

TYPE SPECIMENS OF VASCULAR PLANTS AT TULANE UNIVERSITY, WITH A BRIEF HISTORY OF THE TULANE HERBARIUM

ANNE S. BRADBURN and STEVEN P. DARWIN

*Department of Ecology, Evolution, and Organismal Biology,
Tulane University, New Orleans, LA 70118*

The Tulane University Herbarium is one of the principal herbaria of the Gulf South region, and was designated a National Resource Collection by the American Society of Plant Taxonomists in 1974. The University holds specimens of fungi, algae, bryophytes, and vascular plants, all housed in Dinwiddie Hall on the main campus in New Orleans. The collections of algae are maintained primarily for teaching purposes. The bryological collections (ca. 2500 specimens) are mainly of Gulf Coast mosses and liverworts representing valuable historical collections that are heavily annotated. The mycological herbarium includes roughly 11,000 fungal specimens, most of them collected from land areas around the Gulf of Mexico and the Caribbean Sea. The vascular plant herbarium presently includes 110,000 specimens of worldwide representation, but is strongest in the flora of the southeastern United States, southern California, the Rocky Mountain region of Colorado, and northern Latin America, especially the Yucatan Peninsula of Mexico. Important special collections include the type specimens listed in this report, early plant collections from the lower Mississippi River drainage, Arizona and California ferns of J. G. Lemmon, and North American Gramineae and Cyperaceae of Asa Gray. Recent accessions include collections made by Tulane faculty and students, and exchange material regularly received from some thirty institutions worldwide. Herbarium loans support a wide variety of monographic, floristic, ecological, and ethnobotanical studies. Research in systematic and taxonomic botany is further supported by the Minna F. Koch Library of Botany, a collection of more than 1000 titles housed adjacent to the herbarium and rich in historical botany and plant illustration, as well as worldwide floras, monographs, dictionaries, and essential reference works.

HISTORICAL SKETCH

The University Herbarium was established after the close of the New Orleans World's Industrial and Cotton Centennial Exposition of 1884-1885. Initially, all plant collections were part of the University Museum, which also had custody of a small herbarium belonging to the New Orleans Academy of Sciences founded in 1853. The Academy's herbarium includes some of the oldest existing Louisiana plant collections, these mostly gathered by early faculty of the Medical College of Louisiana (now Tulane University) in the 1840's. The most significant collectors who contributed to the Academy's and later the University's herbarium are given below.

Josiah Hale, M.D. (1791-1856) was a Virginia native who settled near Alexandria, Louisiana, in 1825, after taking a medical degree at Transylvania College, there receiving botanical training from Rafinesque. He retired from medical practice in 1834, devoting full energy to botany. Torrey and Gray, in their *Flora of North America* (1838), frequently cite specimens obtained from Hale. Among

his other correspondents were Riddell, Engelmann, Darlington, Leavenworth, Eaton, and Durand. Hale served as first President of the New Orleans Academy of Sciences, and the Hale specimens at Tulane, about one hundred, are from the Academy's herbarium (J. Ewan, *J. Soc. Bibliogr. Nat. Hist.* 8: 235-243. 1977).

John Leonard Riddell, M.D. (1807-1865), physician, scientist, and intellectual, arrived in New Orleans in 1836 as Professor of Chemistry at the Medical College of Louisiana. He subsequently held various professorships, including Pharmacy and *Materia Medica*. In 1839 he was appointed Melter and Refiner at the United States Branch Mint in New Orleans, and in 1860 Federal Postmaster, a position he held throughout the Civil War period. Riddell's interests extended to botany, mathematics, and invention, including an early typewriting machine, and the first practical binocular dissecting microscope. He was a charter member of the American Association for the Advancement of Science, and the New Orleans Academy of Sciences (K. Riess, *Tulane Stud. Geol. Paleontol.* 13: 1-110. 1977).

Riddell began accumulating a herbarium in 1830 while at Marietta, Ohio, and contributed his first botanical paper in 1832. He had taken the bachelor's degree in 1829 at Rensselaer School with Amos Eaton, and yet favored the taxonomic system of Jussieu over that of Linnaeus. He experimented with new methods of plant collecting, drying, and preservation; he exchanged specimens with Rafinesque and offered herbaria for sale. Riddell corresponded with the leading North American botanists, including Torrey, Engelmann, and Short. His paper "A synopsis of the flora of the western states" appeared in 1835, followed by "A supplementary catalogue of Ohio plants" in 1836. The "Catalogus florae ludovicianaë," abridged from a larger manuscript, appeared in 1852.

Riddell's specimens are widely distributed among North American and European herbaria; his personal herbarium, much damaged and depleted, was acquired by Charles Mohr, and is now in the U. S. National Herbarium, Smithsonian Institution. The Riddell specimens held at Tulane, mostly from Ohio and Louisiana, and numbering about 125, were part of the New Orleans Academy of Sciences herbarium, and frequently bear specimen labels in Riddell's hand.

William Marbury Carpenter, M.D. (1811-1848) was born in West Feliciana Parish, Louisiana. He attended West Point and served as Professor of Natural Sciences at Centenary College before joining the faculty of the Medical College of Louisiana in New Orleans as Professor of *Materia Medica*. In 1846, Carpenter and Charles Lyell made geological excursions in Louisiana, especially studying the Mississippi River delta. Carpenter's herbarium, except for specimens sent to Torrey and others, passed to Riddell, who donated a few dozen to the New Orleans Academy of Sciences (R. S. Cocks, *Tulane Graduates' Mag.* 3: 122-127. 1914).

Joseph Finley Joor, M.D. (1848-1892) was a native of Louisiana. He practiced medicine in New Orleans and Thibodaux, and then in Harrisburg and Birdston, Texas, before becoming Assistant Commissioner for Texas to prepare a botanical exhibit for the 1884-85 Cotton Centennial Exposition at New Orleans. In 1888 he assumed charge of Tulane University's Museum, first as Assistant Curator, and then Curator and Professor of Botany. A few hundred Joor specimens were incorporated into the New Orleans Academy of Sciences herbarium, of which he was also curator. His personal herbarium, which was not large, passed to the Missouri Botanical Garden in 1897. Tulane's Joor specimens, largely unduplicated at Missouri, are particularly rich in southern grasses, many specimens annotated by George Vasey (J. B. S. Norton, *Bot. Gaz.* 26: 271-274. 1898).

Reginald W. S. Cocks, M.A. (1863-1926) was a native of Worcestershire, England. He took the master's degree at Trinity College, Cambridge, with first honors in classics. He was for a year Professor of Botany at Louisiana State University before moving in 1908 to assume the newly created Ida A. Richardson Chair of Botany at Tulane University. At about that time, Cocks began a correspondence with Charles Sprague Sargent, first Director of the Arnold Arboretum of Harvard University. In Cocks, Sargent found an able botanist and field companion on whom he could rely for data concerning the woody flora of the Gulf States. From Cocks's specimens, Sargent eventually recognized five new species or varieties of *Carya*, as well as new species of *Quercus*, *Crataegus*, and *Tilia*.

Cocks may have started plant collecting as early as 1892, but in 1898 he initiated the first of many annual explorations that would, over a period of twenty-five years, take him to every part of Louisiana. The result was a sizeable herbarium and series of published inventories. For a few species, Cocks specimens are still the only Louisiana record. Many of his specimens carry identifications communicated by Sargent in a regular correspondence amounting to 302 letters now preserved in the University's archive (J. Ewan, *J. Arnold Arbor.* 46: 1-44, 122-159, 324-361, 411-439. 1965).

Cocks was replaced on the Tulane faculty by William T. Penfound, Ph.D. (1897-1984). Although primarily a plant ecologist, Penfound and his graduate students gathered a number of Louisiana plant specimens, especially from local wetland habitats where ecological studies were being conducted. Those specimens now represent wetland vegetation existing before urban expansion in southern Louisiana, and voucher the numerous ecological studies published by Penfound and his co-workers.

