

very shiny; principal internodes much abbreviated, mostly 1.5 cm. long or less; nodes not annulate; leaves decussate-opposite, 1-foliolate, numerous, rarely binary; petioles rather heavy, short, 10--15 mm. long, glabrous, shiny, swollen at the apex and base, articulate at the apex; leaf-blades coriaceous, uniformly dark-green on both surfaces, lanceolate, 3--13 cm. long, 1.1--4.8 cm. wide, smooth and very shiny on both surfaces, acute or short-acuminate at the apex, entire, subacute at the base; midrib slender, slightly prominent above, sharply prominent beneath; secondaries slender, about 10 per side, arcuate-ascending, mostly flat above, very slightly prominulous beneath, arcuately joined near the margins beneath; veinlet reticulation invisible above, mostly obscure beneath; inflorescence apparently racemose and axillary and perhaps also terminal and subpaniculate, rather few-fruited, apparently simple, 5--15 cm. long, the peduncle and rachis glabrous and shiny; fruiting-pedicels heavy, about 5 mm. long, glabrous; fruiting-calyx cupuliform, to 7 mm. long and 15 mm. wide, heavy, glabrate, the rim entire or subentire.

The type of this species was collected by Jean Baptiste Louis Pierre (no. 37) -- in whose honor it is named -- in the Dinh mountains at Baria, southern Cochinchina, Indochina, in March, 1867, and is deposited in the Britton Herbarium, from the Kru-koff Herbarium, at the New York Botanical Garden. The collector names the common Annamese name "com tao" or "kum tao" and says that the corolla is blue. Dop identified it as Vitex holophylla Baker.

xVERBENA GONZALEZI Moldenke, nom. nov.

Glandularia santiaguensis x pecakii Schnack & Gonzalez, Revist. Argent. Agron. 12: 285. 1945.

- - - - -

MATERIALS TOWARD A MONOGRAPH OF THE GENUS VERBENA. V

Harold N. Moldenke

VERBENA BRACTEATA Lag. & Rodr.

Demaree states that "old stems will get covered up by sand and dozens of new branches will come up." Whitehouse 16263 was taken from a plant so large that three full herbarium sheets were made from it. E. J. Hill 269.1889 in the University of Illinois herbarium has the spikes especially densely flowered. The erect form of the species is well exemplified by Clokey 8096 from Nevada and by Ownbey & Weber 2746a and by J. H. Christ 12973 from Idaho. Ownbey & Weber 2746b is the typical prostrate form. Ewan 11418 has its leaves extra finely cut. The physico-chemical properties of the sap in relation to phytogeography are discussed by Harris (1934) on the basis of specimens collected

(1) in a broad wash through sagebrush community west of Grantsville, near the old Wrathall ranch, Stansbury Mountains, Tooele Valley, Utah, (2) from drifting sand or sand-ridges on the second terrace of the Sevier River, Utah, beyond the bridge on the Lynndyl-Oak City road, and (3) from the drift zone of the sandy beach of Utah Lake, near Provona Beach, west of Provo, Utah.

