
GEORGE ENGELMANN TYPE SPECIMENS IN THE HERBARIUM OF THE MISSOURI BOTANICAL GARDEN¹

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ABSTRACT

Eight hundred ninety-two type specimens (in 62 families) representing 589 taxa described by George Engelmann have been located in the herbarium of the Missouri Botanical Garden. For each specimen the following are given: literature citation, kind of type, locality and date of collection, collector, and name it is currently filed under in the herbarium.

Asa Gray once remarked that George Engelmann had the potential to become the "gatekeeper for all scientists going into the wilderness" (Dupree, 1959). Engelmann, a well-trained botanist and physician, on the edge of the American frontier in mid-19th century St. Louis, the gateway to the West, was indeed the right man in the right place at the right time. Some of the first botanical expeditions to the American West were organized, outfitted, and coordinated by Engelmann, who then received and processed the incoming plant specimens and sent them on to Gray (Timberlake, 1984). Among these early expeditions were Geyer's to Illinois, Missouri, and Iowa; Lindheimer's to Texas; Wislizenus's to the New Mexico Territory and northern Mexico, and Fendler's to the southern Rocky Mountains. By the 1850s most expeditions to the West were government supported; however, the plant specimens from them continued to be funneled through Engelmann in St. Louis (Timberlake, 1984). As a result, his herbarium, which consisted of about 97,000 specimens at his death, contained collections from more than 30 collecting expeditions. Although largely from the American West and Mexico, collections also came from South America and Asia.

Engelmann, a prolific and industrious scientist, was much more than a gatekeeper. In addition to maintaining a full-time medical practice, he published more than 100 botanical papers (Sargent,

1884; Timberlake, 1984), described more than 600 new taxa of plants (Trelease & Gray, 1887), founded the Academy of Science of St. Louis, and was largely responsible for the foundation of what later became the herbarium of the Missouri Botanical Garden. It was Engelmann who convinced Henry Shaw, a wealthy St. Louis businessman planning a botanical garden, that to be scientifically credible his garden must have a library and herbarium (Timberlake, 1984). In fact it was Engelmann who purchased the Bernhardt Herbarium for Shaw, which comprised the first specimens of this herbarium. After Engelmann's death in 1884, his entire herbarium was added to Shaw's herbarium which, upon Shaw's death, became known as the herbarium of the Missouri Botanical Garden.

On the 100th anniversary of the death of George Engelmann, it seemed appropriate to re-examine his herbarium, particularly with respect to possible type specimens it might contain. Complete lists of Engelmann's publications, including his contributions to the works of others, are provided in Sargent (1884) and Timberlake (1984), and references to and reprints of most of his newly described taxa are included in Trelease & Gray (1887). The only major omissions in the latter are Engelmann's contributions to Coulter's (1894, 1896) revision of North American cacti. In the present study, a search for type specimens of Engelmann's more than 600 described taxa was conducted. An un-

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derstanding of some of Engelmann's habits was most helpful in locating types. He sometimes wrote "n. sp." on newly named specimens or wrote the descriptions on the sheet itself. Although he sometimes did not mention a specific collection or collector, it is often apparent which ones he had seen and used for his descriptions. For example, if his protologue stated "Battlefields of Buena Vista, near Saltillo, Flowers May," there is often a specimen with this exact wording on the label, collected in May by one of the collectors of that particular expedition. Additionally, if in describing a new taxon he had stated that it resembled or was related to taxon "X," the type would often have been initially labeled taxon "X," but this epithet would later have been crossed out and the new epithet penciled in by Engelmann.

The purpose of the present paper is to provide a list of types or possible type material contained in Engelmann's herbarium. Since many of the collections examined by Engelmann were widely distributed, and since only specialists should designate lectotypes, I have adopted a conservative type terminology. The only exception is that I have adopted Rollins's (1972) view that "the existence of a holotype in the institution where the author worked is assumed until proven otherwise." If Engelmann cited only one specimen and that specimen has been located in his herbarium, it is considered a holotype and supersedes previously designated lectotypes. Annotations by specialists on the sheets themselves, as well as known lectotypifications in the monographs listed below, have been accepted unless a holotype has been located. I have adopted the term "type material" in cases in which it is not clear what kind of type the specimen is but in which it is apparent that Engelmann did see it and may have used it in making his descriptions. This term is especially useful in dealing with Lindheimer's collections from Texas because they were apparently widely distributed and the exsiccatae numbers often consisted of mixed material collected in different locales, in different years, and sometimes even after the date of publication of Engelmann & Gray (1845). It is therefore suggested that specialists examine these specimens, some of which bear Lindheimer's original collection label and number, in order to determine if they are heterogeneous material and/or what kind of types they are.

In the present paper a total of 892 types, representing 589 taxa in 62 families, described by or attributed to George Engelmann are presented. In the following list the name of the taxon, its authorship, and place of publication are given, fol-

lowed by the kind of type, location and date of collection, and the collector(s) and collection number if known. Also given is the current name under which it is filed in the herbarium. Taxa for which works containing numerous lectotypifications have been consulted, and for which synonymies have been followed, include: *Agave* (Gentry, 1982), *Arceuthobium* (Hawksworth & Weins, 1972), *Asclepias* (Woodson, 1954), Cactaceae (Benson, 1982), *Cuscuta* (Yuncker, 1932), *Euphorbia* (Wheeler, 1941), *Isoetes* (Pfeiffer, 1922), *Phoradendron* (Trelease, 1916), *Quercus* (Trelease, 1924), *Sagittaria* (Bogin, 1955), *Vitis* (Bailey, 1934), and *Yucca* (McKelvey, 1938, 1947). The taxa are arranged by family according to Kartesz & Kartesz (1980).

ACANTHACEAE

- Dianthera humilis* Engelm. & Gray, Boston J. Nat. Hist. 5: 55. 1845. SYNTYPE: west of Houston, Texas, 1845, *F. Lindheimer* 159. = *Justicia ovata* (Walt.) Lindau.
- Dipteracanthus nudiflorus* Engelm. & Gray, Boston J. Nat. Hist. 5: 229. 1845. HOLOTYPE: Sim's Bayou, near Houston, Texas, 1842, *F. Lindheimer* s.n.

AGAVACEAE

- Agave angustissima* Engelm., Trans. Acad. Sci. St. Louis 3: 306. 1876. HOLOTYPE: Ocotillo, Mexico, 1849, *J. Gregg* 959.
- Agave couessii* Engelm. in Trelease, Annual Rep. Missouri Bot. Gard. 22: 94. 1911. HOLOTYPE: Ft. Whipple, Arizona, 1865, *E. Coues* & *E. Palmer* 253, "couessi" added by Engelm. = *A. Parryi* Engelm. var. *couessii* (Engelm. ex Trel.) Kearny & Peables.
- Agave desertii* Engelm., Trans. Acad. Sci. St. Louis 3: 310. 1875. HOLOTYPE?: San Felipe, California, 1875, *E. Palmer* & *G. Hitchcock* s.n., annotated "n. sp." by Engelm.
- Agave falcata* Engelm., Trans. Acad. Sci. St. Louis 3: 304. 1875. LECTOTYPE: Saltillo, Mexico, 1847, *A. Wislizenus* 312 (2 sheets). = *A. striata* Zucc. subsp. *falcata* (Engelm.) Gentry.
- Agave maculata* Engelm. in Torr., Bot. Mex. Bound. Surv. 214. 1859. HOLOTYPE: Rio Grande, 1847, *A. Wislizenus* 373 (3 sheets). = *Manfreda maculosa* (Hook.) Rose.
- Agave maculosa* Hook. var. *brevituba* Engelm., Trans. Acad. Sci. St. Louis 3: 301. 1875. LECTOTYPE: below El Paso, Texas, 1851-1852,

- C. Wright* 1905. = *Manfreda maculosa* (Hook.) Rose.
- Agave newberryi* Engelm., Trans. Acad. Sci. St. Louis 3: 309. 1879. HOLOTYPE: northwestern Arizona, 1858, *J. S. Newberry s.n.* = *A. utahensis* Engelm.
- Agave palmeri* Engelm., Trans. Acad. Sci. St. Louis 3: 319. 1875. SYNTYPE: southern Arizona, 1869, *E. Palmer s.n.* (3 sheets).
- Agave parryi* Engelm., Trans. Acad. Sci. St. Louis 3: 312. 1875. SYNTYPES: Arizona Territory, 1871, *F. Bischoff s.n.*; 1846, *Emory s.n.*; 1874, *J. T. Rothrock* 274 (3 sheets).
- Agave schottii* Engelm., Trans. Acad. Sci. St. Louis 3: 306. 1875. HOLOTYPE: Sierra del Pajarito, Arizona, 1855, *A. Schott s.n.*
- Agave shawii* Engelm., Trans. Acad. Sci. St. Louis 3: 314. 1875. SYNTYPE: San Diego, California, *s.d.*, *G. N. Hitchcock s.n.* (2 sheets).
- Agave utahensis* Engelm. in Watson, Bot. King's Expl. 497. 1871. LECTOTYPE: St. George, Utah, 1870, *E. Palmer s.n.* (2 sheets). Syntype: *J. E. Johnson s.n.*
- Agave virginica* L. var. *tigrina* Engelm., Trans. Acad. Sci. St. Louis 3: 302. 1875. HOLOTYPE: South Carolina, 1873, *Mellichamp s.n.* = *Manfreda virginica* (L.) Rose.
- Agave wislizenii* Engelm., Trans. Acad. Sci. St. Louis 3: 320. 1875. HOLOTYPE: San Sebastino, Mexico, 1847, *A. Wislizenus* 280 (2 sheets). = *A. parrasana* Berger.
- Asyliron leiophyllum* Engelm. ex Trelease, Proc. Am. Phil. Soc. 50: 433. 1911. HOLOTYPE: Presidio del Norte, Texas, 1880, *D. Harvard s.n.*
- Yucca angustifolia* Pursh var. *radiosa* Engelm. in Watson, Bot. King's Expl. 496. 1871. LECTOTYPE: Arizona, 1867, *E. Palmer* 201. = *Y. elata* Engelm.
- Yucca angustissima* Engelm. ex Trelease, Annual Rep. Missouri Bot. Gard. 13: 58. 1902. LECTOTYPE: deserts of the Colorado River, 1853 & 1854, *J. M. Bigelow s.n.* (2 sheets).
- Yucca brevifolia* Engelm. in Watson, Bot. King's Expl. 496. 1871. LECTOTYPE: Date Creek, *s.d.*, *E. Palmer?*, MO Nos. 135643 & 135646.
- Yucca elata* Engelm., Bot. Gaz. 7: 17. 1882. LECTOTYPE: Camp Grant, Arizona, *s.d.*, *J. T. Rothrock* 382.
- Yucca macrocarpa* Engelm., Bot. Gaz. 6: 244. 1881. LECTOTYPE: Santa Rita Mts., Arizona, 1880, *G. Engelmann s.n.* = *Y. schottii* Engelm.
- Yucca schottii* Engelm., Trans. Acad. Sci. St. Louis 3: 46. 1873. LECTOTYPE: Santa Cruz River, Arizona, 1855, *A. Schott s.n.*
- Yucca yucatana* Engelm., Trans. Acad. Sci. St. Louis 3: 37. 1873. HOLOTYPE: Nohpat, Yucatán, Mexico, 1865, *A. Schott s.n.* = *Y. aloifolia* L.

ALISMATACEAE

Sagittaria calycina Engelm. in Torr., Bot. Mex. Bound. Surv. 212. 1859. LECTOTYPE: Alexandria, Louisiana, *s.d.*, *J. Hale s.n.* Syntypes: banks of Missouri, 1856, *G. Engelmann s.n.*; Kimms Salt Pond, Missouri, 1856, *G. Engelmann s.n.* = *S. montevidensis* Cham. & Schlecht. subsp. *calycina* (Engelm.) Bogin.

Sagittaria calycina Engelm. var. *fluitans* Engelm. in Torr., Bot. Mex. Bound. Surv. 212. 1859. HOLOTYPE: western Texas, 1851–1852, *C. Wright* 1899. = *S. montevidensis* Cham. & Schlecht. subsp. *calycina* (Engelm.) Bogin.

Sagittaria calycina Engelm. var. *spongiosa* Engelm. in Gray, Man. Bot. 5: 493. 1868. HOLOTYPE: Wilmington, Delaware, 1860, *Tatnall s.n.* = *S. montevidensis* Cham. & Schlecht. subsp. *spongiosa* (Engelm.) Bogin.

Sagittaria cristata Engelm. in Arthur, Contr. Flor. Iowa 5: 3. 1882. LECTOTYPE & 2 ISOLECTOTYPES: Armstrong, Iowa, 1881, *Cratty s.n.* = *S. graminea* Michx. subsp. *cristata* (Engelm.) Bogin.

Sagittaria graminea Michx. var. *platyphylla* Engelm. in Gray, Man. Bot. 5: 494. 1868. LECTOTYPE & ISOLECTOTYPE: Texas, *s.d.*, *F. Lindheimer* 713. Syntype?: Mississippi, 1860, “ex herb *A. Wood.*”

Sagittaria heterophylla Pursh var. *angustifolia* Engelm. in Gray, Man. Bot. 5: 494. 1868. TYPE MATERIAL?: Lakes, American Bottom (in Illinois, near St. Louis), 1846, *N. Riehl s.n.* = *S. rigida* Pursh.

Sagittaria recurva Engelm. ex Patterson, Checklist 130. 1887. LECTOTYPE & ISOLECTOTYPE: Texas, *s.d.*, *F. Lindheimer* 713. = *S. graminea* Engelm. var. *platyphylla* Engelm.

Sagittaria trachysepala Engelm. ex Michelin in DC., Monogr. Phan. 3: 74. 1881. ISOTYPE: Texas, *s.d.*, *Drummond* 423.

Sagittaria variabilis Engelm. in Gray, Man. Bot. 1: 461. 1848. LECTOTYPE: St. Louis, Missouri, 1846, *G. Engelmann s.n.* = *S. latifolia* Willd.

ANACARDIACEAE

Rhus microphylla Engelm. ex Gray, Pl. Wrightiana 1: 31. 1852. SYNTYPE: Texas, 1850, *F. Lindheimer* 734.

APIACEAE

- Apium butleri* Engelm. in Watson, Proc. Amer. Acad. Arts 21: 453. 1887. ISOLECTOTYPE: eastern Texas, *s.d.*, *E. Hall 244*. = *Ammoselinum butleri* (Engelm.) Coult. & Rose.
- Cynosciadium pinnatum* var. *pumilum* Engelm. & Gray, Boston J. Nat. Hist. 5: 218. 1845. TYPE MATERIAL: no locale but collected by *F. Lindheimer s.n.*, 1843; prairie west of the Brazos, Texas, *F. Lindheimer s.n.* Annotated "n. sp." by Engelmann.
- Daucosma laciniata* Engelm. & Gray in Gray, Boston J. Nat. Hist. 6: 211. 1850. TYPE MATERIAL: upper Guadalupe, Texas, 1846, *F. Lindheimer s.n.*
- Eryngium heterophyllum* Engelm. in Wisliz., Mem. Tour. No. Mex. 107. 1848. HOLOTYPE: Cosihuiriachi, Mexico, 1846, *A. Wislizenus 176*.

ARISTOLOCHIACEAE

- Aristolochia longiflora* Engelm. & Gray, Boston J. Nat. Hist. 5: 259. 1845. HOLOTYPE: Texas, 1844, *F. Lindheimer s.n.*

ASCLEPIADACEAE

- Asclepias brachystephana* Engelm. in Torr., Bot. Mex. Bound. Surv. 163. 1859. LECTOTYPE: New Mexico, 1851-1852, *C. Wright 1692*.
- Asclepias euphorbiifolia* Engelm. ex Gray, Proc. Amer. Acad. Arts 16: 104. 1881. LECTOTYPE: San Luis Potosí, Mexico, *s.d.*, *Schaffner 55*.
- Asclepias involucrata* Engelm. in Torr., Bot. Mex. Bound. Surv. 163. 1859. LECTOTYPE: Copper Mines, New Mexico, 1851-1852, *C. Wright 1690*.
- Asclepias leucophylla* Engelm. in Parry, Amer. Naturalist 9: 348. 1875. HOLOTYPE: southern Utah, 1874, *C. C. Parry 207*. = *A. erosa* Torr.
- Asclepias lindheimeri* Engelm. & Gray, Boston J. Nat. Hist. 5: 250. 1845. SYNTYPE: Industry, Texas, 1844, *F. Lindheimer 272*. = *A. oenotheroides* Cham. & Schlecht.
- Asclepias sullivantii* Engelm. ex Gray, Man. Bot. 1: 366. 1848. SYNTYPE: St. Louis, Missouri, 1834, *G. Engelmann 451*.
- Astephanus utahensis* Engelm. in Parry, Amer. Naturalist 9: 347. 1875. PROBABLE HOLOTYPE: southern Utah, 1874, *C. C. Parry 209*. Engelmann wrote "spec. nov." on it.
- Gonolobus curtisii* Engelm. in Parry, apparently not published, but annotated "n. sp." by Engelm. TYPE MATERIAL: North Carolina, 1844, *Curtis s.n.* = *Matelea gonocarpa* (Walt.) Shinners.

- Gonolobus cynanchoides* Engelm. & Gray, Boston J. Nat. Hist. 5: 251. 1845. TYPE MATERIAL: Industry, Texas, 1844, *F. Lindheimer 273*. = *Matelea cynanchoides* (Engelm.) Woods.
- Gonolobus reticulatus* Engelm. ex Gray, Proc. Amer. Acad. Arts 12: 75. 1877. TYPE MATERIAL: Guadalupe, Texas, 1846, *F. Lindheimer 461*. = *Matelea reticulatus* (Engelm.) Woods.
- Mellichampia filifolia* Engelm., apparently not published, but annotated "n. sp." by Engelm. TYPE MATERIAL: St. George, Utah, July 1874, *Parry s.n.*
- Sarcostemma heterophyllum* Engelm. in Torr., Bot. Mex. Bound. Surv. 362. 1859. HOLOTYPE: New Mexico, 1851-1852, *C. Wright 1681*.

ASTERACEAE

- Agassiza suavis* Gray & Engelm., Proc. Amer. Acad. Arts 1: 46. 1847. SYNTYPE: San Antonio, Texas, 1845, *F. Lindheimer 351* distributed as No. 437 for 1846 (2 sheets). = *Gaillardia suavis* (Gray & Engelm.) Britton & Rusby.
- Aster anomalus* Engelm. in Torrey & Gray, Fl. N. Amer. 2: 503. 1843. TYPE MATERIAL: Rockspring near Prairie du Pont, Sept. 1842, *G. Engelmann s.n.* The only prepublication dated specimen.
- Aster azureus* Lindl. ex Hook. var. *vernalis* Engelm. ex Small, Fl. S.E. U.S. 1215. 1903. HOLOTYPE: prairies west of Houston, Texas, 1842, *F. Lindheimer s.n.* (2 sheets).
- Keerlia bellidifolia* Gray & Engelm., Proc. Amer. Acad. Arts 1: 47. 1846. SYNTYPE: Guadalupe, Texas, 1845, *F. Lindheimer 415*.
- Liatris acidota* Engelm. & Gray, Boston J. Nat. Hist. 5: 218. 1845. ISOTYPES: Texas, 1843, *F. Lindheimer 72, 73*.
- Lindheimera texana* Gray & Engelm., Proc. Amer. Acad. Arts 1: 47. 1847. SYNTYPES: New Braunfels, Texas, 1846, *F. Lindheimer 424* (2 sheets); New Braunfels, Texas, 1847, *F. Lindheimer 638*.
- Porophyllum amplexicaule* Engelm. ex Gray, Pl. Wrightiana 1: 120. 1852. HOLOTYPE?: near Messillas, Mexico, *s.d.*, *J. Gregg s.n.*, annotated "n. sp." by Engelm.
- Rudbeckia missouriensis* Engelm. ex Boynton & Beadle, Biltmore Bot. Stud. 1: 17. 1901. TYPE MATERIAL: Meramec Station, Missouri, July 1879, *H. Eggert s.n.*; Allentown, Missouri, Sept. 1879, *G. Letterman s.n.*; Allentown, Missouri, July 1879, *G. Letterman s.n.*
- Sanvitalia angustifolia* Engelm. ex Gray, Pl.