When Joseph Ewan, A.B. (1909-) came to Tulane in 1947, he brought with him a personal herbarium of some 32,000 specimens, probably three or four times as many specimens as were already present in the University's collection. The Ewan herbarium is largely responsible for the wide geographical coverage of the University's present collection, as well as many of its type specimens. In addition to his own collections, mostly from southern California, the Rocky Mountain region, and South America, Ewan's herbarium also included specimens gathered by L. M. Booth (southern California), I. Clokey (Nevada), D. Keck (*Penstemon*), J. G. Lemmon (California and Arizona ferns), F. W. Pierson (California), Y. Mexia (Latin America), and the Gray Herbarium exsiccatae of the Fernald period. Specimens of *Delphinium* and *Vismia*, Ewan's own taxonomic specialties, are also well represented. The Tulane herbarium benefitted from Ewan's interest in botanical history and bibliography; a number of specimens were acquired that had been collected by well-known exploring expeditions of the nineteenth century, these mostly duplicates from European herbaria, particularly the British Museum (Natural History) and the Conservatoire et Jardin Botaniques, Geneva. A nearly complete set of Asa Gray's North American Gramineae and Cyperaceae was also added. All collections were accommodated in modern steel cases, and curated by Nesta Dunn Ewan, who worked as a volunteer for thirty years.

Since 1977, the present curators have attempted to enlarge the holdings of Louisiana plants, and acquire material from Mexico, particularly the Yucatan Peninsula, where studies are being carried out by Tulane faculty and students. To that end, a number of new exchange agreements were established with Latin American botanical institutions. Increased emphasis has also been placed upon

cultivated plants in New Orleans. Present staff includes Steven P. Darwin, Ph.D., Curator and Director (taxonomy and phylogeny of angiosperms, tropical Rubiaceae, flora of Louisiana); Anne S. Bradburn, M.S., Assistant Curator (barrier island vegetation of the Gulf Coast, flora of Yucatan, ethnobotany); Arthur L. Welden, Ph.D., Curator of Fungi (neotropical fungi, especially Thelephoraceae); and Joseph A. Ewan, A.B., Sc.D., Curator Emeritus (bibliography of American natural history).

TYPE COLLECTIONS

The following list documents 148 vascular plant specimens in the Tulane University Herbarium (NO) known to be holotypes, isotypes, lectotypes, or isolecotypes of validly published names of species or infraspecific taxa. The list is alphabetical by family and then species, beginning with pteridophytes. For each name typified by a Tulane specimen, we provide reference to the original place of publication, locality information as it appears on the specimen label, and the location of other type specimens (e.g., holotype or other isotypes), if that information is given by the publishing author. We also cite current taxonomic placement of species names when known.

PTERIDOPHYTA

ASPLENIACEAE

Asplenium curtissii Underwood, Bull. Torrey Bot. Club 33: 194. 1906.

Curtiss 3728. United States of America. Florida: Citrus County at head of Lake Tsala Apopka. April. Holotype: NY; isotype: NO.

BLECHNACEAE

Blechnum mexiae Copeland, Univ. Calif. Publ. Bot. 17: 32, *pl.* 7. 1932.

Ynes Mexia 4237. Brazil. Minas Geraes: Distrito Carangola, about 12 km along trail from Areponga to Fazenda de Grama, elevation 970 meters. January 27, 1930. Holotype: UC 419577; isotype: NO.

= *Struthiopteris mexiae* (Copeland) Ching, Sunyatsenia 5: 243. 1940.

CYATHEACEAE

Cyathea albidopaleata Copeland, Univ. Calif. Publ. Bot. 17: 25, *pl.* 2. 1932.

Ynes Mexia 4868. Brazil. Minas Geraes: Viçosa, Agricultural College, Corrida Reberro, elevation 675 meters. July 18, 1930. Holotype: UC 466100; isotype: NO.

Cyathea anacampta Alston, J. Wash. Acad. Sci. 48: 230. 1958.

Ewan 16801. Colombia. Putumayo: Cordillera Oriental, east slope, Río Ticuanayoy at confluence of Río Caquetá, elevation 1100 meters. January 20, 1945. Holotype: BM; isotype: NO.

Cyathea catacampta Alston, J. Wash. Acad. Sci. 48: 231. 1958.

Ewan 16153. Colombia. Nariño: Between Río Miraflores and Río San Martín, Volcán de Cumbal region, elevation 2680 meters. September 12-13, 1944. Holotype: BM; isotype: NO.

Cyathea ewanii Alston, J. Wash. Acad. Sci. 48: 231. 1958.

Ewan 16729. Colombia. Putumayo: Cordillera Oriental, east slope, between Mocoa and Urcusique, en route to Umbria, elevation 900 meters. January 9, 1945. Holotype: BM; isotypes: NO, US.

Cyathea leucolepismata Alston, J. Wash. Acad. Sci. 48: 231. 1958.

Ewan 16784. Colombia. Putumayo: Cordillera Oriental, east slope, near San Diego de Colorado, and tributary of Río Putumayo, between Umbria and Puerto Asis. January 16, 1945. Holotype: BM; isotypes: NO, US.

Cyathea mexiae Copeland, Univ. Calif. Publ. Bot. 17: 30, *pl.* 4. 1932.

Ynes Mexia 4882. Brazil. Minas Geraes: Viçosa, Agricultural College, hill south-east of main buildings, elevation 700 meters. July 21, 1930. Holotype: US 466093; isotype: NO.

DRYOPTERIDACEAE

Dryopteris arguta (Kaulf.) Watt. forma ***bella*** Ewan, Amer. Fern J. 34: 112. 1944.

Fosberg 8127. United States of America. California: Los Angeles County, Santa Catalina Island, Big Wash Canyon, Avalon. May 6, 1932. Holotype: COLO; isotype: NO.

Dryopteris arguta forma ***flocculosa*** Ewan, Amer. Fern J. 34: 112. 1944.

Grant, Ballou & Ewan 7908. United States of America. California: Santa Barbara County, San Miguelito Creek, 3 miles above Lompoc. May 30, 1933. Holotype: COLO; isotype: NO.

Dryopteris arguta forma ***nudata*** Ewan, Amer. Fern J. 34: 111. 1944.

Campbell 755. United States of America. California: Mariposa, Merced River below Yosemite, elevation 3800 feet. June 14, 1929. Holotype: COLO; isotype: NO.

Dryopteris normalis C. Christensen var. ***lindheimeri*** A. Br. ex C. Christensen, Kongel. Danske Vidensk.-Selsk. Skr. VII. 10(2): 182. 1912.

F. Lindheimer 742. United States of America. Texas. 1847. Holotype: B; isotypes: NO, W.

= *Dryopteris normalis* C. Christensen; D. S. Correll in C. Lundell (ed.), *Flora of Texas* 1: 106. 1942.

Polystichum munitum subsp. ***curtum*** Ewan, Amer. Fern J. 33: 99. 1942.

Ewan 5159. United States of America. California: San Bernardino, Sawpit Canyon, San Bernardino Mountains, elevation 4200 feet. September 7, 1931. Holotype: NO; isotypes: DS, US.

Woodsia obtusa Torr. var. **nana** Lemmon, Fern Bull. 15: 126. 1908.

Lemmon s.n. United States of America. Arizona: Deer Park on summit of Santa Catalina Mountains. (?)1880. Isotype: NO.

= *Woodsia pusilla* Fourn. var. *glandulosa* (Eaton & Faxon) T. Taylor, Amer. Fern J. 37: 86. 1947.

ISOETACEAE

Isoetes hieroglyphica A. A. Eaton, Fernwort Papers 10. 1900.

Pringle s.n. United States of America. Maine: St. Francis Lakes. July 31, 1880. Holotype: Herbarium of A. A. Eaton; isotype: NO.

≡ *Isoetes macrospora* Durieu forma *hieroglyphica* (A. A. Eaton) Pfeiffer, Ann. Missouri Bot. Gard. 9: 194, *pl.* 19. 1922.