Verbena bracteata has been found by collectors in a tremendous variety of habitats, including along roadsides and roadside ditches, on gravelly banks and sand ridges, in sandy pastures, river bottoms, and scattered pinewoods, along the borders of lakes, the edges and bottoms of dried-up ponds, on sandy roadside banks and sandy sagebrush slopes, in alleys and parking strips, on plains and prairies, dry sunny or low prairies and dry meadows, on dredged land at the edges of ponds, on sandy riverbanks and sagebrush flats, on grassy flats of Bouteloua gracilis, in orchards, meadows, farmyards, and dooryards, on dry rocky riverbanks and river bluffs, on gravel- and sand-bars, among grass in parks, open grasslands, on arid plains, clay prairies, and clay ridges, in gypsum and the muck of lake-beds, on damp sandy-gravel flats, ditch-banks, and deserts, in the cinder beds along railroad tracks, on the banks of sloughs, in sandy sagebrush deserts, on sand or saline flats, gravelly or sagebrush hillsides, and gravelly prairies, in moist meadows and low moist or open places, on buttes and high plains, in the desert adjacent to cultivation, in blackland prairies and near or along irrigation ditches, on seaport ballast, in alluvial flat waste places, on sandy clay-loam bottoms, at the margins of epsom lakes, in bare clay areas on hilltops, in dry gravel or loam near rivers, on limestone slopes, in dry xeric outcrops and domes of the Viola Lime formation, and on brushy flats. It has been found growing in clay, red clay, and sandy clay soil, heavy or rocky soil, sun-baked clay adobe, earthy soil of limestone areas, loose gravelly or dry gravelly soil, sandy, dry sandy, dry sandy sunny, and even very dry sandy soil, as well as in damp or low moist or dry rocky soil, hard dry or adobe soil, in granitic, igneous, or dry grassy waste soil, and even pure sand. It is often found in sandy soil in sunny places, damp soil by streams, and moist soil along lake-shores. It is most common in waste places and open places generally, along sidewalks, and in railroad ballast. I have personally seen it in very dry windswept places at the seaward side of the lighthouse at Montauk Point, Long Island. Collectors describe it from dryish or sandy canyon floors, sandy level terraces, yellow pine forests, sandy lake-margins, and rocky pastures, from wharves and railroad sidings, lumberyards, dry rocky places, clay soil in prairies, fields about ponds and the edges of fields, dry slough bottoms, dry or sandy riverbanks, and streets, fields in the juniper belt, vacant pastures and lots, semi-cultivated fields, dry knolls, sandstone mesas, sand hills, gravel bluffy and grassy roads, in very dry hills, silty soil in valleys, the dry sand of lake-margins, borders of thickets, alkali flats, moist spots of flat prairies, Sarcobatus flats, sandy plains and riverbottoms, rocky hillsides and dry clay slopes, sandhills and

creek bottoms, along ditches on level prairies, and at the edges of runoffs. It is said to inhabit dry mesas and dry grassy bunch-grass land, sandy, open sandy, and low sandy ground, dry ground and dry hard or dry open ground, dry sterile or nearly cleared ground, low ground, and ballast ground. It seems to like gravelly mesas and dry gravel hills, gravel shoulders of highways, dry lakebeds, sandy alluvium and sandy, sandy loam, or open roadsides, dry rocky or sandy ridges, low waste places and grassy situations, clearings, dry sandy prairies that are exposed to the wind, graded roadsides in pine forests, steep prairie-covered loess bluffs, muddy ditch-banks in prairie soil, dry crevices and ledges of Sioux Quartzite, sandy dry banks, and weedy roadsides. It is commonly met along watercourses and lakeshores, near ponds, on ledges and drying banks, in sandy or bare clay areas, and in the open sod of dry prairies. It has been found growing well in rich or moist black loam, as well as in sandy, alluvial sandy, or clay loam. It has been collected at altitudes of 100 to 9000 feet, flowering and fruiting continuously from April to October.