Wrightiana 1: 112. 1852. HOLOTYPE?: Buena Vista, Mexico, *s.d.*, *J. Gregg* 274, annotated "n. sp." by Engelm.

Vernonia lettermanii Engelm. ex Gray, Proc. Amer. Acad. Arts 16: 78. 1881. LECTOTYPE: Washita, Arkansas, 1879, *G. W. Letterman s.n.* Syntypes: Arkansas, 1879 & 1880, *G. W. Letterman s.n.* (2 sheets).

Vernonia lindheimeri Gray & Engelm., Proc. Amer. Acad. Arts 1: 46. 1848. HOLOTYPE: New Braunfels, Texas, 1846, *F. Lindheimer* 408.

Zinnia intermedia Engelm. in Wisliz., Mem. Tour. No. Mex. 107. 1848. HOLOTYPE: Cosihuiriachi, Mexico, 1846, *A. Wislizenus* 182. = *Z. peruviana* (L.) L.

BORAGINACEAE

Lithospermum breviflorum Engelm., Trans. Amer. Philos. Soc. 12: 203. 1861. HOLOTYPE?: 200 miles above Fort Pierre, 1853–1854, *F. V. Hayden s.n.*, only Hayden specimen and "breviflorum" added by Engelm.

Myosotis inflexa Engelm., Amer. J. Sci. 46: 98. 1844. HOLOTYPE?: no locale, 1842, *C. A. Geyer s.n.*, annotated "n. sp." by Engelm.

Myosotis macrosperma Engelm., Amer. J. Sci. 46: 98. 1844. HOLOTYPE: Prairies, Texas, 1839, *F. Lindheimer s.n.*, annotated "n. sp." by Engelm.

BRASSICACEAE

Dithyrea wislizenii Engelm. in Wisliz., Mem. Tour. No. Mex. 97. 1848. TYPE MATERIAL: Mexico, 1846, *A. Wislizenus* 63 (2 sheets).

Nasturtium calycinum Engelm., Trans. Amer. Philos. Soc. 12: 184. 1859. LECTOTYPE: Yellowstone River, 1853–1854, *F. V. Hayden* 93. Syntype: Ft. Union, mouth of Yellowstone, 1855?, *F. V. Hayden s.n.* = *Rorippa calycinum* (Engelm.) Rydb.

Sisymbrium incisum Engelm. ex Gray, Mem. Amer. Acad. Arts. II. 4: 8. 1849. SYNTYPES: Santa Fe Creek, New Mexico, 1847, *A. Fendler* 30 & 31; Moro, New Mexico, 1847, *A. Fendler* 29. = *Descuriana richardsonii* (Sweet) O. E. Schulz. subsp. *incisa* (Engelm.) Delting.

Vesicaria auriculata Engelm. & Gray, Boston J. Nat. Hist. 5: 240. 1845. ISOTYPE: Brazos, Texas, 1844, *F. Lindheimer* 271 (2 sheets). = *Lesquerella auriculata* (Engelm. & Gray) S. Wats.

Vesicaria recurvata Engelm. ex Gray, Boston J. Nat. Hist. 6: 240. 1850. ISOLECTOTYPE: New Braunfels, Texas, 1846, *F. Lindheimer* 8. Syntype: New Braunfels, Texas, 1846, *F. Lindheimer* 330. = *Lesquerella recurvata* (Engelm. ex Gray) S. Wats.

CACTACEAE

Cactus gabbii Engelm. in Coult., Contr. U.S. Natl. Herb. 3: 109. 1894. HOLOTYPE: Peninsula of California, Mexico, 1867, *W. Gabb* 19. = *Mammillaria brandegeei* (Coult.) K. Brandege.

Cereus berlandieri Engelm., Proc. Amer. Acad. Arts 3: 286. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 38. 1859. LECTOTYPE: southern Texas, 1834, *Berlandier* 2433. = *Echinocereus berlandieri* (Engelm.) Engelm. ex Rumpler.

Cereus caespitosus Engelm. in Engelm. & Gray, Boston J. Nat. Hist. 5: 247. 1845. LECTOTYPE: cult. from Industry, Texas, 1845, *F. Lindheimer s.n.* = *Echinocereus reichenbachii* (Tenscheck) Haage, f., ex Britt. & Rose.

Cereus caespitosus Engelm. var. *castaneus* Engelm. in Gray, Boston J. Nat. Hist. 6: 202. 1850. LECTOTYPE: Liano, Texas, 1847, *F. Lindheimer s.n.* = *Echinocereus reichenbachii* (Tenscheck) Haage, f., ex Britt. & Rose.

Cereus caespitosus Engelm. var. *major* Engelm., Proc. Amer. Acad. Arts 3: 280. 1856. LECTOTYPE: Texas, 1851, *F. Lindheimer s.n.* = *Echinocereus reichenbachii* (Tenscheck) Haage, f., ex Britt. & Rose.

Cereus calvus Engelm. in Coult., Contr. U.S. Natl. Herb. 3: 409. 1896. HOLOTYPE: Peninsula of California, Mexico, 1867, *W. Gabb* 2.

Cereus chloranthus Engelm., Proc. Amer. Acad. Arts 3: 278. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 29. 1859. LECTOTYPE: El Paso and Stony Hills at Frontera, Texas, 1852, *C. Wright* 95 (3 sheets, 1 box). = *Echinocereus chloranthus* Engelm.

Cereus coccineus Engelm. in Gray, Mem. Amer. Acad. Arts. II. 4: 51. 1849. LECTOTYPE: Wolf Creek, Mexico, 1846, *A. Wislizenus s.n.* (2 sheets). Syntype: Santa Fe, New Mexico, *s.d.*, *A. Fendler* 272. = *Echinocereus triglochidiatus* Engelm. var. *melanacanthus* (Engelm.) L. Benson.

Cereus coccineus Engelm. var. *cylindricus* Engelm. in Gray, Mem. Amer. Acad. Arts. II.

- 4: 51. 1849. LECTOTYPE: Santa Fe, New Mexico, 1846, *A. Fendler s.n.* = *Echinocereus triglochidiatus* Engelm. var. *melanacanthus* (Engelm.) L. Benson.
- Cereus coccineus* Engelm. var. *melanacanthus* Engelm. in Gray, Mem. Amer. Acad. Arts. II. 4: 51. 1849. LECTOTYPE: Santa Fe, New Mexico, 1846, *A. Fendler 4.* = *Echinocereus triglochidiatus* Engelm. var. *melanacanthus* (Engelm.) L. Benson.
- Cereus conoides* Engelm. & Bigelow, Proc. Amer. Acad. Arts 3: 284. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 35. 1857. LECTOTYPE: Anton Chico, New Mexico, 1853, *J. M. Bigelow s.n.* Syntype: 1853, *J. M. Bigelow s.n.* = *Echinocereus triglochidiatus* Engelm. var. *melanacanthus* (Engelm.) L. Benson.
- Cereus ctenoides* Engelm., Proc. Amer. Acad. Arts 3: 279. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 31. 1859. LECTOTYPE: Santa Rosa, Mexico, 1853, *J. M. Bigelow s.n.* (2 sheets). Syntypes: Pecos, 1851, *C. Wright s.n.*; Rio Grande, 1853, *J. M. Bigelow s.n.* = *Echinocereus pectinatus* (Scheidw.) Engelm.
- Cereus dasycanthus* Engelm. in Gray, Mem. Amer. Acad. Arts. II. 4: 50. 1849. NEOTYPE: between San Antonio and El Paso, Texas, 1849, *C. Wright s.n.* = *Echinocereus pectinatus* (Scheidw.) Engelm. var. *neomexicanus* (Standl.) L. Benson.
- Cereus dasycanthus* Engelm. var. *minor* Engelm., Proc. Amer. Acad. Arts 3: 279. 1856. LECTOTYPE: Frontera, Texas, 1851, *C. Wright s.n.* (2 sheets). Syntype: Chihuahua, Mexico, 1852, *J. M. Bigelow s.n.* = *Echinocereus pectinatus* (Scheidw.) Engelm. var. *minor* (Engelm.) L. Benson.
- Cereus dubius* Engelm., Proc. Amer. Acad. Arts 3: 282. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 36. 1859. LECTOTYPE: Rio Grande, Texas, 1852, *C. Wright 410.* = *Echinocereus enneacanthus* Engelm. var. *dubia* (Engelm.) L. Benson.
- Cereus emoryi* Engelm., Amer. J. Sci. 14: 338. 1852. LECTOTYPE: San Diego, California, 1850, *C. C. Parry s.n.*
- Cereus engelmannii* Parry var. *chrysoctrus* Engelm. & Bigelow, in Engelm., Proc. Amer. Acad. Arts 3: 283. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 35. 1857. LECTOTYPE: Bill Williams River, California, 1854, *J. M. Bigelow s.n.* = *Echinocereus engelmannii* Parry var. *chrysoctrus* (Engelm. & Bigelow) Engelm. ex Rumpler.
- Cereus engelmannii* Parry var. *variegatus* Engelm. & Bigelow, in Engelm., Proc. Amer. Acad. Arts 3: 283. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 35. 1857. LECTOTYPE: Bill Williams Fork, California, 1854, *J. M. Bigelow s.n.* = *Echinocereus engelmannii* Parry var. *variegatus* (Engelm. & Bigelow) Engelm. ex Rumpler.
- Cereus fendleri* Engelm. in Gray, Mem. Amer. Acad. Arts. II. 4: 51. 1849. HOLOTYPE: Santa Fe, New Mexico, 1846, *A. Fendler 3.* = *Echinocereus fendleri* (Engelm.) Engelm. ex Rumpler.
- Cereus fendleri* Engelm. var. *pauperculus* Engelm. in Gray, Mem. Amer. Acad. Arts. II. 4: 51. 1849. HOLOTYPE: Santa Fe, New Mexico, 1846, *A. Fendler s.n.* = *Echinocereus fendleri* (Engelm.) Engelm. ex Rumpler.
- Cereus flaviflorus* Engelm. ex Coult., Contr. U.S. Natl. Herb. 3: 391. 1896. HOLOTYPE: Santa Borga, Mexico, 1867, *W. Gabb 10.* = *Echinocereus maritimus* (Jones) Schumann.
- Cereus flexuosus* Engelm. ex Coult., Contr. U.S. Natl. Herb. 3: 411. 1896. HOLOTYPE: Peninsula of California, Mexico, 1867, *W. Gabb 5.* = *Machaerocereus gummosus* (Engelm.) Britt. & Rose.
- Cereus gonacanthus* Engelm. & Bigelow, in Engelm., Proc. Amer. Acad. Arts 3: 285. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 33. 1857. LECTOTYPE: Cedar Woods, west of Zuni, New Mexico, 1853, *J. M. Bigelow s.n.* = *Echinocereus triglochidiatus* Engelm. var. *gonacanthus* (Engelm. & Bigelow) L. Benson.
- Cereus greggii* Engelm. var. *cismontanus* Engelm. in Wislizenus, Mem. Tour. No. Mex. 102. 1848. LECTOTYPE: Cadena, Mexico, 1847, *J. Gregg s.n.* Syntype: Paso del Norte, Mexico, 1846, *A. Wislizenus 222.*
- Cereus hexaedrus* Engelm., Proc. Amer. Acad. Arts 3: 285. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 34. 1857. LECTOTYPE: near Zuni, New Mexico, 1853, *J. M. Bigelow s.n.* = *Echinocereus triglochidiatus* Engelm. var. *mojavensis* (Engelm. & Bigelow) L. Benson.
- Cereus longisetus* Engelm., Proc. Amer. Acad. Arts 3: 280. 1856. HOLOTYPE: Santa Rosa,

- Mexico, 1853, *J. M. Bigelow s.n.* = *Echinocereus longisetus* (Engelm.) Engelm.
- Cereus mamillatus* Engelm. ex Coult., Contr. U. S. Natl. Herb. 3: 405. 1896. HOLOTYPE: Peninsula of California, Mexico, 1867, *W. Gabb 16.* = *Echinocereus mamillatus* (Engelm. ex Coult.) Britt. & Rose.
- Cereus mojavensis* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 281. 1857 (preprint, 1956); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 33. 1857. HOLOTYPE: Mojave Creek, California?, 1854, *J. M. Bigelow s.n.* = *Echinocereus triglochidiatus* Engelm. var. *mojavensis* (Engelm. & Bigelow) L. Benson.
- Cereus mojavensis* Engelm. var. *zuniensis* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 281. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 33. 1857. LECTOTYPE: Colorado Chiquito, Arizona, 1853, *J. M. Bigelow s.n.* = *Echinocereus triglochidiatus* Engelm. var. *melanacanthus* (Engelm. & Bigelow) L. Benson.
- Cereus paucispinus* Engelm., Proc. Amer. Acad. Arts 3: 285. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 37. 1859. LECTOTYPE: cultivated from *C. Wright & J. M. Bigelow s.n.* = *Echinocereus triglochidiatus* Engelm. var. *paucispinus* (Engelm.) Engelm. ex W. T. Marshall.
- Cereus pectinatus* Scheidw. var. *rigidissimus* Engelm., Proc. Amer. Acad. Arts 3: 279. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 31. 1859. LECTOTYPE: Sonora, Mexico, 1855, *A. Schott s.n.* = *Echinocereus pectinatus* (Scheidw.) Engelm. var. *rigidissimus* (Engelm.) Engelm. ex Rumpler.
- Cereus procumbens* Engelm. in Gray, Mem. Amer. Acad. Arts. II. 4: 50. 1849. LECTOTYPE: near the mouth of the Rio Grande below Matamoras by the Missouri Volunteers, 1846, and cult. St. Louis May 1848. = *Echinocereus pentalophus* (DC.) Rumpler.
- Cereus roemerii* Engelm. in Gray, Mem. Amer. Acad. Arts. II. 4: 51. 1849. LECTOTYPE: Liano River, Texas, 1847, *F. Lindheimer s.n.* (2 sheets). = *Echinocereus triglochidiatus* Engelm. var. *melanacanthus* (Engelm. & Bigelow) L. Benson.
- Cereus schottii* Engelm., Proc. Amer. Acad. Arts 3: 288. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 44. 1859. HOLOTYPE: Sierra de Sonoyita, Mexico, *s.d.*, *A. Schott 3.*
- Cereus stramineus* Engelm., Proc. Amer. Acad. Arts 3: 282. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 35: 1859. LECTOTYPE: near El Paso, Texas, 1851, *C. Wright s.n.* Syntype: *J. M. Bigelow s.n.* = *Echinocereus enneacanthus* Engelm.
- Cereus thurberi* Engelm., Amer. J. Sci. II. 17: 234. 1854. LECTOTYPE: Sonora, Mexico, 1851, *G. Thurber s.n.*
- Cereus titan* Engelm. in Coult., Contr. U. S. Natl. Herb. 3: 409. 1896. HOLOTYPE: Cape San Lucas to San Quentin, Mexico, 1867, *W. Gabb 1.* = *Pachycereus pringlei* (S. Wats.) Britt. & Rose.
- Cereus viridiflorus* Engelm. var. *cylindricus* Engelm., Proc. Amer. Acad. Arts 3: 278. 1856. LECTOTYPE: New Mexico, 1851, *C. Wright s.n.*
- Echinocactus bicolor* Galeotti var. *schottii* Engelm., Proc. Amer. Acad. Arts 3: 277. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 27. 1859. HOLOTYPE: Cretaceous hills, near Mier, Mexico, 1853, *A. Schott s.n.* = *Thelocactus bicolor* Galeotti var. *schottii* (Engelm.) Krainz.
- Echinocactus dasycanthus* Engelm., Proc. Amer. Acad. Arts 3: 277. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 28. 1859. LECTOTYPE: El Paso, Texas, 1852, *C. Wright s.n.* (2 sheets). Syntype: Frontera, 1852, *C. Wright 86?* = *Neolloydia intertexta* (Engelm.) L. Benson var. *dasycanthus* (Engelm.) L. Benson.
- Echinocactus emoryi* Engelm. var. *rectispinus* Engelm. ex Coult., Contr. U.S. Natl. Herb. 3: 362. 1896. HOLOTYPE: Peninsula of California, Mexico, 1867, *W. Gabb 12.* = *Ferocactus wislizenii* Engelm.
- Echinocactus flexispinus* Engelm. in Wislizenus, Mem. Tour. No. Mex. 112. 1848. HOLOTYPE: Pelayo, between Chihuahua and Parras, Mexico, 1847, *A. Wislizenus s.n.* = *Ferocactus hamatacanthus* Muhlenpfordt var. *crassispinus* (Engelm.) L. Benson. On same sheet as *E. hamatacanthus* (Muhlenpfordt) Britt. & Rose var. *crassispinus* Engelm.
- Echinocactus hamatacanthus* Muhlenpfordt var. *crassispinus* Engelm., Proc. Amer. Acad. Arts 3: 273. 1856. HOLOTYPE: Pelayo, between Chihuahua and Parras, Mexico, 1847, *A. Wislizenus s.n.* On same sheet as *E. flexispinus* Engelm. = *Ferocactus hamatacanthus* (Muhlenpfordt) Britt. & Rose var. *crassispinus* Engelm.
- Echinocactus horizonthalonius* Lem. var. *centrispinus* Engelm., Proc. Amer. Acad. Arts 3:

276. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 26. 1859. LECTOTYPE: Frontera, New Mexico Territory, 1851-1852, *C. Wright* s.n. (2 sheets) = *Echinocactus horizonthalonius* Lem.
- Echinocactus intertextus* Engelm., Proc. Amer. Acad. Arts 3: 277. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 27. 1859. LECTOTYPE: El Paso, Texas, s.d., *C. Wright* or *J. M. Bigelow* (no coll.), s.n. (2 sheets). Syntype: Chihuahua, 1846, *A. Wislizenus* s.n. = *Neolloydia intertextus* (Engelm.) L. Benson.
- Echinocactus lecontei* Engelm., Proc. Amer. Acad. Arts 3: 274. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 29. 1857. LECTOTYPE: Bill Williams Fork, Arizona, 1854, *J. M. Bigelow* s.n. Syntype: Gila, *Leconte* s.n. = *Ferocactus acanthodes* (Lemaire) Britt. & Rose var. *lecontei* (Engelm.) Lindsay.
- Echinocactus limitus* Engelm. in Coult., Contr. U.S. Natl. Herb. 3: 374. 1896. LECTOTYPE: south of San Diego, 1878, *Parker & Hitchcock* s.n. (2 sheets). = *Ferocactus viridescens* (Nutt.) Britt. & Rose.
- Echinocactus longehamatus* Galeotti var. *brevispinus* Engelm., Proc. Amer. Acad. Arts 3: 273. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 22. 1859. LECTOTYPE: rocky mountains of the Limpia, Texas, 1852, *J. M. Bigelow* s.n. = *Ferocactus hamatacanthus* (Muhlenpfordt) Britt. & Rose.
- Echinocactus orcuttii* Engelm., West. Amer. Sci. 2: 46. 1886. HOLOTYPE: Palm Valley, northern Lower California, 1883, *C. R. Orcutt* 641 (2 sheets). = *Ferocactus orcuttii* (Engelm.) Britt. & Rose.
- Echinocactus peninsulae* Engelm. ex Coult., Contr. U.S. Natl. Herb. 3: 361. 1896. HOLOTYPE: Cape San Lucas to San Diego, 1867, *W. Gabb* 11.
- Echinocactus polyancistrus* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 272. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 29. 1857. HOLOTYPE: head of the Mojave, California?, 1854, *J. M. Bigelow* s.n. = *Sclerocactus polyancistrus* (Engelm. & Bigelow) Britt. & Rose.
- Echinocactus polycephalus* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 276. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 31. 1857. LECTOTYPE: on Mojave River and Mojave Valley, California?, 1854, *J. M. Bigelow* s.n. (3 sheets).
- Echinocactus polycephalus* Engelm. & Bigelow var. *xeranthemoides* Engelm. in Coult., Contr. U.S. Natl. Herb. 3: 358. 1859. LECTOTYPE: northern Arizona, 1881, *A. L. Siler* s.n.
- Echinocactus pubispinus* Engelm., Trans. Acad. Sci. St. Louis 2: 199. 1863. HOLOTYPE: Utah, 1851, *H. Engelmann* 1. = *Sclerocactus pubispinus* (Engelm.) L. Benson.
- Echinocactus setispinus* Engelm. in Engelm. & Gray, Boston J. Nat. Hist. 5: 246. 1845. LECTOTYPE: Colorado River, 1844, *F. Lindheimer* s.n. = *Ferocactus setispinus* (Engelm.) L. Benson.
- Echinocactus sileri* Engelm. ex Coult., Contr. U.S. Natl. Herb. 3: 376. 1896. HOLOTYPE: Cottonwood Springs and Pipe Springs, Arizona, 1883, *A. L. Siler* s.n. (2 sheets). = *Pediocactus sileri* (Engelm.) L. Benson.
- Echinocactus simpsonii* Engelm., Trans. Acad. Sci. St. Louis 2: 197. 1863. LECTOTYPE: Kobe Valley, Nevada, 1859, *H. Engelmann* s.n. Syntype: Utah Desert, s.d., *H. Engelmann* s.n. = *Pediocactus simpsonii* (Engelm.) Britt. & Rose.
- Echinocactus simpsonii* Engelm. var. *minor* Engelm., Trans. Acad. Sci. St. Louis. 2: 197. 1863. LECTOTYPE: Mt. Vernon, *Parry, Hall & Harbour* s.n. = *Pediocactus simpsonii* Engelm. var. *minor* (Engelm.) Cockerell.
- Echinocactus uncinatus* Hopf. ex Foerst. var. *wrightii* Engelm., Proc. Amer. Acad. Arts 3: 272. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 20. 1859. LECTOTYPE: Frontera, Texas, 1852, *C. Wright* 88. Syntype: Frontera, Texas, 1852, *J. M. Bigelow* s.n. = *Ancistrocactus uncinatus* (Galeotti) Benson var. *wrightii* (Engelm.) L. Benson.
- Echinocactus unquispinus* Engelm. in Wisliz., Mem. Tour. No. Mex. 12. 1848. LECTOTYPE: Pelayo, Mexico, s.d., *A. Wislizenus* s.n. = *Echinomastus unquispinus* (Engelm.) Britt. & Rose.
- Echinocactus viridescens* Nutt. var. *cylindraceus* Engelm., Amer. J. Sci. II. 14: 338. 1852. HOLOTYPE: San Felipe, California, 1850, *C. C. Parry* s.n. = *Ferocactus acanthodes* (Lemaire) Britt. & Rose.
- Echinocactus whipplei* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 271. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 28. 1857. HOLOTYPE: Colorado Chiquito, Arizona, 1853, *J. M. Bigelow* s.n. = *Sclero-*

- cactus whipplei* (Engelm. & Bigelow) Britt. & Rose.
- Echinocactus whipplei* Engelm. var. *spinosior* Engelm., Trans. Acad. Sci. St. Louis 2: 199. 1863. LECTOTYPE: Camp Floyd, Utah, 1859, *H. Engelmann s.n.* (2 sheets). = *Sclerocactus spinosior* (Engelm.) Woodruff & L. Benson.
- Echinocactus wislizenii* Engelm. in Wisliz., Mem. Tour. No. Mex. 96. 1848. LECTOTYPE: Doña Ana, Mexico, 1846, *A. Wislizenus s.n.* (3 sheets). = *Ferocactus wislizenii* Engelm.
- Echinocactus wislizenii* Engelm. var. *decipiens* Engelm. in Rothr., Bot. Wheeler's Surv. 128. 1878. HOLOTYPE: Camp Bowie, Arizona, 1874, *J. T. Rothrock 492.* = *Ferocactus wislizenii* Engelm.
- Echinocereus adustus* Engelm. in Wisliz., Mem. Tour. No. Mex. 104. 1848. HOLOTYPE: Cosihuiachi, Mexico, 1846, *A. Wislizenus s.n.* (2 sheets).
- Echinocereus chloranthus* Engelm. ex Rumphler in Forster, Handb. Cact. 2nd edition: 812. 1885. SYNTYPE: Texas, 1852, *J. M. Bigelow s.n.*
- Echinocereus coccineus* Engelm. in Wisliz., Mem. Tour. No. Mex. 100. 1848. HOLOTYPE: Wolf Creek, Santa Fe, New Mexico, 1846, *A. Wislizenus s.n.* (2 sheets). = *E. triglochidiatus* Engelm. var. *melanacanthus* (Engelm.) L. Benson.
- Echinocereus dasyacanthus* Engelm. in Wisliz., Mem. Tour. No. Mex. 100. 1848. NEOTYPE: San Antonio to El Paso, Texas, 1849, *C. Wright s.n.* = *E. pectinatus* Scheidw. var. *neomexicanus* (Coulter) L. Benson.
- Echinocereus enneacanthus* Engelm. in Wisliz., Mem. Tour. No. Mex. 112. 1848. HOLOTYPE: south of Chihuahua, Mexico, 1847, *A. Wislizenus 244.*
- Echinocereus polyacanthus* Engelm. in Wisliz., Mem. Tour. No. Mex. 104. 1848. LECTOTYPE: Cosihuiachi, Mexico, 1847, *A. Wislizenus s.n.* (2 sheets + 1 box). = *E. triglochidiatus* Engelm. var. *neomexicanus* (Standley) Benson.
- Echinocereus radians* Engelm. in Wisliz., Mem. Tour. No. Mex. 104. 1848. HOLOTYPE: Cosihuiachi, Mexico, 1846, *A. Wislizenus s.n.* = *E. adustus* Engelm.
- Echinocereus rufispinus* Engelm. in Wisliz., Mem. Tour. No. Mex. 106. 1848. HOLOTYPE: Cosihuiachi, Mexico, 1846, *A. Wislizenus s.n.*
- Echinocereus triglochidiatus* Engelm. in Wisliz., Mem. Tour. No. Mex. 93. 1848. LECTOTYPE: Wolf Creek, New Mexico, 1846, *A. Wislizenus s.n.* (2 sheets + 1 box).
- Echinocereus viridiflorus* Engelm. in Wisliz., Mem. Tour. No. Mex. 91. 1848. LECTOTYPE: Wolf Creek, New Mexico, 1846, *A. Wislizenus 514* (2 sheets).
- Mammillaria applanata* Engelm. in Wisliz., Mem. Tour. No. Mex. 105. 1848. LECTOTYPE: western Texas, 1845, *F. Lindheimer s.n.* = *M. gummifera* Engelm. var. *applanata* (Engelm.) L. Benson.
- Mammillaria arizonica* Engelm. in Brewer & Watson, Bot. Calif. 1: 244. 1876. LECTOTYPE: Arizona, *s.d.*, *Coues & E. Palmer s.n.* Syntype: Arizona, 1871, *Bischoff s.n.* = *Coryphantha vivipara* (Nutt.) Britt. & Rose var. *arizonica* (Engelm.) W. T. Marshall.
- Mammillaria barbata* Engelm. in Wisliz., Mem. Tour. No. Mex. 105. 1848. HOLOTYPE: Cosihuiachi, Mexico, *s.d.*, *A. Wislizenus s.n.* = *Neomammillaria barbata* (Engelm.) Britt. & Rose.
- Mammillaria chlorantha* Engelm. in Rothr., Bot. Wheeler's Surv. 128. 1878. LECTOTYPE: St. George, Utah, 1874, *C. C. Parry s.n.* = *Coryphantha vivipara* (Nutt.) Britt. & Rose var. *desertii* (Engelm.) W. T. Marshall.
- Mammillaria compacta* Engelm. in Wisliz., Mem. Tour. No. Mex. 105. 1848. Cosihuiachi, Mexico, 1846, *A. Wislizenus s.n.*
- Mammillaria dasyacantha* Engelm., Proc. Amer. Acad. Arts 3: 269. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 15. 1859. LECTOTYPE & PROBABLE ISOLECTOTYPE: El Paso, Texas, *C. Wright s.n.* = *Coryphantha dasyacantha* (Engelm.) Orcutt.
- Mammillaria desertii* Engelm. in Watson, Bot. Calif. 2: 449. 1880. LECTOTYPE: "Ivanpah," 1880, *S. B. & W. F. Parish 455* (3 sheets). = *Coryphantha vivipara* (Nutt.) Britt. & Rose var. *desertii* (Engelm.) W. T. Marshall.
- Mammillaria echinus* Engelm., Proc. Amer. Acad. Arts 3: 267. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 13. 1859. LECTOTYPE: western Texas, 1849, *C. Wright s.n.* (2 sheets). Syntypes: Presidio del Norte, 1852, *J. M. Bigelow s.n.* (2 sheets); western Texas, 1852, *C. Wright s.n.*; east of El Paso, Texas, *s.d.*, *C. Wright s.n.* = *Coryphantha cornifera* DC. var. *echinus* (Engelm.) L. Benson.
- Mammillaria fissurata* Engelm., Proc. Amer. Acad. Arts 3: 270. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 18. 1859. LECTOTYPE: Rio Bravo del Norte, Texas, 1852, *A. Schott s.n.* Syntype: Pecos,

- 1852, *J. M. Bigelow s.n.* = *Ariocarpus fissurata* (Engelm.) K. Schumann.
- Mammillaria grahamii* Engelm., Proc. Amer. Acad. Arts 3: 262. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 7. 1859. LECTOTYPE: El Paso, Texas, 1852, *C. Wright s.n.* (2 sheets). Syntypes: Colorado Basin, 1855, *A. Schott s.n.*; Gila, *C. C. Parry s.n.*
- Mammillaria gummifera* Engelm. in Wisliz., Mem. Tour. No. Mex. 106. 1848. LECTOTYPE: Cosihuiriachi, Mexico, 1848, *A. Wislizenus s.n.* = *M. heyderi* Muhlenpfordt var. *gummifera* (Engelm.) L. Benson.
- Mammillaria hemisphaerica* Engelm. in Wisliz., Mem. Tour. No. Mex. 106. 1848. LECTOTYPE: cult. in St. Louis, Missouri from Matamoras, 1846, *St. Louis Volunteers.* = *M. heyderi* Muhlenpfordt var. *hemisphaerica* Engelm.
- Mammillaria lasiacantha* Engelm. var. *denuta* Engelm., Proc. Amer. Acad. Arts 3: 261. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 5. 1859. LECTOTYPE: west of the Pecos, 1852, *C. Wright s.n.* = *M. lasiacantha* Engelm.
- Mammillaria lasiacantha* Engelm. var. *minor* Engelm., Proc. Amer. Acad. Arts 3: 261. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 5. 1859. LECTOTYPE: west of the Pecos, *s.d.*, *C. Wright s.n.* = *M. lasiacantha* Engelm.
- Mammillaria macromeris* Engelm. in Wisliz., Mem. Tour. No. Mex. 98. 1848. LECTOTYPE: Donana, New Mexico, 1846, *A. Wislizenus s.n.* (2 sheets). = *Coryphantha macromeris* (Engelm.) Orcutt.
- Mammillaria meiacantha* Engelm., Proc. Amer. Acad. Arts 3: 263. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 27. 1857. LECTOTYPE: east of the Pecos, 1853, *J. M. Bigelow s.n.* = *M. gummifera* Engelm. var. *meiacantha* (Engelm.) L. Benson.
- Mammillaria micromeris* Engelm., Proc. Amer. Acad. Arts 3: 260. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 3. 1859. LECTOTYPE: San Filipe to the Pecos, Texas, 1851, *C. Wright s.n.* Syntypes: western Texas, 1852, *C. Wright s.n.* (2 sheets) & 1849, *C. Wright s.n.* = *Epithelantha micromeris* (Engelm.) Weber.
- Mammillaria micromeris* Engelm. var. *greggii* Engelm., Proc. Amer. Acad. Arts 3: 261. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 4. 1859. LECTOTYPE: Saltillo, Mexico, 1848, *J. Gregg 508.* = *Epithelantha micromeris* L. Benson.
- Mammillaria nuttallii* Engelm. in Gray, Mem. Amer. Acad. Arts. II. 4: 49. 1849. LECTOTYPE & PROBABLE ISOLECTOTYPE: Ft. Pierre, South Dakota, 1847, *F. V. Hayden s.n.* = *Coryphantha missouriensis* (Sweet) Britt. & Rose.
- Mammillaria papyracanthus* Engelm. in Gray, Mem. Amer. Acad. Arts. II. 4: 49. 1849. LECTOTYPE: Santa Fe, New Mexico, 1857, *A. Fendler s.n.* = *Pediocactus papyracanthus* (Engelm.) L. Benson.
- Mammillaria pectinata* Engelm., Proc. Amer. Acad. Arts 3: 266. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 12. 1859. LECTOTYPE: on the Pecos, Texas, 1849, *C. Wright* (3 sheets). = *Coryphantha cornifera* (DC.) L. Benson.
- Mammillaria phellosperma* Engelm., Proc. Amer. Acad. Arts 3: 262. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 6. 1859. LECTOTYPE: Mojave Creek, 1854, *J. M. Bigelow s.n.* Syntypes: Gila, *s.d.*, *LeConti s.n.*; Bill Williams Fork, 1854, *J. M. Bigelow s.n.* = *M. tetrancistra* Engelm.
- Mammillaria pusilla* Sweet var. *texana* Engelm., Proc. Amer. Acad. Arts 3: 261. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 5. 1859. SYNTYPES: Eagle Pass to Santa Rosa, *s.d.*, *J. M. Bigelow s.n.*; Rio Grande, *s.d.*, *Poselger s.n.* = *M. prolifera* (Miller) Haw. var. *texana* (Engelm.) Borg.
- Mammillaria radiosa* Engelm. in Gray, Boston J. Nat. Hist. 6: 196. 1850. LECTOTYPE: western Texas, 1846, cult. St. Louis, Missouri, *F. Lindheimer s.n.* (2 sheets). = *Coryphantha vivipara* (Nutt.) Britt. & Rose var. *radiosa* (Engelm.) Backeberg.
- Mammillaria recurvispina* Engelm., Proc. Amer. Acad. Arts 3: 266. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 12. 1859. LECTOTYPE: Sierra del Pajarito, Mexico, 1855, *A. Schott s.n.* = *Coryphantha recurvata* (Engelm.) Britt. & Rose.
- Mammillaria scheeri* Muhlenpfordt var. *valida* Engelm., Proc. Amer. Acad. Arts 3: 265. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 10. 1859. LECTOTYPE: Limpio, Mexico, 1852, *C. Wright s.n.* Syntype: El Paso, *s.d.*, *C. Wright s.n.* (2 sheets). = *Coryphantha scheeri* Muhlenpfordt.
- Mammillaria similis* Engelm. & Gray. var. *caespitosa* Engelm. in Engelm. & Gray, Boston

- J. Nat. Hist. 5: 246. 1845. LECTOTYPE: cultivated St. Louis, from Industry, Texas, 1846, *F. Lindheimer s.n.* (2 sheets). = *Coryphantha missouriensis* (Sweet) Britt. & Rose var. *similis* (Engelm.) L. Benson.
- Mammillaria similis* Engelm. & Gray var. *robustior* Engelm. in Gray, Boston J. Nat. Hist. 6: 200. 1850. LECTOTYPE: cult. St. Louis from Pierdenales River, Texas, *F. Lindheimer s.n.* = *Coryphantha missouriensis* (Sweet) Britt. & Rose var. *robustior* (Engelm.) L. Benson.
- Mammillaria strobiliformis* Engelm. in Wisliz., Mem. Tour. No. Mex. 115. 1848. HOLOTYPE: Rinconda, on rocks, 1847, *A. Wislizenus s.n.* = *Neolloydia conoidea* (DC.) Britt. & Rose.
- Mammillaria sulcata* Engelm. in Engelm. & Gray, Boston J. Nat. Hist. 5: 246. 1845. LECTOTYPE: Industry, Texas, 1844, *F. Lindheimer s.n.* = *Coryphantha sulcata* (Engelm.) Britt. & Rose.
- Mammillaria tuberculosa* Engelm., Proc. Amer. Acad. Arts 3: 268. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 14. 1859. LECTOTYPE: Flounce Mts., Chihuahua, Mexico, 1852, *J. M. Bigelow s.n.* (2 sheets). Syntypes: El Paso, 1851 & 1852, *C. Wright* & *J. M. Bigelow s.n.* (2 sheets). = *Coryphantha strobiliformis* (Poselger) Moran.
- Mammillaria vivipara* Haw. var. *radiosa* Engelm. subvar. *borealis* Engelm., Proc. Amer. Acad. Arts 3: 269. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 15. 1859. LECTOTYPE: Santa Fe, New Mexico, 1847, *A. Fendler 271* (2 sheets). Syntype: New Mexico, 1846, *A. Wislizenus s.n.* = *Coryphantha vivipara* (Nutt.) Britt. & Rose.
- Mammillaria vivipara* Haw. var. *radiosa* Engelm. subvar. *neomexicana* Engelm., Proc. Amer. Acad. Arts 3: 269. 1857 (preprint 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 15. 1859. LECTOTYPE: southern New Mexico, 1849, *C. Wright s.n.* Syntypes: San Pedro, on the Pecos, *s.d.*, *C. Wright* & *J. M. Bigelow s.n.* (5 sheets); Sonora, 1855?, *A. Schott s.n.* = *Coryphantha vivipara* (Nutt.) Britt. & Rose. var. *radiosa* (Engelm.) Backeberg.
- Mammillaria vivipara* Haw. var. *radiosa* Engelm. subvar. *texana* Engelm., Proc. Amer. Acad. Arts 3: 269. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 15. 1859. LECTOTYPE: Pierdenales, in sterile sandy plains in western Texas, cult. St. Louis, 1846, *F. Lindheimer s.n.* = *Coryphantha vivipara* (Nutt.) Britt. & Rose var. *radiosa* (Engelm.) Backeberg.
- Mammillaria wrightii* Engelm., Proc. Amer. Acad. Arts 3: 262. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 27. 1857. LECTOTYPE: Copper Mines, New Mexico, 1851, *C. Wright s.n.* = *M. barbata* Engelm.
- Opuntia angustata* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 292. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 39. 1857. LECTOTYPE: Bill Williams Fork, 1854, *J. M. Bigelow s.n.* Syntypes: Inscription Rock, 1853, *J. M. Bigelow s.n.*; Cajon Pass, 1854, *J. M. Bigelow s.n.* = *O. phaeacantha* Engelm. var. *major* Engelm.
- Opuntia arborescens* Engelm. in Wisliz., Mem. Tour. No. Mex. 90. 1848. LECTOTYPE: Santa Fe, New Mexico, 1847, *A. Fendler 277*. Syntype: no locale, *A. Wislizenus s.n.* = *O. imbricata* Haw.
- Opuntia arbuscula* Engelm., Proc. Amer. Acad. Arts 3: 309. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 60. 1859. LECTOTYPE: Gila, Arizona, *s.d.*, *A. Schott s.n.*
- Opuntia arenaria* Engelm. & Bigelow, Proc. Amer. Acad. Arts 3: 301. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 52. 1859. LECTOTYPE: Frontera, near El Paso, Texas, 1852, *C. Wright 311*.
- Opuntia basilaris* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 298. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 43. 1857. LECTOTYPE: Cactus Pass, Bill Williams Fork, 1854, *J. M. Bigelow s.n.*
- Opuntia bernardina* Engelm. ex Parish, Bull. Torrey Bot. Club 19: 92. 1892. LECTOTYPE: San Bernardino, California, 1880, *G. Engelmann s.n.* = *O. parryi* Engelm.
- Opuntia brachyathra* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 302. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 47. 1857. HOLOTYPE: Zuni, New Mexico, 1853, *J. M. Bigelow s.n.* = *O. fragilis* (Nutt.) Haw. var. *brachyathra* (Engelm. & Bigelow) Coult.
- Opuntia bulbispina* Engelm., Proc. Amer. Acad. Arts 3: 304. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 55. 1859. HOLOTYPE: near Perros Bravos,

