 20 or more units. At Montezuma Well, the rare species are those which were not encountered, uncommon species were found in 1-3 units, infrequent species were found in 4-6 units, frequent species were found in 7-10 units, and common species were found in 11 or more units. No frequency terms are given for annual or biennial species. A scientific (family and genus names only) and common names index for both Monument units is provided for quick reference.

The species lists were drawn from a data base of the Monuments' flora (CPSU 1993), published floral lists and field investigations (Clark and Burgess 1966, Jenkins et al. 1991, McDougall and Haskell 1960, Ruffner and Johnson 1990, Schroeder 1948, Soil Conservation Service 1993, Spangle and Sutton 1949) and vascular plant collections (Frank W. Reichenbacher and J. Mark Porter 1989, George A. Ruffner 1988-89, and Peter G. Rowlands 1992-94). The scientific name, any synonymy, and common name (where applicable) follows that used by Lehr (1978) and Lehr and Pinkava (1978, 1980). Floral information is drawn from McDougall (1973), Kearney and Peebles (1960), Hitchcock (1950), and Benson (1977). The most frequently encountered species found on relevés conducted at Montezuma Castle (top ten) and Montezuma Well (top five) by Rowlands (1994) are noted parenthetically.

¹ A relevé is a quadrat survey where all species are listed and given some quantitative coefficient or number.

PART I: PLANTS OF MONTEZUMA CASTLE NATIONAL MONUMENT

ACERACEAE—Maple Family

Acer negundo L. ssp. californicum (T. & G.) Wesm. (= Acer negundo L. var. interius Britt.) Sarg.). Box-elder. Rare, perennial tree to 15 m. tall, flowers in April and May, fruit a samara.

AGAVACEAE—Agave Family

Agave parryi Engelm. var. parryi Engelm. Parry Agave, Century Plant. Rare, perennial succulent, "cat claw" like thorns along leaf margin, flowers in June, flowers white, fruit a capsule.

Nolina microcarpa Wats. Beargrass. Uncommon perennial with razor-sharp, serrate leaf margins, the tips of which split into brush-like tips, base stemless above the ground, flowers small and white, blooms May and June.

Yucca baccata Torr. var. baccata Torr. Blue Yucca, Banana Yucca, Fleshy-fruited Yucca. Rare, perennial succulent, leaves broad, flowers April to July.

Yucca elata Engelm. var. verdiensis (McKelvey) Reveal. Soap Tree Yucca, Palmilla. Infrequent, perennial, succulent, leaves narrow, flowers May to July.

AMARANTHACEAE—Amaranth Family

Amaranthus powellii Wats. Powell's Amaranth, Pigweed. Annual herb.

ANACARDIACEAE—Sumac Family

Rhus trilobata Nutt. Squawbush, Skunkbush, Sumac. Infrequent, perennial shrub to 2 meters tall, flowers yellow, flowers March to June, fruit a red, viscid, 1-seeded drupe.

Toxicodendron rydbergii (Small ex Rydb.) Greene (= Rhus radicans L. var. rydbergii (Small ex Rydb.) Rheder). Poison Ivy. Rare, perennial shrub, causes painful skin irritation in many people, flowers April to September, petals greenish white, fruit yellowish white when mature.

APIACEAE (=UMBELLIFERAE)—Parsley Family

Berula erecta (Hutds.) Coville. Water Parsnip. Rare, perennial, aquatic plant, flowers white from June to September.

Cymopterus multinervatus (Coult. & Rose) Tidestrom. Purple Cymopterus. Rare, perennial herb, flowers purplish, blooms March to May, fruits often purplish.

Cymopterus purpurascens (Gray) Jones. Rare, perennial herb, flower purple, blooms March to May.

Daucus pusillus Michx. American Carrot, Wild Carrot, Rattlesnake Weed. Rare, biennial herb, petals white, flowers March to June.

Hydrocotyle verticillata Thunb. Water Pennywort. Rare, perennial herb, found in wet places or in sluggish water, flowers white.

APOCYNACEAE—Dogbane Family

Amsonia peeblesii Woodson. Rare, perennial herb, flowers blue.

Vinca major [Authority unknown] Periwinkle. Rare, ornamental trailing plant with white or pink flowers. This introduced plant has escaped from cultivation and flowers in the spring and summer months.

ASCLEPIADACEAE—Milkweed Family

Asclepias asperula (Decne.) Woodson ssp. capricornu (Woodson) Woodson. (= A. capricornu Woodson). Antelope Horns. Rare, perennial herb, flowers greenish white, blooms April to August.

Asclepias engelmanniana Woodson. Rare, perennial herb, flowers greenish yellow, sometimes tinged with purple, blooms June to September.

Asclepias subverticillata (Gray) Vail. Poison Milkweed, Western Whorled Milkweed, Poison Milkweed. Rare, perennial herb, flowers greenish white, sometimes tinged with purple, blooms May to September.

Sarcostemma cynanchoides Decne. (= Funastrum cynanchoides (Decne.) Schlechter). Climbing Milkweed. Uncommon, perennial herbaceous vine, often climbing over bushes along streams and washes, flowers white or purple.

ASTERACEAE (=COMPOSITAE)—Sunflower Family

Acourtia wrightii (Gray) Reveal & King. (= Perezia wrightii Gray). Brownfoot. Infrequent, perennial herb, flowers lavender-pink, January to July and sometimes later, common name refers to "wooly", brown root.

Agoseris glauca (Pursh) D. Dietr. var. laciniata (D.C. Eaton) Smiley. Mountain Dandelion. Rare, perennial herb, flowers yellow when fresh, blooms May to October.

Ambrosia confertiflora DC. (= Franseria confertiflora (DC.) Rydb.). Ragweed, Altamisa. Annual herb, flowers April to October.

Ambrosia psilostachya DC. Western Ragweed. Annual herb, flowers July to October. MW

Artemisia ludoviciana Nutt. Uncommon, perennial herb, herbage fragrant (sage scent), flowers August to November.

Aster coerulescens DC. Annual herb, found in marshy places and along streams, flowers August to October.

Aster subulatus Michx. var. ligulatus Shinnery. (= A. exilis Ell.). Annual herb, found in moist soil along streams and ditches, flowers June to October.

Baccharis emoryi Gray. Emory Baccharis. Rare, perennial shrub to 5 meters tall, but usually 2-3 meters tall, found along streams, flowers September to November.

Baccharis salicifolia (R. & P.) Pers. (= B. glutinosa Pers.). Seep Willow, Batamote, Jara. Uncommon, perennial shrub to 5 meters tall, flowers March to December.

Baccharis sarothroides Gray. Broom Baccharis, Desert Broom. Rare, perennial shrub, 1-4 meters tall, flowers throughout the year but more commonly in winter.

Baccharis viminea DC. Mule Fat. Uncommon, perennial shrub, 2-4 meters tall, similar in appearance to B. salicifolia, but more definitely woody and often larger, flowers March to July.

Baccharis wrightii Gray. Wright's Baccharis. Uncommon, perennial herb, woody only at the base, 1-nerved leaves, blooms May to July.

Baileya multiradiata Harv. & Gray. Wild Marigold, Desert Baileya. Uncommon, biennial or perennial herb, common on sandy plains and mesas, flowers are yellow and blooms March to November.

Brickellia atractylodes Gray. Uncommon, small, perennial shrub 20-30 centimeters tall, flowers white and blooms March to September.

Brickellia californica (T. & G.) Gray. Pachaba. Uncommon, perennial shrub, 25-100 centimeters tall, flowers greenish-white, blooms July to October.

Brickellia chlorolepis (Woot. & Standl.) Shinn. (= Kuhnia rosmarinifolia Vent.). Rare, perennial herb, flowers white, blooms May to October, found on mesas, slopes, and in forest openings.

Centaurea melitensis L. Malta Star Thistle, Tocolote. Annual "weed" on waste land and open, rocky slopes, flowers yellow, blooms May to July, naturalized from Europe.

Cichorium intybus L. Blue Sailors, Chicory. Rare, perennial herb with deep-seated taproot, flowers blue (rarely pink or white), blooms June to October, naturalized from Europe.

Cirsium arizonicum (Gray) Petrak. Arizona Thistle. Rare, biennial or short-lived perennial, flowers crimson to carmine, blooms May to October.

Cirsium wheeleri (Gray) Petrak. Rare, perennial herb, flowers usually purple or lavender, but sometimes white, blooms June to October.

Conyza canadensis (L.) Cronq. var. pusilla (Nutt.) Cronq. (= Erigeron pusillus Nutt.). Horseweed. Annual herb, flowers white but inconspicuous, common weed, flowers July to October.

Dyssodia acerosa DC. Dogweed. Frequent, low, woody perennial sub-shrub of dry rocky places, flowers April to October.

Dyssodia pentachaeta (DC.) Robins. var. belenidium (DC.) Strother. (= D. thurber (Gray) A. Nels.). Thurber Dyssodia. Rare, low, perennial herb with yellow flowers, blooms March to October.

Encelia frutescens Gray. Rayless Encelia. Uncommon, perennial shrub, disk flowers yellow (ray flowers normally none), blooms nearly throughout the year.

Encelia virginensis A. Nels. Uncommon, perennial shrub, similar to the species above, but with ray flowers, blooms nearly throughout the year.

Erigeron concinnus (H. & A.) T. & G. Tidy Fleabane. Uncommon, perennial herb with taproot, flowers blue, pink or white, flowers April to October.

Erigeron divergens T. & G. Spreading Fleabane. Uncommon, biennial herb with slender taproot, rays light blue, lavender-pink or white, flowers February to October on dry, rocky slopes and mesas.

Erigeron flagellaris Gray. Running Fleabane. Rare, biennial herb or short-lived perennial, flowers usually white, but sometimes blue or pink, flowers April to September.

Gaillardia pinnatifida Torr. Blanket Flower. Rare, perennial herb, flowers yellow with lobes veined with purple, blooms April to November.

Grindelia aphanactis Rydb. Gumweed. Uncommon, perennial herb, phyllaries gummy resinous, flowers yellow, blooms June to October.

Gutierrezia microcephala (DC.) Gray. (includes G. lucida Greene.). Three Leaf Snakeweed. Rare, perennial sub-shrub, flowers yellow, flowers June to October.

Gutierrezia sarothrae (Pursh) Britt. & Rusby. Broom Snakeweed. Common, perennial sub-shrub, flowers yellow, blooms July to November. [Broom Snakeweed is the first most common species, found in 84 vegetation units.]

Helianthus annuus L. Common Sunflower, Mirasol. Annual herb, stems 30 to 200 centimeters tall, disk flowers purple-brown, ray flowers yellow, flowers March to October.

Heterotheca villosa (Pursh) Shinnery var. foliosa (Nutt.) Harms. (= Chrysopsis foliosa Nutt.). Hairy Goldenaster. Uncommon, perennial herb, flowers yellow, blooms July to October.

Hymenoclea monogyra T. & G. Burro Brush. Uncommon, perennial shrub, with prominently striate-ridged, slender branches, found usually in sandy soils, blooms September and October.

Hymenothrix loomisii Blake. Rare, annual or perennial herb, found on mesas, plains and along streams, flowers June to October.

Lactuca pulchella (Pursh) Riddell. (= L. tatarica (L.) C. A. Mey. ssp. pulchella (Pursh) Steb.). Large Blue Lettuce. Rare, perennial herb with spreading rhizomes, flowers blue, blooms July to August.

Layia glandulosa (Hool.) H. & A. Tidy-tips. Annual herb, found on dry slopes and mesas, flowers March to June.

Leucelene ericoides (Torr.) Greene. (= Aster hirtifolius, Blake, A. arenosus (Heller) Blake). White Aster, Rose Heath. Infrequent, perennial herb, ray flowers white, sometimes pink when very young, disk flowers yellow, but drying whitish, blooms March to October, found on mesas and slopes, often on limestone, blooms April to October.

Machaeranthera gracilis (Nutt.) Shinnery. (= Haplopappus gracilis (Nutt.) Gray. Annual herb with taproot, blooms April to October.

Machaeranthera tephrodes (Gray) Greene. (= Aster tephrodes (Gray) Blake). Infrequent, biennial herb, flowers lavender to violet, blooms May to October.

Malacothrix fendleri Gray. Annual herb, flowers yellow, but usually purplish on the underside, blooms April to June.

Melampodium leucanthum T. & G. Black Foot. Common, annual or perennial herb, found on dry rocky slopes and mesas, often on limestone, ray flowers white with purple veins, blooms March to November.

Microseris linearifolia (DC.) Schultz Bip. Silver Puffs. Rare, perennial herb, ephemeral flowers, pale yellow but drying reddish or purplish, found on plains, mesas, and foothills, blooms March to June.

Parthenium incanum H.B.K. Mariola. Common, perennial shrub found on dry plains and mesas, flowers white, blooms June to October. [Mariola is the ninth most common species, found in 37 vegetation units.]

Senecio douglasii DC. var. longilobus (Benth.) L. Benson. (= S. longilobus Benth.) Thread Leaf Groundsel. Uncommon, perennial shrub, found on slopes, mesas and along washes, flowers yellow, blooms nearly throughout the year.

Senecio neomexicanus Gray. Rare, perennial sub-shrub, flowers yellow, blooms April to August.

Senecio quercetorum Greene. Rare, perennial herb, flowers yellow, blooms March to May.

Solidago sparsiflora Gray. Rare, perennial herb, ray and disk flowers yellow, blooms June to October.

Solidago wrightii Gray. Uncommon, perennial herb, ray and disk flowers yellow, blooms July to October.

Sonchus asper (L.) Hill. Spiny Sow Thistle, Achicoria Dulce. Annual herb, found mostly on roadsides and waste lands, flowers yellow, blooms February to August, naturalized from Europe.

Stephanomeria exigua Nutt. Wirelettuce. Annual herb, involucre with 3-9 flowers, flowers light purple, found on plains, mesas, and hillsides, often among shrubs, blooms April to September.

Stephanomeria pauciflora (Torr.) A. Nels. Desert Straw. Rare, perennial herb with woody base, flowers rose or flesh colored, blooms almost throughout the year.

Stephanomeria tenuifolia (Torr.) H.M. Hall. Rare, perennial herb, flowers rose or flesh colored, blooms May to September.

Taraxacum laevigatum (Willd.) DC. Red-seeded Dandelion. Rare, perennial herb, flowers yellow, blooms March to August, naturalized from Europe.

Townsendia annua Beaman. Rare, annual, biennial, or perennial herb, flowers white to lilac, blooms March to September.

Townsendia strigosa Nutt. Rare, annual, biennial, or perennial herb, flowers white to lilac, blooms March to September.

Tragopogon dubius Scop. Goats Beard. Rare, biennial or perennial herb with fleshy taproot, corollas lemon-yellow, common weed naturalized from Europe, blooms May to September.

Verbesina encelioides (Cav.) Benth. & Hook. Yellowtop, Cowpen Daisy. Rare, annual herb with taproot, common weed of roadsides and waste ground, flowers yellow, blooms April to September.

Verbesina encelioides (Cav.) Benth. & Hook var. exauriculata Robins. & Greenm. Crownbeard. Annual with taproot, flowers yellow, blooms April to September.

Viguiera multiflora (Nutt.) Blake. Golden Eye. Rare, perennial herb, flowers yellow, blooms May to October.

Xanthium strumarium L. (=X. Saccharatum Wallr.). Common Cocklebur, Abrojo. Annual herb, common weed of disturbed sites, blooms February to October.

BERBERIDACEAE—Barberry Family

Berberis haematocarpa Woot. Red Barberry, Red Mahonia, Algerita. Common, perennial shrub to 4 meters tall, flowers fragrant and yellow, berries red, juicy, and edible. Flowers February to May. [Red Barberry is the fourth most common species, found in 44 vegetation units.]

BETULACEAE—Birch Family

Alnus oblongifolia Torr. Arizona Alder. Rare, perennial tree to 18 meters tall, found mostly along streams, flowers are yellowish green catkins, fruit a nutlet, scarcely winged.

BIGNONIACEAE—Bignonia Family

Chilopsis linearis (Cav.) Sweet var. arcuata Fosberg. Desert Willow, Desert Catalpa, Mimbre. Infrequent, perennial shrub or small tree to 9 meters tall, found mostly along washes in deserts and foothills, flowers lavender or white, often marked with purple lines or spots, seeds borne in a capsule with each seed tipped at end by silky, hairlike process, blooms April to August.

BORAGINACEAE—Borage Family

Amsinckia intermedia F. & M. Coast Fiddleneck. Bristly, annual herb, flowers orange-yellow, blooms February to May.

Cryptantha confertiflora (Green) Payson. Golden Cryptantha. Uncommon, perennial herb with woody crown and stout root, flowers pale yellow to cream-colored, blooms May and June.

Cryptantha crassiseppala (T. & G.) Greene. Thick-seppaled Cryptantha. Annual herb, flowers inconspicuous, white or whitish, blooms April to July.

Cryptantha nevadensis Nels. & Kenn. Nevada Cryptantha. Annual herb, flowers white, blooms March to June or sometimes to August.

Lappula redowskii (Hornem.) Greene. Stickseed. Annual herb, flowers white to light blue or ochroleucous, found in sunny places in disturbed soil, blooms March to September.

Lappula redowskii (Hornem.) Greene. var. cupulatum (Gray) Jones. (= Lappula texana (Scheele) Britt.). Stickseed. Annual herb, flowers white to light blue or ochroleucous, found in sunny places in disturbed soil, blooms March to September.

Lithospermum incisum Lehm. Gromwell, Puccoon. Uncommon, perennial herb with thick, woody root, flowers yellow, blooms March to June.

Tiquilia canescens (DC.) A. Richardson (= Coldenia canescens DC.). Shrubby Coldenia. Common, low, spreading perennial, flowers white, found mostly in rocky, calcareous soil on dry mesas and slopes, blooms March to September. [Shrubby Coldenia is the tenth most common species, found in 29 vegetation units.]

BRASSICACEAE (= CRUCIFERAE)—Mustard Family

Arabis perennans Wats. Rare, perennial herb, flowers purple to pink, blooms February to October.

Capsella bursa-pastoris (L.) Medic. Paniquesillo, Shepherds Purse. Annual or winter annual, flowers white, blooms March to September, introduced from Europe.

Chorispura tenella (Pall.) DC. Annual herb, introduced from Asia, flowers purple, blooms March to June.

Descurainia pinnata (Walt) Britt. Yellow Tansy Mustard. Annual herb, petals whitish to yellow, blooms April to August.

Descurainia sophia (L.) Webb. Flixweed. Annual herb, flowers greenish-yellow, naturalized from Europe, blooms April to June.

Draba cuneifolia Nutt. ex T. & G. Whitlow Grass. Rare, annual herb, flowers white, found mostly in sandy soil, blooms February to May.

Erysimum asperum (Nutt.) DC. var. purshii Durand. (= E. capitatum (Dougl.) Greene. Wallflower, Western Wallflower. Rare, perennial or biennial, flowers yellow, blooms March to September.

Lepidium lasiocarpum Nutt. Sand Peppergrass. Annual herb, flowers small and whitish, found in sandy soil, blooms April to July.

Lepidium montanum Nutt. Pepper Grass. Uncommon, biennial or perennial, petals white, blooms April to September.

Lepidium montanum Nutt. var. glabrum C.L. Hitchc. Pepper Grass. Uncommon, biennial or perennial, plants entirely without hairs, see above.

Lesquerella gordonii (Gray) Wats. Gordon Bladderpod. Annual herb, flowers bright yellow, found on dry plains and mesas, blooms February to June.

Lesquerella intermedia (Wats.) Heller. Rare, perennial herb, flowers yellow, blooms April to August.

Lesquerella tenella Nelson. (= L. gordonii (Gray) Wats. var. sessilis Wats.). Rare, annual herb, flowers bright yellow, plants with pubescent siliques, blooms February to June.

Nasturtium officinale R. Br. (= Rorippa nasturtium-aquaticum (L.) Schinz & Thell.). Watercress. Rare, aquatic or semiaquatic perennial herb, flowers white, naturalized from Europe, blooms April to August.

Sisymbrium irio L. London Rocket. Annual herb, flowers yellow, common weed naturalized from Europe, blooms January to April.

Streptanthus arizonicus Wats. Twist Flower. Annual or biennial herb, flowers whitish to yellow with conspicuous brown-purple veins, blooms January to April.

Thelypodium wrightii Gray. Rare, biennial herb, flowers white or pinkish, blooms March to November.

