

## **AJO PEAK TO TINAJAS ALTAS: A FLORA OF SOUTHWESTERN ARIZONA PART 2. THE CHECKLIST**

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### **ABSTRACT**

A checklist is provided for the modern and fossil vascular plant flora of the contiguous protected areas of Organ Pipe Cactus National Monument, Cabeza Prieta National Wildlife Refuge, and the Tinajas Altas Region in southwestern Arizona. The modern flora includes 741 native and non-native taxa. The fossil record includes more than 219 species documented by specimens recovered from packrat (*Neotoma* spp.) middens spanning the last 43,000+ years. An additional checklist is provided for the approximately 135 taxa restricted to higher-elevation mountains in Organ Pipe Cactus NM. This article is the second contribution for our flora of southwestern Arizona.

**KEY WORDS:** Sonoran Desert, vascular plant flora, Arizona, Organ Pipe Cactus National Monument, Cabeza Prieta National Wildlife Refuge, Tinajas Altas, deep history, non-native species, desert sky islands

This article provides a checklist for the vascular plant flora of the three contiguous protected areas of Organ Pipe Cactus National Monument, Cabeza Prieta National Wildlife Refuge, and the Tinajas Altas Region in southwestern Arizona—the heart of the Sonoran Desert (Figure 1). These three entities encompass 514,242 hectares (1,270,700 acres), approximately 5141 km<sup>2</sup> (1985 mi<sup>2</sup>). This listing includes the modern flora documented by botanists as well as the fossil record based on specimens collected and curated by packrats (*Neotoma* sp.). The modern flora includes at least 741

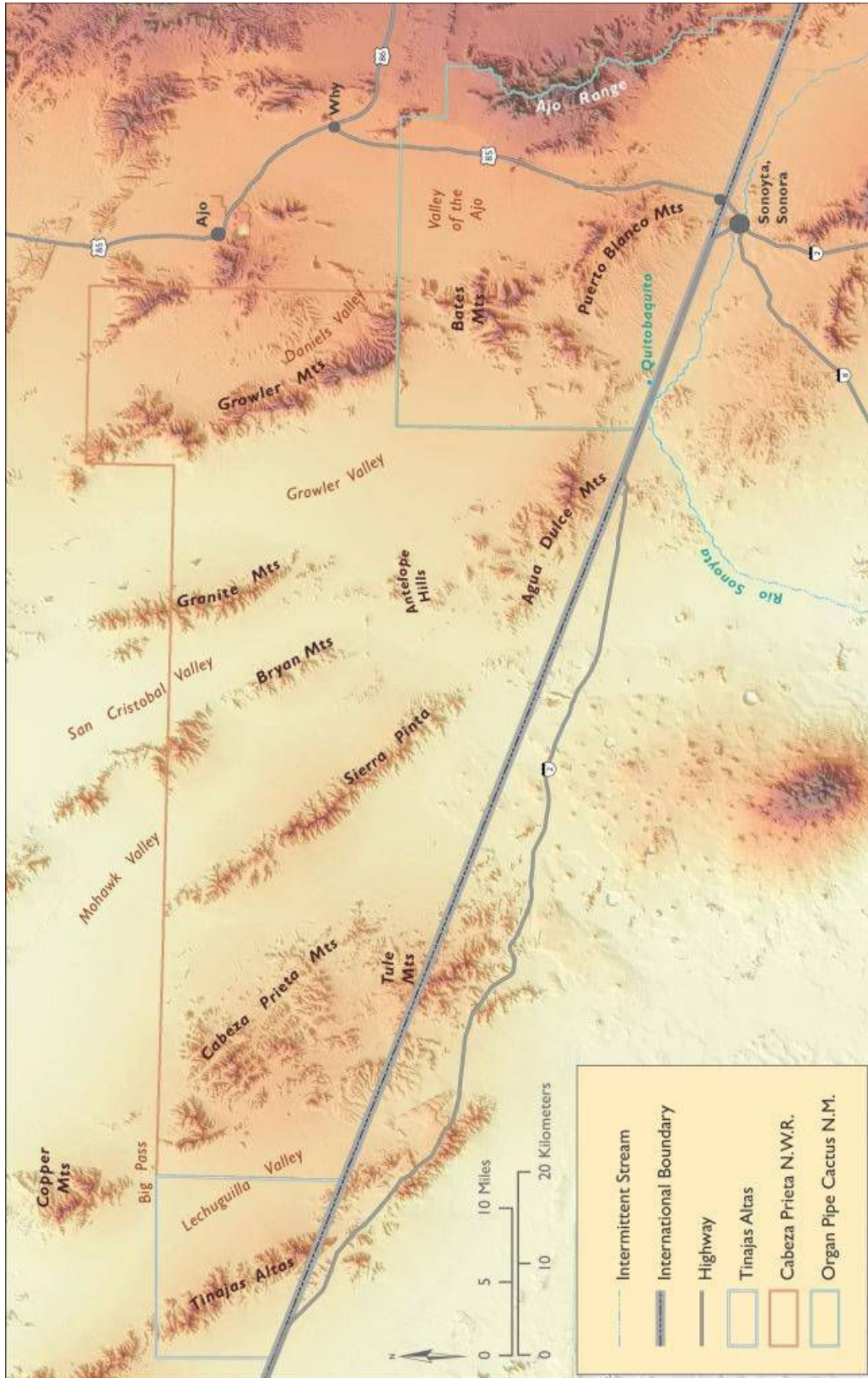


Figure 1. Map of the flora area in southwestern Arizona. Map created by Ami Pate of Organ Pipe Cactus National Monument.

native and non-native taxa and is specimen-based. The fossil record includes more than 219 species documented by specimens recovered from packrat (*Neotoma* spp.) middens spanning the last 43,000+ years (43,000 ybp to modern times). Van Devender sampled and studied numerous middens across the flora area at 240–975 m (787–3200 ft) elevation (see Felger et al. 2012a, 2013). Following the full checklist of the three protected areas is a checklist of approximately 135 taxa restricted to the Ajo Mountains and other higher mountains in Organ Pipe, most of which are essentially desert sky island populations.

Synonyms are provided and cross-indexed only for taxonomic changes not shown in the more detailed checklist of the modern flora of the area published in Canotia (Felger et al. 2012b), and additional taxonomic updates can be expected in forthcoming floristic treatments of our flora. Family designations follow APG III. Non-native plants established as reproducing populations in the flora area are indicated with an asterisk (\*) and non-native species not established as reproducing populations are marked with two asterisks (\*\*). Present-day taxa also known from the fossil record are indicated with a dagger symbol (†), and those no longer present in the flora area are indicated with two daggers (††). Some fossils not identifiable to species are shown with dagger symbols and a question mark (††?); these include ones identifiable only to genus, or a species group, or one of two species, and may be the same as modern taxa or ones no longer present in the flora area. These same symbols will be used throughout forthcoming contributions to our flora of the three protected areas in southwestern Arizona. The individual taxonomic complexities including the fossil specimens will be discussed and interpreted in the species accounts in forthcoming contributions.

This article is the second contribution for our flora in southwestern Arizona (Felger et al. 2013). The first article in this series includes maps and brief descriptions of the physical, biological, ecologic, floristic, and deep history makeup of the flora area. Considerable additional background information can be found in web sites for Organ Pipe and Cabeza Prieta, e.g., Organ Pipe Cactus National Monument (2011) and Slone (2011). This flora will be published in segments in forthcoming articles in *Phytoneuron* and will also be posted open access on the website of the University of Arizona Herbarium (ARIZ).

**MODERN AND FOSSIL TAXA IN ORGAN PIPE CACTUS NATIONAL MONUMENT,  
CABEZA PRIETA NATIONAL WILDLIFE REFUGE,  
AND THE TINAJAS ALTAS REGION**

**PTERIDOPHYTES**

**MARSILEACEAE**

*Marsilea vestita* Hooker & Greville

**PTERIDACEAE**

*Argyrochosma limitanea* (Maxon) Windham subsp. *limitanea*

*Astrolepis cochisensis* (Goodding) D.M. Benham & Windham

*Astrolepis sinuata* (Lagasca ex Swartz) D.M. Benham & Windham subsp. *sinuata*

*Bommeria hispida* (Mettenius ex Kuhn) Underwood

*Cheilanthes lindheimeri* Hooker

*Cheilanthes parryi* (D.C. Eaton) Domin

*Cheilanthes villosa* Davenport ex Maxon

*Cheilanthes wrightii* Hooker

*Cheilanthes yavapensis* T. Reeves ex Windham

*Notholaena californica* D.C. Eaton subsp. *californica*

*Notholaena standleyi* Maxon

*Pellaea truncata* Goodding

*Pentagramma triangularis* (Kaulfuss) Yatskievych et al. var. *maxonii* (Weatherby) Yatskievych et al.