- Mexico, 1848, *J. Gregg probably 669*. Photo only, type has not been located.
- Opuntia californica* Engelm. in Emory, Notes Mil. Recon. Ft. Leavenworth to San Diego, App. 2: 158. 1848. LECTOTYPE: Arizona, 1846?, *Emory? s.n.* = *O. kleiniae* Engelm. var. *tetracantha* (Toumey) W. T. Marshall.
- Opuntia camanchica* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 293. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 40. 1857. LECTOTYPE: plains, Tucumcari, New Mexico, 1853, *J. M. Bigelow s.n.* = *O. phaeacantha* Engelm. var. *camanchica* (Engelm. & Bigelow) L. Benson.
- Opuntia chlorotica* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 291. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 38. 1857. LECTOTYPE: Bill Williams Mt., Arizona, 1853, *J. M. Bigelow s.n.* Syntype: Mojave Creek, 1854, *J. M. Bigelow s.n.*
- Opuntia clavata* Engelm. in Wisliz., Mem. Tour. No. Mex. 95. 1848. LECTOTYPE: Santa Fe, New Mexico, 1846, *A. Fendler s.n.*
- Opuntia clavellina* Engelm. in Coult., Contr. U.S. Natl. Herb. 3: 444. 1896. LECTOTYPE: Peninsula of California, 1867, *W. Gabb 23*.
- Opuntia cymochila* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 295. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 42. 1857. LECTOTYPE: Tucumcari Hills, New Mexico, 1853, *J. M. Bigelow s.n.* Syntype: Camanche Springs, 1853, *J. M. Bigelow s.n.* = *O. macrorhiza* Engelm.
- Opuntia cymochila* Engelm. & Bigelow var. *montana* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 296. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 42. 1857. LECTOTYPE: Sandia Mts., New Mexico, 1853, *J. M. Bigelow s.n.* = *O. macrorhiza* Engelm.
- Opuntia dulcis* Engelm., Proc. Amer. Acad. Arts 3: 291. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 48. 1859. LECTOTYPE: El Paso, Texas, 1852, *C. Wright s.n.* = *O. phaeacantha* Engelm.
- Opuntia emoryi* Engelm., Proc. Amer. Acad. Arts 3: 303. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 53. 1859. LECTOTYPE: seeds from Chihuahua, 1852, *A. Schott s.n.* = *O. stanlyi* Engelm.
- Opuntia engelmannii* Salm-Dyck var. *cyclodes* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 291. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 37. 1857. LECTOTYPE: Hunah Creek near the Pecos, 1853, *J. M. Bigelow s.n.* = *O. phaeacantha* Engelm. var. *major* Engelm.
- Opuntia engelmannii* Salm-Dyck var. *littoralis* Engelm. in Brewer & Watson, Bot. Calif. 1: 248. 1876. LECTOTYPE: Santa Barbara, California, 1874, *O. Tittmann s.n.* Syntype: Santa Cruz Island, California, 1874, *O. Tittman s.n.* = *O. littoralis* Engelm.
- Opuntia erinacea* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 301. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 47. 1857. HOLOTYPE: Mojave Creek, 1854, *J. M. Bigelow s.n.*
- Opuntia filipendula* Engelm., Proc. Amer. Acad. Arts 3: 294. 1857. LECTOTYPE: near San Elizario, 1852, *C. Wright s.n.* = *O. macrorhiza* Engelm. var. *pottsii* (Salm-Dyck) L. Benson.
- Opuntia fragilis* Haw. var. *frutescens* Engelm. in Engelm. & Gray, Boston J. Nat. Hist. 5: 245. 1845. LECTOTYPE: Colorado bottom prairie, 1844, *F. Lindheimer 244.* = *O. leptocaulis* DC.
- Opuntia frutescens* Engelm. in Engelm. & Gray, Boston J. Nat. Hist. 5: 245. 1845. LECTOTYPE: Colorado bottom prairie, 1844, *F. Lindheimer 244.* = *O. leptocaulis* DC.
- Opuntia frutescens* Engelm. var. *brevispina* Engelm., Proc. Amer. Acad. Arts 3: 309. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 53. 1857. LECTOTYPE: Texas, 1845, *F. Lindheimer s.n.* = *O. leptocaulis* DC.
- Opuntia frutescens* Engelm. var. *longispina* Engelm., Proc. Amer. Acad. Arts 3: 309. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 53. 1857. LECTOTYPE: Laguna, Colorado, 1853, *J. M. Bigelow s.n.* = *O. leptocaulis* DC.
- Opuntia fulgida* Engelm., Proc. Amer. Acad. Arts 3: 306. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 57. 1859. LECTOTYPE: western Sonora, Mexico, *s.d.*, *A. Schott 8*.
- Opuntia fusco-atra* Engelm., Proc. Amer. Acad. Arts 3: 297. 1856. LECTOTYPE: prairies west of Houston, Texas, 1842, *F. Lindheimer 33*.
- Opuntia fusiformis* Engelm. & Bigelow in Engelm.,

- Proc. Amer. Acad. Arts 3: 297. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 43. 1857. LECTOTYPE: Deer Creek, Missouri?, 1853, *J. M. Bigelow s.n.* Syntype: Cow Creek, 1846, *A. Wislizenus 417.* = *O. macrorhiza* Engelm.
- Opuntia grahamii* Engelm., Proc. Amer. Acad. Arts 3: 304. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 55. 1859. LECTOTYPE: Rio Grande, near El Paso, Texas, 1851, *C. Wright s.n.* = *O. schottii* Engelm. var. *grahamii* (Engelm.) L. Benson.
- Opuntia grandiflora* Engelm., Proc. Amer. Acad. Arts 3: 295. 1857 (preprint, 1856). LECTOTYPE: cultivated St. Louis, Missouri from Industry, Texas, 1847, *F. Lindheimer s.n.* = *O. macrorhiza* Engelm.
- Opuntia hystricina* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 299. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 44. 1857. LECTOTYPE: Colorado Chiquito, Arizona, 1853, *J. M. Bigelow s.n.* = *O. erinacea* Engelm. & Bigelow var. *hystricina* (Engelm. & Bigelow) L. Benson.
- Opuntia lindheimeri* Engelm. in Gray, Boston J. Nat. Hist. 6: 207. 1850. LECTOTYPE: New Braunfels, Texas, 1845, *F. Lindheimer s.n.*
- Opuntia macrocentra* Engelm., Proc. Amer. Acad. Arts 3: 292. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 49. 1859. LECTOTYPE: Rio Grande, near El Paso, Texas, 1852, *C. Wright s.n.* (2 sheets). = *O. violacea* Engelm. var. *macrocentra* (Engelm.) L. Benson.
- Opuntia macrorhiza* Engelm. in Gray, Boston J. Nat. Hist. 6: 206. 1850. LECTOTYPE: between the Picardinales & Guadalupe, 1847, *F. Lindheimer 1251.*
- Opuntia missouriensis* DC. var. *albispina* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 300. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 46. 1857. LECTOTYPE: Canadian River, Texas?, 1853, *J. M. Bigelow s.n.* = *O. polyacantha* Haw.
- Opuntia missouriensis* DC. var. *microsperma* Engelm., Proc. Amer. Acad. Arts 3: 300. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 46. 1857. LECTOTYPE: specimens from Ft. Pierre, South Dakota, cult. St. Louis, Missouri in 1854, no collector (2 sheets). = *O. polyacantha* Haw.
- Opuntia missouriensis* DC. var. *platycarpa* Engelm., Proc. Amer. Acad. Arts 3: 300. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 45. 1857. LECTOTYPE: Yellowstone River, 1854, *F. V. Hayden s.n.* = *O. polyacantha* Haw.
- Opuntia missouriensis* DC. var. *rufispina* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 300. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 45. 1857. LECTOTYPE: Pecos, New Mexico, 1853, *J. M. Bigelow s.n.* = *O. polyacantha* Haw. var. *rufispina* (Engelm. & Bigelow) L. Benson.
- Opuntia missouriensis* DC. var. *subinermis* Engelm., Proc. Amer. Acad. Arts 3: 300. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 46. 1857. LECTOTYPE: Ft. Pierre, South Dakota, 1853, *F. V. Hayden s.n.* = *O. polyacantha* Haw.
- Opuntia missouriensis* DC. var. *trichophora* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 300. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 46. 1857. LECTOTYPE: Santa Fe Creek, New Mexico, 1853, *J. M. Bigelow s.n.* = *O. polyacantha* Haw. var. *trichophora* (Engelm. & Bigelow) Coult.
- Opuntia mojavensis* Engelm., Proc. Amer. Acad. Arts 3: 293. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 40. 1857. LECTOTYPE: Mojave Creek, 1854, *J. M. Bigelow s.n.* = *O. phaeacantha* Haw. var. *mojavensis* (Engelm.) Fosberg.
- Opuntia occidentalis* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 279. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 38. 1857. LECTOTYPE: Los Angeles, California, 1852, *J. M. Bigelow s.n.* Syntype: southern California, 1855, *A. Schott s.n.* = *O. ficus-indica* (L.) Miller.
- Opuntia parkeri* Engelm. in Coult., Contr. U.S. Natl. Herb. 3: 446. 1896. HOLOTYPE: San Diego, California, 1879, *C. F. Parker s.n.* = *O. parryi* Engelm.
- Opuntia phaeacantha* Engelm. var. *brunnea* Engelm., Proc. Amer. Acad. Arts 3: 293. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 50. 1859. LECTOTYPE: Rio Grande, near El Paso, Texas, 1852, *C. Wright s.n.* = *O. phaeacantha* Engelm. var. *major* Engelm.
- Opuntia phaeacantha* Engelm. var. *major* En-

- Engelm., Proc. Amer. Acad. Arts 3: 293. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 50. 1857. LECTOTYPE: Santa Fe, New Mexico, 1846, *A. Fendler s.n.*
- Opuntia phaeacantha* Engelm. var. *nigricans* Engelm. in Gray, Mem. Amer. Acad. Arts. II. 4: 52. 1849. LECTOTYPE: Santa Fe, New Mexico, *A. Fendler 8.* = *O. phaeacantha* Engelm.
- Opuntia procumbens* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 292. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 39. 1857. LECTOTYPE: Aztec Pass, Arizona, 1853, *J. M. Bigelow s.n.* Syntypes: San Francisco Mts., Arizona, 1853, *J. M. Bigelow s.n.*; Cactus Pass, 1854, *J. M. Bigelow s.n.* = *O. phaeacantha* Engelm. var. *discata* (Griffiths) L. Benson & Walkington.
- Opuntia prolifera* Engelm., Amer. J. Sci. II. 14: 338. 1852. NEOTYPE: Mission Hills, San Diego, California, 1903, *Leroy Abrams 3394.*
- Opuntia pulchella* Engelm., Trans. Acad. Sci. St. Louis 2: 201. 1863. LECTOTYPE: Walker River, Nevada, 1859, *H. Engelmann s.n.*
- Opuntia rafinesquei* Engelm., Proc. Amer. Acad. Arts 3: 295. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 41. 1857. LECTOTYPE: St. Louis, Missouri, no collector. = *O. humifusa* (Raf.) Raf.
- Opuntia rafinesquei* Engelm. var. *arkansana* Engelm. ex Rumpler in Forster, Handb. Cact. 2nd edition: 922. 1885. LECTOTYPE: Fort Smith, 1853, *J. M. Bigelow s.n.* = *O. humifusa* (Raf.) Raf.
- Opuntia rafinesquei* Engelm. var. *microsperma* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 295. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 41. 1857. LECTOTYPE: cultivated St. Louis, Missouri, April 1854, no collector. = *O. humifusa* (Raf.) Raf.
- Opuntia rafinesquei* Engelm. var. *minor* Engelm., U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany. 4: 55. 1857. LECTOTYPE: naked sandstone ledges at Mine la Motte, Missouri, 1845, *G. Engelmann s.n.* = *Opuntia humifusa* (Raf.) Raf.
- Opuntia ramosissima* Engelm., Amer. J. Sci. II. 14: 339. 1852. NEOTYPE: Sonora, Mexico, 1855, *A. Schott 2.*
- Opuntia rufida* Engelm., Proc. Amer. Acad. Arts 3: 298. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 51. 1859. LECTOTYPE: Presidio del Norte, Mexico, 1852, *J. M. Bigelow s.n.*
- Opuntia schottii* Engelm., Proc. Amer. Acad. Arts 3: 304. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 54. 1859. LECTOTYPE: near mouth of Pecos and San Pedro, 1853, *A. Schott s.n.*
- Opuntia setispina* Engelm. in Salm-Dyck, Cact. Hort. Dyck. 1849: 239. 1850. LECTOTYPE & SYNTYPE: Cosihuiriachi, Mexico, 1846, *A. Wislizenus s.n.* = *O. macrorhiza* Engelm. var. *pottsii* (Salm-Dyck) L. Benson.
- Opuntia sphaerocarpa* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 300. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 47. 1857. LECTOTYPE: near Albuquerque, New Mexico, 1853, *J. M. Bigelow s.n.* = *O. polyantha* Haw. var. *junipera* (Engelm. & Bigelow) L. Benson.
- Opuntia sphaerocarpa* Engelm. var. *utahensis* Engelm., Trans. Acad. Sci. St. Louis 11: 199. 1863. HOLOTYPE: Steptoe Valley, Utah, 1859, *H. Engelmann s.n.* = *O. erinacea* Engelm. & Bigelow var. *utahensis* (Engelm. & Bigelow) L. Benson.
- Opuntia stenochila* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 296. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 43. 1857. LECTOTYPE: Cañon de Zuñi, 1853, *J. M. Bigelow s.n.* = *O. macrorhiza* Engelm.
- Opuntia stenopetala* Engelm., Proc. Amer. Acad. Arts 3: 289. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 46. 1859. HOLOTYPE: Buena Vista, Mexico, 1848, *J. Gregg 295* (2 sheets).
- Opuntia strigil* Engelm., Proc. Amer. Acad. Arts 3: 290. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 47. 1859. LECTOTYPE: 6 mi. west of the Pecos, Texas, 1851, *C. Wright s.n.*
- Opuntia tapona* Engelm. in Coult., Contr. U.S. Natl. Herb. 3: 423. 1896. HOLOTYPE: Peninsula of California, 1867, *W. Gabb 20a.*
- Opuntia tenuispina* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 294. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 50. 1859. LECTOTYPE: below El Paso, 1852, *C. Wright 332.* = *O. macrorhiza* Engelm. var. *pottsii* (Salm-Dyck) L. Benson.
- Opuntia thurberi* Engelm., Proc. Amer. Acad. Arts 3: 308. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae

59. 1859. HOLOTYPE: near Bacuachi, Sonora, 1851, *G. Thurber s.n.*

Opuntia tortispina Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 293. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 41. 1859. LECTOTYPE: Camanche Plains, 1853, *J. M. Bigelow s.n.*

Opuntia vaginata Engelm. in Wisliz., Mem. Tour. No. Mex. 100. 1848. LECTOTYPE: mountains near El Paso, 1846, *A. Wislizenus s.n.* Syntype: between Albuquerque and El Paso, 1846, *A. Wislizenus s.n.* = *O. leptocaulis* DC.

Opuntia versicolor Engelm. in Coult., Contr. U.S. Natl. Herb. 3: 452. 1896. LECTOTYPE: mesas and foothills, near Tucson, Arizona, 1881, *C. G. Pringle s.n.* Syntype: same locale, 1881, *C. G. Pringle 13712.*

Opuntia whipplei Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 307. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 50. 1857. LECTOTYPE: Zuñi, New Mexico, 1853, *J. M. Bigelow s.n.*

Opuntia whipplei Engelm. var. *spinosior* Engelm. & Bigelow in Engelm., Proc. Amer. Acad. Arts 3: 307. 1857 (preprint, 1856); U.S. Senate Rept. Expl. & Surv. R.R. Route Pacific Ocean. Botany 4: 51. 1857. LECTOTYPE: Santa Cruz River Valley, *s.d.*, *A. Schott 5.* = *O. spinosior* (Engelm.) Toumey.

Opuntia wrightii Engelm., Proc. Amer. Acad. Arts 3: 308. 1857 (preprint, 1856); in Emory, Rept. U.S. & Mex. Bound. Surv. 2: Cactaceae 59. 1859. LECTOTYPE: Presidio del Norte, Texas, 1851–1852, *C. Wright s.n.* Syntypes: Presidio del Norte, 1852, *C. C. Parry s.n.*; mountain sides of the Limpia, 1852, *C. Wright 490.* = *O. kleiniae* DC.

CALLITRICHACEAE

Callitriche antarctica Engelm. ex Hegelm., Verh. Bot. Ver. Brandenburg 9: 20. 1867. SYNTYPE: Kerguelen's Land, 1839–1843, *J. D. Hooker s.n.*

Callitriche austinii Engelm. in Gray, Man. Bot. 5: 428. 1868. TYPE MATERIAL: New Jersey, *s.d.*, *Austin s.n.* = *C. terrestris* Raf.

Callitriche heteropoda Engelm. ex Hegelm., Verh. Bot. Ver. Brandenburg 9: 40. 1867. SYNTYPES: Bolivia, *s.d.*, *G. Mandon 1456 & 1496.*

Callitriche japonica Engelm. ex Hegelm., Verh. Bot. Ver. Brandenburg 10: 113. 1868. TYPE

MATERIAL: Hakodadi, Japan, 1853–1856, *C. Whipple s.n.*

CAMPANULACEAE

Campanula planifolia Engelm. in Coult., Bot. Gaz. 7: 5. 1882. SYNTYPES: Empire, Colorado, 1881, *G. Engelmann s.n.* (6 sheets); Clear Creek, Colorado, 1881, *G. Engelmann s.n.* (2 sheets); Middle Park, Colorado, 1881, *G. Engelmann s.n.*

Campanula scabella Engelm. in Coult., Bot. Gaz. 6: 237. 1881. LECTOTYPE: Scotts Mountain, California, 1880, *G. Engelmann s.n.*

Lobelia mucronata Engelm. in Wisliz., Mem. Tour. No. Mex. 108. 1848. HOLOTYPE & ISOTYPE: Cosihuiriachi, Mexico, 1846, *A. Wislizenus 177.* = *L. fulgens* Willd.

Lobelia pectinata Engelm. in Wisliz., Mem. Tour. No. Mex. 108. 1848. HOLOTYPE & ISOTYPE: Cosihuiriachi, Mexico, 1846, *A. Wislizenus 192.* = *L. fenestralis* Car.

Lobelia phyllostachya Engelm. in Wisliz., Mem. Tour. No. Mex. 108. 1848. HOLOTYPE & ISOTYPE: between Monterey and Cerralbo, Mexico, 1847, *A. Wislizenus 337.* = *L. fulgens* Willd.

CAPPARACEAE

Wislizenia refracta Engelm. in Wisliz., Mem. Tour. No. Mex. 99. 1848. HOLOTYPE: Rio Grande, near El Paso, Texas, 1846, *C. Wright 88.*

CAPRIFOLIACEAE

Symphoricarpos spicatus Engelm. ex Gray, Boston J. Nat. Hist. 6: 215. 1850. SYNTYPE: Texas, 1849, *F. Lindheimer 846.* = *S. orbiculatus* Moench.