CACTACEAE—Cactus Family

Coryphantha vivipara (Nutt.) B. & R. var. arizonica (Engelm.) W.T. Marshall. (= Mammillaria arizonica Engelm.). Uncommon, perennial cactus, often solitary or caespitose, flowers pink, blooms May to July.

Echinocereus fasciculatus (Engelm.) L. Benson var. boyce-thompsonii (Orcutt) L. Benson. (= E. boyce-thompsonii Orcutt). Infrequent, perennial cactus, stems 5-20 in rather loose clumps, large flowered, flowers purple or lavender, blooms May to June.

Opuntia leptocaulis DC. Desert Christmas Cactus. Common, perennial cactus or cholla, petals greenish-yellow, fruit fleshy, obovoid and red, blooms April to June.

Opuntia phaeacantha Engelm. var. discata (Griffiths) Benson & Walkington. (= O. engelmannii Salm-Dyck). Engelmann Prickly Pear. Infrequent, large, perennial prickly-pear cactus with prostrate or spreading stems, spines usually not present on lower quarter or third of each pad, flowers usually yellow but occasionally red or pink, fruit ovoid and red, juicy and edible, blooms April to June.

Opuntia violacea Engelm. var. macrocentra (Engelm) L. Benson. (= O. macrocentra Engelm.). Black-spined Prickly Pear. Rare, large, perennial, shrubby prickly-pear, flowers yellow, often suffused with red toward the base, fruit fleshy, red to purple, blooms April and May.

CAMPANULACEAE—Bellflower Family

Lobelia cardinalis L. ssp. graminea (Lam.) McVaugh. Cardinal Flower. Rare, perennial herb, often vegetatively reproduces by means of slender offsets, flowers red, found in moist soil especially along streams, blooms June to October.

Nemacladus glanduliferus Jeps. var. orientalis McVaugh. Thread Plant. Annual herb, flowers white with purplish lobes, found in dry, sandy places, blooms March to May.

CARYOPHYLLACEAE—Pink Family

Silene antirrhina L. Sleepy Catchfly. Annual herb, flowers white, often rose-tipped, blooms March to July.

CELASTRACEAE—Staff Tree Family

Canotia holacantha Torr. Crucifixion Thorn. Common, perennial shrub or small tree, leaves reduced to small, deciduous scales, flowers white, blooms May to August.

CHENOPODIACEAE—Goosefoot Family

Atriplex canescens (Pursh) Nutt. Wingscale, Cenizo, Chamiso, Four-wing Saltbush. Infrequent, perennial shrub, dioecious, fruits conspicuously four-winged, found on dry slopes, flats and washes, often in sandy or subalkaline places.

Atriplex canescens (Pursh) Nutt. ssp. canescens (Pursh) Nutt. See above.

Ceratoides lanata (Pursh) J.T. Howell var. lanata (Pursh) J.T. Howell. (= Eurotia lanata (Pursh) Moq.). Winter Fat. Infrequent, perennial sub-shrub, found on dry plains and mesas usually among grasses, blooms May to October.

Chenopodium fremontii Wats. (includes C. incanum (S. Wats.) Heller). Fremont Goose Foot. Annual herb, blooms June to September.

Salsola iberica Sennen & Pau (= S. kali L. var. tenuifolia (Tausch.) Aellen and includes S. pestifer A. Nels.). Russian Thistle. Annual weed or "tumble weed", naturalized from Eurasia.

CLEOMACEAE—Cleome Family

Cleome lutea Hook. var. jonesii Macbr. (= C. jonesii (Macbr.) Tidestrom). Yellow Bee Plant, Yellow Spiderwort. Annual herb, flowers pale yellow, blooms May to August.

Polanisia dodecandra (L.) DC. ssp. trachysperma (T. & G.) Iltis (= P. trachysperma T. & G.). Western Clammyweed. Annual herb, strong scented, flowers whitish with conspicuous purple stamens, blooms May to October.

CONVOLVULACEAE—Morning Glory Family

Convolvulus arvensis L. Field Bindweed. Rare, perennial herb with prostrate stems, flowers white to pink, usually with darker bands on the outside, naturalized from Europe, blooms May to September.

Convolvulus equitans Benth. (= C. incanus Vahl). Hoary Bindweed. Rare, perennial herb with a deep-seated, weedy, perennial root, found mostly on dry slopes and mesas, blooms May to October.

Evolvulus nuttallianus R. & S. (= E. pilosus Nutt.). Rare, perennial herb with woody base, flowers lavender, drying purple, blooms March to July.

CUCURBITACEAE—Gourd or Melon Family

Cucurbita foetidissima H.B.K. Buffalo Gourd, Calabazilla. Rare, perennial, strong-smelling herb, flowers yellow, fruit light green with creamy-white stripes, blooms May to August.

Marah gilensis Greene. Big Root, Wild Cucumber. Rare, perennial vine, found often in thickets along streams, blooms February to April.

CUPRESSACEAE—Cypress Family

Cupressus arizonica Greene. Arizona Cypress, Cedro Blanco. Rare, perennial tree to 27 meters or less, fruit a woody cone with many seeds.

Juniperus monosperma (Engelm.) Sarg. One-seed Juniper. Frequent, perennial shrub to small tree up to 8 meters tall, usually without a definite trunk, seeds solitary or rarely two, unisexual flowers with the two sexes on different plants.

Juniperus osteosperma (Torr.) Little. Utah Juniper. Infrequent, perennial small tree, 3-5 meters tall with a definite trunk, similar to the species above in appearance, stamens and pistils in separate flowers on the same plant.

CYPERACEAE—Sedge Family

Carex aquatilis Wahl. Rare, perennial, grass-like herb with three sided stem, found in wet places.

Eleocharis parishii Britt. Rare, perennial herb with slender, creeping rhizomes, found in wet places.

Scirpus validus Vahl. (= Scirpus acutus Muhl.) Softstem Bulrush. Rare, perennial herb with stout rhizomes.

EPHEDRACEAE—Joint-Fir Family

Ephedra viridis Cov. Mountain Joint-fir. Frequent, perennial, dioecious shrub, young twigs bright green to yellowish-green, leaf bases brown and persistent.

EUPHORBIACEAE—Spurge Family

Croton texensis (Klotzsch) Muell. Arg. Dove Weed, Skunk Weed. Annual herb, strong-scented, stellate-pubescent herbage, blooms May to November.

Euphorbia albomarginata T. & G. Rattlesnake Weed. Rare, prostrate, perennial herb, appendages to flower glands conspicuous and white.

Euphorbia capitellata Engelm. Rare, perennial herb with woody taproot, gland appendages white or pinkish, blooms March to October.

Euphorbia fendleri T. & G. Fendler Spurge. Rare, perennial herb with deep-seated taproot, glands reddish, flowers May to September.

Euphorbia fendleri T. & G. var. chaetocalyx Boiss. See above, variety has narrower leaves and petaloid appendages.

Euphorbia lurida Engelm. Rare, perennial herb, glands without petaloid appendages, blooms April to August.

Euphorbia strictospora Engelm. (= Chamaesyce strictospora Small). Narrow-seeded Spurge. Rare herb, blooms August to October.

Tragia ramosa Torr. (= T. stylaris Muell. Arg.) Noseburn. Rare, perennial herb with woody base, has stinging hairs, blooms March to November.

FABACEAE (=LEGUMINOSAE)—Pea Family

Acacia greggii Gray. var. arizonica Isely (= A. greggii Gray). Catclaw. Common, perennial, large shrub or small tree to 5 meters tall, flowers yellow in spikes, found forming thickets along streams and washes, blooms April to October. [Catclaw is the fifth most common species, found in 44 vegetation units.]

Amorpha fruticosa L. var. occidentalis (Abrams) K. & P. Bastard Indigo. Uncommon, perennial shrub, gland-dotted, heavily-scented, deciduous leaves, glabrous pods, found in canyons and along streams, blooms May to July.

Astragalus amphioxys Gray. Uncommon, winter annual or short-lived perennial herb, flowers pink-purple, herbage densely silvery-white.

Astragalus calycosus Torr. var. scapiosus (Gray) Jones. Frequent, perennial herb, herbage silvery with dolabriform hairs, flowers whitish, often purple- or pink-tipped, fading bluish, found on rocky slopes and mesas, blooms April to July.

Astragalus lentiginosus Dougl. ex Hook. var. albiflorus (Gray) Schoener (= A. lentiginosus Dougl. ex Hook. var. diphysus (Gray) Jones). Rare, perennial or biennial herb, flowers white.

Astragalus lentiginosus Dougl. ex Hook. var. palans (Jones) Jones. Rare, perennial or biennial herb, petals purple.

Astragalus newberryi Gray. Uncommon, perennial herb with appressed-silky herbage, flowers pink-purple, sometimes pale, found on dry, stony mesas, blooms March and April.

Astragalus nuttallianus Nutt. Nuttall Locoweed. Slender annual, flowers whitish or purplish, keep tipped with dark purple, found on plains and mesas, blooms February to May.

Astragalus nuttallianus Nutt. var. trichocarpus² Rare herb, similar to species above, found on dry plains, mesas and slopes, has pubescent pods.

Astragalus subcinereus Gray. Annual herb, found mostly on dry hillsides and openings in pine forests or in oak thickets, blooms May to September.

Astragalus tephrodes Gray var. brachylobus (Gray) Barneby. Rare, perennial herb, flowers pink-purple to dull lilac, blooms April to July.

Astragalus wootonii Sheldon. var. wootonii Sheldon. Wooton Loco. Uncommon, winter annual or biennial, flowers whitish, often tinged with pink, lavender or lilac, blooms March to July.

Dalea formosa Torr. Feather Plume, Indigo-bush. Frequent, perennial shrub, flowers rose-purple, the banner sometimes yellowish, pods hairy and glandular-dotted, blooms April to June.

Dalea searlsiae (Gray) Barneby (= Petalostemon searlsiae Gray). Rare, perennial herb from a woody base, flowers rose-purple, blooms April to June.

Desmanthus cooleyi (Eaton) Trel. Bundleflower. Rare, perennial herb or shrub, flowers white, found on dry slopes, mesas and plains, blooms May to September.

Hoffmanseggia drepanocarpa Gray. Sicklepod Rush Pea. Uncommon, perennial herb with thick, woody, taproot, flowers yellow, blooms May to September.

Lotus corniculatus L. Birdsfoot Trefoil. Rare, perennial herb with green and leaf-like stipules, corolla yellow to reddish-orange, introduced from Europe and an adventive.

² Variety not listed in Lehr (1978) and Lehr and Pinkava (1980, 1982).

Lotus humistratus Greene. Hill Locust. Annual herb with decumbent to ascending stems, flowers yellow tinged with purple, found mostly in sandy deserts, flowers March to June.

Lotus mearnsii Britt. Rare, perennial herb, with decumbent or nearly prostrate stems, flowers yellow, often drying purple, found mostly in grasslands on dry mesas and slopes, blooms March to August.

Lupinus breviaulus Wats. Short-stemmed Lupine. Annual herb, densely hairy, flowers blue or purple, found on dry slopes and mesas, blooming April to July.

Medicago lupulina L. Black Medick. Annual or sometimes perennial herb, flowers yellow, naturalized from Europe, found in waste places, blooms March to September.

Medicago minima (L.) Grufberg. Small Bur Clover. Annual or perennial herb, naturalized from Europe, not common, soft-pubescent herbage.

Medicago polymorpha L. var. vulgaris (Benth.) Shinnars (= M. hispida Gaertn.). Bur Clover. Annual herb with procumbent stems, flowers yellow, naturalized from Europe, found on waste land, blooms March to May.

Medicago sativa L. Alfalfa. Rare, perennial herb, flowers violet, introduced from Eurasia, often cultivated, becomes established in waste places, blooms April to October.

Melilotus albus Desr. ex Lam. White Sweet Clover. Uncommon, annual or biennial herb, naturalized from Eurasia, found mostly in waste places, flowers white, blooms July to September.

Melilotus indicus (L.) All. Alfalfilla, Annual Yellow Sweet Clover, Sour-clover. Uncommon, annual or biennial herb, naturalized from Eurasia, found in waste places a low altitudes, blooms April to October.

Melilotus officinalis (L.) Lam. Yellow Sweet Clover. Rare, annual or biennial herb, naturalized from Eurasia, found in disturbed areas, flowers yellow, blooms June to October.

Mimosa biuncifera (Benth.) B. & R. Wait-a-Minute, Cat's Claw Mimosa. Rare, perennial shrub, well armed with stout, flat spines, flowers whitish or pink, found in dry soil on mesas and rocky slopes often in chaparral, blooms May to August.

Phaseolus angustissimus Gray var. latus Jones. Rare, annual or perennial herb, flowers purple with a yellow keel, found often on mesas among trees or shrubs, blooms May to October.

Prosopis velutina Woot. (= P. juliflora (Swartz) DC. var. velutina (Woot.) Sarg.). Velvet Mesquite. Common, perennial tree, with pubescent foliage, common along streams and washes where the water table is relatively high, flowers yellow, blooms March to August. [Velvet Mesquite is the eighth most common species, found in 39 vegetation units.]

Rhynchosia sena Gill. var. angustifolia (Gray) Grear (= R. texana T. & G.). Rosary Bean. Rare, perennial herb with weakly twining stems, flowers yellow, found mostly on dry plains and mesas, blooms May to September.

Senna bauhinioides (Gray) Irwin & Barneby (= Cassia bauhinioides Gray). Rare, annual or perennial herb, flowers yellow, found on dry rocky slopes and mesas, blooms April to August.

Trifolium repens L. White Clover. Rare, perennial herb, with creeping stems which root at the nodes, flowers white, often tinged with pink, naturalized from Europe, blooms June to September.

Vicia ludoviciana Nutt. (= V. exigua Nutt.). Annual herb, flowers white to purple, found often among bushes on slopes and in canyons, blooms March to May.

FAGACEAE—Beech Family

Quercus dunni Kell. Palmer Oak. Rare, perennial, evergreen shrub or tree to 5 meters tall, often forming thickets, leaf blades gray-green above and mostly glabrous and yellowish to whitish underneath.

Quercus turbinella Greene ssp. turbinella Greene. Shrub Live Oak, Turbinella Oak. Uncommon, perennial small or large shrub to about 4 meters tall, leaf blades with upper surface dull gray-green and the lower densely stellate-tomentose.

FUMARIACEAE—Fumitory Family

Corydalis aurea Willd. ssp. aurea Willd. Golden Corydalis. Rare, biennial or short-lived perennial herb with watery juice, flowers yellow, blooms February to June and sometimes later.

Corydalis aurea Willd. ssp. occidentalis (Engelm.) Ownbey. Rare, biennial or short-lived perennial herb, flowers yellow, surpassing the leaves and conspicuously spurred, blooms February to June.

GERANIACEAE—Geranium Family

Erodium cicutarium (L.) L'Her. Filaree, Afilerillo, Alfilaria. Annual herb, leaves

pinnate, flowers pink or rose-lavender, naturalized from Europe, blooms February to July.

Erodium texanum Gray. Large-flowered Stork's Bill. Annual herb, leaves palmately lobed, flowers purple, found mostly on plains and mesas, blooms February to August.

HYDROPHYLLACEAE—Waterleaf Family

Eucrypta chrysanthemifolia (Benth.) Greene var. bipinnatifida (Torr.) Constance. Torrey Eucrypta. Annual herb, strong-scented, sticky foliage, leaves bipinnatifid, flowers white or bluish, blooms February to April.

Eucrypta micrantha (Torr.) Heller. Small-flowered Eucrypta. Annual herb, strong-scented, sticky foliage, leaves once pinnate, flowers purplish or blue or sometimes white with a yellowish tube, blooms February to May.

Phacelia crenulata Torr. Annual herb, flowers deep violet or bluish-purple with exerted stamens, found on plains, mesas and foothills, blooms January to June.

Phacelia crypthantha Greene. Small-flowered Phacelia. Annual herb, flowers borne in a scorpioid cyme, flowers lavender, stamens included, found on dry slopes under shrubs, blooms April to June.

Phacelia distans Benth. var. australis Brand. Wild Heliotrope. Annual herb, flowers blue, stamens included or slightly exerted, blooms February to May.

Phacelia ivesiana Torr. Ives Phacelia. Annual herb with taproot, flowers in relatively small, scorpioid cyme, flowers white with yellowish tube, found in sandy soil, blooms March to June.

Phacelia rotundifolia Torr. Round-leaved Phacelia. Annual herb, flowers white to pink or pale violet with the lower part of the tube pale yellow, found often on rocky talus, blooms March to May.

JUGLANDACEAE—Walnut Family

Juglans major (Torr.) Heller. Arizona Walnut, Nogal Silvestre. Uncommon, perennial tree up to 15 meters tall, found mostly along streams.

JUNCACEAE—Rush Family

Juncus ensifolius Wakstr. var. montanus (Engelm) C.L. Hitchc. (= Juncus saximontanus A. Nels.). Rare, perennial herb with stout, creeping rhizomes, flat stems.

Juncus torreyi Coville. Rare, perennial herb with slender, creeping rhizomes with tuberlike thickenings from which other stems arise, found in wet places, flowers July to September.

Juncus xiphioides E. Mey. Rare, perennial herb with stout, creeping rhizomes, flat stems, flowers June to August.

KRAMERIACEAE—Ratany Family

Krameria parvifolia Benth. Range Ratany. Common, perennial shrub, flowers purplish, blooms April to October. [Range Ratany is the seventh most common species, found in 39 vegetation units.]

LAMIACEAE (=LABIATAE)—Mint Family

Hedeoma drummondii Benth. Drummond's Mock-pennyroyal. Uncommon, perennial herb, often from a woody base, flower rose-purple or blue-purple, blooms April to September.

Hedeoma nanum (Torr.) Briq. Uncommon, annual or perennial herb, flowers blue to purple, blooms March to October.

Hedeoma oblongifolium (Gray) Heller. Rare, annual or perennial herb, flowers purple, blooms April to September.

Marrubium vulgare L. Common Horehound, Marrubio. Uncommon, perennial herb with white-woolly stems, flowers white or pale lavender, naturalized from Europe, blooms April to September.

Mentha spicata L. Spearmint. Rare, perennial, aromatic herb, flowers pale lavender, naturalized from Europe, blooms July to September.

Salvia reflexa Hornem. Rocky Mountain Sage. Annual herb, flowers blue, blooms July to October.

LILIACEAE—Lily Family

Calochortus flexuosus Wats. Straggling Mariposa. Infrequent, perennial herb, with bent and twisted branched stems, root a corm, flowers white to lilac or purple with a yellow gland and purple spot near the base (and a few short hairs near the gland), blooms April to June.

Calochortus nuttallii T. & G. Sego Lily. Rare, perennial herb, root a corm, stems erect and usually simple, flowers white to lilac or purple or lemon yellow, blooms May to July.

Dichelostemma pulchellum (Salisb.) Heller. (= Brodiaea capitata Benth.) Bluedicks. Infrequent, perennial herb, flowers blue-violet, blooms February to May and occasionally July or later.

Dichelostemma pulchellum (Salisb.) Heller var. pauciflorum (Torr.) Hoover. Rare, perennial herb, similar to species above, but the bracts are narrower, pale-colored and shorter than the pedicels.

LINACEAE—Flax Family

Linum lewisii Pursh. Blue Flax. Rare, perennial herb, flower blue, rarely white, blooms March to September.

Linum puberulum (Engelm) Heller. Plains Flax. Annual herb, flowers yellow, blooms April to October.

LOASACEAE—Stick-leaf Family

Mentzelia albicaulis Dougl. Small-flowered Blazing Star. Annual herb, flowers yellow, found often in sandy soil of plains and along washes, blooms February to August.

Mentzelia pumila (Nutt.) T. & G. var. multiflora³. Uncommon, biennial herb, flowers yellow, found in dry stream beds and along roads, common, blooms February to October.

LYTHRACEAE—Loosestrife Family

Lythrum californicum T. & G. Hierba del Cancer, Loosestrife. Rare, perennial herb, stems with exfoliating bark, flowers purple, found often in wet soil along streams, blooms June to August.

MALVACEAE—Mallow Family

Abutilon parvulum Gray. Small-leaved Abutilon, Indian-mallow. Rare, herbaceous perennial, often with a woody base, flowers pink to red, found often on dry plains and slopes, sometimes with scrub oak, blooms April to October.