Gates states that it inhabits "dry places along roads and on prairie and plains" throughout Kansas, and that it is a therophyte or hemicryptophyte; Mackenzie found it common in sandy soil in Wyandotte County of that state; Hancin says "common in waste places". In Alabama Earle (1902) reports it as only "occasional, roadsides and waste places". Pammel says it is common as a weed along roadsides and in pastures, associated with V. stricta Vent., V. hastata L., Juncus tenuis Willd., and Persicaria mitis Gilib. In Iowa Tolstead reports it from sandy soil mixed with cinders and gravel, exposed to full sunlight in well-drained land. Welch asserts that in Indiana it is "common" in Jasper County, while Grimes reports it as growing along with Diodia teres Walt. along railroad rights-of-way in Putnam County. "Large mats are common" in Siskiyou County, California, according to Cooke, while Moffatt says it is "abundant in old pastures" in Du Page County, Illinois. In Arizona Hanson found it "common and abundant in waste places", Whiting describes it as a "weed in wash bottoms", and Heller found "prostrate plants forming mats in low ground." Grassl found it "common near base of ridges", Cutler "common in dry fields", and Marcelline "common in yards and gardens" in New Mexico. Voss encountered it "occasional in hard-packed roadsides in Michigan". Nobs and Smith discovered it with Cressa, Sida, and Frankenia on dry mud flats in California. Head says that it is scarce in rich soil of dry lakebeds in Jeff Davis County, Texas. St. John says that it is "common in dry places, persisting as a weed in dry farming regions in upper Sonoran and arid Transition zones" in Washington.

It is found "along streets and in open waste places" in Washington County, Arkansas, according to Harvey; "abundant in dry sandy fields" in Fairfield County, Connecticut, according to Eames; "in dry clearings of conifer woods on hillsides" in Keweenaw County, Michigan, according to Hermann; and as a "weed in cinders along railroad tracks" in Sussex County, New Jersey, ac-

cording to Clausen & Edwards. In the state of Washington Smith found it "below highwater line along the river" in Grant County, while Dana collected it in the bottom of a coulee and scattered on prairies in Franklin County. Scoggan says that in Manitoba he found it on "saline prairie and dried middle river channel", while Dodge found it "plentiful" at Point Edward, Ontario, where many other botanists have also encountered it as a weed. Blankinship describes it as a "roadside weed" in Gallatin County, Montana, and Flint comments that it inhabits "little-used roadbeds in gravelly disintegrated granite, with no forage value" in Jefferson County. In Kentucky it is "a prostrate tough weed of door- and barnyards", according to Shacklette. Benson lists it as a denizen of the Lower and Upper Sonoran and Transition life-zones. Fogg encountered it as a "weed along sidewalks" in Philadelphia County, Pennsylvania. In Utah it is described as a "weed in yards" by Maguire & Becraft (Millard County) and "local in somewhat moist sandy bottoms" (Juab County) or "common in the streets of Kanab" by Tidestrom (Kane County), "in sand with Artemisia tridentata" by Keck (Millard County), "common along roadsides" by Pammel & Blackwood (Salt Lake County), "frequent in open spots in dry soil" by Cutler (Juab County), while Gould says "in heavy black soil of drying banks of vernal pools". In California's Merced County it grows on dry mudflats with Cressa, Frankenia, and Sida, and in salt sloughs with Chenopodium and Gnaphalium. In Waukesha County, Wisconsin, Pohl encountered it as "common and low in schoolyards with Eragrostis, Poa, Matricaria, and Melilotus". In Iowa, according to Pammel, it is "common in waste places, roadsides, walks, gravelly and sandy fields; abundant...on gravel on knolls with V. stricta and Baptisia leucophaea and in cultivated ground." Fawcett reports it as "common in sandy prairies and waste places.....Mississippi Valley from Florida and Alabama to Minnesota, British Columbia and Arizona." Jones avers that it is an inhabitant of the Lower Temperate life-zone in Lincoln County, Nevada, while Holmgren reports it "frequent as a roadside weed in dry gravelly soil," and Clokey collected it in a "field in juniper belt" and "roadsides in Larrea belt" in the same state, but Allen reports it "not common" in Lyon County.

In Idaho, Sandberg, MacDougal, & Heller say it is "frequent on rocky hillsides"; Schallert says it is "common in deserts" of Arizona. It grows on "dry banks of treeless creeks" in Oregon, according to Lawrence, in "dry fallow ground, especially along run-off rain washes" and "fairly common in dry sand" in Boulder County, Colorado, according to Ewan, and "infrequent in moist pastures, in sandy loam soil" in Grant County, New Mexico, according to Maguire, Richards, & Moeller. Waterfall found it in openings in pine forests on shale hillsides in Rio Arriba County, New Mexico, and on rolling plains among numerous clumps of Yucca in Cimarron County, Oklahoma. The Degeners found it on gravel on an open Juniperus plateau in Colorado.