CARYOPHYLLACEAE

Cerastium nutans Raf. var. *brachypodium* Engelm., Proc. Amer. Acad. Arts 29: 277. 1894. SYNTYPE: banks of Chouteair's Pond, *s.d.*, *G. Engelmann s.n.*

Drymaria nodosa Engelm. in Gray, Mem. Amer. Acad. Arts. II. 4: 12. 1849. HOLOTYPE: cult. St. Louis, Missouri from Cosihuiriachi, Mexico, 1848. = *D. leptophylla* (Cham. & Schlecht.) Fenzl ex Rohrb. var. *nodosa* (Engelm.) J. Duke.

Paronychia lindheimeri Engelm. in Gray, Boston J. Nat. Hist. 6: 152. 1850. TYPE MATERIAL:

Texas, 1845 and 1846, *F. Lindheimer* 335 (2 sheets).

CLUSIACEAE

Hypericum gymnanthum Engelm. & Gray, Boston J. Nat. Hist. 5: 212. 1845. TYPE MATERIAL: Texas, 1844, *F. Lindheimer* 17. = *H. multilum* L.

CONVOLVULACEAE

Cuscuta acuta Engelm., Trans. Acad. Sci. St. Louis 1: 497. 1859. HOLOTYPE: Chatham Island, Galapagos, Ecuador, 1852, *Andersson* s.n.

Cuscuta angulata Engelm., Trans. Acad. Sci. St. Louis 1: 474. 1859. LECTOTYPE: Dutuitskloff, South Africa, *Drege* s.n.

Cuscuta applanata Engelm., Trans. Acad. Sci. St. Louis 1: 479. 1859. LECTOTYPE: Arizona Territory, s.d., *C. Wright Mexican Boundary Survey* 1623–541.

Cuscuta arvensis Bayrich ex Hook. var. *pubescens* Engelm., Trans. Acad. Sci. St. Louis 1: 495. 1859. LECTOTYPE: western Texas, 1847, *F. Lindheimer* s.n. = *C. glabrior* Engelm. var. *pubescens* (Engelm.) Yuncker.

Cuscuta bracteata Engelm., Trans. Acad. Sci. St. Louis 1: 509. 1859. ISOTYPE: Goyaz, Brazil, s.d., *Gardner* 3348.

Cuscuta californica Choisy var. *apiculata* Engelm., Trans. Acad. Sci. St. Louis 1: 499. 1859. HOLOTYPE: Colorado River, California, 1854, *J. M. Bigelow* s.n.

Cuscuta californica Choisy var. *squamigera* Engelm., Trans. Acad. Sci. St. Louis 1: 499. 1859. HOLOTYPE: Rio Virgen, Utah, s.d., *Remy* s.n.

Cuscuta cephalanthi Engelm., Amer. J. Sci. 43: 336. 1842. LECTOTYPE: near St. Louis, Missouri, s.d., *G. Engelmann* s.n.

Cuscuta chinensis Lam. var. *ciliaris* Engelm., Trans. Acad. Sci. St. Louis 1: 480. 1859. LECTOTYPE: Mosul, Kurdistan, s.d., *Kotschy* 431 (3 sheets).

Cuscuta corniculata Engelm. var. *sphaerocyma* Engelm., Trans. Acad. Sci. St. Louis 1: 504. 1859. LECTOTYPE: Goyaz Province, s.d., Brazil, *Weddell* s.n. Syntype: Rio Meta, s.d., *Karsten* s.n.

Cuscuta coryli Engelm., Amer. J. Sci. 43: 337. 1842. LECTOTYPE: American Bottom, St. Louis, Missouri, 1841, *G. Engelmann* s.n.

Cuscuta corymbosa Choisy var. *grandiflora* En-

gelm., Trans. Acad. Sci. St. Louis 1: 483. 1859. LECTOTYPE: Popayán, Columbia, s.d., *Humboldt* s.n.

Cuscuta corymbosa Choisy var. *stylosa* Engelm., Trans. Acad. Sci. St. Louis 1: 484. 1859. ISOLECTOTYPE: Mexico, 1846, *Berlandier* 822.

Cuscuta cristata Engelm., Trans. Acad. Sci. St. Louis 1: 507. 1859. ISOTYPE: Argentina, s.d., *Tweedy* 1191.

Cuscuta cuspidata Engelm. & Gray var. *pratensis* Engelm. in Engelm. & Gray, Boston J. Nat. Hist. 5: 224. 1845. LECTOTYPE: west of the Brazos, Texas, 1843, *F. Lindheimer* 125.

Cuscuta decora Choisy ex Engelm. var. *integriuscula* Engelm., Trans. Acad. Sci. St. Louis 1: 502. 1859. HOLOTYPE: Mendoza, Argentina, *Gilles* s.n. = *C. indecora* Choisy var. *integriuscula* (Engelm.) Yuncker.

Cuscuta denticulata Engelm., Amer. Naturalist 9: 348. 1875. HOLOTYPE: St. George, Utah, *C. C. Parry* 205.

Cuscuta epithymum Murr. var. *angustata* Engelm. subvar. *angustissima* Engelm., Trans. Acad. Sci. St. Louis 1: 463. 1859. HOLOTYPE: Padua, Italy, s.d., *Visiani* s.n. = *C. epithymum* Murr. var. *angustissima* Engelm.

Cuscuta epithymum Murr. var. *kotschyi* Engelm. subvar. *scabrella* Engelm., Trans. Acad. Sci. St. Louis 1: 464. 1859. LECTOTYPE: Sicily, s.d., *Gussone* s.n. = *C. epithymum* Murr. var. *scabrella* (Engelm.) Yuncker.

Cuscuta epithymum Murr. var. *obtusata* Engelm. subvar. *apoda* Engelm., Trans. Acad. Sci. St. Louis 1: 462. 1859. HOLOTYPE: Koniah, Asia Minor, 1845, *Heldreich* s.n. = *C. obtusata* (Engelm.) Traub.

Cuscuta epithymum Murr. var. *obtusata* Engelm., subvar. *macropoda* Engelm., Trans. Acad. Sci. St. Louis 1: 462. 1859. HOLOTYPE: Sierra Nevada, Spain, s.d., *Funk* s.n. = *C. triumvirati* Lange.

Cuscuta epithymum Murr. var. *sagittanthera* Engelm., Trans. Acad. Sci. St. Louis 1: 462. 1859. HOLOTYPE: Tunis, s.d., *Kralik* s.n.

Cuscuta exaltata Engelm., Trans. Acad. Sci. St. Louis 1: 513. 1859. LECTOTYPE: New Braunfels, Texas, s.d., *F. Lindheimer* 472 (3 sheets).

Cuscuta globiflora Engelm., Trans. Acad. Sci. St. Louis 1: 520. 1859. ISOTYPE: Cuzo, Brazil, s.d., *Pentland* s.n.

Cuscuta gracillima Engelm., Trans. Acad. Sci. St. Louis 1: 488. 1859. ISOLECTOTYPE: Mexico, s.d., *Mornay* s.n.

Cuscuta gracillima Engelm. var. *saccharata* En-

- Engelm., Trans. Acad. Sci. St. Louis 1: 489. 1859. ISOLECTOTYPE: Oaxaca, Mexico, *s.d.*, Liebman *s.n.* = *C. saccharata* (Engelm.) Yuncker.
- Cuscuta gronovii* Willd. var. *calyptrata* Engelm., Trans. Acad. Sci. St. Louis 1: 508. 1859. LECTOTYPE: western Louisiana, *s.d.*, J. Gregg *s.n.*
- Cuscuta gronovii* Willd. var. *curta* Engelm., Trans. Acad. Sci. St. Louis 1: 508. 1859. ISOLECTOTYPE: northwest America, *s.d.*, Douglas *s.n.* = *C. curta* (Engelm.) Rydb.
- Cuscuta japonica* Choisy var. *fissistyla* Engelm., Trans. Acad. Sci. St. Louis 1: 517. 1859. HOLOTYPE: Hong Kong, China, *s.d.*, Wright 486.
- Cuscuta japonica* Choisy var. *paniculata* Engelm., Trans. Acad. Sci. St. Louis 1: 517. 1859. LECTOTYPE: Peking (sic), China, *s.d.*, Kirilow *s.n.*
- Cuscuta japonica* Choisy var. *thyrsoides* Engelm., Trans. Acad. Sci. St. Louis 1: 517. 1859. ISOTYPE: Japan, *s.d.*, Zollinger 355.
- Cuscuta kurdica* Engelm., Trans. Acad. Sci. St. Louis 1: 470. 1859. HOLOTYPE?: Gara Mts., Kurdistan, Kotschy 388b.
- Cuscuta lehmanniana* Bunge var. *esquamata* Engelm., Trans. Acad. Sci. St. Louis 1: 515. 1859. HOLOTYPE: Mont Sipyle, Persia, *s.d.*, Balansa 411.
- Cuscuta leptantha* Engelm., Trans. Acad. Sci. St. Louis 1: 489. 1859. LECTOTYPE: western Texas to El Paso, Texas, 1849, C. Wright 522.
- Cuscuta lupuliformis* Krock var. *asiatica* Engelm., Trans. Acad. Sci. St. Louis 1: 516. 1859. LECTOTYPE: Volga River, Russia, *s.d.*, Fischer *s.n.*
- Cuscuta micrantha* Choisy var. *latiflora* Engelm., Trans. Acad. Sci. St. Louis 1: 501. 1859. LECTOTYPE: Concon, Chile, *s.d.*, Poeppig 89. Syntype: 1827, Poeppig 159.
- Cuscuta mitraeformis* Engelm. in Hemsley, Diag. Pl. Nov. 54. 1880. HOLOTYPE: San Luis Potosí to Tampico, Mexico, 1878–1879, E. Palmer *s.n.*
- Cuscuta neuropetala* Engelm., Amer. J. Sci. 45: 75. 1843. LECTOTYPE: near Houston, Texas, 1843, F. Lindheimer 124. = *C. indecora* Choisy var. *neuropetala* (Engelm.) Hitchcock.
- Cuscuta obtusiflora* H.B.K. var. *australis* Engelm., Trans. Acad. Sci. St. Louis 1: 492. 1859. LECTOTYPE: New Holland, Australia, *s.d.*, R. Brown *s.n.* = *C. australis* R. Br.
- Cuscuta obtusiflora* H.B.K. var. *cesatiana* Engelm., Trans. Acad. Sci. St. Louis 1: 493. 1859. LECTOTYPE: Vercelli, Italy, *s.d.*, Cesati 83?. = *C. australis* R. Br. var. *cesatiana* (Bertoloni) Yuncker.
- Cuscuta obtusiflora* H.B.K. var. *cordofana* Engelm., Trans. Acad. Sci. St. Louis 1: 493. 1859. HOLOTYPE: Kordofan, Africa, 1844, Figari *s.n.* = *C. cordofana* (Engelm.) Yuncker.
- Cuscuta obtusiflora* H.B.K. var. *glandulosa* Engelm., Trans. Acad. Sci. St. Louis 1: 492. 1859. LECTOTYPE: Columbus, Georgia, 1838, Boykin *s.n.*
- Cuscuta obtusiflora* H.B.K. var. *vera* Engelm., Trans. Acad. Sci. St. Louis 1: 493. 1859. LECTOTYPE: Andes, Peru, *s.d.*, Humboldt *s.n.* = *C. obtusiflora* H.B.K.
- Cuscuta odontolepis* Engelm., Trans. Acad. Sci. St. Louis 1: 486. 1859. HOLOTYPE: Arizona, 1851–1852, C. Wright 1642.
- Cuscuta parviflora* Engelm., Trans. Acad. Sci. St. Louis 1: 506. 1859. LECTOTYPE: Minas Gerais, Brazil, *s.d.*, Ackerman *s.n.* Syntype: Villa Rica, Brazil, *s.d.*, Pohl 5726.
- Cuscuta parviflora* Engelm. var. *elongata* Engelm., Trans. Acad. Sci. St. Louis 1: 506. 1859. HOLOTYPE: Goyaz, Brazil, *s.d.*, Weddell 2125.
- Cuscuta pentagona* Engelm., Amer. J. Sci. 43: 340. 1842. HOLOTYPE: Norfolk, Virginia, 1841, Rugel *s.n.*
- Cuscuta pentagona* Engelm. var. *calycina* Engelm., Amer. J. Sci. 45: 76. 1845. SYNTYPE: Texas, F. Lindheimer 126. = *C. campestris* Yuncker.
- Cuscuta planiflora* Tenore var. *tenorii* Engelm., Trans. Acad. Sci. St. Louis 1: 466. 1859. LECTOTYPE: Naples, Italy, *s.d.*, Tenore *s.n.* = *C. planiflora* Tenore.
- Cuscuta planiflora* Tenore var. *papillosa* Engelm., Trans. Acad. Sci. St. Louis 1: 467. 1859. LECTOTYPE: Djebel Zaghouan, Tunis, 1854, Kralik 410a.
- Cuscuta polygonorum* Engelm., Amer. J. Sci. 43: 342. LECTOTYPE: west of St. Louis, Missouri, *s.d.*, G. Engelmann *s.n.* Syntype: west of St. Louis, Missouri, F. Lindheimer *s.n.*
- Cuscuta racemosa* Mart. var. *brasiliensis* Engelm., Trans. Acad. Sci. St. Louis 1: 505. 1859. SYNTYPE: Rio de Janeiro, Brazil, 1817, Martius *s.n.*
- Cuscuta racemosa* Mart. var. *miniata* Engelm., Trans. Acad. Sci. St. Louis 1: 505. 1859. SYNTYPE: Brazil, 1857, Martius 1292.
- Cuscuta racemosa* Mart. var. *nuda* Engelm., Trans.

Acad. Sci. St. Louis 1: 505. 1859. SYNTYPE: near Rio, Brazil, *s.d.*, *Sellow s.n.*

Cuscuta reflexa Roxb. var. *brachystigma* Engelm., Trans. Acad. Sci. St. Louis 1: 519. 1859. LECTOTYPE: Calcutta, India, *s.d.*, *Gaudichaud 129*. = *C. reflexa* Wallich var. *anguina* (Edgeworth) Yuncker.

Cuscuta saururi Engelm., Amer. J. Sci. 43: 339. 1842. LECTOTYPE: St. Louis, Missouri, 1841, *C. A. Geyer s.n.* = *C. gronovii* Willd. var. *saururi* (Engelm.) MacMillan.

Cuscuta squamata Engelm., Trans. Acad. Sci. St. Louis 1: 510. 1859. LECTOTYPE: western Texas to El Paso, Texas, 1849, *C. Wright 518*.

Cuscuta stenolepis Engelm., Trans. Acad. Sci. St. Louis 1: 500. 1859. HOLOTYPE: Mare Island, San Francisco, California, 1855, *C. Wright s.n.*

Cuscuta trichostyla Engelm., Trans. Acad. Sci. St. Louis 1: 495. 1859. ISOTYPE: Parana, *s.d.*, *Tweedie s.n.* Syntype: Santatem, Brazil, *s.d.*, Spruce 854.

Cuscuta umbellata H.B.K. var. *desertorum* Engelm., Trans. Acad. Sci. St. Louis 1: 488. 1859. LECTOTYPE: Piauhy Province, Brazil, 1847, *Martius s.n.*

Cuscuta verrucosa Engelm. var. *glabrior* Engelm., Amer. J. Sci. 43: 341. 1842. LECTOTYPE: west of Houston, Texas, *s.d.*, *F. Lindheimer s.n.* Syntype: Texas, 1833, *Drummond 247*. = *C. glabrior* (Engelm.) Yuncker.

Lepidanche compositarum Engelm., Amer. J. Sci. 43: 344. 1842. LECTOTYPE: American Bottom, St. Louis, Missouri, 1841, *G. Engelmann s.n.*

CUPRESSACEAE

Juniperus occidentalis Hook. var. *monosperma* Engelm., Trans. Acad. Sci. St. Louis 3: 590. 1877. SYNTYPES: Cañon City & Manitou, Colorado, 1874, *G. Engelmann s.n.* (5 sheets).

CYPERACEAE

Cyperus refractus Engelm. in Boeckl., *Linnaea* 36: 369. 1870. HOLOTYPE: Merimac, *s.d.*, *N. Riel Herbarium 496*.

EPHEDRACEAE

Ephedra aspera Engelm. ex Watson, Proc. Amer. Acad. Arts 18: 157. 1883. TYPE MATERIAL: Sierra Madre, west of Saltillo, Mexico, 1880, *E. Palmer 1288*.

Ephedra pedunculata Engelm. ex Watson, Proc. Amer. Acad. Arts 18: 157. 1883. TYPE MA-

TERIAL: Nvalde, west of San Antonio, Texas, 1880, *E. Palmer 1291*.

EQUISETACEAE

Equisetum laevigatum A. Braun var. *elatum* Engelm. in A. Braun, Amer. J. Sci. 46: 87. 1843. TYPE MATERIAL: banks of Mississippi, below Jefferson Barracks, St. Louis, Missouri, 1843, *G. Engelmann s.n.* (7 sheets).

Equisetum laevigatum A. Braun var. *scabrellum* Engelm. in A. Braun, Amer. J. Sci. 46: 87. 1843. LECTOTYPE: Jefferson Barracks, St. Louis, Missouri, 1843, *G. Engelmann s.n.*

Equisetum robustum A. Braun var. *affine* Engelm. in A. Braun, Amer. J. Sci. 46: 88. 1843. LECTOTYPE: below Jefferson Barracks, St. Louis, Missouri, 1843, *G. Engelmann s.n.* = *E. hyemale* L. var. *affine* (Engelm.) A. A. Eaton.

Equisetum robustum A. Braun var. *minus* Engelm. in A. Braun, Amer. J. Sci. 46: 88. 1843. LECTOTYPE: banks of Mississippi, below St. Louis, Missouri, 1843, *G. Engelmann s.n.* = *E. hyemale* L. var. *affine* (Engelm.) A. A. Eaton.

EUPHORBIACEAE

Aphora humilis Engelm. & Gray, Boston J. Nat. Hist. 5: 54. 1845. ISOTYPE: west of Brazos, Texas, 1844, *F. Lindheimer 306*. = *Argythamnia humilis* (Engelm. & Gray) Muell.-Arg.

Croton corymbulosus Engelm. in Rothr., Bot. Wheeler's Surv. 242. 1878. SYNTYPES: Camp Bowie, New Mexico, 1874, *J. T. Rothrock 506*; Buena Vista, Mexico, 1848, *J. Gregg 71 & 288*; west Texas, 1849, *C. Wright 641*, and 1851-1852, *C. Wright 1805*. = *C. pottsii* (Klotzsch) Muell.-Arg.

Croton fruticulosus Engelm. in Torr., Bot. Mex. Bound. Surv. 194. 1859. SYNTYPES: Texas, 1849, *F. Lindheimer 134* (2 sheets), *176*, *177*, *297a*. Published as *C. fruticosum*.

Euphorbia acuta Engelm. in Torr., Bot. Mex. Bound. Surv. 189. 1859. LECTOTYPE: "N. Mex.," 1851, *C. Wright 1839*.

Euphorbia angusta Engelm. in Torr., Bot. Mex. Bound. Surv. 189. 1859. LECTOTYPE: San Pedro River, Texas, 1851, *C. Wright 1828*.