POLYPODIACEAE

Microgramma acatallela Alston, J. Wash. Acad. Sci. 48: 232. 1958.

Ewan 16706. Colombia. Putumayo: Cordillera Oriental (east slope), Río Mocoa drainage, 3 km above Mocoa, along trail to San Antonio, elevation 600 meters. January 8, 1945. Holotype: BM; isotypes: NO, US.

PTERIDACEAE

Eriosorus ewanii A. F. Tryon, Contr. Gray Herb. 200: 165. 1970.

Ewan 16316. Colombia. Nariño: north slope of Volcán de El Galeras above Pasto, elevation 3500 meters. October 18, 1944. Holotype: GH; isotypes: NO, S, US.

Notholaena californica Eaton subsp. **nigrescens** Ewan, Amer. Fern J. 32: 93, *tab.* 10, *fig.* b. 1942.

Wheeler 878. United States of America. California: Los Angeles County, San Gabriel Mountains, 6 miles from mouth of San Gabriel Canyon, elevation 1000 feet. June 26, 1932. Holotype: COLO; isotypes: NO, LAM.

≡ *Aleuritopteris cretacea* subsp. *nigrescens* (Ewan) Munz, Aliso 4: 87. 1958.

Pomatophytum pocillatum M. E. Jones, Contr. W. Bot. 16: 12. 1930.

Jones 24690. United States of America. Arizona: Ramsey Canyon, Huachuca Mountains. September 28, 1929. Isotype: NO.

= *Cheilanthes lendigera* (Cav.) Sw.; R. & A. Tryon, Ferns Allied Pl. 249. 1982.

SCHIZAEACEAE

Anemia triplinata Copeland, Univ. Calif. Publ. Bot. 17: 24, *pl.* 1. 1932.

Ynes Mexia 5627. Brazil. Minas Geraes: Corinto, near Fazenda do Diamante, base of Serra de Anjico, elevation 600 meters. April 15, 1931. Holotype: UC 466099; isotype: NO.

SPERMATOPHYTA

ACANTHACEAE

Dicliptera ewanii Leonard, Contr. U. S. Natl. Herb. 31: 356, *fig. 131*. 1958.

Ewan 15628. Colombia. Cundinamarca: Cordillera Oriental, 7 km east of Hilo, valley of Quebrada Chiniata, elevation 2430 meters. May 1, 1944. Holotype: NO; isotypes: K, US.

Pseuderanthemum ewanii Leonard, Contr. U. S. Natl. Herb. 31: 302, *fig. 111*. 1953.

Ewan 15629. Colombia. Cundinamarca: Cordillera Oriental, valley of Quebrada Chiniata, 7 km east of Hilo, elevation 2430 meters. May 1, 1944. Holotype: NO.

AGAVACEAE

Pleomele hawaiiensis O. & I. Degener, Fl. Hawaiiensis, Fam. 68. 1980 [Publ. privately].

Degener & Ordenez 12550. United States of America. Hawaii: Makawao, Maui. August 3, 1939. Isotypes: NO(2).

ANNONACEAE

Malmea macrocarpa R. E. Fries, Ark. Bot. (n.s.) 4: 23, *tab. 1*. 1957.

Asplund 17590. Ecuador. Province of Guayas: vicinity of Guayaquil, Cerro Azul forest. September 10, 1955. Holotype: S; isotype: NO.

APIACEAE (UMBELLIFERAE)

Sanicula odorata (Raf.) Pryer & Phillippe, Canad. J. Bot. 67: 703. 1989.

Darwin & Sundell 1379. United States of America. Mississippi: Wilkinson County, vicinity of Pinckneyville. April 28, 1979. Neotype: NO.

ARACEAE

Peltandra tharpaii Barkley, Madroño 7(5): 131, *tab. 21*. 1944.

Barkley 13424. United States of America. Texas: Robertson County, near Newbaden. August 8, 1943. Holotype: TEX; isotype: NO.

ARALIACEAE

Schefflera sachamatensis Cuatrecasas, Revista Acad. Colomb. Ci. Exact. 8: 315. 1951.

Ewan 16678. Colombia. Putumayo: Cordillera Oriental (east slope), along trail from San Francisco to Sachamate, upper Río Mocoa, 3 km above Sachamate, elevation 1700 meters. January 6, 1945. Holotype: NO.

ASTERACEAE (COMPOSITAE)

Antennaria plantaginifolia (L.) Richards var. ***monocephala*** Torrey & A. Gray, Fl. North Amer. 2: 431. 1843.

Carpenter s.n. United States of America. Louisiana: Felicianas. Syntype: NO.

≡ *Antennaria solitaria* Rydberg, Bull. Torrey Bot. Club 24: 304. 1897.

Antennaria soliceps Blake, Proc. Biol. Soc. Wash. 51: 7. 1938.

Clokey & Bean 7459. United States of America. Nevada: Clark County, Charleston Mountains, elevation 3350 meters. July 18, 1937. Holotype: US 1699460; isotype: NO.

Baccharis pedersenii Cabrera, Darwiniana 16(1-2): 410. 1970.

Pedersen 2642. Argentina. Mburucuyá: Province Corrientes at Estancia "Santa Teresa." March 18, 1954. Isotype: NO.

Bidens heterodoxa (Fernald) Fernald & St. John var. ***interstes*** Fassett, Rhodora 26: 178. 1924.

Fassett 852. United States of America. Maine: Kennebec County, Kennebec River, Gardiner. September 18, 1923. Holotype: GH; isotype: NO.

≡ *Bidens eatonii* Fernald var. *interstes* (Fassett) Fassett, Rhodora 27: 142. 1925.

Crepis nana Richards subsp. ***ramosa*** Babcock, Univ. Calif. Publ. Bot. 22: 542, fig. 155. 1947.

Thompson 7883. United States of America. Washington: Jefferson County, above Lake Constance, elevation 6000 feet. August 11, 1931. Holotype: UC 470750; isotypes: NO, DS, MO, Blake herbarium.

Eupatorium cyrilli-nelsonii A. Molina, Ceiba 22: 39. 1978.

Cirilo Nelson 3912. Honduras. Comayagua: Villa de Taulabé; quebrada La Caliche, elevation 600 meters. February 19, 1977. Holotype: TEFH; isotypes: NO, US 2851248.

≡ *Peteravenia cyrilli-nelsonii* (A. Molina) King & Robinson, Phytologia 44: 86. 1979.

Grindelia camporum Greene var. ***interioris*** (Jepson) Steyermark forma ***foliacea*** Steyermark, Ann. Missouri Bot. Gard. 21: 538. 1934.

Howell 5201. United States of America. California: Solano County, 1 mile from Vacaville on road to Elmira. May 30, 1930. Holotype: CAS 179831; isotypes: NO, GH, POM.

Mikania antioquiensis Hieron var. ***subcuneata*** Robinson, Contr. Gray Herb. 104: 32. 1934.

Ynes Mexia 6492. Peru. Loreto: Iquitos, trail to San Juan, elevation 105 meters. February 7, 1932. Holotype: GH; isotype: NO.

= *Mikania banisteriae* DC.; W. Holmes [herbarium annotation, 1976].

Mikania rimachii Holmes & McDaniel, *Phytologia* 41: 195. 1978.

McDaniel et al. 21646. Peru. Loreto: Maynas, 3 km up Río Amazonas across from Indiana. May 26, 1978. Holotype: IBE; isotypes: NO, AMAZ, F, MO, NATC, NY, USM.

Mutisia ochroleuca Cuatrecasas, *Feddes Repert. Spec. Nov. Regni Veg.* 55: 122. 1953.

Ewan 16089. Colombia. Nariño: Volcán de Chiles, northwest shoulder, elevation 3100 meters. September 6-8, 1944. Holotype: F; isotype: NO.

Pyrrophappus georgianus Shinnery, *Field and Lab.* 21: 93. 1953.

Cronquist 4276. United States of America. Georgia: Glynn County, St. Simon's Island, near Brunswick. April 11, 1947. Holotype: SMU; isotypes: NO, GA, MO.