### **LYCOPODS**

#### **SELAGINELLACEAE**

†*Selaginella arizonica* Maxon

*Selaginella eremophila* Maxon

### **GYMNOSPERMS**

#### **CUPRESSACEAE**

*Juniperus arizonica* R.P. Adams

††*Juniperus californica* Carrière

††*Juniperus* cf. *osteosperma* (Torrey) Little

††*Juniperus scopulorum* Sargent

#### **EPHEDRACEAE**

†*Ephedra aspera* Engelmann ex S. Watson

[*E. fasciculata* A. Nelson]

#### **PINACEAE**

††*Pinus edulis* Engelmann var. *fallax* Little

### **MAGNOLIIDS**

#### **ARISTOLOCHIACEAE**

*Aristolochia watsonii* Wootton & Standley

#### **SAURURACEAE**

*Anemopsis californica* (Nuttall) Hooker & Arnott

### **EUDICOTS**

#### **ACANTHACEAE**

*Anisacanthus thurberi* (Torrey) A. Gray

*Carlowrightia arizonica* A. Gray

*Dicliptera resupinata* (Vahl) de Jussieu

*Justicia californica* (Bentham) D.N. Gibson

†*Justicia candicans* (Nees) L.D. Benson

*Justicia longii* Hilsenbeck

*Ruellia nudiflora* (Engelmann & A. Gray) Urban

#### **ADOXACEAE**

\*\**Sambucus cerulea* Rafinesque

#### **AIZOACEAE**

\**Mesembryanthemum crystallinum* Linnaeus

\**Mesembryanthemum nodiflorum* Linnaeus

*Trianthema portulacastrum* Linnaeus

**AMARANTHACEAE** (includes Chenopodiaceae)

- \**Amaranthus albus* Linnaeus
- Amaranthus crassipes* Schlechtendahl var. *crassipes*
- †*Amaranthus fimbriatus* (Torrey) Bentham ex S. Watson
- †*Amaranthus palmeri* S. Watson
- Amaranthus ×tucsonensis* Henrickson
- ††? *Amaranthus* sp./spp.
- †*Atriplex canescens* (Pursh) Nuttall subsp. *canescens*
- ††*Atriplex confertifolia* (Torrey & Frémont) S. Watson
- †*Atriplex elegans* (Moquin-Tandon) D. Dietrich
- Atriplex lentiformis* (Torrey) S. Watson subsp. *lentiformis*
- Atriplex linearis* S. Watson
- Atriplex pacifica* A. Nelson
- †*Atriplex polycarpa* (Torrey) S. Watson
- \*\**Bassia hyssopifolia* (Pallas) Kuntze
- \**Chenopodium murale* Linnaeus
- Chenopodium watsonii* A. Nelson
- ††? *Froelichia* sp.
- Gomphrena sonora* Torrey
- Monolepis nuttalliana* (Schultes) Greene
- Nitrophila occidentalis* (Moquin-Tandon) S. Watson
- \**Salsola tragus* Linnaeus
- Suaeda nigra* (Rafinesque) J.F. Macbride
- Tidestromia lanuginosa* (Nuttall) Standley subsp. *eliassoniana* Sánchez-del Pino & Flores Olvera

**ANACARDIACEAE**

- †*Rhus aromatica* Aiton var. *trilobata* (Nuttall) A. Gray ex S. Watson
- ††*Rhus* cf. *aromatica*
- Rhus kearneyi* F.A. Barkley subsp. *kearneyi*

**APIACEAE**

- Bowlesia incana* Ruiz & Pavón
- †*Daucus pusillus* Michaux
- Eryngium nasturtiifolium* de Jussieu ex F. Delaroché
- Lomatium nevadensis* (S. Watson) Coulter & Rose
- Spermolepis lateriflora* G.L. Nesom
- [*S. echinata* (Nuttall) A. Heller, in part]
- Yabea microcarpa* (Hooker & Arnott) Koso-Poljanski

**APOCYNACEAE** (includes Asclepiadaceae)

- †*Asclepias albicans* S. Watson
- Asclepias erosa* Torrey
- Asclepias linaria* Cavanilles
- Asclepias nyctaginifolia* A. Gray
- Asclepias subulata* Decaisne
- Funastrum hartwegii* (Vail) Schlechter
- Haplophyton cimicidum* A. de Candolle
- Matelea cordifolia* Woodson
- Matelea parvifolia* (Torrey) Woodson
- Metastelma arizonicum* A. Gray

**ASTERACEAE**

- Acamptopappus sphaerocephalus* (Harvey & A. Gray) A. Gray var. *sphaerocephalus*  
*Acourtia nana* (A. Gray) Reveal & R.M. King  
*Acourtia wrightii* (A. Gray) Reveal & R.M. King  
*Adenophyllum porophylloides* (A. Gray) Strother  
*Ageratina paupercula* (A. Gray) R.M. King & H. Robinson  
*Ambrosia ambrosioides* (Cavanilles) W.W. Payne  
†*Ambrosia confertiflora* de Candolle  
*Ambrosia cordifolia* (A. Gray) W.W. Payne  
†*Ambrosia deltoidea* (Torrey) W.W. Payne  
†*Ambrosia dumosa* (A. Gray) W.W. Payne  
*Ambrosia dumosa* × *A. ilicifolia*  
†*Ambrosia ilicifolia* (A. Gray) W.W. Payne  
*Ambrosia monogyra* (Torrey & A. Gray ex A. Gray) Strother & B.G. Baldwin  
†*Ambrosia salsola* (Torrey & A. Gray) Strother & B.G. Baldwin var. *pentalepis* (Rydberg) Strother & B.G. Baldwin  
*Arida arizonica*, *see* *Leucosyris arida*  
*Arida carnosa*, *see* *Leucosyris carnosa*  
*Artemisia dracunculus* Linnaeus  
†*Artemisia ludoviciana* Nuttall subsp. *albula* (Wooton) D.D. Keck  
††*Artemisia tridentata* Nuttall complex  
*Baccharis brachyphylla* A. Gray  
*Baccharis salicifolia* (Ruiz & Pavón) Persoon  
*Baccharis sarothroides* A. Gray  
†*Bahiopsis parishii* (Greene) E.E. Schilling & Panero  
*Baileya multiradiata* Harvey & A. Gray  
*Baileya pleniradiata* Harvey & A. Gray  
†*Bebbia juncea* (Benth) Greene var. *aspera* Greene  
†*Brickellia atractyloides* A. Gray var. *atractyloides*  
*Brickellia californica* (Torrey & A. Gray) A. Gray  
†*Brickellia coulteri* A. Gray var. *coulteri*  
*Brickellia frutescens* A. Gray  
††? *Brickellia* sp.  
††*Calycoseris parryi* A. Gray  
*Calycoseris wrightii* A. Gray  
\*\**Carthamus tinctorius* Linnaeus  
\**Centaurea melitensis* Linnaeus  
†*Chaenactis carphoclinia* A. Gray var. *carphoclinia*  
†*Chaenactis stevioides* Hooker & Arnott  
††*Chrysothamnus teretifolius* (Durand & Hilgard) H.M. Hall  
††? *Chrysothamnus* sp.  
†*Cirsium neomexicanum* A Gray  
*Diaperia verna* (Rafinesque) Morefield var. *verna*  
*Dietera asteroides* Torrey var. *glandulosa* (B.L. Turner) D.R. Morgan & R.L. Hartman  
*Eclipta prostrata* (Linnaeus) Linnaeus  
†*Encelia farinosa* A. Gray ex Torrey  
*Encelia farinosa* × *E. frutescens*  
*Encelia frutescens* (A. Gray) A. Gray  
†*Ericameria cuneata* (A. Gray) McClatchie var. *spathulata* (A. Gray) H.M. Hall  
†*Ericameria laricifolia* (A. Gray) Shinnars  
\**Erigeron canadensis* Linnaeus

*Erigeron lobatus* A. Nelson  
*Eriophyllum lanosum* (A. Gray) A. Gray  
*Gaillardia arizonica* A. Gray  
*Gamochaeta stagnalis* (I.M. Johnston) Anderberg  
†*Geraea canescens* Torrey & A. Gray  
*Gutierrezia arizonica* (A. Gray) M.A. Lane  
†*Gutierrezia sarothrae* (Pursh) Britton & Rusby  
†*Gymnosperma glutinosum* (Sprengel) Lessing  
\*\**Helianthus annuus* Linnaeus  
*Helianthus niveus* (Bentham) Brandegee subsp. *tephrodes* (A. Gray) Heiser  
††? *Heterotheca* sp.  
*Hymenothrix wislizenii* A. Gray  
*Hymenoxys odorata* de Candolle  
*Isocoma acradenia* (Greene) Greene var. *acradenia*  
*Koanophyllum palmeri* (A. Gray) R.M. King & H. Robinson  
\**Lactuca serriola* Linnaeus  
*Laennecia coulteri* (A. Gray) G.L. Nesom  
*Leucosyris arida* (B.L. Turner & D.B. Horne) Pruski & R.L. Hartman  
    [*Arida arizonica* (R.C. Jackson & R.R. Johnson) D.R. Morgan & R.L. Hartman]  
*Leucosyris carnososa* (A. Gray) Greene  
    [*Arida carnososa* (A. Gray) D.R. Morgan & R.L. Hartman]  
*Logfia arizonica* (A. Gray) Holub  
*Logfia depressa* (A. Gray) Holub  
*Logfia filaginoides* (Hooker & Arnott) Morefield  
*Machaeranthera tagetina* Greene  
*Malacothrix fendleri* A. Gray  
*Malacothrix glabrata* (A. Gray ex D.C. Eaton) A. Gray  
*Malacothrix sonora* W.S. Davis & P.H. Raven  
*Monoptilon bellioides* (A. Gray) H.M. Hall  
\**Oncosiphon piluliferum* (Linnaeus f.) Källersjö  
*Packera quercetorum* (Greene) C. Jeffrey  
*Palafoxia arida* B.L. Turner & M.I. Morris var. *arida*  
*Parthenice mollis* A. Gray  
*Pectis cylindrica* (Fernald) Rydberg  
*Pectis linifolia* Linnaeus var. *linifolia*  
*Pectis papposa* Harvey & A. Gray var. *papposa*  
*Perityle ajoensis* T.K. Todsen  
†*Perityle emoryi* Torrey  
††? *Perityle* sp.  
†*Peucephyllum schottii* A. Gray  
*Pleurocoronis laphamioides* (Rose) R.M. King & H. Robinson  
*Pleurocoronis plurisetata* (A. Gray) R.M. King & H. Robinson  
†? *Pleurocoronis* sp.  
*Pluchea odorata* (Linnaeus) Cassini var. *odorata*  
†*Porophyllum gracile* Bentham  
*Prenanthes exigua* (A. Gray) Rydberg  
*Psathyrotes ramosissima* (Torrey) A. Gray  
*Pseudognaphalium canescens* (de Candolle) Anderberg  
*Psilostrophe cooperi* (A. Gray) Greene  
*Rafinesquia californica* Nuttall  
†*Rafinesquia neomexicana* A. Gray