³ Variety not in Lehr (1978) and Lehr and Pinkava (1980, 1982).

Malva neglecta Wallr. Common Mallow. Rare, annual or biennial herb, naturalized from Eurasia, common weed of waste places, flowers pink or white, blooms May to October.

Sphaeralcea ambigua Gray. Desert Mallow, Apricot-mallow. Common, perennial herb with thick, woody stem, flowers red, pink or orange, blooms March to June. [Desert Mallow is the sixth most common species, found in 42 vegetation units.]

Sphaeralcea grossulariaefolia (H. & A.) Rydb. Rare, perennial herb, flowers grenadine, found often on mesas and slopes, often in -juniper woodlands, blooms April to October.

Sphaeralcea parvifolia A. Nels. Littleleaf Globe Mallow. Rare, perennial herb with large root and woody crown, flowers grenadine, found mostly in the open on dry slopes and mesas, the most common species of the genus in Arizona, blooms April to November.

Sphaeralcea rusbyi Gray. Rare, perennial herb with thick crown, flowers grenadine, found on well-drained slopes often in openings in pine forests, blooms April to September.

MARTYNIACEAE—Unicorn Plant Family

Proboscidea parviflora (Woot.) Woot. & Standl. var. parviflora Woot. & Standl. Devil's Claw, Cinco Llagas, Unicorn Plant. Annual herb with slender taproot, flowers purple to nearly white, often with purple spots or blotches, blooms April to October.

NYCTAGINACEAE—Four-O'Clock Family

Allionia incarnata L. Trailing Four-O'Clock, Windmills. Rare, perennial herb, flowers, purplish-red or rarely white, blooms April to October.

Boerhaavia coccinea Mill. Red Spiderling. Rare, perennial herb with declining or prostrate stems, flowers purplish-red, blooms April to November.

Boerhaavia coulteri (Hook. f.) Wats. Coulter Spiderling. Annual herb, flowers pink or white.

Boerhaavia torreyana (Wats.) Standl. Annual herb, similar in appearance to B. coulteri.

Mirabilis multiflora (Torr.) Gray. var. multiflora (Torr.) Gray. Colorado Four O'Clock. Uncommon, perennial herb, flowers red-purple, blooms April to September.

Mirabilis pumila (Standl.) Standl. (= Oxybaphus pumilus Standl.). Rare, perennial herb from a woody root, flowers pale pink, flowers June to September.

OLEACEAE—Olive Family

Forestiera pubescens Nutt. Tanglebrush, Desert Olive. Rare, perennial shrub, leaves opposite, flowers in small fascicles, fruit a blue-black drupe, blooms March to June.

Fraxinus pennsylvanica Marsh. ssp. velutina (Torr.) G.N. Miller (= Fraxinus velutina Torr. ssp. velutina Torr.) Velvet Ash. Uncommon, perennial tree, petals none, flowers appearing in crowded panicles mostly before the appearance of leaves in the spring, fruit a one seeded samara with terminal wing, found along streams, blooms March to May.

Menodora scabra Gray var. scabra Gray.⁴ Uncommon, perennial herb, flowers bright yellow, found on dry mesas and slopes, blooms March to September.

ONAGRACEAE—Evening Primrose Family

Gaura coccinea Pursh. Scarlet Gaura. Uncommon, perennial herb, flowers whitish, pink or red, found usually on dry plains and slopes, blooms April to September.

Gaura hexandra Ort. ssp. gracilis (Woot. & Standl.) Raven & Gregory. (= G. gracilis Woot. & Standl. and forma glandulosa (Woot. & Standl.) Munz. Annual or perennial herb, found commonly in canyons and along roadsides, flowers red, blooms May to October.

Gaura parviflora Dougl. Lizard Tail, Velvet Leaf Gaura. Rare, biennial or winter-annual herb, flowers usually pink, found often in waste places, blooms June to October.

Oenothera albicaulis Pursh. Prairie Evening Primrose. Annual or winter-annual herb, flowers white, becoming pink in age, blooms March to September.

Oenothera caespitosa Nutt. Rare, perennial herb, flowers white, aging pink, blooms April to September.

Oenothera caespitosa Nutt. var. marginata (Nutt.) Munz. Large White Desert Primrose. Rare, perennial herb, similar to species above.

Oenothera flava (A. Nels.) Garrett. Rare, perennial herb, without a stem, flowers pale yellow, drying reddish, blooms April to September.

ORCHIDACEAE—Orchid Family

Epipactis gigantea Douglas ex Hook. Giant Helleborine. Rare, perennial herb with creeping rhizomes, flowers purple, strong veined with darker purple, found in moist soil, blooms April to July.

⁴ Variety not in Lehr (1978) and Lehr and Pinkava (1980, 1982).

PAPAVERACEAE—Poppy Family

Argemone pleiacantha Greene. ssp. ambigua G. B. Ownbey. Rare, annual or perennial herb, moderately prickly herbage, flowers yellow, blooms all summer.

PINACEAE—Pine Family

Pinus edulis Engelm. Pinyon, Pinyon Pine. Rare, perennial tree to 15 meters tall, leaves mostly in two's, but sometimes in three's or solitary, fruit edible.

Pinus monophylla Torr. & Frem. Single-leaved Pinyon. Rare, perennial tree, similar to P. edulis except that the leaves are mostly single.

PLANTAGINACEAE—Plantain Family

Plantago major L. Common Plantain. Rare, perennial herb, naturalized from Europe, found often in moist soil along streams, blooms March to October.

Plantago patagonica Jacq. var. gnaphalioides (nutt.) Gray (= P. purshii R. & S.). Annual herb, found on dry slopes and mesas, blooms February to August.

Plantago patagonica Jacq. var. oblonga (Morris) Shinnars (= P. purshii R. & S. var. picta (Morris) Pilger). Annual herb, see species above.

Plantago rhodosperma Decne. Red-seeded Plantain. Annual or winter biennial with slender taproot, flowers white or whitish, seeds red, found often along streams, blooms March to May.

Plantago virginica L. Pale-seeded Plantain. Annual herb with slender taproot, flowers white or whitish, seeds golden yellow or pale orange, blooms February to April.

PLATANACEAE—Plane Tree Family

Platanus wrightii Wats. Arizona Sycamore. Uncommon, perennial tree to 25 meters tall, older branches white-barked after the thin, outer bark exfoliates, leaves deeply 5-lobed, found along streams, blooms April and May.

POACEAE (= GRAMINEAE)—Grass Family

Agropyron subsecundum (Link) Hitchc. Uncommon, perennial grass.

Agropyron trachycaulum (Link) var. unilaterale (Cassidy) Malte. Wheatgrass. Rare, perennial grass, blooms May to October.

Agrostis semiverticillata (Forsk.) C. Chr. Water Bent. Perennial grass, stolons root at nodes, found in wet places, blooms May to October.

Aristida hamulosa Henr. Uncommon perennial grass, blooms June to September.

Aristida purpurea Nutt. Purple Three-awn. Common, perennial grass with a trifid awn, blooms May to September. [Purple Three-awn is the third most common species, found in 59 vegetation units.]

Avena fatua L. Wild Oat. Annual grass, spikelets mostly three-flowered, awns bent or geniculate and twisted, introduced from Europe, blooms March to August.

Avena sativa L. Cultivated Oat. Rare, annual or perennial grass which is found as an escape from cultivation, introduced from Europe, found often in disturbed areas or along roads, spikelets mostly two-flowered, awns straight and not twisted.

Bothriochloa barbinodis (Lag.) Herter (= Andropogon barbinodis Lag.) Bluestem. Rare, perennial grass, culms densely bearded at the nodes, awns twisted below and geniculate or bent, blooms April to October.

Bothriochloa saccharoides (Swartz) Rydb. (= Andropogon saccharoides Swartz). Silver Beardgrass. Rare, perennial grass, culms tufted, awns twisted below and geniculate or bent, blooms June to October.

Bouteloua aristidoides (H.B.K.) Griseb. Six-weeks Needle Grama, Needle Grama, Six Weeks Grama. Annual grass, blooms June to October.

Bouteloua barbata Lag. Six-weeks Grama. Annual grass, found on dry mesas and rocky hills, blooms July to October.

Bouteloua curtipendula (Michx.) Torr. Side Oats Grama. Infrequent, perennial grass, blooms April to October.

Bouteloua eriopoda (Torr.) Torr. Black Grama. Infrequent, perennial grass, blooms July to October.

Bouteloua gracilis (H.B.K.) Lag. Blue Grama. Uncommon, perennial grass, often with rhizomes, spikelets arranged in a semi-circle, blooms, July to October.

Bromus carinatus H. & A. California Brome. Rare, annual or biennial grass, blooms in late summer, found in open ground and waste places.

Bromus mollis L. Soft Chess. Annual grass, softly pubescent throughout, naturalized from Europe.

Bromus rigidus Roth. Ripgut Grass. Annual grass, naturalized from Europe, a weed of waste places.

Bromus rubens L. Red Brome, Foxtail Chess. Annual grass, naturalized from Europe, a weed of waste places.

Bromus tectorum L. Downy Chess, Cheat Grass. Annual grass, naturalized from Europe, a weed of waste places.

Cenchrus insertus M.A. Curtis (= C. pauciflorus Benth.). Field Sandbur. Annual grass, the spikelets falling entire at maturity as a spiny bur, found in waste places, blooms June to October.

Cynodon dactylon (L.) Pers. Pata de Gallo, Bermuda Grass. Rare, perennial grass, with creeping stolons or rhizomes, spikes digitate at the top of the culm, introduced in America, found on lawns and in waste places.

Echinochloa crusgalli (L.) Beauv. Barnyard Grass. Annual grass, coarse, found in waste places, blooms July to September.

Elymus glaucus Buckl. Blue Wild Rye. Uncommon, perennial grass, found in open woods, thickets, and along streams, blooms April to September.

Eragrostis cilianensis (All.) Mosher. Stink Grass. Annual grass, weedy, naturalized from Europe, found in cultivated ground and waste places, blooms May to October.

Eragrostis lehmanniana Nees Lehmann Lovegrass Perennial, weedy, naturalized.

Erioneuron pilosum (Buckl.) Nash (= Tridens pilosus (Buckl.) Hitchc.) Hairy Tridens. Rare, perennial grass, densely tufted, blooms summer and fall.

Erioneuron pulchellum (H.B.K.) Tateoka (= Tridens pulchellus (H.B.K.) Hitchc.). Fluff Grass. Frequent, perennial grass, densely tufted, consisting of a single, long internode bearing at its summit a fascicle of leaves and spikelets, the fascicle finally bending over to the ground, taking root and producing more culms, found on mesas and rocky hills, blooms March to October.

Hilaria belangeri (Steud.) Nash. Curly Mesquite Grass. Rare, perennial grass, tufted, found on mesas and foothills, blooms March to October.

Hilaria mutica (Buckl.) Benth. Tobosa Grass, Tobosa. Uncommon, perennial grass, nodes usually glabrous or merely puberulent, blooms May to October.

Hordeum geniculatum All. (= H. hystrix Roth). Mediterranean Barley. Annual grass, naturalized from Europe, found as a weed along ditches, but not common.

Hordeum glaucum All. (= H. stebbinsii Covas) Annual grass, introduced from the Old World, a weed of cultivated land and waste places.

Hordeum jubatum L. Fox-tail Barley. Rare, perennial grass, found mostly as a weed in moist open ground along ditches and in waste places, blooms June to September, introduced from southern Europe.

Hordeum leporinum Link. Wild Barley. Annual grass, blooms April to June.

Leptochloa filiformis (Lam.) Beauv. Red Sprangletop. Annual non-native grass, found on cultivated land and along streams, blooms May to September.

Muhlenbergia asperifolia (Nees & Mey.) Parodi. Scratchgrass. Uncommon, perennial grass, with scaly rhizomes, blooms May to October.

Muhlenbergia porteri Scribn. Bush Muhly. Common, perennial grass, found on mesas and rocky hills, blooms August to October.

Oryzopsis hymenoides (R. & S.) Ricker. Indian Ricegrass. Infrequent, perennial grass, found on open plains and hills and often in juniper woodlands, blooms June to August.

Panicum arizonicum Scribn. & Merr. Arizona Panicum. Annual grass, found on rocky slopes and in sandy washes and canyon bottoms, blooms July to October.

Paspalum distichum L. Knotgrass. Rare, perennial grass, often with extensive creeping stolons, nodes of both culms and stolons usually pubescent, found in moist places, sometimes in shallow water, blooms June to September.

Poa bigelovii Vasey & Scribn. Bigelow's Bluegrass. Annual grass, found on rocky slopes and sandy washes, blooms early spring.

Poa fendleriana (Steud.) Vasey. (includes P. longiligula Scribn. & Williams). Mutton Grass. Rare, perennial grass, usually without rhizomes, blooms April to August.

Polypogon monspeliensis (L.) Desf. Rabbitfoot Grass. Annual grass, naturalized from Europe, blooms April to October.

Schismus barbatus (L.) Thell. Mediterranean Grass. Annual grass, naturalized from the Mediterranean region, blooms January to May.

Setaria grisebachii Fourn. Grisebach Bristlegrass. Annual grass, found on rocky slopes and in washes and open woodlands, blooms June to October.

Setaria leucopila (Scribn. & Berr.) K. Schum. Rare, perennial grass, blooms July to September.

Setaria macrostachya H.B.K. Plains Bristlegrass. Rare, perennial grass, found on dry, rocky soils, blooms May to October.

Setaria viridis (L.) Beauv. Green Bristlegrass, Grass Foxtail. Annual grass, naturalized from Europe, found mostly on lawns, roadsides, and waste places, blooms June to October.

Sitanion hystrix (Nutt.) J.G. Smith. Rare, perennial grass, found on open, sandy soil and rocky hills and in open pine forests, blooms March to September.

Sorghum halepense (L.) Pers. (= Elymus elymoides (Raf.) Swezey.) Johnson Grass. Perennial grass, coarse with scaly rhizomes, introduced from the Mediterranean region, a common weed of waste places, fields, and along irrigation ditches, blooms April to November.

Sporobolus airoides (Torr.) Torr. Alkali Sacaton. Uncommon, perennial grass, panicle with wide spreading branches, found often in alkali soil, blooms June to October.

Sporobolus cryptandrus (Torr.) Gray. Sand Dropseed. Rare, perennial grass, found on dry, open, sandy or rocky sites, blooms April to October.

Stipa neomexicana (Thurb.) Scribn. New Mexican Feathergrass. Frequent, perennial grass, found on dry, sandy, or rocky slopes and plains, blooms May to June.

Tridens muticus (Torr.) Nash. Slim Tridens. Infrequent, perennial grass, found on rocky slopes, desert grasslands, and oak woodlands, infrequent, blooms April to October.

POLEMONIACEAE—Phlox Family

Eriastrum eremicum (Jeps.) Mason. Annual herb, flower heads densely cobwebby, found on dry plains and mesas, blooms March to June.

Eriastrum eremicum (Jeps.) Mason var. yageri (Jones) Mason. Annual herb, similar to species above.

Gilia flavocincta A. Nels. (= G. tenuiflora Benth.). Annual herb, common on plains and in washes preferring sandy soil, blooms February to May.

Gilia sinuata Dougl. Annual herb, usually found in open, sandy places, flowers pale violet to pink or white, blooms March to June.

Ipomopsis longiflora (Torr.) V. Grant (= Gilia longiflora (Torr.) G. Don). White-flowered Gilia. Annual herb, flowers pale blue-violet to almost white, found often on dry plains and mesas, especially on limestone soils, blooms March to October.

Phlox amabilis Brand. Rare, perennial herb with a taproot, flowers pink, sometimes notched at the end, endemic to central Arizona, blooms March to May.

Phlox woodhousei (Gray) E. Nels. Rare, perennial herb, woody only at the base, flowers bright pink often fading to white and deeply notched, found in open woods, often on rocky slopes, blooms April to June and again in September.

POLYGALACEAE—Milkwort Family

Polygala rusbyi Greene. Rusby Milk Wort. Uncommon, perennial herb, flowers purple but the keel yellow, blooms April to July.

Polygala scoparioides Chodat. Rare, perennial herb, flowers greenish-white (upper petals and sepals white with greenish or brown center), blooms March to October.

POLYGONACEAE—Buckwheat Family

Eriogonum abertianum Torr. var. abertianum Torr. Uncommon, annual or biennial herb, calyx white or pink, blooms March to September.

Eriogonum abertianum Torr. var. neomexicanum⁵ Rare, annual or biennial herb, found in foothills and mountains, blooms March to September.

Eriogonum deflexum Torr. var. deflexum Torr. Skeleton Weed. Annual herb, calyx white to pink, blooms most of the year at lower altitudes.

Eriogonum microthecum Nutt. var. foliosum (T. & G.) Reveal (= E. simpsonii Benth.). Infrequent, perennial herb, woody only at the base or sometimes well above the base, calyx white or pink, blooms June to September, the most common species in Arizona.

Eriogonum trichopes Torr. Little Trumpet. Annual, or sometimes biennial, herb, calyx yellow to green, blooms almost throughout the year.

Eriogonum wrightii Torr. var. wrightii Torr. Wright Buckwheat. Uncommon, perennial herb with woody, branched stem, calyx white or pink, blooms June to October.

⁵ Variety not in Lehr (1978) and Lehr and Pinkava (1980, 1982).

Polygonum aviculare L. Prostrate Knotweed, Common Knotweed. Annual herb with bluish-green aspect, flowers green but often with pink or purple margins, naturalized from Eurasia, found in roadsides and waste places, blooms April to October.

Polygonum punctatum Ell. Water Smartweed. Rare, normally a perennial herb with slender rhizomes, found in moist places, flowers greenish, blooms July to October.

Rumex crispus L. Curly Dock, Curly-leaf Dock. Rare, perennial herb with taproot, naturalized from Europe, found often along streams and ditches, flowers numerous in panicked racemes, blooms March to October.

Rumex hymenosepalus Torr. Canigre, Wild Rhubarb. Rare, perennial herb with a cluster of tuberous roots, flowers pinkish, often common and conspicuous in sandy places, blooms March and April.

PORTULACACEAE—Portulaca or Purslane Family

Calandrinia ciliata (R. & P.) DC. var. menziesii (Hook.) Macbr. Red Maids. Annual, somewhat fleshy herb, flowers red, or rarely white, blooms February to April.

POTAMOGETONACEAE—Pondweed Family

Potamogeton gramineus L. var. maximus Morong. Rare, perennial, aquatic herb with cylindrical (in cross section) stems and floating leaves on slender petioles.

Potamogeton nodosus Poir. Rare, perennial, aquatic herb.

Potamogeton pectinatus L. Sago Pondweed. Rare, perennial, aquatic herb with entire plant submerged.

PRIMULACEAE—Primrose Family

Androsace occidentalis Pursh. Rock Jasmine. Annual herb, corolla shorter than the calyx, flowers white, found often along streams, blooms February to April.

Samolus parviflorus Raf. (= S. floribundus H.B.K.) Water Pimpernel. Rare, perennial herb, flowers white, found in wet soil along streams, blooms April to August.

RANUNCULACEAE—Crowfoot Family

Anemone tuberosa Rydb. Desert Windflower. Rare, perennial herb with tuberous roots, flowers pink or purple, found among rocks on mesas and foothills, blooms February to May.

Aquilegia chrysantha Gray. Columbine. Rare, perennial herb, flowers canary-yellow throughout, found in rich, moist soil, blooms April to September.

Clematis ligusticifolia Nutt. Clematis, Virgin's Bower. Rare, perennial vine, climbing by tendril-like petioles, found often along streams, petals none, blooms May to September.

Delphinium scaposum Greene. Barestem Larkspur. Infrequent, perennial herb with slender, woody, fibrous roots, sepals blue to light blue, upper petals white or nearly so, lower petals colored like the sepals.

RHAMNACEAE—Buckthorn Family

Rhamnus californica Esch. ssp. ursina (Greene) Wolf. California Buck Thorn. Uncommon, perennial shrub or small tree, bark gray, fruit a drupe (berrylike with two to four nutlets), black when mature, found mostly in chaparral and in open coniferous forests, flowers small and greenish in axillary clusters, blooms May to July.

Ziziphus obtusifolia (Hook. ex. T. & G.) A. Gray var. canescens (A. Gray) M.C. Johnst. (= Condalia lycioides (Gray) Weberb. var. canescens (Gray) Trel.). Thorn, Gray-leaved Abrojo, Gray-thorn. Frequent, perennial, much branched shrub with rigid, spiny twigs, flowers white and small, fruit an ellipsoid drupe, deep blue to black, often forms thickets on plains or slopes, blooms May to September.