≡ *Pyrrophappus carolinianus* var. *georgianus* (Shinnery) Ahles, J. Elisha Mitchell Sci. Soc. 80: 173. 1964.

Senecio andersonii Clokey, *Bull. S. Calif. Acad. Sci.* 37: 10. 1938.

Clokey & Anderson 5638. United States of America. Nevada: Clark County, Charleston Mountains, Lee Canyon, elevation 2550 meters. August 5, 1935. Holotype: Clokey herbarium; isotype: NO.

Senecio chingualensis Cuatrecasas, *Feddes Repert. Spec. Nov. Regni Veg.* 55: 137. 1953.

Ewan 16212. Colombia. Nariño: Cordillera Oriental, Río Chingual at San José, below La Victoria, elevation 2650 meters. September 25, 1944. Holotype: F; isotype: NO.

Vernonia angustifolia Torrey & A. Gray var. *texana* A. Gray, *Syn. Fl. N. Amer.* 1 (2): 91. 1884.

J. Hale s.n. United States of America. [Louisiana: vicinity of Alexandria (?), without date]. Lectotype: NY; possible isotype: NO.

≡ *Vernonia texana* (A. Gray) Small, *Fl. Southeastern U. S.* 1160. 1903.

Zexmenia hispida A. Gray var. *ramosissima* Greenman, *Field Mus. Nat. Hist., Bot. Ser.* 3: 127, *pl. 1.* 1904.

Gaumer & sons 826. Mexico. Yucatan. Holotype: F; isotype: NO.

≡ *Wedelia acapulcensis* var. *ramosissima* (Greenman) Strother, *Syst. Bot. Monogr.* 33: 55. 1991.

BRASSICACEAE (CRUCIFERAE)

Cardamine constancei Detling, *Madroño* 3(4): 176, *pl. 9.* 1935.

Constance et al. 1108. United States of America. Idaho: Idaho County, 4 miles below Lowell, on Three Devils Creek at Middle Fork of Clearwater River, Selway National Forest. June 2, 1935. Holotype: DS 229378; isotype: NO.

Lesquerella lyrata Rollins, Rhodora 57: 252, *tab.* 1209. 1955.

Rollins et al. 5599. United States of America. Alabama: Franklin County, near Richardson's Crossing, 7 miles east of Russellville. April 16, 1955. Holotype: GH; isotype: NO.

Lesquerella perforata Rollins, Rhodora 54: 190. 1952.

Rollins & Rollins 5207. United States of America. Tennessee: Wilson County, five miles north of Lebanon. March 30, 1952. Holotype: GH; isotype: NO.

CAMPANULACEAE

Centropogon minimus McVaugh, Brittonia 6: 467. 1954.

Ewan 15699. Colombia. Antioquia: Páramo de Sonsón, above Sonsón, Cordillera Central, elevation 2743 meters. May 23, 1944. Holotype: NA; isotype: NO.

Siphocampylus bullatas McVaugh, Brittonia 6: 457. 1949.

Ewan 16611. Colombia. Nariño: West side of Volcán Doña Juana, elevation 3200-3400 meters. December 16, 1944. Holotype: US; isotype: NO.

CARYOPHYLLACEAE

Silene andersonii Clokey, Bull. S. Calif. Acad. Sci. 38: 2. 1939.

Clokey 7514. United States of America. Nevada: Clark County, Charleston Mountains, Lovell Canyon, elevation 2600 meters. August 9, 1937. Holotype: Clokey herbarium; isotypes: NO, CAS.

≡ *Silene verecunda* Wats. subsp. *andersonii* (Clokey) Hitchcock & Maguire, Univ. Wash. Publ. Biol. 13: 43. 1947.

CLUSIACEAE (GUTTIFERAE)

Clusia chusqueae Ewan, Nat. Hist. Misc. 88: 6. 1951.

Ewan 15741. Colombia. Antioquia: Cordillera Central, Alto Capiro, above Sonsón-Abejorral camino, elevation 2800 meters. May 26-28, 1944. Holotype: NA; isotypes: NO, COL.

Vismia buchtienii Ewan, Contr. U. S. Natl. Herb. 35(5): 353. 1962.

Buchtien 2022. Bolivia. San Antonio, Mapui region, elevation 850 meters. December, 1907. Holotype: US 1159313; isotypes: NO, L.

Vismia cuatrecasasii Ewan, Contr. U. S. Natl. Herb. 35(5): 331. 1962.

Cuatrecasas 16687. Colombia. Dept. del Valle: Río Calima (región del Chocó); entre La Herradura de Ordóñez y Peña de Campotrístete, elevation 5-10 meters. March 3, 1944. Holotype: US 1950013; isotype: NO.

Vismia guianensis subsp. *persicoides* Ewan, Contr. U. S. Natl. Herb. 35(5): 342. 1962.

Schultes & Cabrera 12570. Colombia. Amazonas-Vaupés: Soratama, Río Apaporis, entre el Río Pacoa y el Río Kananarí, elevation 250 meters. June 15, 1951. Holotype: NO; isotype: US.

Vismia laxiflora Reichardt in Martius, Fl. Bras. 12(1): 203. 1878.

Schomburgk 837. British Guiana [or Venezuela? - vide Ewan, Contr. U. S. Natl. Herb. 35: 361. 1962]. Isotype: NO.

Vismia rufa Cuatrecasas, Revista Acad. Colomb. Ci. Exact. 7: 47, fig. 1. 1946.

Cuatrecasas 17449. Colombia. Dept. del Valle: Costa del Pacífico; Río Cajambre, elevation 5-80 meters. May 5-15, 1944. Holotype: Colecion de la Comision de Botanica del Valle; isotype: NO.

Vismia urceolata Ewan, Contr. U. S. Natl. Herb. 35(5): 324. 1962.

E. L. Little & R. R. Little 8275. Colombia. Puerto López: Intendencia del Meta, elevation 240 meters. July 28, 1944. Holotype: US 2166544; isotype: NO.

CYCLANTHACEAE

Sphaeradenia stylosa Harling, Acta Horti Berg. 18(1): 352, fig. 94g-h, tab. 85. 1958.

Ewan 16085. Colombia. Nariño: Volcán de Chiles, northwest slope, Mayasquer trail, elevation 2560-3350 meters. September 6-8, 1944. Holotype: US; isotype: NO.

CYRILLACEAE

Purdiaea stenopetala Grisebach, Abh. Königl. Ges. Wiss. Göttingen 9: 45. 1860.

C. Wright 341. Cuba. Orientali. 1859-1860. Isotypes: NO, MO, GH, NY, UC.

ERICACEAE

Arctostaphylos pinetorum Rollins, Rhodora 39: 462. 1937.

Rollins 1586. United States of America. Colorado: Mesa County, Uncompahgre Plateau, T 50 N, R 16 W, 3 miles west of Cold Spring Ranger Station, elevation 7500 feet. September 1, 1936. Holotype: GH; isotype: NO.

≡ *A. parryana* var. *pinetorum* (Rollins) Wieslander & Schreiber, Madroño 5: 46. 1939.

EUPHORBIACEAE

Ditaxis diversiflora Clokey, Bull. S. Calif. Acad. Sci. 37: 6. 1938.

Clokey 7576. United States of America. Nevada: Clark County, Charleston Mountains, Charleston Park, elevation 2280 meters. May 24, 1937. Holotype: Clokey herbarium; isotype: NO.

Euphorbia gracilior Cronquist, Castanea 14: 102. 1949.

Cronquist 5334. United States of America. Georgia: Tattnall County, 2 mi. northwest of Reidsville. June 16, 1948. Holotype: US; isotypes: NO, GA, GH, MICH, MO, NY, PH, SMU, UC.

= *Euphorbia exserta* (Small) Coker; M. J. Huft [herbarium annotation, 1979].

FABACEAE (LEGUMINOSAE)

Cynometra insularis A. C. Smith, Sargentia 1: 38. 1942.