*Senecio flaccidus* Lessing var. *monoensis* (Greene) B.L. Turner & T.M. Barkley  
*Senecio lemmonii* A. Gray  
*Senecio mohavensis* A. Gray  
 \**Sonchus asper* (Linnaeus) Hill subsp. *asper*  
 \**Sonchus oleraceus* Linnaeus  
*Stephanomeria exigua* Nuttall subsp. *exigua*  
*Stephanomeria pauciflora* (Torrey) Nelson  
*Stephanomeria schottii* (A. Gray) A. Gray  
*Stylocline gnaphaloides* Nuttall  
*Stylocline micropoides* A. Gray  
*Tessaria sericea* (Nuttall) Shinnery  
     [*Pluchea sericea* (Nuttall) Coville]  
 †*Thymophylla concinna* (A. Gray) Strother  
*Thymophylla pentachaeta* (de Candolle) Small var. *belenidium* (de Candolle) Strother  
*Townsendia annua* Beaman  
*Trichoptilium incisum* (A. Gray) A. Gray  
 †*Trixis californica* Kellogg var. *californica*  
*Uropappus lindleyi* (de Candolle) Nuttall  
 \*\**Verbesina encelioides* (Cavanilles) Benth. f. & Hooker ex A. Gray  
*Xanthisma gracile* (Nuttall) D.R. Morgan & R.L. Hartman  
 †*Xanthisma spinulosus* (Pursh) D.R. Morgan & R.L. Hartman var. *gooddingii* (A. Nelson) D.R.  
     Morgan & R.L. Hartman  
*Zinnia acerosa* (de Candolle) A. Gray

**BERBERIDACEAE**

†*Berberis haematocarpa* Wootton  
*Berberis harrisoniana* Kearney & Peebles  
 ††? *Berberis* sp.

**BIGNONIACEAE**

*Chilopsis linearis* (Cavanilles) Sweet subsp. *arcuata* (Fosberg) Henrickson

**BORAGINACEAE** (includes Hydrophyllaceae)

†*Amsinckia intermedia* Fischer & C.E. Meyer  
 †*Amsinckia tessellata* A. Gray var. *tessellata*  
*Cryptantha angustifolia*, see *Johnstonella angustifolia*  
 †*Cryptantha barbiger* (A. Gray) Greene  
*Cryptantha ganderi* I.M. Johnston  
*Cryptantha holoptera*, see *Johnstonella holoptera*  
 †*Cryptantha maritima* (Greene) Greene  
*Cryptantha micrantha*, see *Eremocarya micrantha*  
 †*Cryptantha pterocarya* (Torrey) Greene var. *cycloptera* (Greene) J.F. Macbride  
*Cryptantha racemosa*, see *Johnstonella racemosa*  
 ††*Cryptantha utahensis* (A. Gray) Greene  
*Eremocarya micrantha* (Torrey) Greene subsp. *micrantha*  
     [*Cryptantha micrantha* (Torrey) I.M. Johnston var. *micrantha*]  
*Eucrypta chrysanthemifolia* (Benth.) Greene var. *bipinnatifida* (Torrey) Constance  
*Eucrypta micrantha* (Torrey) A. Heller  
*Harpogonella palmeri* A. Gray  
*Heliotropium curassavicum* Linnaeus



*Johstonella angustifolia* (Torrey) Hasenstab & M.G. Simpson  
 [Crypstantha angustifolia (Torrey) Greene]  
*Johnstonella holoptera* (A. Gray) Hasenstab & M.G. Simpson  
 [Crypstantha holoptera (A. Gray) J.F. Macbride]  
 †*Johstonella racemosa* (S. Watson ex A. Gray) Hasenstab & M.G. Simpson  
 [Crypstantha racemosa (S. Watson ex A. Gray) Greene]  
 †*Lappula redowskii* (Hornemann) Greene var. *cupulata* (A. Gray) M.E. Jones  
*Nama demissum* A. Gray var. *demissum*  
*Nama hispidum* A. Gray var. *spathulata* (Torrey) C.L. Hitchcock  
 †*Pectocarya heterocarpa* (I.M. Johnston) I.M. Johnston  
 †*Pectocarya platycarpa* (Munz & I.M. Johnston) Munz & I.M. Johnston  
*Pectocarya recurvata* I.M. Johnston  
*Phacelia affinis* A. Gray  
*Phacelia bombycina* Wooton & Standley  
*Phacelia coerulea* Greene  
 †*Phacelia crenulata* Torrey ex S. Watson var. *ambigua* (M.E. Jones) J.F. McBride  
*Phacelia distans* Bentham  
*Phacelia neglecta* M.E. Jones  
*Phacelia pedicellata* A. Gray  
*Phacelia ramosissima* Douglas ex Lehmann  
*Phacelia rotundifolia* Torrey ex S. Watson  
 ††?Phacelia sp.  
*Pholistima auritum* (Lindley) Lilja ex Lindblom var. *arizonicum* (M.E. Jones) Constance  
 †*Plagiobothrys arizonicus* (A. Gray) Greene ex A. Gray  
*Plagiobothrys jonesii* A. Gray  
*Tiquilia canescens* (A. de Candolle) A.T. Richardson var. *canescens*  
*Tiquilia palmeri* (A. Gray) T.A. Richardson

### BRASSICACEAE

††*Athysanus pusillus* (Hooker) Greene  
*Boechera perennans* (S. Watson) W.A. Weber  
 \*\**Brassica nigra* (Linnaeus) W.D.J. Koch  
 \**Brassica tournefortii* Gouan  
 \*\**Capsella bursa-pastoris* (Linnaeus) Medikus  
*Caulanthus lasiophyllus* (Hooker & Arnott) Payson  
 †*Descurainia pinnata* (Walter) Britton  
*Dimorphocarpa pinnatifida* Rollins  
*Dithyrea californica* Harvey  
*Draba cuneifolia* Nuttall ex Torrey & A. Gray  
 †*Draba* cf. *cuneifolia*  
 \**Eruca vesicaria* (Linnaeus) Cavanilles subsp. *sativa* (Miller) Thellung  
*Erysimum capitatum* (Douglas ex Hooker) Greene  
*Hesperidanthus linearifolius* (A. Gray) Rydberg  
*Lepidium densiflorum* Schrader  
 †*Lepidium lasiocarpum* Nuttall ex Torrey & A. Gray  
*Lepidium thurberi* Wooton  
 ††?Lepidium sp./spp.  
*Lyrocarpa coulteri* Hooker & Harvey  
 \*\**Matthiola longipetala* (Ventenat) de Candolle  
 \*\**Nasturtium officinale* W.T. Aiton  
*Physaria tenella* (A. Nelson) O'Kane & Al-Shehbaz

*Sibara angelorum* (S. Watson) Greene  
*Sibara virginica* (Linnaeus) Rollins  
 \*\**Sisymbrium altissimum* Linnaeus  
 \**Sisymbrium irio* Linnaeus  
 \*\**Sisymbrium orientale* Linnaeus  
*Streptanthella longirostris* (S. Watson) Rydberg  
*Streptanthus carinatus* C. Wright ex A. Gray subsp. *arizonicus* (S. Watson) Kruckenberg, Rodman, & Worthington  
*Thelypodium wrightii* A. Gray  
 \*\**Thlaspi arvense* Linnaeus  
 †*Thysanocarpus curvipes* Hooker