Euphorbia arizonica Engelm. in Torr., Bot. Mex. Bound. Surv. 186. 1859. LECTOTYPE: Arizona, 1856, *A. Schott s.n.*

Euphorbia arkansas Engelm. & Gray, Boston J. Nat. Hist. 5: 261. 1845. SYNTYPES: near

- Houston, Texas, 1843 and 1845, *F. Lindheimer s.n.* (2 sheets).
- Euphorbia astyla* Engelm. ex Boiss. in DC., Prod. 15(2): 40. 1862. HOLOTYPE: Nazas River, Mexico, 1847, *J. Gregg 457*. = *Chamaesyce albomarginata* (Torr. & Gray) Small.
- Euphorbia barbellata* Engelm. in Torr., Bot. Mex. Bound. Surv. 190. 1859. LECTOTYPE: Rio Grande, 1848, *C. Wright s.n.*
- Euphorbia baueri* Engelm. ex Boiss. in DC., Prod. 15(2): 27. 1862. TYPE MATERIAL: "Nov. Holland," *s.d.*, *Bauer s.n.*
- Euphorbia bicolor* var. *bicolor* Engelm. & Gray, Boston J. Nat. Hist. 5: 233. 1845. SYNTYPE: west of Houston, Texas, 1841, *F. Lindheimer 174*.
- Euphorbia bicolor* Engelm. & Gray var. *concolor* Engelm. & Gray, Boston J. Nat. Hist. 5: 233. 1845. TYPE MATERIAL: Lynchburg, Texas, 1842, *F. Lindheimer s.n.*
- Euphorbia bifurcata* Engelm. in Torr., Bot. Mex. Bound. Surv. 190. 1859. HOLOTYPE OR ISOTYPE: valley of the Limpio, 1852, *J. M. Bigelow s.n.*
- Euphorbia bilobata* Engelm. in Torr., Bot. Mex. Bound. Surv. 190. 1859. LECTOTYPE: Santa Cruz, Sonora, Mexico, 1851–1852, *C. Wright 1831*.
- Euphorbia blodgettii* Engelm. ex Hitchcock, Annual Rep. Missouri Bot. Gard. 4: 126. 1893. LECTOTYPE: Key West, Florida, *s.d.*, *Blodgett s.n.* = *Chamaesyce blodgettii* (Engelm. ex Hitchcock) Small.
- Euphorbia brachycera* Engelm. in Torr., Bot. Mex. Bound. Surv. 192. 1859. HOLOTYPE: Donana, above El Paso, Texas, 1851, *C. Wright 1821*.
- Euphorbia capitellata* Engelm. in Torr., Bot. Mex. Bound. Surv. 188. 1859. HOLOTYPE: San Bernardino, Arizona, 1851, *C. Wright 1849*.
- Euphorbia cinerascens* Engelm. in Torr., Bot. Mex. Bound. Surv. 186. 1859. LECTOTYPE: Monterrey, Mexico, 1847, *J. Gregg 215*. Syntype: western Texas to El Paso, 1849. *C. Wright 559*.
- Euphorbia cinerascens* Engelm. var. *appendiculata* Engelm. in Torr., Bot. Mex. Bound. Surv. 186. 1859. LECTOTYPE: San Felipe, California, 1852, *G. Thurber 628*. = *E. melanadenia* Torr.
- Euphorbia commutata* Engelm. in Gray, Man. Bot. 2: 389. 1856. TYPE MATERIAL: "Gasconade," May 1835, number 35, illegible but "commutata" added to label by Engelm.
- Euphorbia crenulata* Engelm. in Torr., Bot. Mex. Bound. Surv. 192. 1859. TYPE MATERIAL: no locale, *s.d.*, *Hartweg 1950*.
- Euphorbia curtisii* Engelm. in Chapman, Fl. S. U.S. 401. 1860. LECTOTYPE: North Carolina, *s.d.*, *Curtiss s.n.*
- Euphorbia deltoidea* Engelm. in Chapman, Fl. S. U.S. 2nd edition. 647. 1883. LECTOTYPE: Florida, 1880, *Curtiss 162*.
- Euphorbia dentata* Michx. var. *cuphosperma* Engelm. in Torr., Bot. Mex. Bound. Surv. 190. 1859. LECTOTYPE: Copper Mines, New Mexico, 1851–1852, *C. Wright 1834*.
- Euphorbia dentata* Michx. var. *rigida* Engelm. in Torr., Bot. Mex. Bound. Surv. 190. 1859. LECTOTYPE: San Pedro River, New Mexico, 1851–1852, *C. Wright 1837*.
- Euphorbia dictyosperma* Fisch. & Mey. var. *leiococca* Engelm. in Torr., Bot. Mex. Bound. Surv. 191. 1859. LECTOTYPE: Texas, 1835, *Drummond 327*.
- Euphorbia dictyosperma* Fisch. & Mey. var. *mexicana* Engelm. in Torr., Bot. Mex. Bound. Surv. 191. 1859. LECTOTYPE: Balson de Mapiimi, 1847, *J. Gregg 456*. = *E. mexicana* (Norton) Engelm.
- Euphorbia dioeca* H.B.K. var. *indivisa* Engelm. in Torr., Bot. Mex. Bound. Surv. 187. 1859. ISOTYPE: near the Copper Mines, New Mexico, 1851, *C. Wright 1845*. = *E. indivisa* (Engelm.) Tidstrom.
- Euphorbia exstipulata* Engelm. in Torr., Bot. Mex. Bound. Surv. 189. 1859. LECTOTYPE: Santa Fe, New Mexico, 1847, *A. Fendler 790*. Syntypes: eastern Sonora, *C. Wright 1833 & 1838*.
- Euphorbia floribunda* Engelm. ex Boiss. in DC., Prod. 15(2): 39. 1862. LECTOTYPE: east of Guadalajara, Mexico, 1849, *J. Gregg 856a*.
- Euphorbia florida* Engelm. in Torr., Bot. Mex. Bound. Surv. 189. 1859. LECTOTYPE: west of Chiricahua Mountains, Arizona, 1851, *C. Wright 1829*.
- Euphorbia fruticulosa* Engelm. ex Boiss. in DC., Proc. 15(2): 38. 1862. ISOTYPE: Coahuila, Mexico, *s.d.*, *J. Gregg 506*.
- Euphorbia garberi* Engelm. ex Chapman, Fl. S. U.S. 2nd edition. 646. 1883. LECTOTYPE: coast of Florida, *s.d.*, *Garber s.n.*
- Euphorbia geyeri* Engelm. in Engelm. & Gray, Boston J. Nat. Hist. 5: 260. 1845. LECTOTYPE: Beardstown, Illinois, 1842, *C. A. Geyer s.n.*
- Euphorbia glyptosperma* Engelm. in Torr., Bot. Mex. Bound. Surv. 187. 1859. LECTOTYPE: Fort Kearney, Nebraska, 1856, *H. Engelmann s.n.*
- Euphorbia glyptosperma* Engelm. var. *tenerrima* Engelm. in Torr., Bot. Mex. Bound. Surv. 187. 1859. LECTOTYPE: Nueces River, Texas,

- 1851, *C. Wright* 1853. = *E. glyptosperma* Engelm.
- Euphorbia grisea* Engelm. ex Boiss. in DC., Prod. 15(2): 41. 1862. LECTOTYPE: Cerralro, Nuevo Leon, Mexico, 1847, *J. Gregg* 837.
- Euphorbia hirtula* Engelm. in Watson, Bot. Calif. 2: 74. 1880. LECTOTYPE: southern California, 1880, *E. Palmer* 140.
- Euphorbia humistrata* Engelm. ex Gray, Man. Bot. 2: 386. 1856. LECTOTYPE: St. Louis, Missouri, 1833, *G. Engelmann* 1139.
- Euphorbia lata* Engelm. in Torr., Bot. Mex. Bound. Surv. 189. 1859. LECTOTYPE: western Texas, 1851, *C. Wright* 1841. Syntype: the Cimarron to Sand Creek 1847, *A. Fendler* s.n.
- Euphorbia leptocera* Engelm. ex Torr., Pacif. Rail. Rep. 4: 135. 1857. TYPE MATERIAL: Grass Valley, California, s.d., *J. M. Bigelow* s.n.
- Euphorbia lurida* Engelm. in Ives, Rep. Colo. River Bot. 4: 26. 1861. LECTOTYPE: Bill Williams Mt., Arizona, 1858, *Newberry* s.n.
- Euphorbia marginata* Pursh var. *uloleuca* Engelm. & Gray, Boston J. Nat. Hist 5: 261. 1845. LECTOTYPE: prairies in the Colorado bottom, 1844, *F. Lindheimer* 303.
- Euphorbia montana* Engelm. var. *gracilor* Engelm. in Torr., Bot. Mex. Bound. Surv. 192. 1859. LECTOTYPE: Santa Fe Creek, New Mexico, 1847, *A. Fendler* 786.
- Euphorbia multicaulis* Engelm. in Torr., Bot. Mex. Bound. Surv. 191. 1859. HOLOTYPE: Las Playas, Sonora, 1851, *G. Thurber* 381.
- Euphorbia palmeri* Engelm. in Watson, Bot. Calif. 2: 75. 1880. LECTOTYPE: at Tally's, California, 1875, *E. Palmer* s.n.
- Euphorbia parryi* Engelm., Amer. Naturalist 9: 350. 1875. LECTOTYPE: St. George, Utah, 1874, *C. C. Parry* 247.
- Euphorbia pediculifera* Engelm. in Torr., Bot. Mex. Bound. Surv. 186. 1859. LECTOTYPE: Sonoita Creek, Arizona, 1851, *C. Wright* 1848.
- Euphorbia peplidion* Engelm. in Torr., Bot. Mex. Bound. Surv. 191. 1859. HOLOTYPE: San Pedro, Texas, 1851, *C. Wright* 1823.
- Euphorbia petaloidea* Engelm. in Torr., Bot. Mex. Bound. Surv. 185. 1859. LECTOTYPE: Platte River, Nebraska Territory, 1858, *H. Engelmann* s.n. = *E. missurica* Raf. var. *intermedia* (Engelm.) L. C. Wheeler.
- Euphorbia petaloidea* Engelm. var. *flagelliformis* Engelm. in Torr., Bot. Mex. Bound. Surv. 185. 1859. HOLOTYPE: near Frontera, Texas, 1851, *C. Wright* 1826. = *E. parryi* Engelm.
- Euphorbia petaloidea* Engelm. var. *intermedia* Engelm. in Torr., Bot. Mex. Bound. Surv. 185. 1859. LECTOTYPE: Ft. Pierre, South Dakota, 1853, *F. V. Hayden* s.n. = *E. missurica* Raf. var. *intermedia* (Engelm.) L. C. Wheeler.
- Euphorbia petaloidea* Engelm. var. *nicollettii* Engelm. in Torr., Bot. Mex. Bound. Surv. 185. 1859. LECTOTYPE: Powder River, Montana, 1854, *F. V. Hayden* s.n. = *E. missurica* Raf. var. *intermedia* (Engelm.) L. C. Wheeler.
- Euphorbia pilulifera* L. var. *discolor* Engelm. in Torr., Bot. Mex. Bound. Surv. 188. 1859. LECTOTYPE: Sonoita Creek, Arizona, 1842, *C. Wright* s.n. = *E. hirta* L.
- Euphorbia platysperma* Engelm. in Watson, Bot. Calif. 2: 482. 1880. LECTOTYPE: mouth of Colorado River, 1869, *E. Palmer* s.n.
- Euphorbia pringlei* Engelm. in Patterson, Check list 115. 1887. LECTOTYPE: Canyon of Santa Rita, Arizona, 1881, *C. G. Pringle* 138.
- Euphorbia pycnanthema* Engelm. in Torr., Bot. Mex. Bound. Surv. 188. 1859. HOLOTYPE: Lake Santa Maria, Chihuahua, Mexico, 1852, *C. Wright* 186. = *E. capitellata* Engelm.
- Euphorbia revoluta* Engelm. in Torr., Bot. Mex. Bound. Surv. 186. 1859. LECTOTYPE: between Santa Fe and Moro River, New Mexico, 1847, *A. Fendler* 789.
- Euphorbia schizoloba* Engelm. in Ives, Rep. Colorado River Bot. 4: 27. 1861. HOLOTYPE: western Arizona, 1858, *Newberry* s.n.
- Euphorbia serrula* Engelm. in Torr., Bot. Mex. Bound. Surv. 188. 1859. LECTOTYPE: Guadalupe Pass, Sonora, Mexico, 1851, *C. Wright* 1843.
- Euphorbia setiloba* Engelm. in Torr., Pacif. Rail. Rep. 5: 364. 1857. ISOTYPE: Fort Yuma, California, *G. H. Thomas* s.n.
- Euphorbia stictospora* Engelm. in Torr., Bot. Mex. Bound. Surv. 187. 1859. LECTOTYPE: Pawnee River, Kansas, 1847, *A. Fendler* 798.
- Euphorbia subpubens* Engelm. in Watson, Bot. Calif. 2: 76. 1880. ISOTYPE & FRAGMENT OF HOLOTYPE FROM GH: Prescott, Arizona, 1876, *E. Palmer* 512.
- Euphorbia tetrapora* Engelm. in Torr., Bot. Mex. Bound. Surv. 191. 1859. SYNTYPE: west of Brazos, Texas, 1839, *F. Lindheimer* s.n.
- Euphorbia tomentella* Engelm. ex Boiss. in DC., Prod. 15(2): 32. 1862. LECTOTYPE: San Luis Potosi, Mexico, 1827, *Berlandier* 1358.
- Euphorbia trachysperma* Engelm. in Torr., Bot. Mex. Bound. Surv. 189. 1859. HOLOTYPE: San Pedro River, Arizona, 1851, *C. Wright* 1832.
- Euphorbia umbellata* Engelm. ex Boiss. in DC.,

- Prod. 15(2): 127. 1862. LECTOTYPE: Guadalajara, Mexico, 1849, *J. Gregg* 856.
- Euphorbia villifera* Scheele var. *nuda* Engelm. ex Boiss. in DC., Prod. 15(2): 45. 1862. LECTOTYPE: New Braunfels, Texas, 1850, *C. Wright* s.n.
- Euphorbia xantii* Engelm. ex Boiss. in DC., Prod. 15(2): 62. 1862. LECTOTYPE: Cape St. Lucas, California, 1859–1860, *L. T. Xantus* s.n.
- Jatropha macrorhiza* Benth. var. *septemfida* Engelm. in Rothr., Bot. Wheeler's Surv. 244. 1878. SYNTYPE: Sulphur Springs, Arizona, 1874, *J. T. Rothrock* 546.
- Pilinophytum lindheimeri* Engelm. & Gray, Boston J. Nat. Hist. 5: 232. 1845. SYNTYPE: Texas, 1843, *F. Lindheimer* 171.
- Stillingia angustifolia* Engelm. ex Watson, Proc. Amer. Acad. Arts 18: 154. 1883. HOLOTYPE: Comfort, Texas, 1879, *E. Palmer* 1256. = *S. texana* I. M. Johnston.
- Tetracoccus dioicus* Engelm. ex Parry, West Am. Sci. 1: 13. 1885. PARATYPE: Table Mountain, Northern Lower California, 1883, *C. C. Parry* & *H. C. Orcutt* 313.
- Tragia brevispica* Engelm. & Gray, Boston J. Nat. Hist. 5: 226. 1845. SYNTYPE: Texas, 1848, *F. Lindheimer* 307.
- FABACEAE
- Amorpha canescens* Nutt. var. *leptostachya* Engelm. in Gray, Mem. Amer. Acad. Arts. II. 4: 31. 1849. HOLOTYPE?: in woods between San Miguel and Vegas, 1847, *A. Fendler* 125.
- Amorpha incana* Engelm., apparently not published. HOLOTYPE?: Texas, 1842, *F. Lindheimer* 153, annotated "n. sp." by Engelm.
- Astragalus lindheimeri* Engelm. in Gray, Pl. Wrightiana 1: 52. 1852. LECTOTYPE: Texas, s.d., *F. Lindheimer* 746.
- Baptisia sulphurea* Engelm. Bot. Gaz. 3: 65. 1878. HOLOTYPE: Oklahoma, 1877, *Butler* s.n. (2 sheets). = *B. lactea* (Raf.) Thieret × *B. sphaerocarpa* Nutt.
- Calliandra chamaedrys* Engelm. ex Gray, Mem. Amer. Acad. Arts. II. 4: 39. 1849. SYNTYPES: Chihuahua, Mexico, 1847, *J. Gregg* 529, *A. Wislizenus* 251.
- Calliandra herbacea* Engelm. ex Gray, Mem. Amer. Acad. Arts. II. 4: 39. 1849. LECTOTYPE: New Mexico, s.d., *A. Fendler* 180.
- Cercis reniformis* Engelm. ex Gray, Boston J. Nat. Hist. 6: 177. 1850. LECTOTYPE: Guadalupe, Texas, 1845, *F. Lindheimer* 366. = *C. occidentalis* Torr.
- Desmodium wislizenii* Engelm. ex Gray, Pl. Wrightiana 1: 53. 1852. HOLOTYPE: Cosihui-riachi, Mexico, 1846, *A. Wislizenus* 183. = *D. retinens* Schlecht.
- Eysenhardtia spinosa* Engelm. ex Gray, Boston J. Nat. Hist. 6: 174. 1850. ISOTYPE: Chihuahua, Mexico, 1846, *A. Wislizenus* 133.
- Lespedeza leptostachya* Engelm. in Gray, Proc. Amer. Acad. Arts 12: 57. 1877. LECTOTYPE: Iowa, 1871, *C. E. Bessey* s.n.
- FAGACEAE
- Quercus chrysolepis* Liebm. var. *palmeri* Engelm., Trans. Acad. Sci. St. Louis 3: 393. 1877. HOLOTYPE: 80 mi. E of San Diego, California, 1875, *E. Palmer* 30. = *Q. palmeri* Engelm.
- Quercus dumosa* Nutt. var. *bullata* Engelm., Trans. Acad. Sci. St. Louis 3: 393. 1877. SYNTYPES: Santa Lucia Mts., California, s.d., *Brewer* 473; New Idria, California, s.d., *Brewer* 776; Pope Valley, California, 1863, *H. Bolander* s.n. = *Q. durata* Jeps.
- Quercus falcata* Michx. var. *subintegra* Engelm., Trans. Acad. Sci. St. Louis 3: 543. 1877. LECTOTYPE: South Carolina, 1875, *Mellichamp* s.n. = *Q. subintegra* Trel.
- Quercus hypoleuca* Engelm., Trans. Acad. Sci. St. Louis 3: 384. 1876. LECTOTYPE: Copper Mines, and Arizona, 1851–1852, *C. Wright* 1869.
- Quercus lobata* Nee var. *fruticosa* Engelm., Trans. Acad. Sci. St. Louis 3: 389. 1877. SYNTYPES: west of Shasta, California, 1862, *H. Brewer* 1336; near Tuolumne River, California, *Lemmon* s.n. = *Q. oerstediana* R. Br.
- Quercus muehlenbergii* Engelm., Trans. Acad. Sci. St. Louis 3: 391. 1877. TYPE MATERIAL: St. Louis, Missouri, Sept. 1838, *G. Engelmann* s.n. Annotated *Q. muehlenbergii* by Engelmann, but no annotation date. The only pre-publication dated specimen.
- Quercus tomentella* Engelm., Trans. Acad. Sci. St. Louis 3: 393. 1877. HOLOTYPE: Guadalupe Island, California, *E. Palmer* 89.
- Quercus undulata* Torr. var. *jamesii* Engelm., Trans. Acad. Sci. St. Louis 3: 382. 1876. TYPE MATERIAL: fragment of "original species ex Hb Torrey," Rocky Mountains, s.d., *James* s.n.
- FOUQUIERIACEAE
- Fouquieria splendens* Engelm. in Wisliz., Mem. Tour. No. Mex. 98. 1848. LECTOTYPE: south

of Chihuahua, Mexico, 1847, *A. Wislizenus* 261.

Chihuahua, Mexico, 1846, *A. Wislizenus* 206.
= *Gentianella wislizenii* (Engelm.) J. M. Gillett.

FUMARIACEAE

Corydalis curvisiliqua Engelm. ex Gray., Pl. Wrightiana 2: 10. 1853. TYPE MATERIAL: Texas, Apr. 1848, *F. Lindheimer s.n.*; May 1851, *F. Lindheimer s.n.*

GENTIANACEAE

Erythraea nudicaulis Engelm. in Gray, Proc. Amer. Acad. Arts. 17: 222. 1882. HOLOTYPE: base of Santa Catalina Mountains, Arizona, *C. G. Pringle s.n.*

Geniostemon coulteri Engelm. & Gray, Proc. Amer. Acad. Arts 16: 104. 1881. TYPE MATERIAL: Mexico, *s.d.*, *Coulter, s.n.*, appears to be fragment of holotype from Gray's herbarium.