Degener 15491. Fiji. Viti Levu: Ra Province, Vatundamusewa, near Rewasa. June 6, 1941. Holotype: A; isotype: NO.

Erythrina elenae Howard & Briggs, J. Arnold Arbor. 34: 183. 1953.

Howard, Briggs, et al. 377. Cuba. Las Villas: Hillside slope 0.25 mile west of spot where Camino de la Sur crosses Rio San Juan along north slope of Trinidad Mountains. July 1-20, 1950. Holotype: GH; isotype: NO.

Galactia bahamensis Urban, Symb. Antill. 2: 331. 1900.

Hitchcock s.n. Bahamas. Crooked Island. November, 1890. Holotype: MO 21394; isotype: NO.

Rhynchosia rojasii Hassler, Feddes Repert. Spec. Nov. Regni Veg. 7: 77. 1909.

Hassler 14024. Paraguay. Sierra de Amambay [without date]. Isotype: NO.

Trifolium grantianum Heller, Muhlenbergia 1: 136. 1906.

G. B. Grant 6343. United States of America. California: Mt. San Geronio, San Bernardino Mountains. July 23, 1904. Holotype: POM; isotypes: NO, UC 127247.

= *Trifolium monanthum* A. Gray var. *grantianum* (Heller) Parish, Plant World 20: 220. 1917; Zohary & D. Heller, Genus Trifolium, 544. 1984.

FAGACEAE

Quercus* × *ganderi C. B. Wolf, Proc. Calif. Acad. Sci., Ser. 4, 25: 178. 1944.

Wolf & Everett 9543. United States of America. California: San Diego County, between Lake Henshaw and Santa Ysabel, just 300 yds. above entrance to Volcan Indian School, elevation 3100 feet. October 20, 1939. Isotype: NO.

Quercus grandidentata Ewan, Bull. Torrey Bot. Club 64: 512. 1927.

Ewan 8487. United States of America. California: Los Angeles County, San Gabriel Mountains, Monrovia, 2 mi. above A. T. and S. F. railroad tracks at mouth of Sawpit Canyon (Monrovia Canyon). December 27, 1934. Holotype: UC 533189; isotype: NO.

Quercus stellata Wangenh. var. *araniosa* Sargent, Bot. Gaz. 65: 441. 1918.

Palmer 8770. United States of America. Louisiana: Natchitoches Parish, Grand Ecure. October 2, 1915. Holotype: A; isotype: NO.

= *Quercus stellata* Wangenh. var. *margaretta* (Ashe) Sargent; Little, Checklist U. S. Trees (U. S. Forest Serv. Agric. Handb. vol. 541), 242. 1979.

GENTIANACEAE

Lisianthus peduncularis L. O. Williams, Fieldiana, Bot. 31: 408, fig. 1. 1968.

Allen 3410. Panama. Coclé: El Valle de Antón, elevation 1000 meters. March 16, 1946. Holotype: MO; isotype: NO.

[The generic name was spelled "*Lisianthus*" in the species protologue; this was corrected in Ann. Missouri Bot. Gard. 62(1): 71. 1975.]

HYDROPHYLLACEAE

Nemophila menziesii Hook. & Arn. subsp. *australis* A. Brand var. *minima* A. Brand, Pflanzenreich IV. Fam. 251 (Heft 59): 50. 1913.

M. E. Jones 3037. United States of America. California: Los Angeles County, Pasadena. February 25, 1882. Holotype: B; isotype: NO.

JUNCACEAE

Juncus duranii Ewan, Rhodora 47: 186. 1945.

J. & N. Ewan 10060. United States of America. California: Los Angeles County, San Gabriel Mountains, Lilly Springs, north slope of Mt. Hawkins. August 14, 1936. Holotype: COLO; isotype: NO.

LAMIACEAE (LABIATAE)

Monardella lanceolata A. Gray var. *glandulifera* I. M. Johnston, Bull. S. Calif. Acad. Sci. 18: 20. 1919.

Johnston 2139. United States of America. California: San Antonio Mountains, Brown's Flats, Upper Sonoran Zone, elevation 4300 feet. September 1, 1918. Holotype: POM; isotypes: NO, DS, UC.

Salvia carnosa Dougl. subsp. *gilmanii* Epling, Ann. Missouri Bot. Gard. 25: 132. 1938.

Epling & Gilman s.n. United States of America. California: Inyo County, Panamint Mountains above Piñon Mesa, Wild Rose Canyon. July 7, 1937. Holotype: LA; isotypes: NO, CAS, LA, MO, UC.

= *Salvia dorrii* (Kellogg) Abrams var. *dorrii*; J. L. Strachan, Brittonia 34: 160. 1982.

LAURACEAE

Cryptocarya degeneri Allen, Sargentia 1: 34. 1942.

Degener 15412. Fiji. Viti Levu: Ra, Mataimeravula, vicinity of Rewasa, near Vaileka, elevation 50-200 meters. June 3, 1941. Holotype: A; isotypes: NO, BISH, K, NY, US.

= *Cryptocarya hornei* Gillespie; A. C. Smith, Fl. Vit. Nov. 2: 129. 1981.

LILIACEAE

Allium eurotophilum Wiggins, Contr. Dudley Herb. 1: 164, *pl. 12, fig. 1*. 1933.

Wiggins & Demaree 5040. Mexico. Baja California: Sierra San Pedro Mártir, elevation 2800 meters. September 24, 1930. Holotype: DS 194171; isotype: NO.

Calochortus rhodotheus Clokey, Bull. S. Calif. Acad. Sci. 37: 1. 1938.

Clokey 7479. United States of America. Nevada: Clark County, Charleston Mountains, Charleston Park, elevation 2270 meters. July 21 [July 12 in protologue], 1937. Holotype: Clokey herbarium; isotype: NO.

MAGNOLIACEAE

Magnolia acuminata (L.) L. var. **ludoviciana** Sargent, Bull. Torrey Bot. Club 55: 464. 1928.

R. S. Cocks s.n. United States of America. Louisiana: West Feliciana, Catalpa. October 15, 1915. Lectotype: NO.

Magnolia ashei Weatherby, Rhodora 28: 35. 1926.

W. W. Ashe 3. United States of America. Florida: Okaloosa County, Rogue Creek. April 26, 1925; June 6, 1925. Holotype: NCU?; isotypes: NO, GH.

MALVACEAE

Sida ampla M. E. Jones, Contr. W. Bot. 15: 146. 1929.

Jones 22858. Mexico. Nayarit: Acaponeta. February 25, 1927. Holotype: POM; isotypes: NO, CAS, F, NY(2), WIS(2).

= *Sida aggregata* Presl; Fryxell, Syst. Bot. Monogr. 25: 382. 1988.

Sida wendtii Fryxell, Phytologia 46(6): 393. 1980.

Koch, Fryxell, & Wendt 79424. Mexico. Oaxaca: Santo Domingo Armenta, Terracería a Santo Domingo A., 1.5 km al S. de la carretera Pinotepa Nacional-Acapulco, 29 km al O. de Pinotepa Nacional, sobre la carretera a Acapulco, elevation 20 meters. November 8, 1979. Holotype: ENCB; isotypes: NO, BM, BR, CAS, CHAPA, CTES, F, K, MARY, MICH, MO, NY, TEX, WIS, XAL.

= *Sida brachystemon* DC.; Fryxell, Syst. Bot. Monogr. 25: 385. 1988.

MARCGRAVIACEAE

Marcgravia fosbergiana Ewan, Nat. Hist. Misc. 88: 2. 1951.

Ewan 16053. Colombia. Nariño: Río San Juan at pueblo of San Antonio, elevation 1370 meters. September 3, 1944. Holotype: NA; isotypes: NO, COL.

NYCTAGINACEAE

Mirabilis macfarlanei Constance & Rollins, Proc. Biol. Soc. Wash. 49: 148. 1936.