### BURSERACEAE

†*Bursera microphylla* A. Gray

### CACTACEAE

†*Carnegiea gigantea* (Engelmann) Britton & Rose  
 ††*Coryphantha vivipera* (Nuttall) Britton & Rose  
 †*Cylindropuntia acanthocarpa* (Engelmann & J.M. Bigelow) F.M. Knuth  
*Cylindropuntia acanthocarpa* var. *coloradensis* (L.D. Benson) Pinkava  
*Cylindropuntia acanthocarpa* var. *major* (Engelmann & J.M. Bigelow) Pinkava  
*Cylindropuntia acanthocarpa* × *C. spinosior*  
*Cylindropuntia arbuscula* (Engelmann) F.M. Knuth  
 †*Cylindropuntia bigelovii* (Engelmann) F.M. Knuth  
*Cylindropuntia echinocarpa* (Engelmann & J.M. Bigelow) F.M. Knuth  
 †*Cylindropuntia* cf. *fulgida* (Engelmann) F.M. Knuth  
*Cylindropuntia fulgida* var. *fulgida*  
*Cylindropuntia fulgida* var. *mamillata* (Schott ex Engelmann) Backeberg  
 †*Cylindropuntia leptocaulis* (de Candolle) F.M. Knuth  
 †*Cylindropuntia ramosissima* (Engelmann) F.M. Knuth  
*Cylindropuntia spinosior* (Engelmann) F.M. Knuth  
*Cylindropuntia versicolor* (Engelmann ex J.M. Coulter) F.M. Knuth  
 ††*Cylindropuntia* cf. *whipplei* (Engelmann & J.M. Bigelow) F.M. Knuth  
 †*Echinocactus polycephalus* Engelmann & J.M. Bigelow  
*Echinocactus polycephalus* var. *polycephalus*  
*Echinocereus engelmannii* (Parry ex Engelmann) Lemaire var. *acicularis* L.D. Benson  
*Echinocereus engelmannii* var. *chrysocentrus* (Engelmann & J.M. Bigelow) Rümpler  
*Echinocereus nicholii* (L.D. Benson) B.D. Parfitt  
*Echinocereus santaritensis* W. Blum & Rutow  
 †?*Echinocereus* sp./spp.  
*Echinomastus erectocentrus* (J.M. Coulter) Britton & Rose var. *acunensis* (W.T. Marshall) Bravo  
 †*Ferocactus cylindraceus* (Engelmann) Orcutt  
 †*Ferocactus emoryi* (Engelmann) Orcutt  
 †*Ferocactus wislizeni* (Engelmann) Britton & Rose  
*Grusonia kunzei* (Rose) Pinkava  
     [G. *parishii* (Orcutt) Pinkava, misapplied to *G. kunzei* in the flora area. D. Pinkava and M. Baker, pers. com. 2013]  
*Grusonia wrightiana* (E.M. Baxter) E.M. Baxter, Calif. Cactaceae 58, 1935.  
     [*Opuntia wrightiana* Baxter, Cactus & Succ. Jour. 4: 283, 1932. *O. wrightiana* (E.M. Baxter) Peebles, Desert Plant Life 9: 45, 1937. *G. kunzei* (Rose) Pinkava, misapplied to *G. wrightii* in the flora area. D. Pinkava and M. Baker, pers. com. 2013]

*Grusonia wrightiana* E.M. Baxter,  
*Lophocereus schottii* (Engelmann) Britton & Rose var. *schottii*  
*Mammillaria grahamii* Engelmann subsp. *grahamii*  
 †*Mammillaria* cf. *grahamii*  
*Mammillaria tetrancistra* Engelmann  
*Mammillaria thornberi* Orcutt  
 †?*Mammillaria* sp.  
 †*Opuntia basilaris* Engelmann & J.M. Bigelow  
*Opuntia basilaris* var. *basilaris*  
 †*Opuntia chlorotica* Engelmann & J.M. Bigelow  
*Opuntia engelmannii* Salm-Dyck ex Engelmann var. *engelmannii*  
*Opuntia engelmannii* var. *flavispina* (L.D. Benson) B.D. Parfitt & Pinkava  
 \*\**Opuntia engelmannii* var. *linguiformis* (Griffiths) B.D. Parfitt & Pinkava  
 †*Opuntia engelmannii* and/or *O. phaeacantha*  
*Opuntia phaeacantha* Engelmann  
 \*\**Opuntia santa-rita* (Griffiths & Hare) Rose  
*Peniocereus greggii* (Engelmann) Britton & Rose var. *transmontanus* (Engelmann) Backeberg  
*Peniocereus striatus* (Brandege) Buxbaum  
 †*Stenocereus thurberi* (Engelmann) Buxbaum

#### **CAMPANULACEAE**

*Nemacladus orientalis* (McVaugh) Morin  
*Triodanis biflora* (Ruiz & Pavón) Greene

#### **CANNABACEAE**

†*Celtis pallida* Torrey subsp. *pallida*  
 †*Celtis reticulata* Torrey

#### **CAPPARACEAE**

*Atamisquea emarginata* Miers ex Hooker & Arnott

#### **CAPRIFOLIACEAE**

††*Symphoricarpos* sp.

#### **CARYOPHYLLACEAE**

*Achyronychia cooperi* Torrey & A. Gray  
*Cerastium texanum* Britton  
*Drymaria viscosa* S. Watson  
 \*\**Herniaria hirsuta* Linnaeus var. *cinerea* (de Candolle) Loret & Barrandon  
*Loeflingia squarrosa* Nuttall  
*Silene antirrhina* Linnaeus

CHENOPODIACEAE, see AMARANTHACEAE

#### **CLEOMACEAE**

*Polanisia dodecandra* (Linnaeus) de Candolle subsp. *trachysperma* (Torrey & A. Gray) H.H. Iltis  
*Wislizenia refracta* Engelmann subsp. *refracta*

#### **CONVOLVULACEAE**

*Cuscuta californica* Hooker & Arnott var. *californica*  
*Cuscuta legitima* Costea & Stefanović

*Cuscuta salina* Engelman var. *salina*  
*Cuscuta tuberculata* Brandegee  
*Cuscuta umbellata* Kunth var. *umbellata*  
*Evolvulus alsinoides* Linnaeus  
*Ipomoea costellata* Torrey  
*Ipomoea cristulata* Hallier  
*Ipomoea hederacea* Jacquin  
††? *Ipomoea* sp.  
*Jacquemontia pringlei* A. Gray

**CRASSULACEAE**

*Crassula connata* (Ruiz & Pavón) Berger  
*Dudleya arizonica* Rose  
*Graptopetalum rusbyi* (Greene) Rose

**CROSSOSOMATACEAE**

† *Crossosoma bigelovii* S. Watson

**CUCURBITACEAE**

*Brandegea bigelovii* (S. Watson) Cogniaux  
*Cucurbita digitata* A. Gray  
*Cucurbita palmata* S. Watson  
*Echinopepon wrightii* (A. Gray) S. Watson  
*Marah gilensis* (Greene) Greene  
*Tumamoca macdougalii* Rose

**EUPHORBIACEAE**

*Acalypha californica* Bentham  
† *Croton sonorae* Torrey  
*Croton wigginsii* L.C. Wheeler  
*Ditaxis adenophora* (A. Gray) Pax & K. Hoffmann  
*Ditaxis brandegeei* (Millspaugh) Rose & Standley var. *intonsa* I.M. Johnston  
† *Ditaxis lanceolata* (Bentham) Pax & K. Hoffmann  
† *Ditaxis neomexicana* (Müller Argoviensis) A. Heller  
*Ditaxis serrata* (Torrey) A. Heller var. *serrata*  
††? *Ditaxis* sp.  
*Euphorbia abramsiana* L.C. Wheeler  
*Euphorbia albomarginata* Torrey & A. Gray  
*Euphorbia arizonica* Engelman  
*Euphorbia capitellata* Engelman  
*Euphorbia eriantha* Bentham  
*Euphorbia florida* Engelman  
*Euphorbia heterophylla* Linnaeus  
† *Euphorbia hyssopifolia* Linnaeus  
† *Euphorbia melanadenia* Torrey  
*Euphorbia micromera* Boissier ex Engelman  
† *Euphorbia micromera* and/or *E. polycarpa*  
*Euphorbia pediculifera* Engelman var. *pediculifera*  
*Euphorbia polycarpa* Bentham  
\**Euphorbia prostrata* Aiton  
*Euphorbia setiloba* Engelman ex Torrey

*Euphorbia spathulata* Lamarck  
*Euphorbia trachysperma* Engelm  
 ††? *Euphorbia* spp. (Chamaesyce)  
 † *Jatropha cardiophylla* (Torrey) Müller Argoviensis  
*Jatropha cinerea* (Ortega) Müller Argoviensis  
 † *Jatropha cuneata* Wiggins & Rollins  
 † *Sebastiania bilocularis* S. Watson  
*Stillingia linearifolia* S. Watson  
 † *Tragia nepetifolia* Cavanilles