ROSACEAE—Rose Family

Cowania mexicana D. Don. var. stansburiana (Torr.) Jeps. (= Purshia stansburiana Torr.) Cliff-rose, Quinine Bush. Uncommon, perennial shrub or small tree to 7 meters, but usually not over 3 meters tall, older bark gray and finely shreddy, petals white to pale yellow and aromatic, very common on dry slopes and mesas, often in pinyon-juniper woodlands, blooms April to September.

Rubus arizonensis Focke. Arizona Dewberry. Rare, perennial shrub, very prickly, fruits small, of rather few drupelets, found often in partial shade along streams, blooms March to May.

RUBIACEAE—Madder Family

Galium aparine L. Bedstraw, Cleavers, Goosegrass Bedstraw. Annual herb with stems prostrate or scrambling over other plants, flowers white and small, found often in moist places, blooms May to September, presumably naturalized from Europe.

Galium microphyllum Gray (= Relbunium microphyllum (Gray) Hemsl.). Rare, perennial herb, leaves in whorls of four, flowers small and greenish-yellow, fruits purplish when ripe, blooms June to September.

Galium proliferum Gray. Great Basin Bedstraw. Annual herb, leaves mostly four in a whorl, flowers white or whitish, fruits densely hairy with hooked hairs, blooms April and May.

RUTACEAE—Rue Family

Ptelea trifoliata L. ssp. pallida (Greene) V.L. Bailey. (= P. pallida Greene). Rare, perennial shrub or small tree to 6 meters tall, bark of twigs straw-colored to light olive-colored, leaves yellowish-green, found mostly in canyons, blooms May and June.

Thamnosma texana (Gray) Torr. Uncommon, perennial shrub or nearly herbaceous herb with many ascending branches, flowers greenish-yellow tinged with purple, aromatic, found on dry rocky slopes and mesas, blooms March to June.

SALICACEAE—Willow Family⁶

Salix amygdaloides Anderss. Peach-leaf Willow. Uncommon, perennial small tree of 12 meters tall, blooms April to June.

Salix bonplandiana H.B.K. (includes S. laevigata Bebb and its var. araguipa (Jeps.) Ball). Bonpland Willow, Red Willow. Uncommon, perennial small tree to 15 meters tall.

Salix gooddingii Ball. Goodding Willow. Uncommon, perennial tree, 6 to 10 meters tall, found along streams.

SAPINDACEAE—Soapberry Family

Sapindus saponaria L. var. drummondii (H. & A.) Benson. Western Soapberry, Jaboncillo. Uncommon, perennial small tree or shrub to 6 meters tall, pinnate leaves, flowers white, berries yellow, becoming dark in drying, found usually along streams, blooms May to August.

SAXIFRAGACEAE—Saxifrage Family

Ribes aureum Pursh. Golden Currant. Rare, perennial shrub, flowers fragrant and bright yellow or orange, berry mostly black or red, blooms March to June.

⁶ McDougall and Haskell (1960) cite that Populus fremontii ssp. fremontii (Fremont Cottonwood) was present at Montezuma Castle National Monument, but today this species is no longer part of the Monument's flora.

SCROPHULARIACEAE—Figwort Family

Castilleja chromosa A. Nels. Indian Paint Brush. Uncommon, perennial herb with a woody crown, flowers greenish-yellow, often with a red margin, blooms March to August.

Castilleja integra Gray. Indian Paint Brush. Rare, perennial herb with a woody root, flowers green but often red on the margins, blooms March to September.

Cordylanthus laxiflorus Gray. Bird Beak, Club Flower. Annual herb, roots yellow, flowers yellow when fresh, though drying purplish, found on dry mesas and slopes, blooms August to October.

Linaria dalmatica Miller. Toad Flax, Butter and Eggs. Uncommon, perennial herb with rhizomes, flowers yellow with darker yellow throat, naturalized from Europe, blooms July to August.

Maurandya antirrhiniflora H. & B. Blue Snapdragon Vine. Uncommon, perennial, vine-like herb, flowers purple, the palate yellowish with dark lines, found often on stony slopes among shrubs, blooms April to October.

Mimulus guttatus DC. Rare, perennial (usually) herb, often with stolons or creeping rhizomes and rooting at the nodes, flowers yellow usually spotted with red, found in wet places, blooms March to September.

Mimulus rubellus Gray. Red-stemmed Mimulus. Annual herb, flowers yellow or sometimes reddish, found often in sandy soil along streams, blooms March to July.

Penstemon eatonii Gray ssp. undosus (Jones) Keck. Rare, perennial herb, flowers scarlet, lips approximately equal.

Penstemon pseudospectabilis Jones ssp. connatifolius (A. Nels.) Keck. Rare, perennial herb, flowers pink or purple with yellowish tube and dark lines in the throat, blooms April to June and sometimes in the fall.

Penstemon thompsoniae (Gray) Rydb. Thompson Penstemon. Uncommon, perennial sub-shrub with prostrate or ascending stems from a woody base, flowers blue-violet with a bearded throat, blooms May and June.

Stemodia durantifolia (L.) Swartz. Annual herb, flowers violet-purple, found in wet soil along streams, blooms March to October.

Veronica anagallis-aquatica L. Water Speedwell. Rare, perennial herb, flowers blue to bluish-lilac, found in and around springs and streams, blooms March to September.

SIMAROUBACEAE—Quassia or Simarouba Family

Ailanthus altissima (Mill.) Swingle. Copal Tree, Tree of Heaven. Rare, perennial tree 5 to 20 meters tall, exhibits rapid growth, spreads by suckers as well as by seeds, introduced from Asia and frequently grown as an ornamental.

SOLANACEAE—Nightshade Family

Chamaesaracha coronopus (Dunal) Gray. Small Groundcherry. Rare, perennial herb with slender, underground rhizomes, flowers white to cream with some purple tinge, found on dry plains and mesas, blooms April to December.

Datura meteloides DC. Sacred Datura, Tolguacha. Uncommon, perennial herb, flowers white, often suffused with lavender or purple, blooms April to October or throughout the year at low altitudes.

Lycium pallidum Miers. Rabbit Thorn. Rare, perennial shrub with spiny branches, flowers greenish, often tinged with purple, blooms April to June.

Nicotiana attenuata Torr. Rare, perennial herb, flowers white, blooms May to October.

Nicotiana trigonophylla Dunal var. trigonophylla Dunal. Desert Tobacco, Tabaquillo. Uncommon, biennial or perennial herb, flowers greenish-white, blooms year round.

Petunia parviflora Juss. Wild Petunia. Rare, annual herb, flowers pale blue to purple with a whitish tube, found in moist soil in stream beds and muddy flats, blooms April to September or nearly throughout the year at low altitudes.

Physalis acutifolia (Miers) Sandw. (= P. wrightii Gray.) Wright Ground Cherry. Annual herb, flowers whitish or pale yellow with a deeper yellow center, found in fields and along roadsides and ditches, blooms April to September.

Physalis hederifolia Gray var. cordifolia (Gray) Waterfall. (= P. fendleri Gray). Fendler Ground Cherry. Rare, perennial herb with deep, fleshy rhizomes, flowers greenish-yellow with brownish center, blooms March to August.

Solanum douglasii Dunal. Rare, perennial herb, flowers white with green spots at the center, berry black, blooms nearly throughout the year.

Solanum eleagnifolium Cav. Silverleaf Nightshade, Trompillo, Horse-nettle. Common in disturbed areas. Perennial herb with tough, deep-seated rhizomes, flowers violet or blue, berries yellow or brown, blooms May to October.

TAMARICACEAE—Tamarisk Family

Tamarix ramosissima Ledeb. (= T. pendandra sensu K. & P.) Tamarisk, Salt Cedar. Rare, perennial shrub or small tree to 7 meters tall, flowers white or pink, naturalized from Europe and Asia, found mostly along streams, blooms March to August.

ULMACEAE—Elm Family

Celtis reticulata Torr. Net Leaf Hackberry, Palo Blanco. Infrequent, perennial shrub or small tree, calyx small, corolla none, fruit a drupe, found mostly along streams.

VERBENACEAE—Vervain Family

Aloysia wrightii (Gray) Heller (= Lippia cuneifolia (Torr.) Steud.). Oreganillo, Wright Lippa. Uncommon, perennial shrub, aromatic, flowers white, found on dry, rocky slopes, blooms August to October.

Glandularia gooddingii (Briq.) Solbrig (= Verbena gooddingii Briq. and its var. nepetifolia Tidestrom.). Annual or perennial herb, flowers pink, lavender, violet or blue, found on dry slopes and mesas, blooms nearly throughout the year.

Glandularia wrightii (Gray) Umber (= Verbena wrightii Gray).⁷ Annual or perennial herb, flower blue or purple, blooms nearly throughout the year.

Tetraclea coulteri Gray. Uncommon, perennial herb, blooms April to August.

VIOLACEAE—Violet Family

Hybanthus verticillatus (Ort.) Baill. Green Violet. Uncommon, perennial herb, flowers greenish-white or yellowish with purplish tips, found on dry plains and mesas, blooms May to September.

VISCACEAE—Mistletoe Family

Phoradendron tomentosum (DC.) Gray (= P. flavescens (Pursh) Nutt.). Iniesto, Mistletoe. Rare, perennial herb, parasitic on cottonwood, sycamore, ash, hackberry, walnut, willow and mesquite, fruit white.

VITACEAE—Grape Family

Vitis arizonica Engelm. Canyon Grape, Parra del Monte. Uncommon, perennial herb, weakly climbing vine or bush, berries black at maturity, found often along streams and in canyons, blooms April to July.

⁷ Lehr (1978) states that this is not a member of the Arizona flora.

ZANNICHELLIACEAE—Horned Pondweed Family

Zannichellia palustris L. Common Poolmat, Horned-pondweed. Rare, perennial herb, submerged aquatic, flowers enclosed by a spathe-like sheath.

ZYGOPHYLLACEAE—Caltrop Family

Kallstroemia californica (Wats.) Vail. California Caltrop. Annual herb, flowers yellow or orange, found on plains and mesas, often in sandy soil, blooms May to October.

Kallstroemia parviflora Norton. Annual herb, flowers pale yellow, found on plains and mesas, blooms July to October.

Larrea divaricata Cav. ssp. tridentata (Sesse & Moc. ex DC.) Felger & Lowe (= L. tridentata (Sesse & Moc. ex DC.) Cov.). Creosote Bush, Greesewood, Hediondilla, Governadora. Common, perennial shrub, strong-scented, evergreen, resinous, flowers yellow, fruit hairy, found on dry plains and mesas, flowers throughout the year but mostly from February to April. The Sonoran ecotype of the species (where the chromosome number is $n=26$) is present at Montezuma Castle National Monument. [Creosote Bush is the second most common species, found in 76 vegetation units.]

Tribulus terrestris L. Cadillo, Abrojo de Flor, Puncture Vine, Caltrop. Annual herb, fruits armed with two to four spreading spines, naturalized from Europe, found often at roadsides or in fields, blooms March to October.

PART II: PLANTS OF MONTEZUMA WELL NATIONAL MONUMENT

ADIANTACEAE (=POLYPODIACEAE)—Fern Family

Adiantum capillus-veneris L. Southern Maidenhair, Culantrillo. Rare, perennial fern with creeping, scaly rhizomes, stems black or redish black and polished, found mostly on moist cliffs and in springy places.

Cheilanthes feei Moore. Slender Lip Fern. Rare, perennial, evergreen, mostly xerophytic rock fern with long-creeping or short, multicipital rhizomes, leaf blades often hairy.

Notholaena integerrima Hook. (includes N. sinuata (Sw.) Kaulf.) Cloak Fern. Rare, perennial, evergreen, mostly xerophytic rock ferns with short, congested, multicipital rhizomes, leaf blades often hairy.

AGAVACEAE—Agave Family

Yucca elata Engelm. var. verdiensis (McKelvey) Reveal. Soap Tree Yucca, Palmilla. Frequent, perennial, succulent, leaves narrow, flowers May to July.

ANACARDIACEAE—Sumac Family

Rhus trilobata Nutt. Squawbush, Skunkbush, Sumac. Infrequent, perennial shrub to 2 meters tall, flowers yellow, flowers March to June, fruit a red, viscid, 1-seeded drupe.

Toxicodendron rydbergii (Small ex Rydb.) Greene (= Rhus radicans L. var. rydbergii (Small ex Rydb.) Rheder). Poison Ivy. Uncommon, perennial shrub, causes painful skin irritation in many people, flowers April to September, petals greenish white, fruit yellowish white when mature.

APIACEAE (=UMBELLIFERAE)—Parsley Family

Berula erecta (Hutds.) Coville. Water Parsnip. Rare, perennial, aquatic plant, flowers white from June to September.

Cymopterus multinervatus (Coult. & Rose) Tidestrom. Purple Cymopterus. Rare, perennial herb, flowers purplish, blooms March to May, fruits often purplish.

Daucus pusillus Michx. American Carrot, Wild Carrot, Rattlesnake Weed. Biennial herb, petals white, flowers March to June.

Hydrocotyle verticillata Thunb. Water Pennywort. Rare, perennial herb, found in wet places or in sluggish water, flowers white.

APOCYNACEAE—Dogbane Family

Apocynum cannabinum L. var. glaberrimum A. DC. Dogbane, Indian-hemp. Rare, perennial herb with horizontal rhizomes, leaves opposite, flowers greenish to white, flowers June to August.

ASCLEPIADACEAE—Milkweed Family

Sarcostemma cynanchoides Decne. (= Funistrum cynanchoides (Decne.) Schlechter). Climbing Milkweed. Uncommon, perennial herbaceous vine, often climbing over bushes along streams and washes, flowers white or purple.

ASTERACEAE (=COMPOSITAE)—Sunflower Family

Acourtia wrightii (Gray) Reveal & King. (= Perezia wrightii Gray). Brownfoot. Uncommon, perennial herb, flowers lavender-pink, January to July and sometimes later, common name refers to "wooly", brown root.

Ambrosia confertiflora DC. (= Franseria confertiflora (DC.) Rydb.). Ragweed, Altamisa. Rare, perennial herb, flowers April to October, often a weed of fields.

Ambrosia psilostachya DC. Western Ragweed. Rare, perennial herb, with spreading rhizomes, a common weed of streams and roadsides, flowers July to October,.

Artemisia carruthii Wood. var. wrightii (Gray) Blake. Rare, perennial herb, pinnately dissected, glabrous leaves, flowers August to October.

Artemisia ludoviciana Nutt. Uncommon, perennial herb, herbage fragrant (sage scent), flowers August to November.

Aster coerulescens DC. Herb, found in marshy places and along streams, flowers August to October.

Aster spinosus Benth. Spiny Aster, Mexican Devil Weed. Rare, perennial herb with deep-seated rhizomes, stems form broomlike clumps, small spines on lower parts of the plant, yellow ray flowers inconspicuous, found in moist, saline soil, blooms May to October.

Aster subulatus Michx. var. ligulatus Shinnery. (= A. exilis Ell.). Annual herb, found in moist soil along streams and ditches, flowers June to October.

Baccharis emoryi Gray. Emory Baccharis. Rare, perennial shrub to 5 meters tall, but usually 2-3 meters tall, found along streams, flowers September to November.

Baccharis salicifolia (R. & P.) Pers. (= B. glutinosa Pers.). Seep Willow, Batamote, Jara. Rare, perennial shrub to 5 meters tall, flowers March to December.

Baccharis sarothroides Gray. Broom Baccharis, Desert Broom. Rare, perennial shrub, 1-4 meters tall, flowers throughout the year but more commonly in winter.

Baccharis viminea DC. Mule Fat. Uncommon, perennial shrub, 2-4 meters tall, similar in appearance to B. salicifolia, but more definitely woody and often larger, flowers March to July.

Bahia dissecta (Gray) Britt. Yellow Ragweed. Usually biennial herb with alternate leaves, glandular-hairy phyllaries, ray flowers yellow, blooms August to October.

Baileya pleniradiata Harv. & Gray. Woolly Marigold. Uncommon, biennial or perennial herb, stems leafy well above the middle, flowers yellow, blooms February to November.

Bidens laevis (L.) B.S.P. Bur Marigold. Rare, glabrous, perennial herb, flowers deep yellow, found in wet places or in shallow water, blooms August and September.

Brickellia atractyloides Gray. Uncommon, small, perennial shrub 20-30 centimeters tall, flowers white, blooms March to September.

Brickellia californica (T. & G.) Gray. Pachaba. Frequent, perennial shrub, 25-100 centimeters tall, flowers greenish-white, blooms July to October.

Brickellia floribunda Gray. Rare, shrubby perennial with glandular-viscid upper stems, flowers pale yellowish or greenish-white, found in rich soil in canyons, blooms September and October.

Centaurea melitensis L. Malta Star Thistle, Tocolote. Noxious annual weed on waste land and open, rocky slopes, flowers yellow, blooms May to July, naturalized from Europe.

Cichorium intybus L. Blue Sailors, Chicory. Rare, perennial herb with deep-seated taproot, flowers blue (rarely pink or white), blooms June to October, naturalized from Europe.

Cirsium arizonicum (Gray) Petrak. Arizona Thistle. Rare, biennial or short-lived perennial, flowers crimson to carmine, blooms May to October.

Conyza canadensis (L.) Cronq. (= Erigeron canadensis L.). Horseweed. Annual, weedy herb, leaves and stems not glandular, flowers white and inconspicuous, blooms July to October.

Encelia frutescens Gray. Rayless Encelia. Rare, perennial shrub, disk flowers yellow (ray flowers normally none), blooms nearly throughout the year.

Encelia virginensis A. Nels. Rare, perennial shrub, similar to the species above, but with ray flowers, blooms nearly throughout the year.

Erigeron concinnus (H. & A.) T. & G. Tidy Fleabane. Uncommon, perennial herb with taproot, flowers blue, pink or white, flowers April to October.

Erigeron divergens T. & G. Spreading Fleabane. Biennial herb with slender taproot, rays light blue, lavender-pink or white, flowers February to October on dry, rocky slopes and mesas.

Gaillardia pinnatifida Torr. Blanket Flower. Rare, perennial herb, flowers yellow with lobes veined with purple, blooms April to November.

Gutierrezia microcephala (DC.) Gray. (includes G. lucida Greene.). Three Leaf Snakeweed. Rare, perennial sub-shrub, flowers yellow, flowers June to October.

Gutierrezia sarothrae (Pursh) Britt. & Rusby. Broom Snakeweed. Common, perennial sub-shrub, flowers yellow, blooms July to November. [Broom Snakeweed is the second most common species, found in 27 vegetation units.]

Helianthus annuus L. Common Sunflower, Mirasol. Annual herb, stems 30 to 200 centimeters tall, disk flowers purple-brown, ray flowers yellow, flowers March to October.

Heterotheca villosa (Pursh) Shinnars var. foliosa (Nutt.) Harms. (= Chrysopsis foliosa Nutt.). Hairy Goldenaster Uncommon, perennial, flowers yellow, blooms July to Oct.

Hymenoclea monogyra T. & G. Burro Brush. Uncommon, perennial shrub, with prominently striate-ridged, slender branches, found usually in sandy soils, blooms September and October.

Hymenothrix loomisii Blake. Rare, annual or perennial herb, found on mesas, plains and along streams, flowers June to October.

Lactuca saligna L. Willow-leaved Lettuce. Annual herb with many stems from a taproot, flowers yellow, often becoming purplish in age, blooms in August. The first collection from Arizona was made at Montezuma Well by John Stockert in 1964.

Lactuca serriola L. Prickly Lettuce, Wild Lettuce. Annual herb, prickly-bristly below, flowers yellow, often becoming purplish in age, introduced from Europe, blooms July to October.

Leucelene ericoides (Torr.) Greene. (= Aster hirtifolius, Blake, A. arenosus (Heller) Blake). White Aster, Rose Heath. Infrequent, perennial herb, ray flowers white, sometimes pink when very young, disk flowers yellow, but drying whitish, blooms March to October, found on mesas and slopes, often on limestone, blooms April to October.

Machaeranthera aquifolia Woot. & Standl. (= Aster aquifolia (Woot. & Standl.) Blake). Rare, biennial herb or sometimes perennial, ray flowers purple, blooms May to November.