Constance, Rollins, Clements, & Dillon 1579. United States of America. Oregon: Wallowa County, Lower Cottonwood Landing, between mouth of Somer's Creek and Pittsburg Landing, T 27 N, R 1-2 W, Snake River Canyon. May 15, 1936. Isotypes: NO(2).

PIPERACEAE

Peperomia ewanii Trelease & Yuncker, Piperac. N. South Amer. 2: 573, fig. 497. 1950.

Ewan 16574. Colombia. Nariño: 6 km above San Jose, on trail to Las Mesas, via Quebrada San Francisco, elevation 2700 meters. December 14, 1944. Holotype: NA; isotypes: NO, ILL.

Peperomia glareosa Trelease, Field Mus. Nat. Hist., Bot. Ser. 13, part II: 50. 1936.

Ynes Mexia 6236. Peru. Loreto: above Pongo de Manseriche, bank of Río Santiago, elevation 200 meters. December 6, 1931. Holotype: UC; isotypes: NO, GH.

Peperomia mansericheana Trelease, Field Mus. Nat. Hist., Bot. Ser. 13, part II: 60. 1936.

Ynes Mexia 6196. Peru. Loreto: above Pongo de Manseriche, streamlet near mouth of Río Santiago, elevation 210 meters. December 1, 1931. Holotype: UC; isotypes: NO, GH.

≡ *Peperomia vulcanicola* C. DC. var. *mansericheana* (Trelcase) Trelease & Yuncker, Piperac. N. South Amer. 2: 606. 1950.

Peperomia santiagoana Trelease, Field Mus. Nat. Hist., Bot. Ser. 13, part II: 92, 1936.

Ynes Mexia 6146. Peru. Loreto: above Pongo de Manseriche on left bank of Río Santiago, elevation 200 meters. November 23, 1931. Holotype: UC; isotypes: NO, GH.

Piper ewanii Yuncker, Piperac. N. South Amer. 1: 278. 1950.

Ewan 16752. Colombia. Putumayo: near San Diego de Colorado, vicinity of Finca Pedrogoso, between Umbria and Puerto Asis. January 11, 1945. Holotype: ILL; isotype: NO.

Piper indianonum Trelease, Field Mus. Nat. Hist., Bot. Ser. 13, part II: 176. 1936.

Ynes Mexia 6396. Peru. Loreto: Distrito Iquitos, Fundo Indiana, elevation 110 meters. January 21, 1932. Holotype: UC; isotype: NO.

Piper paranapuranum Trelease, Field Mus. Nat. Hist., Bot. Ser. 13, part II: 204. 1936.

Ynes Mexia 6075. Peru. Loreto: near Yurimaguas, Río Paraná-pura, elevation 180 meters. October 24, 1931. Holotype: UC; isotypes: NO, GH.

Piper rio-nechianum Yuncker, Piperac. N. South Amer. 1: 211, fig. 174. 1950.

Ewan 15827. Colombia. Antioquia: Dos Bocas, on Río Nechi, near Pato. June 23-25, 1944. Holotype: ILL; isotypes: NO, NA.

Piper scabridulicaule Trelease, Field Mus. Nat. Hist., Bot. Ser. 13, part II: 229. 1936.

Ynes Mexia 6106 [=6100 ?]. Peru. Loreto: above Pongo de Manseriche at mouth of Río Santiago. November 14, 1931. Isotype: NO.

Piper tingens Trelease, Field Mus. Nat. Hist., Bot. Ser. 13, part II: 244. 1936.

Ynes Mexia 6072. Peru. Loreto: near Yurimaguas, Río Paraná-pura, elevation 180 meters. October 24, 1931. Holotype: UC; isotype: NO.

Piper tortuosivenosum Trelease, Field Mus. Nat. Hist., Bot. Ser. 13, part II: 244. 1936.

Ynes Mexia 6199. Peru. Loreto: above Pongo de Manseriche, near mouth of Río Santiago, elevation 210 meters. December 2, 1931. Holotype: UC; isotypes: NO, GH.

Piper tumidicondylia Trelease, Field Mus. Nat. Hist., Bot. Ser. 13, part II: 247. 1936.

Ynes Mexia 6431. Peru. Loreto: Distrito Iquitos, Rancho Indiana, elevation 110 meters. January 25, 1932. Holotype: UC; isotype: NO.

POLEMONIACEAE

Eriastrum brandegeae H. L. Mason, Madroño 8(3): 88. 1945.

Mason 12604. United States of America. California: Obsidian Ridge, southeast of Borax Lake. June 28, 1945. Isotype: NO.

POLYGONACEAE

Chorizanthe procumbens Nutt. var. ***mexicana*** Goodman, Ann. Missouri Bot. Gard. 21: 87. 1934.

Fosberg 8281. Mexico. Baja California: Tecate, elevation 600 meters. May 30, 1932. Holotype: MO; isotype: NO.

Eriogonum baileyi S. Wats. var. ***porphyneticum*** S. Stokes ex M. E. Jones, Contr. W. Bot. 11: 17. 1903.

M. E. Jones s.n. United States of America. Nevada: Palisade. September 6, 1881. Isotype: NO.

= *Eriogonum baileyi* S. Wats. var. *baileyi*; James L. Reveal [herbarium annotation, 1969].

Eriogonum campanulatum Nutt. subsp. ***leptothecum*** S. Stokes, Genus Eriog. 78. 1936.

S. G. Stokes 206. United States of America. Colorado: Boulder County, five miles north of Boulder on road to Fort Collins. August 2, 1934. Holotype: CAS 215300; isotype: NO.

Eriogonum eastwoodianum J. T. Howell, Leaf. W. Bot. 2: 133. 1938.

Eastwood & Howell 5857. United States of America. California: Fresno County, in mountains south of Jacalitos Creek, 14 miles from Coalinga on road to Parkfield. June 13, 1938. Holotype: CAS 257469; isotype: NO.

Eriogonum eximum Tidestrom, Proc. Biol. Soc. Wash. 36: 181. 1923.

Heller 10649. United States of America. Nevada: Washoe County, mountains west of Franktown, elevation 5800 feet. August 16, 1912. Holotype: US 509910; isotype: NO.

≡ *Eriogonum ovalifolium* Nutt. var. *eximum* (Tidestrom) J. T. Howell, *Mentzelia* 1: 19. 1976 ["1975"].

Eriogonum heermannii Dur. & Hilg. var. ***floccosum*** Munz, Manual S. Calif. Bot. 597. 1935.

Munz 12915. United States of America. California: Mohave Desert, eastern San Bernardino County, Clark Mountains, elevation 5200 feet. September 16, 1932. Holotype: POM 183921; isotype: NO.

Eriogonum nudicaule (Torrey) Small subsp. ***parleyense*** S. Stokes, Genus Eriog. 84. 1936.

Stokes 213. United States of America. Utah: Parley's Canyon, Wasatch [Wahsatch] Mountains, elevation 6000 feet. August 18 [or 17?], 1934. Holotype: CAS 215298; isotype: NO.

= *Eriogonum brevicaule* Nutt. var. *brevicaule*; S. Welsh et al. Utah Fl., Great Basin Nat. Mem. 9: 476. 1987.

RANUNCULACEAE

Delphinium amabile Tidestrom subsp. ***clarianum*** Ewan, Univ. Colorado Stud., Ser. D, Phys. Sci. 2: 198. 1945.

M. Clary s.n. United States of America. California: Riverside-San Bernardino County line, Lost Horse Canyon, Little San Bernardino Mountains, Conchilla Range. May 12, 1932. Holotype: COLO; isotype: NO.

Delphinium bicornutum Hemsley subsp. ***oaxacanum*** Warnock, Madroño 31: 247. 1984.

Warnock 2536. Mexico. Oaxaca: about 11.5 mi. south of Miahuatlan on Puerto Angel road (Pemex Route 175). October 19, 1981. Holotype: TEX; isotypes: NO, ENCB, ILL, MEXU, MO, SHST.

Delphinium collinum Ewan, Bull. Torrey Bot. Club. 63: 338. 1936.