Geniostemon schafferi Engelm. & Gray, Proc. Amer. Acad. Arts 16: 104. 1881. TYPE MATERIAL: San Luis Potosí, Mexico, 1879, *Schaffer 80*.

Gentiana acuta Michx. var. *nana* Engelm., Trans. Acad. Sci. St. Louis 2: 214. 1862. HOLOTYPE: Colorado Territory, 1861, *C. C. Parry 309*. = *Gentianella amarella* (L.) Borner subsp. *acuta* (Michx.) J. M. Gillett.

Gentiana barbellata Engelm., Trans. Acad. Sci. St. Louis 2: 216. 1862. HOLOTYPE: Snowy Range, Colorado, 1862, *C. C. Parry s.n.* = *Gentianella barbellata* (Engelm.) J. M. Gillett.

Gentiana heterosepala Engelm., Trans. Acad. Sci. St. Louis 2: 215. 1862. HOLOTYPE: Uintah Mts., Utah, 1859, *H. Engelmann s.n.* = *Gentianella amarella* (L.) Borner.

Gentiana oregana Engelm. in Gray, Syn. Fl. N. Am. II. 1: 122. 1884. LECTOTYPE: Blue Mts., Oregon, 1874, *R. D. Nevius s.n.*

Gentiana parryi Engelm., Trans. Acad. Sci. St. Louis 2: 218. 1863. LECTOTYPE: Colorado Territory, 1861, *C. C. Parry 304*. Syntype: "Rocky Mountain Flora," 1862, *E. Hall & J. P. Harbour 470*.

Gentiana prostrata Haenke var. *americana* Engelm., Trans. Acad. Sci. St. Louis 2: 217. 1863. SYNTYPES: Rocky Mountains, 1862, *E. Hall & J. P. Harbour 475*; Snowy Range, *s.d.*, *C. C. Parry 306*.

Gentiana wislizenii Engelm., Trans. Acad. Sci. St. Louis 2: 215. 1863. HOLOTYPE: Llanos,

GERANIACEAE

Geranium fremontii Torr. ex Gray var. *parryi* Engelm. in Gray, Amer. J. Sci. II. 33: 405. 1862. LECTOTYPE: Clear Creek, Colorado, 1861, *C. C. Parry 113?*

Geranium gracile Engelm. in Gray, Mem. Amer. Acad. Arts. II. 4: 27. 1849. HOLOTYPE: Cosihuirachi, Mexico, 1846, *A. Wislizenus 173* (2 sheets). = *G. atropurpureum* Heller.

Geranium pentagynum Engelm. in Wisliz., Mem. Tour. No. Mex. 90. 1848. HOLOTYPE: Wolf Creek, New Mexico, 1846, *A. Wislizenus 508* (2 sheets). = *G. richardsonii* Fisch. & Trautv.

HYDROPHYLLACEAE

Eutoca patuliflora Engelm. & Gray. Boston J. Nat. Hist. 5: 253. 1845. ISOTYPE: Texas, *s.d.*, *F. Lindheimer 280*. = *Phacelia patuliflora* (Engelm. & Gray) Gray.

Eutoca strictiflora Engelm. & Gray, Boston J. Nat. Hist. 5: 253. 1845. ISOTYPE: Texas, *s.d.*, *F. Lindheimer 279* (2 sheets). = *Phacelia strictiflora* (Engelm. & Gray) Gray.

ISOETACEAE

Isoetes bolanderi Engelm., Amer. Naturalist 8: 214. 1874. LECTOTYPE: Tuolumne River, California, 1866, *H. Bolander 5091*. Syntypes: Mary's Lake, California, 1870, *H. Bolander 5080*; Mono Trail, California, 1870, *H. Bolander 5093*.

Isoetes butleri Engelm. var. *immaculata* Engelm., Trans. Acad. Sci. St. Louis 4: 388. 1882. HOLOTYPE: near Nashville, Tennessee, 1880, *A. Gattinger 3812*. = *I. butleri* Engelm.

Isoetes cubana Engelm., Trans. Acad. Sci. St. Louis 4: 389. 1882. HOLOTYPE: eastern Cuba, 1860, *C. Wright s.n.*

Isoetes echinospora Durieu var. *robusta* Engelm., Trans. Acad. Sci. St. Louis 4: 380. 1882. HOLOTYPE: Lake Champlain, New York?, 1879, *C. G. Pringle s.n.*

Isoetes engelmannii A. Braun var. *georgiana* Engelm., Trans. Acad. Sci. St. Louis 4: 385. 1882. HOLOTYPE: Georgia, 1873, *A. W. Chapman s.n.* = *I. engelmannii* A. Braun.

Isoetes flaccida Shuttlew. ex A. Braun var. *chap-*

manii Engelm., Trans. Acad. Sci. St. Louis 4: 386. 1882. HOLOTYPE: near Mariana, Florida, 1850, *Chapman s.n.* = *I. flaccida* Shuttlew.

Isoetes flaccida Shuttlew. ex A. Braun var. *rigida* Engelm., Trans. Acad. Sci. St. Louis 4: 386. 1882. HOLOTYPE: Lake Flint, Florida, 1878, *A. Garber s.n.* = *I. flaccida* Shuttlew.

Isoetes howellii Engelm., Trans. Acad. Sci. St. Louis 4: 385. 1882. HOLOTYPE: The Dalles, Oregon, *J. & T. J. Howell 1880*.

Isoetes lacustris L. var. *paupercula* Engelm., Trans. Acad. Sci. St. Louis 4: 377. 1882. LECTOTYPE: Middle Park, Colorado, 1881, *G. Engelmann s.n.* = *I. occidentalis* Hend.

Isoetes melanospora Engelm., Trans. Acad. Sci. St. Louis 3: 395. 1877. HOLOTYPE: Stone Mt., Georgia, 1869, *Canby s.n.* (2 sheets).

Isoetes nuda Engelm., Trans. Acad. Sci. St. Louis 4: 385. 1882. HOLOTYPE: The Dalles, Oregon, 1882, *T. Howell 26.* = *I. howellii* Engelm.

Isoetes pygmaea Engelm., Amer. Naturalist 8: 214. 1874. HOLOTYPE: Mono Pass, California, 1866, *H. Bolander 6025* (2 sheets). = *I. bolanderi* Engelm. var. *pygmaea* (Engelm.) Clute.

Isoetes riparia Engelm. in A. Braun, Flora (Regensb. Bot. Zeit.) 29: 178. 1846. HOLOTYPE: Philadelphia, Pennsylvania, 1844, *Zantziger s.n.*

Isoetes riparia Engelm. var. *canadensis* Engelm., Trans. Acad. Sci. St. Louis 4: 383. 1884. TYPE MATERIAL: Crow River, Canada, *s.d.*, *J. Macoun s.n.*

Isoetes saccharata Engelm. in Gray, Man. Bot. 5: 676. 1868. HOLOTYPE?: Salisbury, Maryland, 1866, *Canby s.n.*

JUGLANDACEAE

Juglans rupestris Engelm. in Torr., Bot. Sitgr. Rep. 171. 1853. TYPE MATERIAL: Texas, 1849, *F. Lindheimer 20 (1178)*.

JUNCACEAE

Juncus asper Engelm., Trans. Acad. Sci. St. Louis 2: 478. 1868. SYNTYPES: Quaker Bridge, New Jersey, 1864, 1865, 1866, *Smith s.n.*, 1866, 1867; *C. F. Parker s.n.* (2 sheets).

Juncus balticus Willd. var. *littoralis* Engelm., Trans. Acad. Sci. St. Louis 2: 442. LECTOTYPE & ISOLECTOTYPE: Ipswich, 1842, *Oakes s.n.* = *J. arcticus* Willd. subsp. *littoralis* Engelm.

Juncus balticus Willd. var. *montanus* Engelm., Trans. Acad. Sci. St. Louis 2: 442. LECTOTYPE & ISOLECTOTYPE: Rocky Mountains, 1862, *E.*

Hall & Harbour 567. = *J. arcticus* Willd. subsp. *ater* (Rydb.) Hult.

Juncus bolanderi Engelm., Trans. Acad. Sci. St. Louis 2: 470. 1868. HOLOTYPE: Mission Dolore, California, 1865, *H. Bolander s.n.*

Juncus brachycarpus Engelm., Trans. Acad. Sci. St. Louis 2: 467. 1868. SYNTYPES: Charleston, South Carolina, *Beyrich s.n.*; Louisiana, no date, *J. Hale s.n.*; Detroit, Michigan, July 1867, *J. M. Bigelow s.n.*; Michigan, no date, *Folwell s.n.*

Juncus breweri Engelm., Trans. Acad. Sci. St. Louis 2: 440. 1866. HOLOTYPE: Monterey, California, May 1866, *W. H. Brewer 651*. Isotype: Monterey, California, May 1861, *W. H. Brewer 651.* = *J. arcticus* Willd. subsp. *mexicanus* (Willd.) Lint × subsp. *pacificus* (Engelm.) Lint.

Juncus canaliculatus Engelm., Bot. Gaz. 7: 6. 1882. HOLOTYPE: San Bernardino, California, 1881, *S. B. & W. F. Parish 1091.* = *J. macrophyllus* Coville.

Juncus chlorocephalus Engelm., Trans. Acad. Sci. St. Louis 2: 485. 1868. SYNTYPES: Sierras, California, 1866, *Hillebrand 2338* (2 sheets); *W. H. Brewer 1804* (2 sheets); *H. Bolander Cal. St. Surv. 6033*.

Juncus drummondii E. Mey. var. *humilus* Engelm., Trans. Acad. Sci. St. Louis 2: 445. 1868. HOLOTYPE: Mt. Shasta, California, 1862, *Brewer 1383*.

Juncus dubius Engelm., Trans. Acad. Sci. St. Louis 2: 459. 1868. SYNTYPE: Mariposa, California, *s.d.*, *H. Bolander Cal. St. Surv. 6032*.

Juncus hallii Engelm., Trans. Acad. Sci. St. Louis 2: 446. 1868. HOLOTYPE: Lake Ranch, Colorado, 1862, *E. Hall & J. P. Harbour 562*.

Juncus kelloggii Engelm., Trans. Acad. Sci. St. Louis 2: 494. 1868. HOLOTYPE: San Francisco, California, 1866, *A. Kellogg s.n.*

Juncus mertensianus Bong. var. *paniculatus* Engelm., Trans. Acad. Sci. St. Louis 2: 480. 1868. ISOTYPE: Rocky Mts., 1858, *Bourgeau s.n.*

Juncus obtusatus Engelm., Trans. Acad. Sci. St. Louis 2: 495. 1868. HOLOTYPE: Big Tree Grove, Mariposa, California, 1866, *H. Bolander Cal. St. Surv. 6028*.

Juncus oxymeres Engelm., Trans. Acad. Sci. St. Louis 2: 483. 1868. SYNTYPES: Big Tree Grove, Mariposa, California, 1866, *H. Bolander 95* (4 sheets).

Juncus parryi Engelm., Trans. Acad. Sci. St. Louis 2: 446. 1866. HOLOTYPE: Colorado, 1861, *C. Parry 360*.

Juncus phaeocephalus Engelm. var. *glomeratus*

- Engelm., Trans. Acad. Sci. St. Louis 2: 484. 1868. SYNTYPES: San Francisco, California, 1866, *A. Kellogg* 96 (6 sheets).
- Juncus phaeocephalus* Engelm. var. *gracilis* Engelm., Trans. Acad. Sci. St. Louis 2: 473. 1868. SYNTYPES: Sierra Nevadas, California, 1865, *H. Bolander Cal. St. Surv.* 2339 (2 sheets), *H. Bolander* 98 (6 sheets); 1865, *Brewer* 1709. = *J. mertensianus* Bong.
- Juncus phaeocephalus* Engelm. var. *paniculatus* Engelm., Trans. Acad. Sci. St. Louis 2: 484. 1868. SYNTYPES: Napa Valley, California, *s.d.*, *J. M. Bigelow s.n.*; San Francisco, California, *A. Kellogg* 97 (4 sheets).
- Juncus rugulosus* Engelm. in Coult., Bot. Gaz. 6: 224: 1881. HOLOTYPE: San Bernardino Mountains, California, 9 Nov. 1880, *W. G. Wright s.n.*
- Juncus smithii* Engelm., Trans. Acad. Sci. St. Louis 2: 444. 1868. HOLOTYPE: Broad Mt., Pottsville, Pennsylvania, 1865, *C. E. Smith s.n.*
- Juncus supiniformis* Engelm., Trans. Acad. Sci. St. Louis 2: 461. 1868. HOLOTYPE: Mendocino, California, 1866, *H. Bolander Cal. St. Surv.* 4767.
- Juncus triformis* Engelm., Trans. Acad. Sci. St. Louis 2: 492. 1868. LECTOTYPE: De Long's Ranch, Yosemite Valley, California, 1866, *H. Bolander* 30.
- Juncus triformis* Engelm. var. *brachystylus* Engelm., Trans. Acad. Sci. St. Louis 2: 492. 1868. ISOLECTOTYPE: Ukiah, California, 1866, *H. Bolander* 31 (3 sheets) & *Cal. St. Surv.* 8457. Syntype: Ukiah, California, 1866, *H. Bolander s.n.*
- Juncus triformis* Engelm. var. *stylosus* Engelm., Trans. Acad. Sci. St. Louis 2: 492. 1868. ISOLECTOTYPE: Yosemite Valley, California, 1866, *H. Bolander* 30. = *J. triformis* Engelm.
- Juncus triformis* Engelm. var. *uniflorus* Engelm., Trans. Acad. Sci. St. Louis 2: 493. 1868. SYNTYPES: Sierra Nevada, California, 1866, *Hillebrand Cal. St. Surv.* 2333; Long Valley, California, 1866, *H. Bolander* 32 (*Cal. St. Surv.* 4691) (2 sheets). = *J. hemiendytus* F. J. Herman.
- Juncus vaseyi* Engelm., Trans. Acad. Sci. St. Louis 2: 448. 1868. SYNTYPES: Saskatchewan, Canada, 1852 and 1858, *E. Bourgeau s.n.*; Colorado, 1862, *E. Hall s.n.*

LAMIACEAE

- Brazoria scutellarioides* Engelm. & Gray, Boston J. Nat. Hist. 5: 257. 1845. PARATYPES: on

paths and slopes of the prairie, in heavy soil, Texas, *F. Lindheimer* 286, 287.

- Monarda lindheimeri* Engelm. & Gray, Boston J. Nat. Hist. 5: 228. 1845. SYNTYPE: Houston, Texas, 1843, *F. Lindheimer* 151 (2 sheets).
- Scutellaria cardiophylla* Engelm. & Gray, Boston J. Nat. Hist. 5: 227. 1845. ISOTYPES: Texas, 1843, *F. Lindheimer* 144 (2 sheets).

LINACEAE

- Linum aristatum* Engelm. in Wisliz., Mem. Tour. No. Mex. 101. 1848. HOLOTYPE: near Carizal, south of El Paso, Mexico, 1846, *A. Wislizenus* 101.
- Linum greggii* Engelm. ex Gray, Pl. Wrightiana 26. 1852. HOLOTYPE: San Antonio near Saltillo, Mexico, 31 Aug. 1848, *J. Gregg s.n.*
- Linum rigidum* Pursh var. *puberulum* Engelm. ex Gray, Pl. Wrightiana 25. 1852. ISOTYPE: New Mexico, 1847, *A. Fendler* 85. = *L. puberulum* (Engelm.) Heller.
- Linum rupestre* Engelm. in Gray, Boston J. Nat. Hist. 6: 232. 1850. ISOTYPE: New Braunfels, Texas, 1846, *F. Lindheimer* 337.
- Linum rupestre* Engelm. var. *cymulosum* Engelm. in Gray, Pl. Wrightiana 26. 1852. HOLOTYPE: battlefield of Buena Vista, Mexico, 1848, *J. Gregg s.n.*

LOASACEAE

- Mentzelia chrysantha* Engelm. ex Brandege, Fl. S. W. Col. 237. 1878. HOLOTYPE: Cañon City, Colorado, 1874. *G. Engelmann s.n.*

LORANTHACEAE

- Arceuthobium abietinum* Engelm. in Gray, Proc. Amer. Acad. Arts 8: 401. 1872. TYPE MATERIAL: Oregon, 1871, *E. Hall* 457 & 458 (2 sheets each); California, 1875, *J. Muir* 7654.
- Arceuthobium campylopodium* Engelm. in Gray, Boston J. Nat. Hist. 6: 214. 1845. ISOTYPE: Oregon, label says Rocky Mountains, ex herb Hooker, 1843, *C. A. Geyer* 577 (2 sheets).
- Arceuthobium campylopodium* Engelm. var. *macrarthron* Engelm. in Gray, Boston J. Nat. Hist. 6: 214. 1845. SYNTYPES: Santa Fe, New Mexico, *A. Fendler* 282 (2 sheets); California, 1848, *Douglas s.n.*; 1848, *C. A. Geyer s.n.*
- Arceuthobium cryptopodium* Engelm., in Gray, Boston J. Nat. Hist. 6: 214. 1850. HOLOTYPE: Santa Fe, New Mexico, 1847, *A. Fendler* 283. = *A. vaginata* (Willd.) Presl. subsp.

cryptopodum (Engelm.) Hawksworth & Wiens.

Arceuthobium divaricatum Engelm. in Rothr., Bot. Wheeler's Surv. 253. 1878. LECTOTYPE: Salt River Valley, Arizona, 1873, *Gilbert 116*. Syntype: Camp Apache, Arizona, 1874, *J. B. Girard s.n.*

Arceuthobium douglasii Engelm. in Rothr., Bot. Wheeler's Surv. 253. 1878. LECTOTYPE: Santa Fe River, New Mexico, 1874, *J. T. Rothrock 69*. Syntype: Camp Apache, Arizona, 1873, *G. K. Gilbert 109*.

Arceuthobium douglasii Engelm. var. *abietinum* Engelm. in Watson, Bot. Calif. 2: 106. 1880. LECTOTYPE: Sierra Valley, California, 1875, *Lemmon s.n.* = *A. abietinum* Engelm.

Arceuthobium occidentale Engelm. in Rothr., Bot. Wheeler's Surv. 375. 1878. LECTOTYPE: Walker's Basin, California, 1875, *J. T. Rothrock 429*.

Arceuthobium robustum Engelm. in Gray, Mem. Amer. Acad. Arts. II. 4: 59. 1849. SYNTYPE: Camp Apache, Arizona, 1873, *G. Gilbert 108*. = *A. vaginatum* (Weins) Presl. subsp. *cryptopodum* (Engelm.) Hawksworth & Weins.

Arceuthobium verticilliflorum Engelm. in Watson, Bot. Calif. 2: 107. 1880. HOLOTYPE: Sierra Madre, Durango, Mexico, 1852, *Seeman 2138* (2 sheets).

Phoradendron flavescens Nutt. var. *macrophyllum* Engelm. in Rothr., Bot. Wheeler's Surv. 252. 1878. SYNTYPES: Gila River, Arizona, 1873, *Gilbert 104*; Camp Grant, 1874, *J. T. Rothrock 362*.

Phoradendron juniperinum Engelm. ex Gray, Mem. Amer. Acad. Arts. II. 4: 58. 1849. HOLOTYPE: Santa Fe, New Mexico, 1847, *A. Fendler 281*.

Phoradendron lanceolatum Engelm. ex Gray, Mem. Amer. Acad. Arts. II. 4: 59. 1849. HOLOTYPE: Rinconada, Mexico, 1847, *J. Gregg 255*.