Machaeranthera tephrodes (Gray) Greene (= Aster tephrodes (A. Gray) Blake) Annual or biennial herb, flowers lavender or purple, phyllaries densely hairy, found mostly in alluvial soil, blooms March to October..

Machaeranthera gracilis (Nutt.) Shinnars (= Haplopappus gracilis (Nutt.) Gray) Annual herb with taproot, flowers yellow, found on dry plains, mesas, and rocky slopes, blooms February to November.

Melampodium leucanthum T. & G. Black Foot. Infrequent, annual or perennial herb, found on dry, rocky slopes and mesas, often on limestone, white ray flowers with purple veins, blooms March to November.

Microseris linearifolia (DC.) Schultz Bip. Silver Puffs. Rare, perennial herb, ephemeral flowers, pale yellow but drying reddish or purplish, found on plains, mesas, and foothills, blooms March to June.

Parthenium incanum H.B.K. Mariola. Frequent, perennial shrub found on dry plains and mesas, flowers white, blooms June to October.

Senecio douglasii DC. var. longilobus (Benth.) L. Benson. (= S. longilobus Benth.). Thread Leaf Groundsel. Uncommon, perennial shrub, found on slopes, mesas and along washes, flowers yellow, blooms nearly throughout the year.

Senecio neomexicanus Gray. Rare, perennial sub-shrub, flowers yellow, blooms April to August.

Solidago altissima L. Tall Goldenrod. Rare, perennial herb, flowers yellow, blooms July to October.

Solidago oleraceus L.⁸ (Species not described in Kearney and Peebles [1960])

Solidago sparsiflora Gray. Rare, perennial herb, ray and disk flowers yellow, blooms June to October.

⁸ Species not listed in Lehr (1978) and Lehr and Pinkava (1980, 1982).

Solidago wrightii Gray. Uncommon, perennial herb, ray and disk flowers yellow, blooms July to October.

Sonchus asper (L.) Hill. Spiny Sow Thistle, Achicoria Dulce. Annual herb, found mostly on roadsides and waste lands, flowers yellow, blooms February to August, naturalized from Europe.

Stephanomeria tenuifolia (Torr.) H.M. Hall. Uncommon, perennial herb, flowers rose or flesh colored, blooms May to September.

Taraxacum officinale Weber. (May include Taraxacum vulgare (Lam.) Fernald.⁹) Common Dandelion. Rare, perennial herb with basal rosette and flowers solitary on naked, hollow stems, flowers yellow, probably naturalized from Europe, blooms nearly year round.

Tragopogon dubius Scop. Goats Beard. Rare, biennial or perennial herb with fleshy taproot, corollas lemon-yellow, common weed naturalized from Europe, blooms May to September.

Verbesina encelioides (Cav.) Benth. & Hook var. exauriculata Robins. & Greenm. Crownbeard. Annual with taproot, flowers yellow, blooms April to September.

Virgulus falcatus (Lind.) Reveal & Keener (= Aster falcatus Lindl.; Lasallea falcata (Lindl.) Semple & Brouillet (incl. Aster commutatus (T.&G.) Gray; Aster commutatus var. crassulus; Aster falcatus Lindl. ssp. commutatus (T. & G.) A.G. Jones). White Prairie-daisy. Rare, perennial herb with long rhizomes, ray flowers white, blooms August to October.

Xanthium strumarium L. (= X. saccharatum Wallr.). Common Cocklebur, Abrojo. Annual herb, common weed of disturbed sites, blooms February to October.

BERBERIDACEAE—Barberry Family

Berberis haematocarpa Woot. Red Barberry, Red Mahonia, Algerita. Frequent, perennial shrub to 4 meters tall, flowers fragrant and yellow, berries red, juicy, and edible, flowers February to May.

BETULACEAE—Birch Family

Alnus oblongifolia Torr. Arizona Alder. Uncommon, perennial tree to 18 meters tall, found mostly along streams, flowers are yellowish green catkins, fruit a nutlet, scarcely winged.

⁹ Species not listed in Lehr (1978) and Lehr and Pinkava (1980, 1982).

BIGNONIACEAE—Bignonia Family

Chilopsis linearis (Cav.) Sweet var. arcuata Fosberg. Desert Willow, Desert Catalpa, Mimbre. Uncommon, perennial shrub or small tree to 9 meters tall, found mostly along washes in deserts and foothills, flowers lavender or white, often marked with purple lines or spots, seeds borne in a capsule with each seed tipped at end by silky, hairlike process, blooms April to August.

BORAGINACEAE—Borage Family

Lappula redowskii (Hornem.) Greene. Stickseed. Annual herb, flowers white to light blue or ochroleucous, found in sunny places in disturbed soil, blooms March to September.

Lappula redowskii (Hornem.) Greene. var. cupulatum (Gray) Jones. (= Lappula texana (Scheele) Britt.). Stickseed. See Above.

Lithospermum incisum Lehm. Gromwell, Puccoon. Uncommon, perennial herb with thick, woody root, flowers yellow, blooms March to June.

BRASSICACEAE (= CRUCIFERAE)—Mustard Family

Capsella bursa-pastoris (L.) Medic. Paniquesillo, Shepherds Purse. Annual or winter annual, flowers white, blooms March to September, introduced from Europe.

Descurainia pinnata (Walt) Britt. Yellow Tansy Mustard. Annual herb, petals whitish to yellow, blooms April to August.

Descurainia sophia (L.) Webb. Flixweed. Annual herb, flowers greenish-yellow, naturalized from Europe, blooms April to June.

Draba cuneifolia Nutt. ex T. & G. Whitlow Grass. Annual herb, flowers white, found mostly in sandy soil, blooms February to May.

Lepidium lasiocarpum Nutt. Sand Peppergrass. Annual or biennial herb, plants branched from the base, stems decumbent or spreading, flowers small and white, found commonly in sandy soil, blooms January to April.

Lesquerella arizonica S. Wats. Bladder Pod. Rare, perennial herb, flowers yellow, found on rocky slopes and mesas, blooms April and May.

Lesquerella gordonii (Gray) Wats. Gordon Bladderpod. Annual herb, flowers bright yellow, found on dry plains and mesas, blooms February to June.

Nasturtium officinale R. Br. (= Rorippa nasturtium-aquaticum (L.) Schinz & Thell.). Watercress. Rare, aquatic or semiaquatic perennial herb, flowers white, naturalized from Europe, blooms April to August.

Sisymbrium irio L. London Rocket. Annual herb, flowers yellow, common weed naturalized from Europe, blooms January to April.

Streptanthus arizonicus Wats. Twist Flower. Annual or biennial herb, flowers whitish to yellow with conspicuous brown-purple veins, blooms January to April.

CACTACEAE—Cactus Family

Coryphantha vivipara (Nutt.) B. & R. var. arizonica (Engelm.) W.T. Marshall. (= Mammillaria arizonica Engelm.). Uncommon, perennial cactus, often solitary or caespitose, flowers pink, blooms May to July.

Echinocereus fasciculatus (Engelm.) L. Benson var. boyce-thompsonii (Orcutt) L. Benson. (= E. boyce-thompsonii Orcutt). Rare, perennial cactus, stems 5-20 in rather loose clumps, large flowered, flowers purple or lavender, blooms May to June.

Opuntia leptocaulis DC. Desert Christmas Cactus. Infrequent, perennial cactus or cholla, petals greenish-yellow, fruit fleshy, obovoid and red, blooms April to June.

Opuntia phaeacantha Engelm. var. discata (Griffiths) Benson & Walkington. (= O. engelmannii Salm-Dyck). Engelmann Prickly Pear. Frequent, large, perennial prickly-pear cactus with prostrate or spreading stems, spines usually not present on lower quarter or third of each pad, flowers usually yellow but occasionally red or pink, fruit ovoid and red, juicy and edible, blooms April to June.

Opuntia phaeacantha Engelm. var. major Engelm. (= Opuntia phaeacantha Engelm.) Purplefruit Prickly Pear. Frequent, perennial cactus, this variety has spines distributed over usually the upper one-half to one-third, or less of the pad, spines dark brown, with 1-3 per areole, flowers yellowish or with the bases red, blooms April to June.

Opuntia violacea Engelm. var. macrocentra (Engelm) L. Benson. (= O. macrocentra Engelm.). Black-spined Prickly Pear. Rare, large, perennial, shrubby prickly-pear, flowers yellow, often suffused with red toward the base, fruit fleshy, red to purple, blooms April and May.

CAMPANULACEAE—Bellflower Family

Lobelia cardinalis L. ssp. graminea (Lam.) McVaugh. Cardinal Flower. Rare, perennial herb, often vegetatively reproduces by means of slender offsets, flowers red, found in moist soil especially along streams, blooms June to October.

CELASTRACEAE—Staff Tree Family

Canotia holacantha Torr. Crucifixion Thorn. Uncommon, perennial shrub or small tree, leaves reduced to small, deciduous scales, flowers white, blooms May to August.

CHENOPODIACEAE—Goosefoot Family

Atriplex canescens (Pursh) Nutt. Wingscale, Cenizo, Chamiso, Four-wing Saltbush. Frequent, perennial shrub, dioecious, fruits conspicuously four-winged, found on dry slopes, flats and washes, often in sandy or subalkaline places. [Four-wing Saltbush is the fifth most common species, found in 9 vegetation units.]

Ceratoides lanata (Pursh) J.T. Howell var. lanata (Pursh) J.T. Howell. (= Eurotia lanata (Pursh) Moq.). Winter Fat. Uncommon, perennial sub-shrub, found on dry plains and mesas usually among grasses, blooms May to October.

Chenopodium berlandieri Moq. var. sinuatum (Murr) Wahl. Pitseed Goosefoot. Annual herb, more or less mealy, seeds horizontal in the fruit.

Chenopodium fremontii Wats. (includes C. incanum (S. Wats.) Heller). Fremont Goose Foot. Annual herb, blooms June to September.

Salsola iberica Sennen & Pau (= S. kali L. var. tenuifolia (Tausch.) Aellen and includes S. pestifer A. Nels.). Russian Thistle. Annual weed or "tumble weed", naturalized from Eurasia.

CLEOMACEAE—Cleome Family

Cleome lutea Hook. var. jonesii Macbr. (= C. jonesii (Macbr.) Tidestrom). Yellow Bee Plant, Yellow Spiderwort. Annual herb, flowers pale yellow, blooms May to August.

Polanisia dodecandra (L.) DC. ssp. trachysperma (T. & G.) Iltis (= P. trachysperma T. & G.). Western Clammyweed. Annual herb, strong scented, flowers whitish with conspicuous purple stamens, blooms May to October.

CONVOLVULACEAE—Morning Glory Family

Convolvulus arvensis L. Field Bindweed. Rare, perennial herb with prostrate stems, flowers white to pink, usually with darker bands on the outside, naturalized from Europe, blooms May to September.

Convolvulus equitans Benth. (= C. incanus Vahl). Hoary Bindweed. Rare, perennial herb with a deep-seated, weedy, perennial root, found mostly on dry slopes and mesas, blooms May to October.

Ipomoea hederacea (L.) Jacq. Morning Glory. Annual herb, stems twining and climbing, flowers white to pale blue or purple, a naturalized weed and escape from cultivation, blooms all summer.

CUCURBITACEAE—Gourd or Melon Family

Cucurbita foetidissima H.B.K. Buffalo Gourd, Calabazilla. Uncommon, perennial, strong-smelling herb, flowers yellow, fruit light green with creamy-white stripes, blooms May to August.

CUPRESSACEAE—Cypress Family

Juniperus erthrocarpa Cory. Redberry Juniper. Rare, perennial tree, new to the Arizona flora.

Juniperus monosperma (Engelm.) Sarg. One-seed Juniper. Common, perennial shrub to small tree up to 8 meters tall, usually without a definite trunk, seeds solitary or rarely two, unisexual flowers with the two sexes on different plants.

Juniperus osteosperma (Torr.) Little. Utah Juniper. Infrequent, perennial small tree, 3-5 meters tall with a definite trunk, similar to the species above in appearance, stamens and pistils in separate flowers on the same plant.

CYPERACEAE—Sedge Family

Cyperus esculentus L. Chufa, Yellow Nut Sedge, Yellow Nut Grass. Rare, perennial herb with stolons often ending in edible tubers, found in wet places.

Cyperus niger R. & P. var. capitatus (Britt.) O'Neill. Black Flatsedge. Rare, perennial herb with short rhizomes and fibrous roots, spikelets on a zigzag rachis.

Eleocharis parishii Britt. Rare, perennial herb with slender, creeping rhizomes, found in wet places.

Eleocharis rostellata (Torr.) Torr. Rare, perennial spike-rush, found in wet, saline places.

Scirpus validus Vahl. (= Scirpus acutus Muhl.) Softstem Bulrush. Rare, perennial herb with stout rhizomes.

EPHEDRACEAE—Joint-Fir Family

Ephedra viridis Cov. Mountain Joint-fir. Frequent, perennial, dioecious shrub, young twigs bright green to yellowish-green, leaf bases brown and persistent.

EUPHORBIACEAE—Spurge Family

Acalypha neomexicana Muell. Arg. New Mexico Copperleaf, Threeseed Mercury. Annual herb, flowers monoecious in terminal and axillary spikes, blooms August to October.

Euphorbia albomarginata T. & G. Rattlesnake Weed. Uncommon, prostrate, perennial herb, appendages to flower glands conspicuous and white.

Euphorbia capitellata Engelm. Uncommon, perennial herb with woody taproot, gland appendages white or pinkish, blooms March to October.

Euphorbia fendleri T. & G. Fendler Spurge. Uncommon, perennial herb with deep-seated taproot, glands reddish, flowers May to September.

Euphorbia fendleri T. & G. var. chaetocalyx Boiss. See above, variety has narrower leaves and petaloid appendages.

Euphorbia incisa Engelm. Uncommon, glabrous, perennial herb with several stems from a root-crown, blooms February to August.

Euphorbia lurida Engelm. Uncommon, perennial herb, glands without petaloid appendages, blooms April to August.

Euphorbia serpyllifolia Pers. Thymeleaf Spurge. Glabrous, annual herb, blooms May to October.

Euphorbia supina Raf. Prostrate Spurge, Spotted Spurge. Annual herb.

Tragia nepetaefolia Cav. Rare, perennial herb, with stinging hairs, blooms March to November.

EQUISETACEAE—Horsetail Family

Equisetum hiemale L. var. affine (Engelm) A.A. Eaton. (= E. prealtum Raf.) Scouring Rush, Canuela. Rare, evergreen herb with rhizomes, hollow internodes, and jointed stems, found in moist, alluvial soil and springy places.

FABACEAE (=LEGUMINOSAE)—Pea Family

Acacia greggii Gray. var. arizonica Isely (= A. greggii Gray). Catclaw. Common, perennial, large shrub or small tree to 5 meters tall, flowers yellow in spikes, found forming thickets along streams and washes, blooms April to October. [Catclaw is the third most common species, found in 22 vegetation units.]

Amorpha fruticosa L. var. occidentalis (Abrams) K. & P. Bastard Indigo. Uncommon, perennial shrub, gland-dotted, heavily-scented, deciduous leaves, glabrous pods, found in canyons and along streams, blooms May to July.

Astragalus calycosus Torr. var. scapiosus (Gray) Jones. Frequent, perennial herb, herbage silvery with dolabriform hairs, flowers whitish, often purple- or pink-tipped, fading bluish, found on rocky slopes and mesas, blooms April to July.

Astragalus lentiginosus Dougl. ex Hook. var. albiflorus (Gray) Schoener (= A. lentiginosus Dougl. ex Hook. var. diphysus (Gray) Jones). Uncommon, perennial or biennial herb, flowers white.

Astragalus lentiginosus Dougl. ex Hook. var. palans (Jones) Jones. Frequent, perennial or biennial herb, petals purple.

Astragalus nuttallianus Nutt. Nuttall Locoweed. Slender annual, flowers whitish or purplish, keep tipped with dark purple, found on plains and mesas, blooms February to May.

Astragalus tephrodes Gray var. brachylobus (Gray) Barneby (= A. pephragmenus M.E. Jones.) Rare, perennial herb, found mostly in pine forests, blooms April to July.

Dalea formosa Torr. Feather Plume, Indigo-bush. Infrequent, perennial shrub, flowers rose-purple, the banner sometimes yellowish, pods hairy and glandular-dotted, blooms April to June.

Desmanthus cooleyi (Eaton) Trel. Bundleflower. Rare, perennial herb or shrub, flowers white, found on dry slopes, mesas and plains, blooms May to September.

Hoffmanseggia drepanocarpa Gray. Sicklepod Rush Pea. Uncommon, perennial herb with thick, woody, taproot, flowers yellow, blooms May to September.

Hoffmanseggia glauca (Ort.) Eifort (= H. densiflora Benth.) Hog Potato, Camote-de-Raton. Rare, perennial herb, from creeping rootstocks, flowers glandular, petals yellow, blooms April to September.

Lotus corniculatus L. Birdsfoot Trefoil. Rare, perennial herb, with green and leaf-like stipules, corolla yellow to reddish-orange, introduced from Europe and an adventive.

Lotus mearnsii Britt. Rare, perennial herb, with decumbent or nearly prostrate stems, flowers yellow, often drying purple, found mostly in grasslands on dry mesas and slopes, blooms March to August.

Lupinus brevicaulus Wats. Short-stemmed Lupine. Annual herb, densely hairy, flowers blue or purple, found on dry slopes and mesas, blooming April to July.

Medicago polymorpha L. var. vulgaris (Benth.) Shinnars (= M. hispida Gaertn.). Bur Clover. Annual herb with procumbent stems, flowers yellow, naturalized from Europe, found on waste land, blooms March to May.

Medicago sativa L. Alfalfa. Rare, perennial herb, flowers violet, introduced from Eurasia, often cultivated, becomes established in waste places, blooms April to October.

Melilotus albus Desr. ex Lam. White Sweet Clover. Annual or biennial herb, naturalized from Eurasia, found mostly in waste places, flowers white, blooms July to September.

Melilotus indicus (L.) All. Alfalfilla, Annual Yellow Sweet Clover, Sour-clover. Annual or biennial herb, naturalized from Eurasia, found in waste places at low altitudes, blooms April to October.

Melilotus officinalis (L.) Lam. Yellow Sweet Clover. Annual or biennial herb, naturalized from Eurasia, found in disturbed areas, flowers yellow, blooms June to October.

Mimosa biuncifera (Benth.) B. & R. Wait-a-Minute, Cat's Claw Mimosa. Rare, perennial shrub, well armed with stout, flat spines, flowers whitish or pink, found in dry soil on mesas and rocky slopes often in chaparral, blooms May to August.

Phaseolus angustissimus Gray var. latus Jones. Uncommon, annual or perennial herb, flowers purple with a yellow keel, found often on mesas among trees or shrubs, blooms May to October.

Prosopis velutina Woot. (= P. juliflora (Swartz) DC. var. velutina (Woot.) Sarg.). Velvet Mesquite. Common, perennial tree, with pubescent foliage, common along streams and washes where the water table is relatively high, flowers yellow, blooms March to August. [Velvet Mesquite is the first most common species, found in 27 vegetation units.]

Senna bauhinioides (Gray) Irwin & Barneby (= Cassia bauhinioides Gray). Annual or perennial herb, flowers yellow, found on dry rocky slopes and mesas, blooms April to August.

Vicia ludoviciana Nutt. (= V. exigua Nutt.). Annual herb, flowers white to purple, found often among bushes on slopes and in canyons, blooms March to May.

FAGACEAE—Beech Family

Quercus turbinella Greene ssp. turbinella Greene. Shrub Live Oak, Turbinella Oak. Uncommon, perennial small or large shrub to about 4 meters tall, leaf blades with upper surface dull gray-green and the lower densely stellate-tomentose.

FUMARIACEAE—Fumitory Family

Corydalis aurea Willd. ssp. aurea Willd. Golden Corydalis. Biennial or short-lived perennial herb with watery juice, flowers yellow, blooms February to June and sometimes later.

Corydalis aurea Willd. ssp. occidentalis (Engelm.) Ownbey. Biennial or short-lived perennial herb, flowers yellow, surpassing the leaves and conspicuously spurred, blooms February to June.

GERANIACEAE—Geranium Family

Erodium cicutarium (L.) L'Her. Filaree, Aflerillo, Alfilaria. Annual herb, leaves pinnate, flowers pink or rose-lavender, naturalized from Europe, blooms February to July.