**FABACEAE**

*Acaciella angustissima* (Miller) Britton & Rose  
*Acmispon brachycarpus* (Benth) D.D. Sokoloff  
*Acmispon maritimus* (Nuttall) D.D. Sokoloff var. *brevivexillus* (Ottley) Brouillet  
 † *Acmispon rigidus* (Benth) Brouillet  
*Acmispon strigosus* (Nuttall) Brouillet  
 ††? *Acmispon* sp./spp.  
*Astragalus didymocarpus* Hooker & Arnott var. *dispermus* (A. Gray) M.E. Jones  
*Astragalus insularis* Kellogg var. *harwoodii* Munz & McBurney  
*Astragalus lentiginosus* Douglas ex Hooker var. *australis* Barneby  
*Astragalus lentiginosus* var. *yuccanus* M.E. Jones  
 † *Astragalus nuttallianus* de Candolle  
*Astragalus nuttallianus* cf. var. *imperfectus* (Rydberg) Barneby  
 ††? *Astragalus* sp.  
*Calliandra eriophylla* Benth  
 † *Coursetia glandulosa* A. Gray  
 † *Dalea mollis* Benth  
*Dalea pogonathera* A. Gray var. *pogonathera*  
*Dalea pringlei* A. Gray var. *pringlei*  
*Desmodium procumbens* (Miller) Hitchcock  
*Galactia wrightii* A. Gray  
*Hoffmannseggia glauca* (Ortega) Eifort  
*Lupinus arizonicus* (S. Watson) S. Watson  
*Lupinus concinnus* J. Agardh  
*Lupinus sparsiflorus* Benth  
 ††? *Lupinus* sp./spp.  
 † *Marina parryi* (Torrey & A. Gray) Barneby  
 \*\**Medicago polymorpha* Linnaeus  
 \**Melilotus indicus* (Linnaeus) Allioni  
*Mimosa distachya* Cavanilles var. *laxiflora* (Benth) Barneby  
*Nissolia schottii* (Torrey) A. Gray  
 † *Olneya tesota* A. Gray  
 \*\**Parkinsonia aculeata* Linnaeus  
 † *Parkinsonia florida* (Benth ex A. Gray) S. Watson  
 † *Parkinsonia microphylla* Torrey  
*Phaseolus acutifolius* A. Gray var. *acutifolius*  
*Phaseolus filiformis* A. Gray  
*Prosopis glandulosa* Torrey var. *torreyana* (L.D. Benson) M.C. Johnston  
 † *Prosopis glandulosa* and/or *P. velutina*  
*Prosopis pubescens* Benth  
*Prosopis velutina* Wooton

*Psorothamnus emoryi* (A. Gray) Rydberg var. *emoryi*  
*Psorothamnus fremontii* (Torrey ex A. Gray) Barneby  
*Psorothamnus spinosus* (A. Gray) Barneby  
*Rhynchosia texana* Torrey & A. Gray  
†*Senegalia greggii* (A. Gray) Britton & Rose  
†*Senna covesii* (A. Gray) H.S. Irwin & Barneby  
*Tephrosia vicioides* Schlechtendal  
*Trifolium wormskioldii* Lehmann  
†*Vachellia constricta* (Bentham) Seigler & Ebinger  
*Vicia ludoviciana* Nuttall ex Torrey & A. Gray var. *ludoviciana*

#### **FAGACEAE**

†*Quercus turbinella* Greene

#### **FOUQUIERIACEAE**

†*Fouquieria splendens* Engelman subsp. *splendens*

#### **GENTIANACEAE**

*Eustoma exaltatum* (Linnaeus) Salisbury ex G. Don subsp. *exaltatum*  
*Zeltnera arizonica* (A. Gray) G. Mansion

#### **GERANIACEAE**

\**Erodium cicutarium* (Linnaeus) L'Héritier ex Aiton  
†*Erodium texanum* A. Gray  
*Geranium carolinianum* Linnaeus

#### **GROSSULARIACEAE**

*Ribes quercetorum* Greene

HYDROPHYLLACEAE, see BORAGINACEAE

#### **KOEBERLINIACEAE**

†*Koeberlinia spinosa* Zuccarini

#### **KRAMERIACEAE**

*Krameria bicolor* S. Watson  
†*Krameria erecta* Willdenow & Schultes

#### **LAMIACEAE**

*Hedeoma nana* (Torrey) Briquet var. *macrocalyx* W.S. Stewart  
†*Hedeoma* cf. *nana*  
†*Hyptis albida* Kunth  
†*Monardella arizonica* Epling  
*Salvia columbariae* Benth  
††*Salvia mohavensis* Greene  
†*Salvia pinguifolia* (Fernald) Wooton & Standley  
\*\**Salvia reflexa* Hornemann  
*Salvia vaseyi* (Porter) Parish  
*Scutellaria mexicana* (Torrey) A.J. Patton  
*Teucrium cubense* Jacquin subsp. *depressum* (Small) E.M. McClintock & Epling  
*Teucrium glandulosum* Kellogg

**LINACEAE**

*Linum lewisii* Pursh var. *lewisii*

**LOASACEAE**

*Eucnide rupestris* (Baillon) H.J. Thompson & W.R. Ernst  
*Mentzelia affinis* Greene  
*Mentzelia albicaulis* Douglas ex Hooker  
*Mentzelia involucrata* S. Watson  
*Mentzelia isolata* Gentry  
*Mentzelia longiloba* J. Darlington var. *yavaipenis* J.J. Schenk & L. Hufford  
†*Mentzelia puberula* J. Darlington  
†*Petalonyx linearis* Greene  
*Petalonyx thurberi* A. Gray subsp. *thurberi*

**LYTHRACEAE** (includes Punicaceae)

\*\**Punica granatum* Linnaeus

**MALPIGHIACEAE**

†*Cottisia gracilis* (A. Gray) W.R. Anderson & C. Davis

**MALVACEAE** (includes Sterculiaceae)

*Abutilon abutiloides* (Jacquin) Garcke ex Hochreutiner  
*Abutilon incanum* (Link) Sweet  
*Abutilon malacum* S. Watson  
*Abutilon palmeri* A. Gray  
††?*Abutilon* sp.  
*Anoda abutiloides* A. Gray  
*Anoda pentaschista* A. Gray  
*Ayenia filiformis* S. Watson  
†*Ayenia microphylla* A. Gray  
†*Eremalche exilis* (A. Gray) Greene  
†*Herissantia crispa* (Linnaeus) Brizicky  
*Hermannia pauciflora* S. Watson  
*Hibiscus biseptus* S. Watson  
*Hibiscus coulteri* Harvey ex A. Gray  
†*Hibiscus denudatus* Benth  
*Horsfordia alata* (S. Watson) A. Gray  
*Horsfordia newberryi* (S. Watson) A. Gray  
††?*Horsfordia* sp./spp.  
\**Malva parviflora* Linnaeus  
*Malvastrum bicuspidatum* (S. Watson) Rose subsp. *bicuspidatum*  
*Malvella leprosa* (Ortega) Krapovickas  
*Malvella sagittifolia* (A. Gray) Fryxell  
*Rhynchosida physocalyx* (A. Gray) Fryxell  
*Sida abutifolia* Miller  
†*Sphaeralcea ambigua* A. Gray subsp. *ambigua*  
*Sphaeralcea coulteri* (S. Watson) A. Gray  
*Sphaeralcea emoryi* Torrey ex A. Gray  
*Sphaeralcea laxa* Wooton & Standley  
††?*Sphaeralcea* sp./spp. (may include *S. ambigua*)

**MARTYNIACEAE**

Proboscidea altheifolia (Bentham) Decaisne  
 Proboscidea parviflora (Wooton) Wooton & Standley subsp. parviflora

**MOLLUGINACEAE**

\*Glinus lotoides Linnaeus  
 \*Mollugo cerviana (Linnaeus) Séringe

**MONTIACEAE**

Calandrinia ciliata (Ruiz & Pavón) de Candolle  
 Cistanthe monandra (Nuttall) Hershkovitz  
 Claytonia perfoliata Donn ex Willdenow subsp. mexicana (Rydberg) J.M. Miller & K.L. Chambers  
 Phemeranthus aurantiacus (Engelmann) Kiger

**MORACEAE**

\*\*Ficus carica Linnaeus  
 Morus microphylla Buckley

**NYCTAGINACEAE**

Abronia villosa S. Watson var. villosa  
 Acleisanthes longiflora A. Gray  
 †Allionia incarnata Linnaeus  
 \*Boerhavia coccinea Miller  
 Boerhavia erecta Linnaeus  
 Boerhavia megaptera Standley  
 †Boerhavia cf. megaptera Standley  
 Boerhavia pterocarpa S. Watson.  
 Boerhavia spicata Choisy var. palmeri S. Watson  
 Boerhavia triquetra S. Watson  
 †Boerhavia wrightii A. Gray  
 ††?Boerhavia sp.  
 Commicarpus scandens (Linnaeus) Standley  
 Mirabilis coccinea (Torrey) Bentham & Hooker f.  
 †Mirabilis laevis (Bentham) Curran var. villosa (Kellogg) Spellenberg  
 ††Mirabilis cf. linearis (Pursh) Heimerl  
 Mirabilis multiflora (Torrey) A. Gray  
 Mirabilis tenuiloba S. Watson

**OLEACEAE**

†Forestiera phillyreoides (Bentham) Torrey  
 †Forestiera cf. pubescens Nuttall  
 Fraxinus velutina Torrey  
 Menodora scabra A. Gray  
 ††?Menodora sp.