Epling & Robison s.n. United States of America. California: San Diego County, ridge between Campbell's Ranch and Mason Valley. April 4, 1932. Holotype: LA; isotype: NO.

Delphinium disjunctum Ewan, Nat. Hist. Misc. 61: 1-3. 1950.

Meyer & Rogers 3019. Mexico. Nuevo Leon: Cerro del Viejo, 15 mi. west of Dulces Nombres, Municipality Zaragoza, elevation 2500 meters. August 19, 1948. Holotype: MO; isotype: NO.

Delphinium gypsophilum Ewan, Univ. Colorado Stud., Ser. D, Phys. Sci. 2: 189, fig. 54. 1945.

Ewan 10295. United States of America. California: West Fresno County, mouth of Pinoche Creek, on east facing slope, elevation 500 feet. April 25, 1937. Holotype: COLO; isotype: NO.

Delphinium hesperium A. Gray forma ***hirsutum*** Ewan, Univ. Colorado Stud., Ser. D, Phys. Sci. 2: 179. 1945.

Ewan 9562. United States of America. California: Sutter County, eastern side of North Butte, elevation 800 feet. May 9, 1936. Holotype: COLO; isotype: NO.

Delphinium hesperium A. Gray forma ***pallescens*** Ewan, Univ. Colorado Stud., Ser. D, Phys. Sci. 2: 179. 1945.

Ewan 8835. United States of America. California: Napa County, along Steel Canyon Road, 0.5 mile from junction with Monticello-Winters Road. April 30, 1934. Holotype: COLO; isotype: NO.

Delphinium hutchinsoniae Ewan, Bull. Torrey Bot. Club 78: 379. 1951.

S. Hutchinson 7423. United States of America. California: Monterey County, in sand on beach 2.5 miles south of Monterey, elevation 10 feet. May 28, 1938. Holotype: COLO; isotype: NO.

Delphinium menziesii DC. subsp. ***pyramidale*** Ewan, Univ. Colorado Stud., Ser. D, Phys. Sci. 2(2): 107. 1945.

H. C. Gilbert 1133. United States of America. Oregon: Benton County, northwest of Corvallis. May 6, 1916. Holotype: OSC 4151; isotypes: NO, NDA.

Delphinium ramosum Rydberg forma ***sidalceoides*** Ewan, Bull. Torrey Bot. Club 78: 380. 1951.

Weber 5798. United States of America. Colorado: Saguache County, along road to Stone Cellar Ranger Station and Saguache Park, near junction of main highway, 4 miles west of Cochetopa Pass, elevation 9700 feet. July 28, 1950. Holotype: COLO; isotype: NO.

Delphinium treleasei B. F. Bush, Minnesota Bot. Stud. 2: 444. 1900.

Bush 73. United States of America. Missouri: Eagle Rock. May 28, 1898. Isotype: NO.

Ranunculus alveolatus Carter, Amer. J. Bot. 26(7): 555, fig. 1e-f. 1939.

A. Carter 1244. United States of America. California: Sacramento County, between Fair Oaks and Folsom, 1.5 miles southeast of Orangevale, elevation 200 feet. April 25, 1937. Holotype: UC 604080; isotype: NO.

ROSACEAE

Horkelia caeruleomontana St. John, Fl. Southeastern Washington. 199. 1937.

St. John & Smith 8329. United States of America. Washington: Columbia County, Wildcat Springs, R 40 E, T 7 N, elevation 5500 feet. July 5, 1927. Holotype: State College of Washington; isotype: NO.

Malus coronaria (L.) Mill. var. ***puberula*** Rehder, Trees Shrubs 2: 229. 1913.

R. S. Cocks s.n. United States of America. Louisiana: Winnfield. April, 1913. Holotype: A; isotype: NO.

Potentilla beanii Clokey, Bull. S. Calif. Acad. Sci. 38: 4. 1939.

Clokey 7974. United States of America. Nevada: Clark County, Charleston Mountains, Ridge to Charleston Peak, elevation 3270 meters. July 22, 1938. Holotype: Clokey herbarium; isotypes: NO, CI.

Potentilla cryptocaulis Clokey, Bull. S. Calif. Acad. Sci. 37: 4, *pl. 1*. 1938.

Clokey 7567. United States of America. Nevada: Clark County, Charleston Mountains, Charleston Peak, elevation 3500 meters. July 18 [or 8?], 1937. Holotype: Clokey herbarium; isotypes: NO, CI, GH.

≡ *Ivesia cryptocaulis* (Clokey) Keck, Lloydia 1: 130. 1938.

Rubus parviflorus Nutt. forma ***micradenius*** Fassett, Ann. Missouri Bot. Gard. 28: 324. 1941.

Fassett 20193. United States of America. Colorado: Routt County, gorge below Fish Creek Falls, Steamboat Springs. July 3, 1939. Holotype: WIS; isotype: NO.

Rubus parviflorus Nutt. var. ***velutinus*** (Hook. & Arn.) Greene forma ***paratrichophorus*** Fassett, Ann. Missouri Bot. Gard. 28: 325. 1941.

M. E. Mathias 1389. United States of America. California: Monterey County, about 12 miles south of Carmel, 0.5-1 miles from ocean, Palo Colorado Canyon, Santa Lucia Mountains. August 7, 1938. Holotype: WIS; isotype: NO.

Rubus parviflorus Nutt. var. ***velutinus*** (Hook. & Arn.) Greene forma ***parahypomalacus*** Fassett, Ann. Missouri Bot. Gard. 28: 325. 1941.

B. O. Schreiber 2538. United States of America. California: Marin County, 1.5 miles southeast of Abbot's Lagoon. August 6, 1938. Holotype: WIS; isotype: NO.

Rubus parviflorus Nutt. var. ***velutinus*** (Hook. & Arn.) Greene forma ***parbifarius*** Fassett, Ann. Missouri Bot. Gard. 28: 325. 1941.

L. Constance 2397. United States of America. California: Alameda County, Berkeley, north slope of Strawberry Creek Canyon, 0.7 mile above its mouth, elevation 1100 feet. August 4, 1938. Holotype: WIS; isotype: NO.

RUBIACEAE

Galium munzii Hilend & Howell forma ***glabrum*** Ehrendorfer, Contr. Dudley Herb. 5: 9. 1956.

Clokey 8134. United States of America. Nevada: Clark County, Charleston Mountains, canyon above Wilson's Ranch, elevation 1230 meters. June 7, 1938. Holotype: GH; isotypes: NO, ARIZ, DZ, POM, RSA.

≡ *Galium matthewsii* A. Gray var. *magnifolium* Dempster, Brittonia 10: 189. 1958.

Hedyotis acuminata (Cham. & Schlechtend.) Steud. forma ***brownii*** Fosberg, Bishop Mus. Bull. 174: 79. 1943.

Degener et al. 11672. United States of America. Hawaii: Waimalu, Oahu, elevation 1000 feet. November 3, 1935. Holotype: Degener herbarium; isotype: NO.

= *Hedyotis acuminata* (Cham. & Schlechtend.) Steud.; W. L. Wagner, D. Herbst, & S. H. Sohmer, Manual Fl. Pl. Hawaii, 1138. 1990.

Hedyotis halei Torrey & A. Gray, Fl. N. Amer. 2: 42. 1841.

J. Hale s.n. United States of America. Louisiana: near Alexandria [without date]. Holotype: NY; isotype: NO.

= *Pentodon pentandrus* (Schum. & Thonn.) Vatke; Correll & Johnston, Manual Vasc. Pl. Texas, 1490. 1970.

Hedyotis thyrsoides Fosberg, Bishop Mus. Bull. 174: 52. 1943.

Degener 11722. United States of America. Hawaii: near Laianui, Molokai. May 18, 1928. Holotype: Degener herbarium; isotype: NO.

= *Hedyotis mannii* Fosberg; W. L. Wagner, D. Herbst, & S. H. Sohmer, Manual Fl. Pl. Hawaii, 1148, 1151. 1990.