Erodium texanum Gray. Large-flowered Stork's Bill. Annual herb, leaves palmately lobed, flowers purple, found mostly on plains and mesas, blooms February to August.

HYDROPHYLLACEAE—Waterleaf Family

Eucrypta chrysanthemifolia (Benth.) Greene var. bipinnatifida (Torr.) Constance. Torrey Eucrypta. Annual herb, strong-scented, sticky foliage, leaves bipinnatifid, flowers white or bluish, blooms February to April.

Eucrypta micrantha (Torr.) Heller. Small-flowered Eucrypta. Annual herb, strong-scented, sticky foliage, leaves once pinnate, flowers purplish or blue or sometimes white with a yellowish tube, blooms February to May.

Phacelia crenulata Torr. Annual herb, flowers deep violet or bluish-purple with exerted stamens, found on plains, mesas and foothills, blooms January to June.

Phacelia rotundifolia Torr. Round-leaved Phacelia. Annual herb, flowers white to pink or pale violet with the lower part of the tube pale yellow, found often on rocky talus, blooms March to May.

JUGLANDACEAE—Walnut Family

Juglans major (Torr.) Heller. Arizona Walnut, Nogal Silvestre. Infrequent, perennial tree up to 15 meters tall, found mostly along streams.

JUNCACEAE—Rush Family

Juncus xiphioides E. Mey. Perennial herb with stout, creeping rhizomes, flat stems, flowers June to August.

KRAMERIACEAE—Ratany Family

Krameria parvifolia Benth. Range Ratany. Infrequent, perennial shrub, flowers purplish, blooms April to October.

LAMIACEAE (=LABIATAE)—Mint Family

Hedeoma drummondii Benth. Drummond's Mock-pennyroyal. Rare, perennial herb, often from a woody base, flower rose-purple or blue-purple, blooms April to September.

Marrubium vulgare L. Common Horehound, Marrubio. Frequent, perennial herb with white-woolly stems, flowers white or pale lavender, naturalized from Europe, blooms April to September.

Mentha spicata L. Spearmint. Rare, perennial, aromatic herb, flowers pale lavender, naturalized from Europe, blooms July to September.

Salvia reflexa Hornem. Rocky Mountain Sage. Annual herb, flowers blue, blooms July to October.

LILIACEAE—Lily Family

Calochortus flexuosus Wats. Straggling Mariposa. Rare, perennial herb, with bent and twisted branched stems, root a corm, flowers white to lilac or purple with a yellow gland and purple spot near the base (and a few short hairs near the gland), blooms April to June.

Dichelostemma pulchellum (Salisb.) Heller. (= Brodiaea capitata Benth.) Bluedicks. Rare, perennial herb, flowers blue-violet, blooms February to May and occasionally July or later.

LINACEAE—Flax Family

Linum lewisii Pursh. Blue Flax. Rare, perennial herb, flower blue, rarely white, blooms March to September.

Linum puberulum (Engelm) Heller. Plains Flax. Annual herb, flowers yellow, blooms April to October.

LOASACEAE—Stick-leaf Family

Mentzelia pumila (Nutt.) T. & G. var. multiflora¹⁰. Biennial herb, flowers yellow, found in dry stream beds and along roads, common, blooms February to October.

LYTHRACEAE—Loosestrife Family

Lythrum californicum T. & G. Hierba del Cancer, Loosestrife. Rare, perennial herb, stems with exfoliating bark, flowers purple, found often in wet soil along streams, blooms June to August.

MALVACEAE—Mallow Family

Abutilon parvulum Gray. Small-leaved Abutilon, Indian-mallow. Rare, herbaceous perennial, often with a woody base, flowers pink to red, found often on dry plains and slopes, sometimes with scrub oak, blooms April to October.

Malva neglecta Wallr. Common Mallow. Annual or biennial herb, naturalized from Eurasia, common weed of waste places, flowers pink or white, blooms May to October.

Sida procumbens Swartz (= S. filicaulis T. & G., listed as Sida abutifolia Miller in Jenkins et al. 1991). Rare, perennial herb with stellate hairs, leaves alternate.

Sphaeralcea ambigua Gray. Desert Mallow, Apricot-mallow. Common, perennial herb with thick, woody stem, flowers red, pink or orange, blooms March to June. [Desert Mallow is the fourth most common species, found in 12 vegetation units.]

Sphaeralcea grossulariaefolia (H. & A.) Rydb. Rare, perennial herb, flowers grenadine, found often on mesas and slopes, often in -juniper woodlands, blooms April to October.

Sphaeralcea parvifolia A. Nels. Littleleaf Globe Mallow. Rare, perennial herb with large root and woody crown, flowers grenadine, found mostly in the open on dry slopes and mesas, the most common species of the genus in Arizona, blooms April to November.

¹⁰ Variety not in Lehr (1978) and Lehr and Pinkava (1980, 1982).

Sphaeralcea rusbyi Gray. Rare, perennial herb with thick crown, flowers grenadine, found on well-drained slopes often in openings in pine forests, blooms April to September.

MORACEAE—Mulberry Family

Morus alba L.¹¹ (May be M. microphylla Buckl., Texas Mulberry: Rare, perennial, small tree to 4.5 m, alternate leaves, crenate-serrate or palmately lobed, found along streams, palatable fruits eaten by birds and other animals.)

NYCTAGINACEAE—Four-O'Clock Family

Allionia incarnata L. Trailing Four-O'Clock, Windmills. Rare, perennial herb, flowers, purplish-red or rarely white, blooms April to October.

Boerhaavia erecta L. Annual herb, paniced flowers pink, flowers in late summer to early fall.

Boerhaavia coccinea Mill. Red Spiderling. Rare, perennial herb with declining or prostrate stems, flowers purplish-red, blooms April to November.

Mirabilis bigelovii Gray. Frequent, perennial herb with white to pale pink or lavender flowers, found mostly on rocky slopes, blooms March to October.

Mirabilis multiflora (Torr.) Gray. var. multiflora (Torr.) Gray. Colorado Four O'Clock. Uncommon, perennial herb, flowers red-purple, blooms April to September.

OLEACEAE—Olive Family

Fraxinus pennsylvanica Marsh. ssp. velutina (Torr.) G.N. Miller (= Fraxinus velutina Torr. ssp. velutina Torr.) Velvet Ash. Frequent, perennial tree, petals none, flowers appearing in crowded panicles mostly before the appearance of leaves in the spring, fruit a one seeded samara with terminal wing, found along streams, blooms March to May.

Menodora scabra Gray var. scabra Gray.¹² Uncommon, perennial herb, flowers bright yellow, found on dry mesas and slopes, blooms March to September.

ONAGRACEAE—Evening Primrose Family

Gaura coccinea Pursh. Scarlet Gaura. Rare, perennial herb, flowers whitish, pink or red, found usually on dry plains and slopes, blooms April to September.

¹¹ Variety not in Lehr (1978) and Lehr and Pinkava (1980, 1982).

¹² Variety not in Lehr (1978) and Lehr and Pinkava (1980, 1982).

Gaura parviflora Dougl. Lizard Tail, Velvet Leaf Gaura. Biennial or winter-annual herb, flowers usually pink, found often in waste places, blooms June to October.

Oenothera albicaulis Pursh. Prairie Evening Primrose. Annual or winter-annual herb, flowers white, becoming pink in age, blooms March to September.

Oenothera caespitosa Nutt. var. marginata (Nutt.) Munz. Large White Desert Primrose. Rare, perennial herb, similar to species above.

Oenothera hookeri T. & G. ssp. hewettii Ckll. Hooker Evening Primrose. Biennial herb, flowers yellow, aging orange-red, found in damp places, blooms July to October.

ORCHIDACEAE—Orchid Family

Epipactis gigantea Douglas ex Hook. Giant Helleborine. Rare, perennial herb with creeping rhizomes, flowers purple, strong veined with darker purple, found in moist soil, blooms April to July.

PAPAVERACEAE—Poppy Family

Argemone intermedia Sweet.¹³ Rare, perennial herb, petals white, leaves with few or no short fine bristles, flowers most of the year.

PLANTAGINACEAE—Plantain Family

Plantago lanceolata L. Buckhorn Plantain. Rare, perennial herb, naturalized from Europe, blooms June to August.

Plantago major L. Common Plantain. Rare, perennial herb, naturalized from Europe, found often in moist soil along streams, blooms March to October.

Plantago patagonica Jacq. var. oblonga (Morris) Shinnars (= P. purshii R. & S. var. picta (Morris) Pilger). Annual herb, found often in moist soil along streams, blooms March to October.

PLATANACEAE—Plane Tree Family

Platanus wrightii Wats. Arizona Sycamore. Frequent, perennial tree to 25 meters tall, older branches white-barked after the thin, outer bark exfoliates, leaves deeply 5-lobed, found along streams, blooms April and May.

¹³ Species not in Lehr (1978) and Lehr and Pinkava (1980, 1982).

POACEAE (= GRAMINEAE)—Grass Family

Agrostis semiverticillata (Forsk.) C. Chr. Water Bent. Rare, perennial grass, stolons root at nodes, found in wet places, blooms May to October.

Agrostis stolonifera L. (= A. alba, A. stolonifera var. major Farwell) Red Top, Redtop Bentgrass. Rare, perennial grass with rhizomes, found along stream and lake shores, meadows and forest openings in moist soils, naturalized from Eurasia and North Africa, escaped from cultivation, it is used for lawns, golf courses, and as a soil-binder, blooms July to October.

Agropyron smithii Rydb. (= Elymus smithii (Rydb.) Gould; includes Pascopyrum smithii). Western Wheatgrass. Uncommon, perennial grass from creeping rhizomes, found on dry hills, sandy bottomlands, and forest openings.

Agropyron spicatum (Pursh) Scribn. & Smith. Bluebench Wheatgrass. Rare, perennial grass with short rhizomes, found on rocky slopes, plains, and dry, open woods, blooms June to October.

Agropyron trachycaulum (Link) var. unilaterale (Cassidy) Malte. Wheatgrass. Rare, perennial grass, blooms May to October.

Aristida purpurea Nutt. Purple Three-awn. Common, perennial grass with a trifid awn, blooms May to September.

Aristida purpurea Nutt. var. glauca (Nees) A. Holmgr. & N. Holmgr. (= A. glauca (Nees) Walp. and A. wrightii Nash). Reverchon Three-Awn. Common, perennial grass, found on dry, rocky slopes and plains, blooms March to September.

Aristida purpurea Nutt. var. longiseta (Steud.) Vasey (= A. longiseta Steaud. and A. fendleriana Steud.) Rare, perennial grass with trifid awn, blooms April to October.

Aristida ternipes Cav. Spider Grass. Rare, perennial grass, found on rocky hills and mesas, blooms August to October.

Avena fatua L. Wild Oat. Annual grass, spikelets mostly three-flowered, awns bent or geniculate and twisted, introduced from Europe, blooms March to August.

Bothriochloa barbinodis (Lag.) Herter (= Andropogon barbinodis Lag.) Bluestem. Rare, perennial grass, culms densely bearded at the nodes, awns twisted below and geniculate or bent, blooms April to October.

Bouteloua aristidoides (H.B.K.) Griseb. Six-weeks Needle Grama, Six-weeks Grama, Needle Grama. Annual grass, blooms June to October.

Bouteloua curtipendula (Michx.) Torr. Side Oats Grama. Infrequent, perennial grass, blooms April to October.

Bouteloua eriopoda (Torr.) Torr. Black Grama. Frequent, perennial grass, blooms July to October.

Bromus anamalus Rupr. ex Fourn. (includes Bromus porteri Nash) Nodding Brome. Rare, Perennial grass, blooms July to September.

Bromus inermis Leyss. Smooth brome. Uncommon, perennial grass with creeping rhizomes, introduced from Europe and used for reseeding rangeland and abandoned fields, blooms May to August.

Bromus rigidus Roth. Ripgut Grass. Annual grass, naturalized from Europe, a weed of waste places.

Bromus rubens L. Red Brome, Foxtail Chess. Annual grass, naturalized from Europe, a weed of waste places.

Bromus tectorum L. Downy Chess, Cheat Grass. Annual grass, naturalized from Europe, a weed of waste places.

Cenchrus insertus M.A. Curtis (= C. pauciflorus Benth.). Field Sandbur. Annual grass, the spikelets falling entire at maturity as a spiny bur, found in waste places, blooms June to October.

Cynodon dactylon (L.) Pers. Pata de Gallo, Bermuda Grass. Rare, perennial grass, with creeping stolons or rhizomes, spikes digitate at the top of the culm, introduced in America, found on lawns and in waste places.

Elymus glaucus Buckl. Blue Wild Rye. Rare, perennial grass, found in open woods, thickets, and along streams, blooms April to September.

Enneapogon desvauxii Beauv. Spike Pappusgrass. Rare, perennial grass with lead-colored panicles, lemmas bear nine, plumose awns, found on rocky hills and plains, blooms July to October.

Eragrostis cilianensis (All.) Mosher. Stink Grass. Annual grass, weedy, strong smelling when fresh, naturalized from Europe, found in cultivated ground and waste places, blooms May to October.

Eragrostis lehmanniana Nees. Lehman Lovegrass. Rare, perennial grass, introduced from South Africa.

Erioneuron pilosum (Buckl.) Nash (= Tridens pilosus (Buckl.) Hitchc.) Hairy Tridens. Uncommon, perennial grass, densely tufted, blooms summer and fall.

Festuca arundinacea Schreber. Tall Fescue. Uncommon, perennial grass with robust, many branched culms, introduced from Europe, and new to the Arizona Flora.

Festuca pratensis Huds. (= F. elatior L.) Meadow Fescue. Rare, perennial grass with short rhizomes, introduced from Eurasia and escaped to roadsides and waste places, blooms spring and early summer.

Hilaria mutica (Buckl.) Benth. Tobosa Grass, Tobosa. Uncommon, perennial grass, nodes usually glabrous or merely puberulent, blooms May to October.

Hordeum geniculatum All. (= Hordeum hystrix Roth.). Mediterranean Barley. Annual grass, found in fields and waste places, introduced from Europe, flowers May and June.

Hordeum leporinum Link. Wild Barley. Annual grass, blooms April to June, introduced from southern Europe.

Hordeum murinum L. Annual grass, found in waste places and open ground, introduced from southern Europe.

Muhlenbergia asperifolia (Nees & Mey.) Parodi. Scratchgrass. Rare, perennial grass, with scaly rhizomes, blooms May to October.

Muhlenbergia porteri Scribn. Bush Muhly. Uncommon, perennial grass, found on mesas and rocky hills, blooms August to October.

Muhlenbergia repens (Presl) Hitchc. Creeping Muhly. Rare, perennial grass with creeping, scaly rhizomes, found in dry, open, rocky or sandy places, blooms April to September.

Muhlenbergia rigens (Benth.) Hitchc. Deergrass, Deer Muhly. Rare, perennial grass, found in canyons, washes, forest openings and on slopes, blooms July to October.

Panicum obtusum H.B.K. Vine Mesquite. Rare, perennial grass with stolons up to one meter long or more and swollen, densely hairy nodes, often growing in dense stands, blooms May to October.

Panicum virgatum L. Switchgrass. Rare, perennial grass with numerous scaly, creeping rhizomes, found in sandy or rocky soil, mostly along water courses or in moist canyons, blooms June to September.

Paspalum dilatatum Poir. Dallis Grass. Rare, perennial grass, introduced from South America, elsewhere in the state very rare (known from few collections in 1932 and 1946), found in open ground, mostly in moist or marshy soil.

Poa bigelovii Vasey & Scribn. Bigelow's Bluegrass. Annual grass, found on rocky slopes and sandy washes, blooms early spring.

Poa fendleriana (Steud.) Vasey. (includes P. longiligula Scribn. & Williams). Mutton Grass. Rare, perennial grass, usually without rhizomes, blooms April to August.

Polypogon monspeliensis (L.) Desf. Rabbitfoot Grass. Annual grass, naturalized from Europe, blooms April to October.

Setaria geniculata (Lam.) Beauv. Knotroot Bristlegrass. Rare, perennial grass, common weed of lawns, roadsides, waste places, and pasturelands, introduced from Europe, blooms June to October.

Setaria glauca (L.) Beauv. (= Setaria lutescens (Weigel) Hubb.). Yellow Bristlegrass. Annual grass, introduced from Europe and occurs as a weed in waste places, blooms July to October.

Setaria leucopila (Scribn. & Berr.) K. Schum. Uncommon, perennial grass, blooms July to September.

Setaria macrostachya H.B.K. Plains Bristlegrass. Uncommon, perennial grass, found on dry, rocky soils, blooms May to October.

Sitanion hystrix (Nutt.) J.G. Smith. Uncommon, perennial grass, found on open, sandy soil and rocky hills and in open pine forests, blooms March to September.

Sorghum halepense (L.) Pers. (= Elymus elymoides (Raf.) Swezey.) Johnson Grass. Uncommon, perennial grass, coarse with scaly rhizomes, introduced from the Mediterranean region, a weed of waste places, fields, and along irrigation ditches, blooms April to November.

Sporobolus cryptandrus (Torr.) Gray. Sand Dropseed. Uncommon, perennial grass, found on dry, open, sandy or rocky sites, blooms April to October.

Sporobolus contractus (Torr.) Gray. Sand Dropseed. Rare, perennial grass, found on dry mesas and sandy or rocky slopes and in washes, flowers August to October, or earlier.

Stipa comatata Trin. & Rupr. Needle and Thread. Rare, perennial grass, awn twice bent, found on sandy or rocky plains and in open woodlands, blooms May to August.

Stipa neomexicana (Thurb.) Scribn. New Mexican Feathergrass. Frequent, perennial grass, found on dry, sandy, or rocky slopes and plains, blooms May to June.

Tridens muticus (Torr.) Nash. Slim Tridens. Rare, perennial grass, found on rocky slopes, desert grasslands, and oak woodlands, infrequent, blooms April to October.

Tridens muticus (Torr.) Nash var. elongatus (Buckl.) Shinnars. Rough Tridens. Rare, perennial grass, found on rocky slopes and dry plateaus, blooms April to October.

POLEMONIACEAE—Phlox Family

Eriastrum eremicum (Jeps.) Mason. Annual herb, flower heads densely cobwebby, found on dry plains and mesas, blooms March to June.

Gilia sinuata Dougl. Annual herb, usually found in open, sandy places, flowers pale violet to pink or white, blooms March to June.

Ipomopsis longiflora (Torr.) V. Grant (= Gilia longiflora (Torr.) G. Don). White-flowered Gilia. Annual herb, flowers pale blue-violet to almost white, found often on dry plains and mesas, especially on limestone soils, blooms March to October.

Phlox woodhousei (Gray) E. Nels. Rare, perennial herb, woody only at the base, flowers bright pink often fading to white and deeply notched, found in open woods, often on rocky slopes, blooms April to June and again in September.

POLYGALACEAE—Milkwort Family

Polygala rusbyi Greene. Rusby Milk Wort. Rare, perennial herb, flowers purple but the keel yellow, blooms April to July.

Polygala scoparioides Chodat. Rare, perennial herb or undershrub, flowers greenish-white (upper petals and sepals white with greenish or brown center), found on rocky mesas and slopes, blooms March to October.

POLYGONACEAE—Buckwheat Family

Eriogonum abertianum Torr. var. abertianum Torr. Annual or biennial herb, calyx white or pink, blooms March to September.

Eriogonum abertianum Torr. var. neomexicanum¹⁴ Annual or biennial herb, found in foothills and mountains, blooms March to September.

¹⁴ Variety not in Lehr (1978) and Lehr and Pinkava (1980, 1982).

Eriogonum microthecum Nutt. var. foliosum (T. & G.) Reveal (=E. simpsonii Benth). Uncommon, perennial herb, woody only at the base or sometimes well above the base, calyx white or pink, blooms June to September, the most common species in Arizona.

Eriogonum wrightii Torr. var. wrightii Torr. Wright Buckwheat. Uncommon, perennial herb with woody, branched stem, calyx white or pink, blooms June to October.

Polygonum punctatum Ell. Water Smartweed. Rare, normally a perennial herb with slender rhizomes, found in moist places, flowers greenish, blooms July to October.

Rumex crispus L. Curly Dock, Curly-leaf Dock. Rare, perennial herb with taproot, naturalized from Europe, found often along streams and ditches, flowers numerous in paniced racemes, blooms March to October.