Phoradendron orbiculatum Engelm. in Gray, Mem. Amer. Acad. Arts. II. 4: 59. 1849. LECTOTYPE: Little Rock, Arkansas, 1837, *G. Engelmann 707*. Syntype: same data but *G. Engelmann s.n.* = *P. flavescens* Nutt. var. *orbiculatum* Engelm.

LYTHRACEAE

Lythrum ovalifolium Engelm. ex Gray, Boston J. Nat. Hist. 6: 187. 1850. SYNTYPE: Pterdenales, Texas, 1845, *F. Lindheimer 450*.

MALVACEAE

Sida heterocarpa Engelm. ex Gray, Boston J. Nat. Hist. 6: 163. 1850. TYPE MATERIAL: Industry, Texas, 1844, *F. Lindheimer 189*. = *S. spinosa* L.

MARSILEACEAE

Marsilea macropoda Engelm. in A. Braun, Amer. J. Sci. II. 3: 56. 1847. HOLOTYPE: Matagorda Bay, Texas, 1845, *F. Lindheimer s.n.*

Marsilea tenuifolia Engelm. in A. Braun, Amer. J. Sci. II. 6: 89. 1848. HOLOTYPE: Guadalupe River, Texas, 1837, *F. Lindheimer s.n.*

MARTYNIACEAE

Martynia arenaria Engelm. in Wisliz., Mem. Tour. No. Mex. 100. 1848. HOLOTYPE: sandhills below El Paso, 1846, *A. Wislizenus 92*. = *Proboscidea altheaefolia* (Benth.) Dcne.

Martynia violacea Engelm. in Wisliz., Mem. Tour. No. Mex. 111. 1848. SYNTYPE: Lake Encinilla, north of Chihuahua, Mexico, 1846, *A. Wislizenus 145*. = *Proboscidea louisianica* (Mill.) Thell subsp. *fragrans* (Lindl.) Bretting.

NYMPHAEACEAE

Nuphar polysepalum Engelm. var. *pictum* Engelm., Trans. Acad. Sci. St. Louis 2: 282. 1866. LECTOTYPE: Colorado Territory, 1864, *C. C. Parry s.n.*

OLEACEAE

Menodora scoparia Engelm. ex Gray, Bot. Calif. 1: 471. 1876. SYNTYPES: Saltillo, Mexico, 1848, *J. Gregg 498 & 527*.

ONAGRACEAE

Gaura lindheimeri Engelm. & Gray, Boston J. Nat. History 5: 217. 1845. TYPE MATERIAL: prairie near Houston, Texas, 1843, *F. Lindheimer s.n.*

Gaura suffulta Engelm. in Gray, Boston J. Nat. Hist. 6: 190. 1850. ISOTYPE: New Braunfels, Texas, 1847, *F. Lindheimer 611* (4 sheets).

PAPAVERACEAE

Corydalis aurea Willd. var. *micrantha* Engelm. in Gray, Man. Bot. 5: 62. 1868. TYPE MATERIAL: "459" no additional collection information but label has complete description

probably used in publication. = *C. micrantha* (Engelm.) Gray.

Corydalis crystallina Engelm. in Gray, Man. Bot. 5: 62. 1868. TYPE MATERIAL: Washington City, Arkansas, 1835, no collector.

Corydalis montana Engelm. in Gray, Man. Bot. 5: 62. 1868. TYPE MATERIAL: Santa Fe, New Mexico, 1847, *A. Fendler 17.* = *C. aurea* Willd.

Dicentra ochroleuca Engelm. in Coult., Bot. Gaz. 6: 233. 1881. HOLOTYPE: Santa Monica, California, 1880, *G. Engelmann s.n.* (2 sheets).

PASSIFLORACEAE

Passiflora affinis Engelm. ex Gray, Boston J. Nat. Hist. 6: 233. 1850. SYNTYPE: Texas, 1849, *F. Lindheimer 817.*

Passiflora tenuiloba Engelm. in Gray, Boston J. Nat. Hist. 6: 192. 1850. SYNTYPE: on the Liano, 1848 and 1849, *F. Lindheimer s.n.* (2 sheets).

PINACEAE

Abies grandis Lindl. var. *densiflora* Engelm., Trans. Acad. Sci. St. Louis 3: 599. 1878. TYPE MATERIAL: Mt. Hood, Oregon, 1871, *E. Hall s.n.*; British North America, 1862, *D. Lyall s.n.*; British Columbia, Canada, *s.d.*, *D. Lyall s.n.* = *A. amabilis* (Dougl.) Forbes.

Picea pungens Engelm., Gard. Chron. 11: 334. 1879. TYPE MATERIAL: upper Arkansas, Colorado, 1878, *M. E. Jones 364*; Lake County, Colorado, 1876, *G. Vasey s.n.* Both specimens prepublication date and annotated by Engelmann.

Pinus aristata Engelm., Trans. Acad. Sci. St. Louis 2: 205. 1863. TYPE MATERIAL: Rocky Mountains, 1862, *C. C. Parry s.n.*; Rocky Mountains, *s.d.*, *C. C. Parry s.n.* (2 sheets); the latter two specimens probably used for illustrations in publication.

Pinus arizonica Engelm. in Rothr., Bot. Wheeler's Surv. 260. 1878. HOLOTYPE: Santa Rita Mts., Arizona, 1874, *J. T. Rothrock 652.*

Pinus brachyptera Engelm. in Rothr., Bot. Wheeler's Surv. 89. 1878. LECTOTYPE: Rock Creek to Santa Fe, 1846, *A. Wislizenus 534* (2 sheets). = *P. ponderosa* Dougl. ex P. & C. Lawson.

Pinus chihuahuana Engelm. in Rothr., Bot. Wheeler's Surv. 103. 1878. HOLOTYPE: Cosihuirachi, Mexico, 1846, *A. Wislizenus 232* (2 sheets).

Pinus edulis Engelm. in Rothr., Bot. Wheeler's Surv. 88. 1878. SYNTYPES: Cimarron to Santa Fe, 1846, *A. Wislizenus s.n. & 535* (2 sheets); New Mexico, 1846, *J. Gregg s.n.*

Pinus elliottii Engelm., Trans. Acad. Sci. St. Louis 4: 186. 1880. SYNTYPES: South Carolina, 1871 (2 sheets), 1872, 1873, *Mellichamp s.n.* = *P. cubensis* Griseb.

Pinus flexilis James var. *macrocarpa* Engelm. in Rothr., Bot. Wheeler's Surv. 258. 1878. HOLOTYPE: San Francisco Mts., Arizona, 1871, *F. Bishoff s.n.*

Pinus flexilis James var. *reflexa* Engelm. in Rothr., Bot. Wheeler's Surv. 258. 1878. SYNTYPES: southern Arizona, *s.d.*, *J. T. Rothrock 654 & 1001.*

Pinus flexilis James var. *serrulata* Engelm. in Rothr., Bot. Wheeler's Surv. 258. 1878. HOLOTYPE: Mt. Graham, Arizona, 1874, *J. T. Rothrock 783.*

Pinus greggii Engelm. ex Parl. in DC., Prod. 16(2): 396. 1868. HOLOTYPE: Saltillo, Mexico, 1848, *J. Gregg 402.*

Pinus latisquama Engelm., Gard. Chron. 18: 712. 1882. HOLOTYPE: south of Saltillo, Mexico, 1880, *E. Palmer 1299.* = *P. pinaceana* Gord.

Pinus macrophylla Engelm. in Wisliz., Mem. Tour. No. Mex. 103. 1848. HOLOTYPE: Cosihuirachi, Mexico, 1846, *A. Wislizenus 233* (2 sheets & 1 cone box). = *P. engelmannii* Carr.

Pinus osteosperma Engelm. in Wisliz., Mem. Tour. No. Mex. 89. 1848. LECTOTYPE: Buena Vista, Mexico, 1847, *J. Gregg 321* (2 sheets). = *P. cembroides* Zucc.

Pinus parryana Engelm., Amer. J. Sci. II. 34: 332. 1862. HOLOTYPE: southeast of San Diego, California, in Mexico, 1850, *C. C. Parry s.n.* (2 sheets). = *P. quadrifolia* Parry.

Pinus strobiformis Engelm. in Wisliz., Mem. Tour. No. Mex. 102. 1848. LECTOTYPE: Cosihuirachi, Mexico, 1846, *A. Wislizenus 231* (2 sheets & 1 cone box). Syntype: Cosihuirachi, Mexico, 1846, *A. Wislizenus 155.* = *P. ayacahuite* Ehrenb. ex Schlecht.

Pinus wrightii Engelm., Trans. Acad. Sci. St. Louis 4: 185. 1880. SYNTYPES: eastern Cuba, 1860–1864, *C. Wright 3190 & 1462b* (1 sheet & 1 cone box); 1859, *C. Wright 1462 (a?)*.

Tsuga caroliniana Engelm. in Coult., Bot. Gaz. 6: 223. 1881. SYNTYPES: South Carolina, 1851, *L. R. Gibbs s.n.*, *A. H. Curtiss s.n.*; North Carolina, 1841, *A. Gray & Carey s.n.*

PLANTAGINACEAE

Plantago pusilla Nutt. var. *major* Engelm., Bot. Gaz. 8: 175. 1883. HOLOTYPE: Indian Territory, 1874, G. D. Butler s.n. = *P. elongata* Pursh.

POACEAE

Aristida basiramea Engelm. ex Vasey, Coult. Bot. Gaz. 9: 76. 1884. SYNTYPE: Minneapolis, Minnesota, 1883, W. Upham s.n.

Aristida ramosissima Engelm. ex Gray, Man. Bot. 5: 618. 1868. TYPE MATERIAL: east of Belleville, Illinois, Aug. 1845, G. Engelmann s.n.; St. Clair County, Illinois, Aug. 1858, G. Engelmann s.n.; southern Illinois, 1861, G. Engelmann s.n.

Monanthochloe littoralis Engelm., Trans. Acad. Sci. St. Louis 1: 436. 1859. SYNTYPES: Mantamoras, s.d., Berlandier 3227 (2 sheets); Texas, 1841, 1842, 1843, F. Lindheimer s.n. (5 sheets).

Spartina junciformis Engelm. & Gray, Boston J. Nat. Hist. 5: 238. 1845. SYNTYPE: Galveston, Texas, 1843, F. Lindheimer 207 (3 sheets).

POLYGONACEAE

Eriogonum alpinum Engelm., Bot. Gaz. 7: 6. 1882. HOLOTYPE: Scotts Mt., California, 1880, G. Engelmann s.n.

Eriogonum atrorubens Engelm. in Wisliz., Mem. Tour. No. Mex. 108. 1848. HOLOTYPE & ISOTYPE: Cosihuiriachi, Mexico, 1846, A. Wislizenus 172 (2 sheets).

Polygonum cristatum Engelm. & Gray, Boston J. Nat. Hist. 5: 259. 1845. HOLOTYPE: Texas, 1844, F. Lindheimer 237 (*exsiccatae* no. 296), "n. sp." added by Engelm.

PORTULACACEAE

Lewisia brachycalyx Engelm. ex Gray, Proc. Amer. Acad. Arts 7: 400. 1868. SYNTYPES: Fort Whipple, Arizona, 1865, E. Coues & E. Palmer 211 (2 sheets); Utah, 1859, Brewer s.n.

Portulaca lanceolata Engelm. in Gray, Boston J. Nat. Hist. 6: 154. 1850. SYNTYPE: Llano, Texas, 1848, F. Lindheimer s.n. = *P. umbraticola* H.B.K.

Portulaca retusa Engelm., Boston J. Nat. Hist. 6: 154. 1850. HOLOTYPE: "ex sem. texanis cult. St. Louis," from Llano in western Texas, Aug. 1849, G. Engelmann s.n.

Portulaca suffrutescens Engelm., Bot. Gaz. 6: 236.

1881. SYNTYPES: Copper Mines, 1851, C. Wright 874; Fort Whipple, Arizona, 1865, E. Coues & E. Palmer 547; Santa Rita Mts., Arizona, 1880, G. Engelmann s.n.

Talinum aurantiacum Engelm. in Gray, Boston J. Nat. Hist. 6: 153. 1850. SYNTYPES: on the Llano, Texas, 1848, F. Lindheimer 579; on the Sabinas, Texas, 1847, F. Lindheimer s.n.

Talinum calycium Engelm. in Wisliz., Mem. Tour. No. Mex. 88. 1848. HOLOTYPE: on the Cimarron, 1846, A. Wislizenus 475 (2 sheets); one is annotated "n. sp." by Engelm.

Talinum sarmentosum Engelm. in Gray, Boston J. Nat. Hist. 6: 153. 1850. SYNTYPE: Texas, 1847, F. Lindheimer 580.

Talinum spathulatum Engelm. in Gray, Pl. Wrightiana 14. 1852. LECTOTYPE: western Texas to El Paso, Texas, 1849, C. Wright 35. = *T. paniculatum* (Jacq.) Gaertn.

POTAMOGETONACEAE

Potamogeton diversifolius Raf. var. *spicatus* Engelm., Amer. J. Sci. 46: 102. 1843. HOLOTYPE: Cosihuiriachi, Mexico, 1846-1847, A. Wislizenus 159.

RANUNCULACEAE

Ranunculus texensis Engelm. in Engelm. & Gray, Boston J. Nat. Hist. 5: 210. 1845. SYNTYPE: near Houston, Texas, 1843, F. Lindheimer 1. = *R. oblongifolius* Ell.

Ranunculus trachyspermus Engelm. in Engelm. & Gray, Boston J. Nat. Hist. 5: 211. 1845. SYNTYPE: Texas, 1843, F. Lindheimer 2. = *R. pusillus* Poir. var. *angustifolius* (Engelm.) L. Benson.

Ranunculus trachyspermus Engelm. var. *angustifolius* Engelm. in Engelm. & Gray, Boston J. Nat. Hist. 5: 211. 1845. SYNTYPE: Galveston Island, Texas, 1843, F. Lindheimer 3. = *R. pusillus* Poir. var. *angustifolius* (Engelm.) L. Benson.

Ranunculus trachyspermus Engelm. var. *lindheimeri* Engelm. in Engelm. & Gray, Boston J. Nat. Hist. 5: 211. 1845. SYNTYPE: Galveston, Texas, 1843, F. Lindheimer s.n.

Thalictrum fendleri Engelm. ex Gray, Mem. Amer. Acad. Arts. II. 4: 5. 1849. ISOTYPE: Santa Fe, New Mexico, 1847, A. Fendler 13 (2 sheets).

ROSACEAE

Greggia rupestris Engelm. in Wisliz., Mem. Tour. No. Mex. 114. 1848. SYNTYPE: Cosihuiriachi,

Mexico, 1846, *A. Wislizenus* 228 (2 sheets); Saltillo, Mexico, *A. Wislizenus* s.n.; Buena Vista, Mexico, 1847, *A. Wislizenus* 324. = *Cowania mexicana* D. Don.

Prunus gracilis Engelm. & Gray, Boston J. Nat. Hist. 5: 243. 1845. ISOTYPES: west of the Brazos, Texas, March, 1844, *F. Lindheimer* 237; "Post Oak Plum . . .," Texas, March, 1844, *F. Lindheimer* s.n.

Prunus minutiflora Engelm. in Gray, Boston J. Nat. Hist. 6: 185. 1850. LECTOTYPE: between San Antonio and New Braunfels, Texas, s.d., *F. Lindheimer* 388.

Rosa minutifolia Engelm., Bull. Torrey Bot. Club 9: 97. 1882. HOLOTYPE: All Saint's Bay, California, 1882, *C. C. Parry & M. E. Jones* s.n.

Rosa spithamea A. Gray var. *subinermis* Engelm., Bot. Gaz. 6: 236. 1881. HOLOTYPE: Big Trees, Sierra Nevada, California, 1880, *G. Engelmann* s.n.

RUBIACEAE

Bouvardia glaberrima Engelm. in Wisliz., Mem. Tour. No. Mex. 107. 1848. LECTOTYPE: Co-sihuirachi, Mexico, 1846, *A. Wislizenus* 161 (2 sheets).

SAXIFRAGACEAE

Fendlera rupicola A. Gray var. *lindheimeri* Engelm. & Gray in Gray, Pl. Wrightiana 1: 77. 1852. HOLOTYPE?: Texas, 1850, *F. Lindheimer* 792 (2 sheets).

Heuchera sanguinea Engelm. in Wisliz., Mem. Tour. No. Mex. 107. 1848. HOLOTYPE: Llanos, 1846, *A. Wislizenus* 210 (2 sheets).

Saxifraga debilis Engelm. ex Gray, Proc. Amer. Acad. Arts 15: 62. 1863. HOLOTYPE OR ISOTYPE: Colorado, 1861, *C. C. Parry* 167.

SCROPHULARIACEAE

Castilleja indivisia Engelm. in Engelm. & Gray, Boston J. Nat. Hist. 5: 47. 1845. SYNTYPE: from Houston to the Colorado, 1844 & 1846, *F. Lindheimer* 284 (3 sheets).

Maurandya wislizenii Engelm. ex Gray in Torr., Bot. Mex. Bound. Surv. 111. 1859. LECTOTYPE: near Val Verde, New Mexico, 1846, *A. Wislizenus* 45.

Penstemon coccineus Engelm. in Wisliz., Mem. Tour. No. Mex. 107. 1848. HOLOTYPE: Llanos, 1846, *A. Wislizenus* 207. = *P. wislizenii* (Gray) Straw.

SPARGANIACEAE

Sparganium eurycarpum Engelm. in Gray, Man. Bot. 5: 481. 1868. TYPE MATERIAL: American Bottom, 13 Aug. 1860, *G. Engelmann* s.n. No specimens cited but collected prior to publication date.

Sparganium simplex Huds. var. *androcladum* Engelm. in Gray, Man. Bot. 5: 481. 1868. LECTOTYPE: near Boston, 1856, *G. Engelmann* s.n. Syntypes: American Bottom, near St. Louis, Missouri, 1860, *G. Engelmann* s.n.; St. Clair County, 1854, *G. Engelmann* s.n.; St. Louis, Missouri, s.d., *G. Engelmann* s.n., annotated "n. sp." by Engelm. = *S. androcladum* (Engelm.) Morong.

STYRACACEAE

Styrax platanifolia Engelm. ex Torr., Smithsonian Contrib. Knowl. 6: 4. 1854. SYNTYPE: Texas, 1851, *F. Lindheimer* s.n.

VALERIANACEAE

Fedia stenocarpa Engelm. ex Gray, Boston J. Nat. Hist. 6: 216. 1850. TYPE MATERIAL: New Braunfels, Texas, 1848, *F. Lindheimer* 407. = *Valerianella stenocarpa* (Engelm. ex Gray) Krok.

VITACEAE

Vitis arizonica Engelm., Amer. Naturalist 2: 321. 1869. SYNTYPES: Santa Cruz, Sonora, Mexico, *C. Wright* 919; New Mexico, s.d., *C. Wright* s.n.; Sonora, Mexico, 1851, *G. Thurber* 703; Rio Verde, Arizona, 1865, *E. Coues & C. C. Parry* 551 & 553; southern Arizona, 1866, *C. C. Parry* s.n. = *V. monticola* Buckley subsp. *arizonica* (Engelm.) Rogers.

Vitis candicans Engelm. in Gray, Boston J. Nat. Hist. 6: 166. 1850. SYNTYPE: Texas, 1844, *F. Lindheimer* s.n.

ZYGOPHYLLACEAE

Guaiacum angustifolium Engelm. in Wisliz., Mem. Tour. No. Mex. 113. 1848. LECTOTYPE: about Parras and Saltillo, Mexico, 1847, *A. Wislizenus* 293. = *Porlieria angustifolia* A. Gray.

Larrea glutinosa Engelm. in Wisliz., Mem. Tour. No. Mex. 93. 1848. HOLOTYPE: Saltillo, Mexico, 1846, *J. Gregg* 10, annotated "n. sp." by Engelm. Syntype: Saltillo, Mexico, 1847, *J. Gregg* 369.

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