**ONAGRACEAE**

Chylismia arenaria A. Nelson  
 Chylismia claviformis (Torrey & Frémont) A. Heller subsp. peeblesii (Munz) W.L. Wagner & Hoch  
 Chylismia claviformis subsp. rubescens (P.H. Raven) W.L. Wagner & Hoch  
 Epilobium canum (Greene) P.H. Raven subsp. latifolium (Hooker) P.H. Raven  
 Eremothera boothii (Douglas) W.L. Wagner & Hoch subsp. condensata (Munz) W.L. Wagner & Hoch



*Eremothera chamaenerioides* (A. Gray) W.L. Wagner & Hoch  
*Eulobus californicus* Nuttall ex Torrey & A. Gray  
*Oenothera arizonica* (Munz) W.L. Wagner  
*Oenothera curtiflora* W.L. Wagner & Hoch  
*Oenothera deltoides* Torrey & Frémont subsp. *deltoides*  
*Oenothera primiveris* A. Gray

**OROBANCHACEAE** (includes Scrophulariaceae, in part)

*Castilleja exserta* (A. Heller) T.I. Chuang & Heckard subsp. *exserta*  
*Castilleja lanata* A. Gray  
††? *Castilleja* sp./spp.  
† *Orobanche cooperi* (A. Gray) A. Heller  
*Orobanche fasciculata* Nuttall

**OXALIDACEAE**

*Oxalis albicans* Kunth

**PAPAVERACEAE**

*Argemone gracilentia* Greene  
\*\**Argemone ochroleuca* Sweet subsp. *ochroleuca*  
*Eschscholzia californica* Chamisso subsp. *mexicana* (Greene) C. Clark  
*Eschscholzia minutiflora* S. Watson

**PHRYMACEAE** (includes Scrophulariaceae, in part)

*Erythranthe cordata* (Greene) G.L. Nesom  
[*Mimulus cordatus* Greene. *M. guttatus* Fischer ex de Candolle, in part, missapplied]  
*Erythranthe rubella* (A. Gray) N.S. Fraga  
[*Mimulus rubellus* A. Gray]

**PHYTOLACCACEAE**

*Rivina humilis* Linnaeus

**PLANTAGINACEAE** (includes Scrophulariaceae, in part)

*Keckiella antirrhinoides* (Bentham) Straw subsp. *microphylla* A. Gray) Straw  
*Maurandya antirrhiniflora* Humboldt & Bonpland ex Willdenow  
*Neogaerrhinum filipes* (A. Gray) Rothmaler  
*Nuttallanthus texanus* (Scheele) D.A. Sutton  
*Penstemon parryi* (A. Gray) A. Gray  
*Penstemon pseudospectabilis* M.E. Jones subsp. *pseudospectabilis*  
††? *Penstemon* sp.  
† *Plantago ovata* Forsskål var. *fastigiata* (E. Morris) S.C. Meyers & Liston  
*Plantago patagonica* Jacquin  
*Pseudorontium cyathiferum* (Bentham) Rothmaler  
*Saiocarpus pusillus* (Brandege) D.A. Sutton  
*Saiocarpus watsonii* (Vasey & Rose) D.A. Sutton  
*Stemodia durantifolia* (Linnaeus) Swartz  
*Veronica peregrina* Linnaeus subsp. *xalapensis* (Kunth) Pennell

**PLUMBAGINACEAE**

*Plumbago zeylanica* Linnaeus

**POLEMONIACEAE**

Aliciella latifolia (S. Watson) J.M. Porter subsp. latifolia  
 Eriastrum diffusum (A. Gray) H. Mason  
 Eriastrum eremicum (Jepson) H. Mason subsp. yageri (M.E. Jones) H. Mason  
 Gilia flavocincta A. Nelson subsp. australis (A.D. & V.E. Grant) A.G. Day & V.E. Grant  
 Gilia stellata A. Heller  
 ††?Gila sp.  
 Ipomopsis multiflora (Nuttall) V.E. Grant  
 Langloisia setosissima (Torrey & A. Gray) Greene subsp. setosissima  
 Leptosiphon aureus (Nuttall) J.M. Porter & L.A. Johnson subsp. aureus  
 Linanthus aureus (Nuttall) Greene  
 Linanthus bigelovii (A. Gray) Greene  
 Linanthus cf. bigelovii  
 Linanthus cf. bigelovii × jonesii (possible hybrid)  
 Linanthus demissus (A. Gray) Greene  
 Linanthus jonesii (A. Gray) Greene  
 Linanthus cf. jonesii  
 Loeseliastrum schottii (Torrey) Timbrook  
 Phlox tenuifolia E.E. Nelson

**POLYGALACEAE**

Polygala macradenia A. Gray

**POLYGONACEAE**

†Chorizanthe brevicornu Torrey subsp. brevicornu  
 †Chorizanthe corrugata (Torrey) Torrey & A. Gray  
 †Chorizanthe rigida (Torrey) Torrey & A. Gray  
 †Eriogonum abertianum Torrey  
 Eriogonum deflexum Torrey var. deflexum  
 †Eriogonum fasciculatum Bentham (var. unknown)  
 †Eriogonum fasciculatum var. polifolium (Bentham) Torrey & A. Gray  
 Eriogonum inflatum Torrey & Frémont  
 Eriogonum maculatum A. Heller  
 Eriogonum thomasii Torrey  
 Eriogonum thurberi Torrey  
 Eriogonum trichopes Torrey  
 †Eriogonum wrightii Torrey ex Bentham (var. unknown)  
 †Eriogonum wrightii var. nodosum (Small) Reveal  
 Nemacaulis denudata Nuttall var. gracilis Goodman & L.D. Benson  
 \*Polygonum argyrocoleon Steudel ex Kunze  
 Pterostegia drymarioides Fischer & C.A. Meyer  
 Rumex hymenosepalus Torrey

**PORTULACACEAE**

Portulaca halimoides Linnaeus  
 \*Portulaca oleracea Linnaeus  
 Portulaca suffrutescens Engelman  
 Portulaca umbraticola Kunth

**PRIMULACEAE**

\*\*Anagallis arvensis Linnaeus subsp. arvensis

*Androsace occidentalis* Pursh

PUNICACEAE, see LYTHRACEAE

**RANUNCULACEAE**

† *Anemone tuberosa* Rydberg  
*Clematis drummondii* Torrey & A. Gray  
*Delphinium scaposum* Greene  
† *Myosurus cupulatus* S. Watson  
*Myosurus minimus* Linnaeus  
†† *Myosurus nitidus* Eastwood

**RESEDACEAE**

*Oligomeris linifolia* (Vahl) J.F. Macbride

**RHAMNACEAE**

†† *Ceanothus vestitus* Greene  
*Condalia globosa* I.M. Johnston var. *pubescens* I.M. Johnston  
††? *Condalia globosa* &/or *C. warnockii*  
*Frangula betulifolia* (Greene) Grubov  
*Rhamnus crocea* Nuttall  
† *Ziziphus obtusifolia* (Hooker ex Torrey & A. Gray) A. Gray var. *canescens* (A. Gray) M.C. Johnston

**ROSACEAE**

† *Vauquelinia californica* (Torrey) Sargent subsp. *sonorensis* W.J. Hess & Henrickson

**RUBIACEAE**

*Galium aparine* Linnaeus  
*Galium microphyllum* A. Gray  
† *Galium stellatum* Kellogg

**RUTACEAE**

*Ptelea trifoliata* Linnaeus  
† *Thamnosma montana* Torrey & Frémont

**SALICACEAE**

*Populus fremontii* S. Watson subsp. *fremontii*  
*Salix gooddingii* C.R. Ball

**SANTALACEAE**

† *Phoradendron californicum* Nuttall  
†† *Phoradendron juniperinum* Engelman  
†† *Phoradendron serotinum* (Rafinesque) M.C. Johnston

**SAPINDACEAE**

*Dodonaea viscosa* Jacquin var. *angustifolia* (Linnaeus f.) Bentham  
*Sapindus drummondii* Hooker & Arnott

SCROPHULARIACEAE, see OROBANCHACEAE, PHRYMACEAE, and PLANTAGINACEAE

### **SIMAROUBACEAE**

*Castela emoryi* (A. Gray) Moran & Felger

### **SIMMONDSIACEAE**

†*Simmondsia chinensis* (Link) C.K. Schneider

### **SOLANACEAE**

*Capsicum annuum* Linnaeus var. *glabriusculum* (Dunal) Heiser & Pickersgill

*Chamaesaracha coronopus* (Dunal) A. Gray

*Datura discolor* Bernhardi

††*Datura wrightii* Regel

*Lycium andersonii* A. Gray var. *andersonii*

*Lycium berlandieri* Dunal var. *longistylum* C.L. Hitchcock

†*Lycium* cf. *berlandieri*

*Lycium californicum* Nuttall ex A. Gray var. *californicum*

*Lycium exsertum* A. Gray

*Lycium fremontii* A. Gray var. *fremontii*

†*Lycium macrodon* A. Gray var. *macrodon*

*Lycium parishii* A. Gray var. *parishii*

††?*Lycium* sp./spp.

*Nicotiana clevelandii* A. Gray

\*\**Nicotiana glauca* Graham var. *glauca*

†*Nicotiana obtusifolia* Martens & Galeotti

*Petunia parviflora* de Jussieu

\**Physalis acutifolia* (Miers) Sandwith

*Physalis lobata* Torrey

*Physalis versicolor* Rydberg

††?*Physalis* sp./spp.

\**Solanum americanum* Miller

*Solanum douglasii* Dunal

†*Solanum hindsianum* Bentham

*Solanum xanti* A. Gray

STERCULIACEAE, see MAVACEAE

### **TALINACEAE**

*Talinum paniculatum* (Jacquin) Gaertner

### **TAMARICACEAE**

\*\**Tamarix aphylla* (Linnaeus) Karsten

\**Tamarix chinensis* Loureiro

ULMACEAE, see CANNABACEAE

### **URTICACEAE**

†*Parietaria hespera* B.D. Hinton var. *hespera*

### **VERBENACEAE**

*Aloysia wrightii* (A. Gray) A. Heller ex Abrams

*Glandularia gooddingii* (Briquet) Solbrig

*Glandularia latiloba* (L.M. Perry) G.L. Nesom

[*Glandularia bipinnatifida* (Nuttall) Nuttall var. *latilobata* (L.M. Perry) B.L. Turner]

††? *Glandularia* sp./spp.