Rumex hymenosepalus Torr. Canigre, Wild Rhubarb. Rare, perennial herb with a cluster of tuberous roots, flowers pinkish, often common and conspicuous in sandy places, blooms March and April.

PORTULACACEAE—Portulaca or Purslane Family

Montia perfoliata (Donn.) Howell. Miners-lettuce. Shiny, green annual with aucer-like disk stem leaves, flowers white, found along streams and near springs, flowers January to June.

POTAMOGETONACEAE—Pondweed Family

Potamogeton gramineus L. var. maximus Morong. Rare, perennial, aquatic herb with cylindrical (in cross section) stems and floating leaves on slender petioles.

Potamogeton nodosus Poir. Rare, perennial, aquatic herb.

Potamogeton pectinatus L. Sago Pondweed. Rare, perennial, aquatic herb with entire plant submerged.

PRIMULACEAE—Primrose Family

Samolus parviflorus Raf. (=S. floribundus H.B.K.) Water Pimpernel. Rare, perennial herb, flowers white, found in wet soil along streams, blooms April to August.

RANUNCULACEAE—Crowfoot Family

Anemone tuberosa Rydb. Desert Windflower. Rare, perennial herb with tuberous roots, flowers pink or purple, found among rocks on mesas and foothills, blooms February to May.

Aquilegia chrysantha Gray. Columbine. Uncommon, perennial herb, flowers canary-yellow throughout, found in rich, moist soil, blooms April to September.

Clematis ligusticifolia Nutt. Clematis, Virgin's Bower. Rare, perennial vine, climbing by tendril-like petioles, found often along streams, petals none, blooms May to September.

Delphinium scaposum Greene. Barestem Larkspur. Perennial herb with slender, woody, fibrous roots, sepals blue to light blue, upper petals white or nearly so, lower petals colored like the sepals.

RHAMNACEAE—Buckthorn Family

Rhamnus californica Esch. ssp. ursina (Greene) Wolf. California Buck Thorn. Infrequent, perennial shrub or small tree, bark gray, fruit a drupe (berrylike with two to four nutlets), black when mature, found mostly in chaparral and in open coniferous forests, flowers small and greenish in axillary clusters, blooms May to July.

Ziziphus obtusifolia (Hook. ex. T. & G.) A. Gray var. canescens (A. Gray) M.C. Johnst. (= Condalia lycioides (Gray) Weberb. var. canescens (Gray) Trel.). Thorn, Gray-leaved Abrojo, Gray-thorn. Uncommon, perennial, much branched shrub with rigid, spiny twigs, flowers white and small, fruit an ellipsoid drupe, deep blue to black, often forms thickets on plains or slopes, blooms May to September.

ROSACEAE—Rose Family

Cowania mexicana D. Don. var. stansburiana (Torr.) Jeps. (= Purshia stansburiana Torr.) Cliff-rose, Quinine Bush. Rare, perennial shrub or small tree to 7 meters, but usually not over 3 meters tall, older bark gray and finely shreddy, petals white to pale yellow and aromatic, very common on dry slopes and mesas, often in pinyon-juniper woodlands, blooms April to September.

Rubus arizonensis Focke. Arizona Dewberry. Uncommon, perennial shrub, very prickly, fruits small, of rather few drupelets, found often in partial shade along streams, blooms March to May.

Rubus procerus P.J. Muell. Himalaya Berry. Rare, perennial shrub, an introduced species once cultivated, now growing wild, stems prickly, lower leaf surfaces permanently white-tomentose and with prominent veins, fruit black.

RUBIACEAE—Madder Family

Galium aparine L. Bedstraw, Cleavers, Goosegrass Bedstraw. Annual herb with stems prostrate or scrambling over other plants, flowers white and small, found often in moist places, blooms May to September, presumably naturalized from Europe.

Galium microphyllum Gray (= Relbunium microphyllum (Gray) Hemsl.). Rare, perennial herb, leaves in whorls of four, flowers small and greenish-yellow, fruits purplish when ripe, blooms June to September.

RUTACEAE—Rue Family

Thamnosma texana (Gray) Torr. Rare, perennial shrub or nearly herbaceous herb with many ascending branches, flowers greenish-yellow tinged with purple, aromatic, found on dry rocky slopes and mesas, blooms March to June.

SALICACEAE—Willow Family

Populus fremontii Wats. ssp. fremontii Wats. Fremont Cottonwood. Frequent, perennial tree to 30 meters tall, whitish, roughly cracked bark, found along streams.

Salix bonplandiana H.B.K. (includes S. laevigata Bebb and its var. araquipa (Jeps.) Ball). Bonpland Willow, Red Willow. Rare, perennial small tree to 15 meters tall.

Salix exigua Nutt. Coyote Willow, Narrowleaf Willow, Basket Willow, Sandbar Willow. Rare, perennial shrub to 4 meters tall, linear leaves, found along streams, blooms with or after the leaves.

Salix gooddingii Ball. Goodding Willow. Rare, perennial tree, 6 to 10 meters tall, found along streams.

SAPINDACEAE—Soapberry Family

Sapindus saponaria L. var. drummondii (H. & A.) Benson. Western Soapberry, Jaboncillo. Uncommon, perennial small tree or shrub to 6 meters tall, pinnate leaves, flowers white, berries yellow, becoming dark in drying, found usually along streams, blooms May to August.

SAXIFRAGACEAE—Saxifrage Family

Ribes aureum Pursh. Golden Currant. Uncommon, perennial shrub, flowers fragrant and bright yellow or orange, berry mostly black or red, blooms March to June.

SCROPHULARIACEAE—Figwort Family

Castilleja chromosa A. Nels. Indian Paint Brush. Rare, perennial herb with a woody crown, flowers greenish-yellow, often with a red margin, blooms March to August.

Cordylanthus laxiflorus Gray. Bird Beak, Club Flower. Annual herb, roots yellow, flowers yellow when fresh, though drying purplish, found on dry mesas and slopes, blooms August to October.

Mimulus guttatus DC. Rare, perennial (usually) herb, often with stolons or creeping rhizomes and rooting at the nodes, flowers yellow usually spotted with red, found in wet places, blooms March to September.

Mimulus rubellus Gray. Red-stemmed Mimulus. Annual herb, flowers yellow or sometimes reddish, found often in sandy soil along streams, blooms March to July.

Penstemon eatonii Gray ssp. undosus (Jones) Keck. Rare, perennial herb, flowers scarlet, lips approximately equal.

Penstemon pseudospectabilis Jones ssp. connatifolius (A. Nels.) Keck. Uncommon, perennial herb, flowers pink or purple with yellowish tube and dark lines in the throat, blooms April to June and sometimes in the fall.

Verbascum thapsus L. Common Mullein. Biennial herb with tall leafy stem, densely woolly throughout, flowers yellow, naturalized from Europe, often found on waste ground, roadsides and on burned areas, blooms April to September.

SIMAROUBACEAE—Quassia or Simarouba Family

Ailanthus altissima (Mill.) Swingle. Copal Tree, Tree of Heaven. Rare, perennial tree 5 to 20 meters tall, exhibits rapid growth, spreads by suckers as well as by seeds, introduced from Asia and frequently grown as an ornamental.

SOLANACEAE—Nightshade Family

Chamaesaracha coronopus (Dunal) Gray. Small Groundcherry. Rare, perennial herb with slender, underground rhizomes, flowers white to cream with some purple tinge, found on dry plains and mesas, blooms April to December.

Datura meteloides DC. Sacred Datura, Tolguacha. Uncommon, perennial herb, flowers white, often suffused with lavender or purple, blooms April to October or throughout the year at low altitudes.

Lycium pallidum Miers. Rabbit Thorn. Infrequent, perennial shrub with spiny branches, flowers greenish, often tinged with purple, blooms April to June.

Nicotiana trigonophylla Dunal var. trigonophylla Dunal. Desert Tobacco, Tabaquillo. Rare, biennial or perennial herb, flowers greenish-white, blooms year round.

Solanum eleagnifolium Cav. Silverleaf Nightshade, Trompillo, Horse-nettle. Frequent, perennial herb with tough, deep-seated rhizomes, flowers violet or blue, berries yellow or brown, blooms May to October.

TAMARICACEAE—Tamarisk Family

Tamarix ramosissima Ledeb. (= T. pendandra sensu K. & P.) Tamarisk, Salt Cedar. Rare, perennial shrub or small tree to 7 meters tall, flowers white or pink, naturalized from Europe and Asia, found mostly along streams, blooms March to August.

TYPHACEAE—Cat-Tail Family

Typha latifolia L. Broad-leaved Cat-Tail, Espadilla. Rare, perennial, semi-aquatic herb with creeping rhizomes and tall jointless stems, male and female portions of the spike usually contiguous.

ULMACEAE—Elm Family

Celtis reticulata Torr. Net Leaf Hackberry, Palo Blanco. Frequent, perennial shrub or small tree, calyx small, corolla none, fruit a drupe, found mostly along streams.

URTICACEAE—Nettle Family

Parietaria hespera Hinton. Pellitory. Annual herb, alternate leaves, without stinging hairs, petals none, blooms usually throughout the year.

Parietaria pennsylvanica Muhl. Hammerwort. Annual herb with alternate, three-nerved, lance-shaped leaves, and no stinging hairs.

VERBENACEAE—Vervain Family

Aloysia wrightii (Gray) Heller (= Lippia cuneifolia (Torr.) Steud.). Oreganillo, Wright Lippa. Rare, perennial shrub, aromatic, flowers white, found on dry, rocky slopes, blooms August to October.

Glandularia bipinnatifida (Nutt.) Nutt. var. bipinnatifida (Nutt.) Nutt. (= Verbena ciliata Benth. and its var. pubera (Greene) Perry; Verbena ambrosifolia Rydb. ex Small and its forma eglandulosa Perry; Verbena bipinnatifida Nutt. and its var. latilobata Perry).

Mexican Vervain. Rare, annual or perennial herbs, flowers with a slight lilac fragrance, varying in color from red to lavender, pink, lilac, blue, violet or purple, blooms April to September.

Glandularia gooddingii (Briq.) Solbrig (= Verbena gooddingii Briq. and its var. nepetifolia Tidestrom.). Uncommon, annual or perennial herb, flowers pink, lavender, violet or blue, found on dry slopes and mesas, blooms nearly throughout the year.

Verbena bracteata Lag. & Rodr. Prostrate Vervain. Rare, annual or perennial herb, flowers light blue to purple, found often on waste land, blooms May to September.

VITACEAE—Grape Family

Parthenocissus vitacea (Knerr) Hitchc. (= Parthenocissus inserta (Kerner) Fritsch.). Virginia Creeper, Thicket Creeper. Rare, woody vine with palmately compound leaves (most often five leaflets), berries blue-black, blooms May to September.

Vitis arizonica Engelm. Canyon Grape, Parra del Monte. Infrequent, perennial herb, weakly climbing vine or bush, berries black at maturity, found often along streams and in canyons, blooms April to July.

ZANNICHELLIACEAE—Horned Pondweed Family

Zannichellia palustris L. Common Poolmat, Horned-pondweed. Rare, perennial herb, submerged aquatic, flowers enclosed by a spathe-like sheath.

ZYGOPHYLLACEAE—Caltrop Family

Kallistoemia californica (Wats.) Vail. California Caltrop. Annual herb, flowers yellow or orange, found on plains and mesas, often in sandy soil, blooms May to October.

Larrea divaricata Cav. ssp. tridentata (Sesse & Moc. ex DC.) Felger & Lowe (= L. tridentata (Sesse & Moc. ex DC.) Cov.). Creosote Bush, Greesewood, Hediondilla, Governadora. Infrequent, perennial shrub, strong-scented, evergreen, resinous, flowers yellow, fruit hairy, found on dry plains and mesas, flowers throughout the year but mostly from February to April. The Sonoran ecotype of the species (where the chromosome number is $n=26$) is present at Montezuma Well National Monument.

Tribulus terrestris L. Cadillo, Abrojo de Flor, Puncture Vine, Caltrop. Annual herb, fruits armed with two to four spreading spines, naturalized from Europe, found often at roadsides or in fields, blooms March to October.

CITED LITERATURE

- Benson, L. 1977. The cacti of Arizona. The University of Arizona Press, Tucson, 218 pp.
- Clark, A. and R.L. Burgess. 1966. The persistent perennial vegetation on the rim of Montezuma Well, Arizona. J. of the Arizona Academy of Science 4:35-42.
- Colorado Plateau Research Station. 1993. Data base files on Montezuma Castle National Monument, unpublished, on file at the C.P.R.S., National Biological Service, Northern Arizona University, Flagstaff.
- Hitchcock, A.S. 1950. Manual of the grasses of the United States. Second Edition, revised by Agnes Chase. U.S. Department of Agriculture, Misc. Pub. No. 200, 1051 pp.
- Jenkins, P., F. Reichenbacher, K. Johnson, and A. Gondor. 1991. Vegetation inventory classification and monitoring for Montezuma Well, Montezuma Castle National Monument. Prepared by Southwestern Field Biologists, Tucson for the Southern Arizona Group Office, N.P.S., Phoenix, Purchase Order No. PX-8601-8-0094, 50 pp.
- Kearney, T.H. and R.H. Peebles. 1960. Arizona flora. University of California Press, Berkeley, 1085 pp.
- Lehr, J.H. 1978. A catalogue of the flora of Arizona. Desert Botanical Garden, Phoenix, 203 pp.
- Lehr, J.H. and D.J. Pinkava. 1980. A catalogue of the flora of Arizona supplement I. Journal of Arizona-Nevada Academy of Science 15:17-32.
- Lehr, J.H. and D.J. Pinkava. 1982. A catalogue of the flora of Arizona supplement II. Journal of Arizona-Nevada Academy of Science 17:19-26.
- McDougall, W.B. 1973. Seed plants of Northern Arizona. The Museum of Northern Arizona, Flagstaff, 594 pp.
- McDougall, W.B. and H.S. Haskell. 1960. Seed plants of Montezuma Castle National Monument with keys for the identification of species. Northern Arizona Society of Science and Art, Inc., Northland Press, Flagstaff, 80 pp.
- Rowlands, P.G. 1994. FINAL MOCA REPORT.
- Ruffner, G.A. and R.A. Johnson. 1990. Plant ecology and vegetation mapping at Montezuma Castle and Tuzigoot National Monuments, Yavapai County, Arizona.

Final Report prepared by Ruffner Associates for Southern Arizona Group, National Park Service, Phoenix, 81 pp. + appendices.

Soil Conservation Service. 1993. Montezuma Castle National Monument, The Montezuma Well Unit, Existing resources and recommendations for landscape renewal plan development, Yavapai County, Arizona. U.S. Department of Agriculture, Soil Conservation Service, September 1993, 21 pp. + appendices and maps.

Spangle, P. and M. Sutton. 1949. The botany of Montezuma Well. Museum of Northern Arizona, Flagstaff, Plateau 22(1):11-19.66

A

Abrojo 8, 41
Abrojo de Flor 35, 64
Abutilon 20, 51
Acacia 14, 46
Acalypha 46
Acer 2
ACERACEAE 2
Achicoria Dulce 7, 41
Acourtia 3, 37
ADIANTACEAE 36
Adiantum 36
Afilerillo 17, 49
AGAVACEAE 2, 36
Agave 2
Agave Family 2, 36
Agoseris 4
Agropyron 23, 54
Agrostis 24, 54
Ailanthus 33, 62
Alder 8, 41
Alfalfa 16, 48
Alfalfilla 16, 48
Alkali Sacaton 27
Alfilaria 17, 49
Alfilerillo 17, 49
Algerita 8, 41
Allionia 21, 52
Alnus 8, 41
Aloysia 34, 63
Altamisa 4, 37
Amaranth Family 2
AMARANTHACEAE 2
Amaranthus 2
Ambrosia 4, 37
American Carrot 3, 36
Amorpha 14, 47
Amsinckia 9
Amsonia 3
ANACARDIACEAE 2, 36
Androsace 29
Anemone 29, 60
Annual Yellow Sweet Clover 16, 48
Antelope Horns 3

APIACEAE 2, 36
APOCYNACEAE 3, 37
Apricot-mallow 21, 51
Aquilegia 30, 60
Arabis 9
Argemone 23, 53
Aristida 24, 54
Arizona Alder 8, 41
Arizona Cypress 13
Arizona Dewberry 30, 60
Arizona Panicum 26
Arizona Sycamore 23, 53
Arizona Thistle 5, 38
Arizona Walnut 18, 50
Artemisia 4, 37
ASCLEPIADACEAE 3, 37
Asclepias 3
Aster 4, 37
ASTERACEAE 3, 37
Astragalus 14, 47
Atriplex 12, 44
Avena 24, 54

B

Baccharis 4, 37
Bahia 38
Baileya 4, 38
Banana Yucca 2
Barberry Family 8, 41
Barestem Larkspur 30, 60
Barnyard Grass 25
Basket Willow 61
Bastard Indigo 14, 47
Batamote 4, 38
Beargrass 2
Bedstraw 30, 61
Beech Family 17, 49
Bellflower Family 11, 43
BERBERIDACEAE 8, 41
Berberis 8, 41
Bermuda Grass 25, 55
Berula 2, 36
BETULACEAE 8, 41
Bidens 38

Big Root 13
 Bigelow's Bluegrass 26, 57
 BIGNONIACEAE 9, 42
 Bignonia Family 9, 42
 Birch Family 8, 41
 Bird Beak 32, 62
 Birdsfoot Trefoil 15, 47
 Black Flatsedge 45
 Black Foot 7, 40
 Black Grama 24, 55
 Black Medick 16
 Black-spined Prickly Pear 11, 43
 Bladder Pod 10, 42
 Blanket Flower 6, 39
 Blue Flax 20, 51
 Blue Grama 24
 Blue Sailors 5, 38
 Blue Snapdragon Vine 32
 Blue Wild Rye 25, 55
 Blue Yucca 2
 Bluebench Wheatgrass 54
 Bluedicks 20, 50
 Bluestem 24, 54
 Boerhaavia 21, 52
 Bonpland Willow 31, 61
 Borage Family 9, 42
 BORAGINACEAE 9, 42
 Bothriochloa 24, 54
 Bouteloua 24, 54
 Box-elder 2
 BRASSICACEAE 9, 42
 Brickellia 4, 38
 Broad-leaved Cat-Tail 63
 Bromus 24, 55
 Broom Baccharis 4, 38
 Broom Snakeweed 6, 39
 Brownfoot 3, 37
 Buckhorn Plantain 53
 Buckthorn Family 30, 60
 Buckwheat Family 28, 58
 Buffalo Gourd 13, 45
 Bundleflower 15, 47
 Bur Clover 16, 48
 Bur Marigold 38
 Burro Brush 6, 39

Bush Muhly 26, 56
 Butter and Eggs 32

 C
 Cactus Family 11, 43
 CACTACEAE 11, 43
 Cadillo 35, 64
 Calabazilla 13, 45
 Calandrinia 29
 California Brome 24
 California Buck Thorn 30, 60
 California Caltrop 35, 64
 Calochortus 20, 50
 Caltrop 35, 64
 Caltrop Family 35, 64
 Camote-de-Raton 47
 CAMPANULACEAE 11, 43
 Canigre 29, 59
 Canotia 12, 44
 Canyon Grape 34, 64
 Canuela 46
 Capsella 10, 42
 Cardinal Flower 11, 43
 Carex 13
 CARYOPHYLLACEAE 11
 Castilleja 32, 62
 Cat's Claw Mimosa 16
 Catclaw 14, 46
 Cat-Tail Family 63
 Cedro Blanco 13
 CELASTRACEAE 12, 44
 Celtis 34, 63
 Cenchrus 25, 55
 Cenizo 12, 44
 Centaurea 5, 38
 Century Plant 2
 Ceratoides 12, 44
 Chamaesaracha 33, 62
 Chamiso 12, 44
 Cheat Grass 25, 55
 Cheilanthes 36
 CHENOPODIACEAE 12, 44
 Chenopodium 12, 44
 Chicory 5, 38