Perama mexiae Standley ex Steyermark, Mem. New York Bot. Gard. 10(5): 246, fig. 81a-e. 1964.

Ynes Mexia 5837. Brazil. Minas Geraes: Diamantina, Olaria, elevation 1245 meters. May 14, 1931. Holotype: NY; isotype: NO.

Rudgea mexiae Standley, Field Mus. Nat. Hist., Bot. Ser. 13, part II: 165. 1936.

Ynes Mexia 6366. Peru. Loreto: above Pongo de Manseriche, right of mouth of Río Santiago, elevation 210 meters. January 1, 1932. Holotype: F 718409; isotype: NO.

SAXIFRAGACEAE

Heuchera duranii Bacigalupi, Contr. Dudley Herb. 1: 191. 1933.

Duran 2817. United States of America. California: Mono County, McAfee Meadow, White Mountains, elevation 11,700 feet. July 26, 1930. Holotype: DS 207811; isotype: NO.

SCROPHULARIACEAE

Castilleja clokeyi Pennell, Proc. Acad. Nat. Sci. Philadelphia 89: 420. 1938.

Clokey 7322. United States of America. Nevada: Clark County, Charleston Mountains, on north slope of Kyle Canyon, elevation 2425 meters. July 8, 1936. Holotype: PH; isotype: NO.

Pedicularis semibarbata A Gray var. ***charlestonensis*** Pennell & Clokey, Bull. S. Calif. Acad. Sci. 38: 6. 1939.

Clokey 7718. United States of America. Nevada: Clark County, Charleston Mountains, Charleston Park, elevation 2300 meters. May 11, 1936 (flowers); June 21, 1937 (fruit). Holotype: Clokey herbarium; isotypes: NO, PH.

= *Pedicularis semibarbata* subsp. *charlestonensis* (Pennell & Clokey) Clokey, Madroño 8: 60. 1945.

Penstemon alluviorum Pennell in Small, Manual Southeastern Fl. 1203. 1933.

Pennell 11504. United States of America. Arkansas: Craighead County, Jonesboro. June 7, 1923. Holotype: PH; isotype: NO.

= *Penstemon digitalis* Nutt. ex Sims; E. B. Smith, Atlas Vasc. Pl. Arkansas, ed. 2, 253. 1988.

Penstemon arkansanus Pennell, Proc. Acad. Nat. Sci. Philadelphia 73: 493. 1922.

Pennell 10640. United States of America. Arkansas: Pulaski County, Pulaski Heights, Little Rock. May 31, 1920. Holotype: NY; isotype: NO.

≡ *Penstemon pallidus* Small subsp. *arkansanus* (Pennell) Bennett, Phytologia 9: 57. 1963.

Penstemon bicolor (Brandege) Clokey & Keck subsp. ***roseus*** Clokey & Keck, Bull. S. Calif. Acad. Sci. 38: 12. 1939.

Clokey 5850. United States of America. Nevada: Clark County, Nelson, El Dorado Canyon, elevation 600 meters. May 14, 1938. Holotype: Clokey herbarium; isotypes: NO, CI.

Penstemon connatifolius A. Nelson, Amer. J. Bot. 18: 437. 1931.

Nelson 10314. United States of America. Arizona: Apache Trail, not many miles from Roosevelt Dam. May 3, 1925. Holotype: RM; isotype: NO.

Penstemon keckii Clokey, Madroño 4: 128. 1937.

Clokey 7312. United States of America. Nevada: Clark County, Charleston (Spring) Mountains, elevation 2670 meters. July 3, 1936. Holotype: Clokey herbarium; isotypes: NO, and distributed in *Plantae Exsiccatae Grayanae*.

Penstemon multicaulis Pennell, Proc. Acad. Sci. Philadelphia 73: 494. 1922.

Pennell 10616. United States of America. Arkansas: Franklin County, Ozark. May 29, 1920. Holotype: NY; isotypes: NO, PH.

= *Penstemon arkansanus* Pennell; E. B. Smith, Atlas Vasc. Pl. Arkansas, ed. 2, 251. 1988.

Penstemon neotericus Keck, Univ. Calif. Publ. Bot. 16: 398, fig. 13. 1932.

Keck 958. United States of America. California: Plumas County, halfway between Chester and Westwood, elevation 1465 m (4800 feet). July 24, 1930. Holotype: DS 185575; isotypes: NO, CA, CI, GH, K, MISS, NY, PH, POM, UC.

SOLANACEAE

Solanum arborescens Clokey, Bull. S. Calif. Acad. Sci. 30: 60. 1931; non *Solanum arborescens* Moench.

Clokey 5049 [5047 ?]. United States of America. California: Santa Cruz Island, Pelican Bay, elevation 60 meters. May 23, 1930. Holotype: Clokey herbarium; isotype: NO.

≡ *Solanum clokeyi* Munz, Bull. S. Calif. Acad. Sci. 31: 69. 1932.

≡ *Solanum wallacei* (A. Gray) Parish var. *clokeyi* (Munz) McMinn, Illustr. Manual Calif. Shrubs, 491. 1939.

Solanum inopinum Ewan, Nat. Hist. Misc. 88: 8. 1951.

Ewan 16081. Colombia. Nariño: vicinity of San Juan, on Río San Juan. September 5, 1944. Holotype: NO(2).

Solanum siparunoides Ewan, Nat. Hist. Misc. 94: 1. 1952.

Ewan 15766. Colombia. Antioquia: Cordillera Central, Alto Capiro, above Sonson-Abejorral camino. May 26-28, 1944. Holotype: NA; isotypes: NO, COL.

TILIACEAE

Tilia floridana Small var. ***oblongifolia*** Sargent, Bot. Gaz. 66: 435. 1918.

Cocks 788. United States of America. Alabama: road to Hatcher's Bluff, near Sardis. June 5, 1915; August 14, 1915 (fruit). Holotype: A; isotype: NO.

= *Tilia caroliniana* Mill.; J. & R. Kartesz, Synonymized Checklist Vasc. Fl. U. S. 462. 1980.

Tilia nuda Sargent var. ***glaucescens*** Sargent, Bot. Gaz. 66: 427. 1918.

Cocks 786. United States of America. Alabama: Dallas County, Cocks place, Alabama River [G. . . 's Landing], Sardis. June 11, 1915; July 15, 1915 (fruit). Holotype: A; isotype: NO(2).

≡ *Tilia leucocarpa* Ashe var. *glaucescens* (Sargent) Sudworth, Checklist Forest Trees U. S. 201. 1927.

VERBENACEAE

Aegiphila salticola Moldenke, Feddes Repert. Spec. Nov. Regni Veg. 37: 211. 1934.

Ynes Mexia 5922. Brazil. Pará: Distrito Acará, Thomé Assú, Japanese Colony, elevation 30 meters. July 16, 1931. Holotype: F; isotype: NO.

Lantana minasensis Moldenke, Phytologia 2: 138. 1946.

Ynes Mexia 4448a. Brazil. Minas Geraes: about km 2 along road from Viçosa to Barroso, elevation 690 meters. March 9, 1930. Holotype: NY; isotype: NO.

Lantana rubella Moldenke, Phytologia 1: 464. 1940.

Ynes Mexia 5845. Brazil. Minas Geraes: Diamantina, upper slope of Serra do Rio Grande, elevation 1290 meters. May 15, 1931. Holotype: NY; isotype: NO.

Verbena hasslerana Briq. Bull. Herb. Boissier (II) 4: 1056. 1904.

Hassler 6464. Paraguay. [vicinity of Tobaty, September, 1900]. Syntypes: G-DEL, NO [vide Moldenke, Phytologia 9: 177. 1963].

VOCHYSIACEAE

Vochysia braceliniae Standley, Field Mus. Nat. Hist., Bot. Ser. 22(3): 149. 1940.

Ynes Mexia 6081. Peru. Loreto: near Yurimaguas on trail to San Ramón, elevation 180 meters. October 25, 1931. Holotype: F; isotype: NO.