\*\**Lantana camara* Linnaeus

*Tetradlea coulteri* A. Gray

*Verbena bracteata* Lagasca & Rodriguez

*Verbena menthifolia* Bentham

*Verbena xylopoda* (L.M. Perry) G.L. Nesom

VISCACEAE, see SANTALACEAE

### **ZYGOPHYLLACEAE**

*Fagonia californica* Bentham subsp. *californica*

*Fagonia californica* subsp. *longipes* (Standley) Felger & C.H. Lowe

*Fagonia pachyacantha* Rydberg

*Kallstroemia californica* (S. Watson) Vail

*Kallstroemia grandiflora* Torrey ex A. Gray

††? *Kallstroemia* sp./spp.

† *Larrea divaricata* Cavanilles subsp. *tridentata* (Sessé & Moçino ex de Candolle) Felger & C.H. Lowe

\**Tribulus terrestris* Linnaeus

### **MONOCOTYLEDONS**

AGAVACEAE, see ASPARAGACEAE

### **ALISMATACEAE**

*Sagittaria* sp.?

ALLIACEAE, see AMARYLLIDACEAE

### **AMARYLLIDACEAE**

*Allium macropetalum* Rydberg

*Habranthus longifolius* (Hemsley) Flagg, G. Lom. Smith & Meerow

[*Zephyranthes longifolia* Hemsley]

### **ARECACEAE**

\*\**Washingtonia filifera* (Linden ex André) H. Wendland de Barry

### **ASPARAGACEAE** (includes Agavaceae, Nolinaceae, Ruscaceae, Themidaceae)

*Agave ×ajoensis* W.C. Hodgson

† *Agave deserti* Engelmann subsp. *simplex* Gentry

*Agave schottii* Engelmann var. *schottii*

*Dichelostemma capitatum* (Bentham) Alph. Wood subsp. *pauciflorum* (Torrey) Keator

*Hesperocallis undulata* A. Gray

†† *Hesperoyucca whipplei* (Torrey) Baker

† *Nolina bigelovii* (Torrey) S. Watson

† *Nolina microcarpa* S. Watson

*Triteleopsis palmeri* (S. Watson) Hoover

*Yucca baccata* Torrey var. *brevifolia* L.D. Benson & Darrow

† *Yucca baccata* (var. unknown)

†† *Yucca brevifolia* Engelm  
*Yucca elata* Engelm

**COMMELINACEAE**

*Commelina erecta* Linnaeus

**CYPERACEAE**

*Cyperus esculentus* Linnaeus var. *leptostachyus* Boeckeler  
*Cyperus laevigatus* Linnaeus  
*Cyperus mutisii* (Kunth) Andersson  
*Cyperus squarrosus* Linnaeus  
*Eleocharis coloradoensis* (Britton) Gilly  
*Eleocharis flavescens* (Pioret) Urban var. *flavescens*  
*Eleocharis rostellata* (Torrey) Torrey  
*Schoenoplectus americanus* (Persoon) Volkart ex Schinz & R. Keller

**HYDROCHARITACEAE** (includes *Najadaceae*)

*Najas marina* Linnaeus

**IRIDACEAE**

*Sisyrinchium demissum* Greene

**JUNCACEAE**

*Juncus bufonius* Linnaeus  
*Juncus cooperi* Engelm  
*Juncus mexicanus* Willdenow ex Schultes & Schultes f.

**LILIACEAE**

*Calochortus kennedyi* Porter

NOLINACEAE, see ASPARAGACEAE

**POACEAE**

† *Aristida adscensionis* Linnaeus  
*Aristida californica* Thurber var. *californica*  
*Aristida californica* var. *glabrata* Vasey  
† *Aristida purpurea* Nuttall var. *nealleyi* (Vasey) Allred  
*Aristida purpurea* var. *parishii* (Hitchcock) Allred  
† *Aristida* cf. *purpurea*  
*Aristida ternipes* Cavanilles var. *gentilis* (Henrard) Allred  
*Aristida ternipes* var. *ternipes*  
\* *Avena fatua* Linnaeus  
† *Bothriochloa barbinodis* (Lagasca) Herter  
† *Bothriochloa* cf. *barbinodis*  
† *Bouteloua aristidoides* (Kunth) Grisebach  
*Bouteloua barbata* Lagasca var. *barbata*  
*Bouteloua barbata* var. *rothrockii* (Vasey) Gould  
† *Bouteloua barbata* var. *barbata* and/or var. *rothrockii*  
† *Bouteloua curtipendula* (Michaux) Torrey  
† *Bouteloua repens* (Kunth) Scribner & Merrill  
† *Bouteloua trifida* Thurber

- Bromus carinatus* Hooker & Arnott  
 \**Bromus madritensis* Linnaeus subsp. *rubens* (Linnaeus) Husnot  
 \*\**Bromus tectorum* Linnaeus  
 \**Cenchrus ciliaris* Linnaeus  
 \**Cenchrus echinatus* Linnaeus  
 \**Cenchrus setaceus* (Forsskål) Morrone  
 \**Cenchrus spinifex* Cavanilles  
*Chloris virgata* Swartz  
*Cottea pappophoroides* Kunth  
 \**Cynodon dactylon* (Linnaeus) Persoon var. *dactylon*  
 \**Dactyloctenium aegyptium* (Linnaeus) Willdenow  
 †*Dasyochloa pulchella* (Kunth) Willdenow ex Rydberg  
 †*Digitaria californica* (Bentham) Henrard var. *californica*  
*Dinebra panicea* (Retzius) P.M. Peterson & N. Snow subsp. *brachiata* (Steudel) P.M. Peterson & N. Snow  
     [*Leptochloa panicea* (Retzius) Ohwi subsp. *brachiata* (Steudel) N.W. Snow]  
*Dinebra viscida* (Scribner) P.M. Peterson & N. Snow  
     [*Leptochloa viscida* (Scribner) Beal]  
*Diplachne fusca* (Linnaeus) P. Beauvois ex Roemer & Schultz subsp. *uninervia* (J. Presl) P.M. Peterson & N. Snow  
     [*Leptochloa fusca* (Linnaeus) Kunth subsp. *uninervia* (J. Presl) N. Snow]  
*Disakisperma dubium* (Kunth) P.M. Peterson & N. Snow  
     [*Leptochloa dubia* (Kunth) Nees]  
*Distichlis spicata* (Linnaeus) Greene  
 \**Echinochloa colona* (Linnaeus) Link  
 \**Echinochloa crus-galli* (Linnaeus) P. Beauvois  
*Elymus elymoides* (Rafinesque) Swezey var. *brevifolius* (J.G. Smith) Dorn  
 †*Elymus* cf. *elymoides*  
 \**Enneapogon cenchroides* (Lichtenstein ex Roemer & Schultes) C.E. Hubbard  
*Enneapogon desvauxii* P. Beauvis  
 \*\**Eragrostis barrelieri* Daveau  
 \**Eragrostis cilianensis* (Allioni) Vignolo Lutati ex Janchen  
*Eragrostis intermedia* Hitchcock  
 \**Eragrostis lehmanniana* Nees  
*Eragrostis pectinacea* (Michaux) Nees var. *pectinacea*  
 †*Eragrostis* cf. *pectinacea*  
 †*Eriochloa acuminata* (J. Presl) Kunth var. *acuminata*  
*Eriochloa aristata* Vasey var. *aristata*  
 †*Festuca microstachys* Nuttall  
 †*Festuca octoflora* Walter  
 ††? *Festuca* (*Vulpia*) sp.  
 †*Heteropogon contortus* (Linnaeus) P. Beauvois ex Roemer & Schultes  
*Hilaria belangeri* (Steudel) Nash  
 †*Hilaria rigida* (Thurber) Bentham ex Scribner  
*Hopia obtusa* (Kunth) Zuloaga & Morrone  
 \**Hordeum murinum* Linnaeus subsp. *glaucum* (Steudel) Tzvelev  
 ††*Hordeum pusillum* Nuttall  
*Leptochloa crinitia* (Lagasca) P.M. Peterson & N. Snow  
     [*Trichloris crinita* (Lagasca) Parodi]  
*Leptochloa dubia*, *see* *Disakisperma dubium*  
*Leptochloa fusca* subsp. *uninervia*, *see* *Diplachne fusca* subsp. *uninervia*