Chilopsis 9, 42
Chorispota 10
Chufa 45
Cichorium 5, 38
Cinco Llagas 21
Cirsium 5, 38
Cleavers 30, 61
Clematis 30, 60
CLEOMACEAE 12, 44
Cleome 12, 44
Cleome Family 12, 44
Cliff-rose 30, 60
Climbing Milkweed 3, 37
Cloak Fern 36
Club Flower 32, 62
Coast Fiddleneck 9
Colorado Four O'Clock 21, 52
Columbine 30, 60
Common Cocklebur 8, 41
Common Dandelion 41
Common Horehound 19, 50
Common Knotweed 29
Common Mallow 21, 51
Common Mullein 62
Common Plantain 23, 53
Common Poolmat 35, 64
Common Sunflower 6, 39
COMPOSITAE 3, 37
CONVOLVULACEAE 12, 44
Convolvulus 12, 44
Conyza 5, 38
Copal Tree 33, 62
Cordylanthus 32, 62
Corydalis 17, 49
Coryphantha 11, 43
Coulter Spiderling 21
Cowania 30, 60
Cowpen Daisy 8
Coyote Willow 61
Creeping Muhly 56
Creosote Bush 35, 64
Croton 14
Crownbeard 8, 41
Crowfoot Family 29, 60
CRUCIFERAE 9, 42

Crucifixion Thorn 12, 44
Cryptantha 9
Cucurbita 13, 45
CUCURBITACEAE 13, 45
Culantrillo 36
Cultivated Oat 24, 54
CUPRESSACEAE 13, 45
Cupressus 13
Curly Dock 29, 59
Curly Mesquite Grass 25
Curly-leaf Dock 29, 59
Cymopterus 3, 36
Cynodon 25, 55
CYPERACEAE 13, 45
Cyperus 45
Cypress Family 13, 45

D

Dalea 15, 47
Dallis Grass 57
Datura 33, 62
Daucus 3, 36
Deergrass 56
Deer Muhly 56
Delphinium 30, 60
Descurainia 10, 42
Desert Baileyia 4
Desert Broom 4, 38
Desert Catalpa 9, 42
Desert Christmas Cactus 11, 43
Desert Mallow 21, 51
Desert Olive 22
Desert Straw 7
Desert Tobacco 33, 63
Desert Willow 9, 42
Desert Windflower 29, 60
Desmanthus 15, 47
Devil's Claw 21
Dichelostemma 20, 50
Dogbane 37
Dogbane Family 3, 37
Dogweed 5
Dove Weed 14
Downy Chess 25, 55

Draba 10, 42
Drummond's Mock-pennyroyal 19, 50
Dyssodia 5

E

Echinocereus 11, 43
Echinochloa 25
Eleocharis 13, 45
Elm Family 34, 63
Elymus 25, 55
Emory Baccharis 4, 37
Encelia 5, 39
Engelmann Prickly Pear 11, 43
Enneapogon 55
Ephedra 13, 45
EPHEDRACEAE 13, 45
Epipactis 22, 53
EQUISETACEAE 46
Equisetum 46
Eragrostis 25, 55
Eriastrum 27, 58
Erigeron 5, 39
Eriogonum 28, 58
Erioneuron 25, 56
Erodium 17, 49
Erysimum 10
Espadilla 63
Eucrypta 18, 49
Euphorbia 14, 46
EUPHORBIACEAE 14, 46
Evening Primrose Family 22, 52
Evolvulus 13

F

FABACEAE 14, 46
FAGACEAE 17, 49
Feather Plume 15, 47
Fendler Ground Cherry 33
Fendler Spurge 14, 46
Fern Family 36
Festuca 56
Field Bindweed 12, 44
Field Sandbur 25, 55
Figwort Family 32, 62

Filaree 17, 49
Flax Family 20, 51
Fleshy-fruited Yucca 2
Flixweed 10, 42
Fluff Grass 25
Forestiera 22
Four-O'Clock Family 21, 52
Four-wing Saltbush 12, 44
Fox-tail Barley 26
Foxtail Chess 25, 55
Fraxinus 22, 52
Fremont Cottonwood 61
Fremont Goose Foot 12, 44
FUMARIACEAE 17, 49
Fumitory Family 17, 49

G

Gaillardia 6, 39
Galium 30, 61
Gaura 22, 52
GERANIACEAE 17, 49
Geranium Family 17, 49
Giant Helleborine 22
Gilia 27, 58
Glandularia 34, 63
Goats Beard 8, 41
Golden Corydalis 17, 49
Golden Cryptantha 9
Golden Currant 31, 61
Golden Eye 8
Goodding Willow 31, 61
Goosefoot Family 12, 44
Goosegrass Bedstraw 30, 61
Gordon Bladderpod 10, 42
Gourd Family 13, 45
Governadora 35, 64
GRAMINEAE 23, 54
Grape Family 34, 64
Grass Family 23, 54
Grass Foxtail 27
Gray-leaved Abrojo 30, 60
Gray-thorn 30, 60
Great Basin Bedstraw 31
Green Bristlegrass 27

Green Violet 34
Greewood 35, 64
Grindelia 6
Grisebach Bristlegrass 26
Gromwell 9, 42
Gumweed 6
Gutierrezia 6, 39

H

Hairy Goldenaster 6, 39
Hairy Tridens 25, 56
Hammerwort 63
Hedeoma 19, 50
Hediondilla 35, 64
Helianthus 6, 39
Heterotheca 6, 39
Hierba del Cancer 20, 51
Hilaria 25, 56
Hill Locust 16
Himalaya Berry 60
Hoary Bindweed 12, 44
Hoffmanseggia 15, 47
Hog Potato 47
Hooker Evening Primrose 53
Hordeum 25, 56
Horned-pondweed 35, 64
Horned Pondweed Family 35, 64
Horse-nettle 33, 63
Horsetail Family 46
Horseweed 5, 38
Hybanthus 34
Hydrocotyle 3, 36
HYDROPHYLLACEAE 18, 49
Hymenoclea 6, 39
Hymenothrix 6, 39

I

Indian-hemp 37
Indian-mallow 20, 51
Indian Paint Brush 32, 62
Indian Ricegrass 26
Inierto 34
Indigo-bush 15, 47
Ipomoea 45

Ipomopsis 28, 58
Ives Phacelia 18

J

Jaboncillo 31, 61
Jara 4, 38
Johnson Grass 27, 57
Joint-Fir Family 13, 45
JUGLANDACEAE 18, 50
Juglans 18, 50
JUNCACEAE 18, 50
Juncus 18, 50
Juniperus 13, 45

K

Kallstoemia 35, 64
Knotgrass 26
Knotroot Bristlegrass 57
Krameria 19, 50
KRAMERIACEAE 19, 50

L

LABIATAE 19, 50
Lactuca 6, 39
LAMIACEAE 19, 50
Lappula 9, 42
Large Blue Lettuce 6
Large-flowered Stork's Bill 18, 49
Large White Desert Primrose 22, 53
Larrea 35, 64
Layia 6
LEGUMINOSAE 14, 46
Lehman Lovegrass 25, 55
Lepidium 10, 42
Leptochloa 26
Lesquerella 10, 42
Leucelene 6, 40
LILIACEAE 19, 50
Lily Family 19, 50
LINACEAE 20, 51
Linaria 32
Linum 20, 51
Lithospermum 9, 42
Little Trumpet 29

Littleleaf Globe Mallow 21, 51
Lizard Tail 22, 53
LOASACEAE 20, 51
Lobelia 11, 43
London Rocket 10, 43
Loosestrife 20, 51
Loosestrife Family 20, 51
Lotus 15, 47
Lupinus 16, 48
Lycium 33, 63
LYTHRACEAE 20, 51
Lythrum 20, 51

M

Machaeranthera 6, 40
Madder Family 30, 61
Malacothrix 7
Malta Star Thistle 5, 38
Mallow Family 20, 51
Malva 21, 51
MALVACEAE 20, 51
Maple Family 2
Marah 13
Mariola 7, 40
Marrubio 19, 50
Marrubium 19, 50
MARTYNIACEAE 21
Maurandya 32
Meadow Fescue 56
Medicago 16, 48
Mediterranean Barley 25, 56
Mediterranean Grass 26
Melampodium 7, 40
Melilotus 16, 48
Melon Family 13, 45
Menodora 22, 52
Mentha 19, 50
Mentzelia 20, 51
Mexican Devil Weed 37
Mexican Vervain 63
Microseris 7, 40
Milkweed Family 3, 37
Milkwort Family 28, 58
Mimbre 9, 42

Mimosa 16, 48
Mimulus 32, 62
Miners-lettuce 59
Mint Family 19, 50
Mirabilis 21, 52
Mirasol 6, 39
Mistletoe 34
Mistletoe Family 34
Montia 59
MORACEAE 52
Morning Glory 45
Morning Glory Family 12, 44
Morus 52
Mountain Dandelion 4
Mountain Joint-fir 13, 45
Muhlenbergia 26, 56
Mulberry Family 52
Mule Fat 4, 38
Mustard Family 9, 42
Mutton Grass 26, 57

N

Narrowleaf Willow 61
Narrow-seeded Spurge 14
Nasturtium 10, 43
Needle and Thread 57
Needle Grama 24, 54
Nemacladus 11
Net Leaf Hackberry 34, 63
Nettle Family 63
Nevada Cryptantha 9
New Mexico Copperleaf 46
New Mexican Feathergrass 27, 58
Nicotiana 33, 63
Nightshade Family 33, 62
Nodding Brome 55
Nogal Silvestre 18, 50
Nolina 2
Noseburn 14
Notholaena 36
Nuttall Locoweed 15, 47
NYCTAGINACEAE 21, 52

O

Oak 17

Oenothera 22, 53
OLEACEAE 22, 52
Olive Family 22, 52
ONAGRACEAE 22, 52
One-seed Juniper 13, 45
Opuntia 11, 43
Orchid Family 22, 53
ORCHIDACEAE 22, 53
Oreganillo 34, 63
Oryzopsis 26

P

Pachaba 4, 38
Pale-seeded Plantain 23
Palmer Oak 17
Palmilla 2, 36
Palo Blanco 34, 63
Panicum 26, 56
Paniquesillo 10, 42
PAPAVERACEAE 23, 53
Parietaria 63
Parra del Monte 34, 64
Parry Agave 2
Parsley Family 2, 36
Parthenium 7, 40
Parthenocissus 64
Paspalum 26, 57
Pata de Gallo 25, 55
Pea Family 14, 46
Peach-leaf Willow 31
Pellitory 63
Penstemon 32, 62
Pepper Grass 10
Periwinkle 3
Petunia 33
Phacelia 18, 49
Phaseolus 16, 48
Phlox 28, 58
Phlox Family 27, 58
Phoradendron 34
Physalis 33
Pigweed 2
PINACEAE 23
Pine Family 23

Pink Family 11
Pinus 23
Pinyon 23
Pinyon Pine 23
Pitseed Goosefoot 44
Plains Bristlegrass 27, 57
Plains Flax 20, 51
Plane Tree Family 23, 53
PLANTAGINACEAE 23, 53
Plantago 23, 53
Plantain Family 23, 53
PLATANACEAE 23, 53
Platanus 23, 53
Poa 26, 57
POACEAE 23, 54
Poison Ivy 2, 36
Poison Milkweed 3
Polanisia 12, 44
POLEMONIACEAE 27, 58
Polygala 28, 58
POLYGALACEAE 28, 58
POLYGONACEAE 28, 58
Polygonum 29, 59
POLYPODIACEAE 36
Polypogon 26, 57
Pondweed Family 29, 59
Poppy Family 23, 53
Populus 61
Portulaca Family 29, 59
PORTULACACEAE 29, 59
POTAMOGETONACEAE 29, 59
Potamogeton 29, 59
Powell's Amaranth 2
Prairie Evening Primrose 22, 53
Prickly Lettuce 39
Primrose Family 29, 59
PRIMULACEAE 29, 59
Proboscidea 21
Prosopis 17, 48
Prostrate Knotweed 29
Prostrate Spurge 46
Prostrate Vervain 64
Ptelea 31
Puccoon 9, 42

Puncture Vine 35, 64
Purple Cymopterus 3, 36
Purplefruit Prickly Pear 43
Purple Three-awn 24, 54
Purslane Family 29, 59

Q

Quassia Family 33, 62
Quercus 17, 49
Quinine Bush 30, 60

R

Rabbit Thorn 33, 63
Rabbitfoot Grass 26, 57
Ragweed 4, 37
Range Ratany 19, 50
RANUNCULACEAE 29, 60
Ratany Family 19, 50
Rattlesnake Weed 3, 14, 36, 46
Rayless Encelia 5, 39
Red Barberry 8, 41
Redberry Juniper 45
Red Brome 25, 55
Red Mahonia 8, 41
Red Maids 29
Red Spiderling 21, 52
Red Sprangletop 26
Red-seeded Dandelion 8
Red-seeded Plantain 23
Red-stemmed Mimulus 32, 62
Red Top 54
Red Top Bentgrass 54
Red Willow 31, 61
Reverchon Three-Awn 54
RHAMNACEAE 30, 60
Rhamnus 30, 60
Rhus 2, 36
Rhynchosia 17
Ribes 31, 61
Ripgut Grass 25, 55
Rock Jasmine 29
Rocky Mountain Sage 19, 50
ROSACEAE 30, 60
Rosary Bean 17

Rose Family 30, 60
Rose Heath 6, 40
Rough Tridens 58
Round-leaved Phacelia 18, 49
RUBIACEAE 30, 61
Rubus 30, 60
Rue Family 31, 61
Rumex 29, 59
Running Fleabane 5
Rusby Milk Wort 28, 58
Rush Family 18, 50
Russian Thistle 12, 44
RUTACEAE 31, 61

S

Sacred Datura 33, 62
Sago Pondweed 29, 59
SALICACEAE 31, 61
Salix 31, 61
Salsola 12, 44
Salt Cedar 34, 63
Salvia 19, 50
Sand Dropseed 27, 57
Samolus 29, 59
Sandbar Willow 61
Sand Peppergrass 10, 42
SAPINDACEAE 31, 61
Sapindus 31, 61
Sarcostemma 3, 37
SAXIFRAGACEAE 31, 61
Saxifrage Family 31, 61
Scarlet Gaura 22, 52
Schismus 26
Scirpus 13, 45
Scouring Rush 46
Scratchgrass 26, 56
SCROPHULARIACEAE 32, 62
Seep Willow 4, 38
Sedge Family 13, 45
Sego Lily 20
Senecio 7, 40
Senna 17, 48
Setaria 26, 57
Shepherds Purse 10, 42

Short-stemmed Lupine 16, 48
 Shrubby Coldenia 9
 Shrub Live Oak 17, 49
 Sicklepod Rush Pea 15, 47
 Sida 51
 Side Oats Grama 24, 55
 Silene 11
 Silver Beardgrass 24
 Silverleaf Nightshade 33, 63
 Silver Puffs 7, 40
 Simarouba Family 33, 62
 SIMAROUBACEAE 33, 62
 Single-leaved Pinyon 23
 Sisymbrium 10, 43
 Sitanion 27, 57
 Six-weeks Grama 24, 54
 Six-weeks Needle Grama 24, 54
 Skeleton Weed 28
 Skunkbush 2, 36
 Skunk Weed 14
 Sleepy Catchfly 11
 Slender Lip Fern 36
 Slim Tridens 27, 58
 Small Bur Clover 16
 Small Groundcherry 33, 62
 Small-flowered Blazing Star 20
 Small-flowered Eucrypta 18, 49
 Small-flowered Phacelia 18
 Small-leaved Abutilon 20, 51
 Smooth Brome 55
 Soap Tree Yucca 2, 36
 Soapberry Family 31, 61
 Soft Chess 24
 Softstem Bulrush 13, 45
 SOLANACEAE 33, 62
 Solanum 33, 63
 Solidago 7, 40
 Sonchus 7, 41
 Sorghum 27, 57
 Sour-clover 16, 48
 Southern Maidenhair 36
 Spearmint 19, 50
 Sphaeralcea 21, 51
 Spider Grass 54
 Spike Pappusgrass 55

Spiny Aster 37
 Spiny Sow Thistle 7, 41
 Sporobolus 27, 57
 Spotted Spurge 46
 Spreading Fleabane 5, 39
 Spurge Family 14, 46
 Squawbush 2, 36
 Staff Tree Family 12, 44
 Stemodia 32
 Stephanomeria 7, 41
 Stick-leaf Family 20, 51
 Stickseed 9, 42
 Stink Grass 25, 55
 Stipa 27, 57
 Straggling Mariposa 19, 50
 Streptanthus 11, 43
 Sumac 2, 36
 Sumac Family 2, 36
 Sunflower Family 3, 37
 Switchgrass 56

T

Tabaquillo 33, 63
 Tall Fescue 56
 Tall Goldenrod 40
 TAMARICACEAE 34, 63
 Tamarisk 34, 63
 Tamarisk Family 34, 63
 Tamarix 34, 63
 Tanglebrush 22
 Taraxacum 8, 41
 Tetraclea 34
 Texas Mulberry 52
 Thamnosma 31, 61
 Thelypodium 11
 Thicket Creeper 64
 Thick-sepaled Cryptantha 9
 Thompson Penstemon 32
 Thorn 30, 60
 Thread Leaf Groundsel 7, 40
 Thread Plant 11
 Threeseed Mercury 46
 Three Leaf Snakeweed 6, 39
 Thurber Dyssodia 5

Thymeleaf Spurge 46
Tidy Fleabane 5, 39
Tidy-tips 6
Tiquilia 9
Toad Flax 32
Tobosa 25, 56
Tobosa Grass 25, 56
Tocolote 5, 38
Tolguacha 33, 62
Torrey Eucrypta 18, 49
Townsendia 8
Toxicodendron 2, 36
Tragia 14, 46
Tragopogon 8, 41
Trailing Four-O'Clock 21, 52
Tree of Heaven 33, 63
Tribulus 35, 64
Tridens 27, 58
Trifolium 17
Trompillo 34, 63
Turbinella Oak 17, 49
Twist Flower 11, 43
Typha 63
TYPHACEAE 63

U

ULMACEAE 34, 63
UMBELLIFERAE 2, 36
Unicorn Plant Family 21
Unicorn Plant 21
URTICACEAE 63
Utah Juniper 13, 45

V

Velvet Ash 22, 52
Velvet Leaf Gaura 22, 53
Velvet Mesquite 17, 48
Verbascum 62
Verbena 64
VERBENACEAE 34, 63
Verbesina 8, 41
Veronica 32
Vervain Family 34, 63
Vicia 17, 48

Viguiera 8
Vinca 3
Vine Mesquite 56
VIOLACEAE 34
Virginia Creeper 64
Virgulus 41
Violet Family 34
Virgin's Bower 30, 60
VISCACEAE 34
VITACEAE 34, 64
Vitis 34, 64

W

Wait-a-Minute 16, 48
Wallflower 10
Walnut Family 18, 50
Water Bent 24, 54
Water Parsnip 2, 36
Water Pennywort 3, 36
Water Pimpernel 29, 59
Water Smartweed 29, 59
Water Speedwell 32
Watercress 10, 43
Waterleaf Family 18, 49
Western Clammyweed 12, 44
Western Ragweed 4, 37
Western Soapberry 31, 61
Western Wallflower 10
Western Wheatgrass 54
Western Whorled Milkweed 3
Wheatgrass 23, 54
White Aster 6, 40
White Clover 17
White Prairie-daisy 41
White Sweet Clover 16, 48
White-flowered Gilia 28, 58
Whitlow Grass 10, 42
Wild Barley 26, 56
Wild Carrot 3, 36
Wild Cucumber 13
Wild Heliotrope 18
Wild Lettuce 39
Wild Marigold 4
Wild Oat 24, 54

Wild Petunia 33
Wild Rhubarb 29, 59
Willow Family 31, 61
Willow-leaved Lettuce 39
Windmills 21, 52
Wingscale 12, 44
Winter Fat 12, 44
Wirelettuce 7
Woolly Marigold 38
Wooton Loco 15
Wright Buckwheat 28, 59
Wright Ground Cherry 33
Wright Lippa 34, 63

X

Xanthium 8, 41

Y

Yellow Bee Plant 12, 44
Yellow Bristlegrass 57
Yellow Nut Grass 45
Yellow Nut Sedge 45
Yellow Ragweed 38
Yellow Spiderwort 12, 44
Yellow Sweet Clover 16, 48
Yellow Tansy Mustard 10, 42
Yellowtop 8
Yucca 2, 36

Z

Zannichellia 35, 64
ZANNICHELLIACEAE 35, 64
Ziziphus 30, 60
ZYGOPHYLLACEAE 35, 64

QK 147 .M47 B74 1994

Brian, Nancy J.

QK 147 .M47 B74 1994

Brian, Nancy J.

An annotated vascular plant
species list for Montezuma