*Leptochloa panicea* subsp. *brachiata*, *see* *Dinebra panicea* subsp. *brachiata*  
*Leptochloa viscida*, *see* *Dinebra viscida*  
*Melica frutescens* Scribner  
*Muhlenbergia alopecuroides* (Grisebach) P.M. Peterson & Columbus  
*Muhlenbergia appressa* C.O. Goodding  
*Muhlenbergia dumosa* Scribner ex Vasey  
†*Muhlenbergia emersleyi* Vasey  
*Muhlenbergia fragilis* Swallen  
†*Muhlenbergia microsperma* (de Candolle) Kunth  
††*Muhlenbergia polycaulis* Scribner  
*Muhlenbergia porteri* Scribner ex Beal  
*Muhlenbergia rigens* (Bentham) Hitchcock  
*Muhlenbergia tenuifolia* (Kunth) Kunth  
*Panicum alatum* Zuloaga & Morrone var. *alatum*  
\**Panicum antidotale* Retzius  
†*Panicum hallii* Vasey var. *hallii*  
†*Panicum hirticaule* J. Presl var. *hirticaule*  
*Pappophorum vaginatum* Buckley  
††*Paspalum* sp.  
\**Phalaris caroliniana* Walter  
\**Phalaris minor* Retzius  
*Phragmites australis* (Cavanilles) Trinius ex Steudel subsp. *berlandieri* (E. Fournier) Saltonstall & Hauber  
\*\**Poa annua* Linnaeus  
†*Poa bigelovii* Vasey & Scribner  
††*Poa fendleriana* (Steudel) Vasey  
\**Polypogon monspeliensis* (Linnaeus) Desfontaines  
\**Polypogon viridis* (Gouan) Breistroffer  
\**Schismus arabicus* Nees  
\**Schismus barbatus* (Linnaeus) Thellung  
†*Setaria grisebachii* E. Fournier  
*Setaria liebmannii* E. Fournier  
†*Setaria macrostachya* Kunth  
\**Sorghum halepense* (Linnaeus) Persoon  
*Sporobolus airoides* (Torrey) Torrey subsp. *airoides*  
*Sporobolus cryptandrus* (Torrey) A. Gray  
*Sporobolus flexuosus* (Thurber ex Vasey) Rydberg  
*Sporobolus pyramidatus* (Lamarck) Hitchcock  
†*Stipa speciosa* Trinius & Ruprecht var. *speciosa*  
*Trichloris crinita*, *see* *Leptochloa crinita*  
*Tridens eragrostoides* (Vasey & Scribner) Nash  
†*Tridens muticus* (Torrey) Nash var. *muticus*  
\*\**Triticum aestivum* Linnaeus  
*Urochloa arizonica* (Scribner & Merrill) Morrone & Zuloaga  
††*Zuloagaea bulbosa* (Kunth) Bess

**POTAMOGETONACEAE** (includes Zannichelliaceae)

*Stuckenia pectinata* (Linnaeus) Börner  
*Zannichellia palustris* Linnaeus



**RUPPIACEAE**

*Ruppia cirrhosa* (Petagna) Grande

RUSCACEAE, see ASPARAGACEAE

THEMIDACEAE, see ASPARAGACEAE

**TYPHACEAE**

*Typha domingensis* Persoon

ZANNICHELLIACEAE, see POTAMOGETONACEAE

**MOUNTAIN PLANTS OF ORGAN PIPE CACTUS NATIONAL MONUMENT**

Approximately 135 taxa (132 species, one variety, and two hybrids) within the flora area are known only from the higher, larger mountains in the Monument. All 135 occur in the Ajo Mountains and some have population in other larger mountains in Organ Pipe, mostly at their upper elevations, i.e., Bates (BT), Diablo (DM), Growler (GM), Puerto Blanco (PB), and Santa Rosa (SR) Mountains (Fig. 2). Most of these populations are essentially desert “sky island” populations although some occur at lower elevations in these mountains. *Ericameria cuneata* probably also occurs in the Cabeza Prieta NWR portion of upper elevations in the Growler Mountains.

**PTERIDACEAE**

*Argyrochosma limitanea*  
*Astrolepis sinuata* (BT)  
*Bommeria hispida* (SR)  
*Cheilanthes villosa*  
*Cheilanthes wrightii* (BT)  
*Cheilanthes yavapensis*  
*Pentagramma triangularis*

**GYMNOSPERMS**

**CUPRESSACEAE**

*Juniperus arizonica* (PB)

**EUDICOTS**

**ACANTHACEAE**

*Dicliptera resupinata*  
*Justicia candicans*  
*Justicia longii*

**AMARANTHACEAE**

*Amaranthus ×tucsonensis*  
*Gomphrena sonorae*

**ANACARDIACEAE**

*Rhus aromatica*

**APIACEAE**

*Lomatium nevadense*  
*Yabea microcarpa*

**APOCYNACEAE**

*Asclepias linaria*  
*Haplophyton cimicidum*  
*Matelea cordifolia*

**ASTERACEAE**

*Ageratina paupercula*  
*Ambrosia cordifolia* (DM)  
*Artemisia dracunculus*  
*Brickellia californica*  
*Brickellia frutescens* (PB)  
*Ericameria cuneata* (GM?)  
*Ericameria laricifolia*  
*Gamochaeta stagnalis*  
*Koanophyllon palmeri*  
*Machaeranthera tagetina* (DM)  
*Packera quercetorum*  
*Perityle ajoensis*  
*Pseudognaphalium canescens*

**BERBERIDACEAE**

*Berberis haematocarpa*  
*Berberis harrisoniana*

**BORAGINACEAE**

*Harpegonella palmeri* (SR)  
*Phacelia ramosissima*

**BRASSICACEAE**

*Boechera perennans*  
*Erysimum capitatum*  
*Hesperidanthus linearifolius* (PB)  
*Thelypodium wrightii* (DM)

**CACTACEAE**

*Echinocereus santaritensis*

**CAMPANULACEAE**

*Triodanis biflora*

**CANNABACEAE**

*Celtis reticulata*

**CARYOPHYLLACEAE**

*Cerastium texanum* (DM)

**CONVOLVULACEAE**

*Cuscuta californica* (SR)  
*Ipomoea costellata*  
*Ipomoea cristulata*  
*Jacquemontia pringlei*

**CRASSULACEAE**

*Graptopetalum rusbyi*

**CUCURBITACEAE**

*Echinopepon wrightii*  
*Marah gilensis*

**EUPHORBIACEAE**

*Euphorbia arizonica*?  
*Euphorbia capitellata*  
*Euphorbia melanadenia*

**FABACEAE**

*Acaciella angustissima*  
*Astragalus didymocarpus*  
*Dalea pringlei*  
*Desmodium procumbens*  
*Galactia wrightii*  
*Mimosa distachya* (SR)  
*Nissolia schottii* (SR)  
*Phaseolus acutifolius*  
*Rhynchosia texana*  
*Tephrosia vicioides*  
*Trifolium wormskioldii* (DM)

**FAGACEAE**

*Quercus turbinella*

**GERANIACEAE**

*Geranium carolinianum*

**GROSSULARIACEAE**

*Ribes quercetorum*

**LAMIACEAE**

*Monardella arizonica*  
*Salvia pinguifolia*

**MALVACEAE**

*Abutilon abutiloides* (PB)  
*Anoda abutiloides*  
*Anoda pentaschista*  
*Hermannia pauciflora*  
*Hibiscus biseptus*  
*Malvastrum bicuspidatum*

*Sida abutilifolia*

**MONTIACEAE**

*Calandrinia ciliata* (PB)

*Claytonia perfoliata*

*Phemeranthus aurantiacus*

**MORACEAE**

*Morus microphylla*

**NYCTAGINACEAE**

*Boerhavia megaptera*

*Mirabilis coccinea*

*Mirabilis multiflora*

**OLEACEAE**

*Forestiera phyllireoides* (PB)

*Fraxinus velutina*

**ONAGRACEAE**

*Epilobium canum*

**OXALIDACEAE**

*Oxalis albicans*

**PHYTOLACCACEAE**

*Rivina humilis* (DM)

**PLANTAGINACEAE**

*Castilleja lanata*

*Keckiella antirrhinoides*

*Stemodia durantifolia*

**PLUMBAGINACEAE**

*Plumbago zeylanica*

**POLEMONIACEAE**

*Ipomopsis multiflora*

*Phlox tenuifolia* (DM)

**PORTULACACEAE**

*Portulaca suffrutescens*

*Portulaca umbraticola*

**PRIMULACEAE**

*Androsace occidentalis* (DM)

**RANUNCULACEAE**

*Anemone tuberosa*

*Myosurus cupulatus*

**RHAMNACEAE**

Frangula betulifolia  
Rhamnus crocea

**ROSACEAE**

Vauquelinia californica (DM, PB)

**RUBIACEAE**

Galium microphyllum

**RUTACEAE**

Ptelea trifoliata

**SOLANACEAE**

Capsicum annuum  
Solanum douglasii (BT, DM)  
Solanum xanti

**TALINACEAE**

Talinum paniculatum

**MONOCOTYLEDONS**

**AMARYLLIDACEAE**

Habranthus longifolius

**ASPARAGACEAE**

Agave ×ajoensis  
Agave schottii (DM)  
Nolina microcarpa  
Yucca baccata

**COMMELINACEAE**

Commelina erecta

**LILIACEAE**

Calochortus kennedyi

**POACEAE**

Bouteloua barbata var. rothrockii (BT)  
Bouteloua curtipendula (PB)  
Disakisperma dubium  
Elymus elymoides  
Eragrostis intermedia  
Festuca microstachys  
Hilaria belangeri  
Melica frutescens  
Muhlenbergia alopecuroides  
Muhlenbergia appressa  
Muhlenbergia dumosa  
Muhlenbergia emersleyi

Muhlenbergia fragilis  
Muhlenbergia rigens  
Muhlenbergia tenuifolia  
Pappophorum vaginatum  
Setaria grisebachii  
Setaria liebmannii  
Tridens eragrostoides

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