Miss Perry, in her excellent monograph of the North American members of this genus (1933), gives the distribution of V. bracteata.

teata as "Waste places, Maine to Florida, west to California and northern Mexico". She also remarks that this is "A readily recognized and widely distributed species varying greatly in habit and pubescence as well as in length and position of floral bracts. The typical form is a sprawling hirsute plant with laxly ascending branches and spreading bracts. In New Mexico it appears as a nearly erect herb (V. imbricata Woot. & Standl.) with shorter and ascending or appressed bracts (var. brevibracteata Gray). Some phases of this variation occur throughout the northwest range of the species, but since these tendencies to vary are apparently lacking in correlation, they do not seem worthy of nomenclatorial attention." R. J. Ferris 9770 is supposed to represent the var. brevibracteata type well, although it was distributed at V. robusta Greene.

Hegi (1927) says of its occurrence in Germany "1864 von Stocker eingeschleppt bei der Baumwollspinnerei Feldkirch gefunden" and also remarks that it is useful in the treatment of scrofula.

Palmer (1935) describes the habitat of V. bracteata as "fields, roadsides, and waste ground. Circumneutral. General". It is probable that the species is native from Michigan, Ohio, and Tennessee westward to the Pacific Coast and south to Texas and northern Mexico, and has been introduced locally in portions of Canada from Ontario to British Columbia and along the eastern and Gulf seaboard from Maine to Florida and Louisiana. Renner says that it is grazed from June to October in New Mexico.

The "Swanson" County, Oklahoma, recorded for this species by me in my Résumé 26 (1959) appears to be an error. There is no such county in Oklahoma, nor can I locate a town by that name in the state. The "Riverside" County, Colorado, recorded on page 24 of the same work appears to be an error for Riverside County, California, and the "Alturas" County, Idaho, on the same page seems to be an error for the town of Alturas in Modoc County, California.

The Arsène s.n. in the Berlin herbarium bears a label reading "Pl. du Mexique", but there is also an inscription reading "vicinity of Santa Fé", so I am assuming that the plant was actually collected near Santa Fé in what is now the state of New Mexico, U. S. A.; likewise a similar sheet in the Britton Herbarium at the New York Botanical Garden is inscribed "Las Vegas", which I assume refers to Las Vegas, New Mexico (not Nevada). The Howell s.n. from "Cascades" and the Gorman s.n. from "Lower Cascades", Oregon, cited hereinafter from Hood River County, might as well have been collected in Wasco County. H. H. Rusby s.n. [Oak Creek, May 30, 1883] may have come from either Coconino or Yavapai Counties, Arizona; Edw. Palmer 1048 may well have actually been collected in Nuevo León, Mexico. Whitehouse 8739 may have come from Santa Fe County, New Mexico — its indefinite label reads merely "Las Vegas — Santa Fe"; similarly, Tharp 6274 and 6284 could have come from either Lamb or Lubbock County, as their

labels read merely "Lubbock -- Littlefield", Texas; Tweedy 3365 may have been collected in either Johnson or Sheridan County, Wyoming -- its label reads "between Sheridan and Buffalo"; W. H. Rhoades s.n., cited below from Van Buren County, Michigan, could have originated in Kalamazoo County, since its label says "between Papaw and Kalamazoo". The Fremont s.n. collection cited below was marked "Mexico" by Mrs. Palmyra Mitchell at the New York Botanical Garden, on what basis I do not know. Parish 8490 bears a printed label reading "Plants of Southern California", but in longhand is stated "Bottomlands of the Colorado River, Ft. Yuma", so I assume that it came from what is now Yuma County, Arizona. Parish & Parish 2171 was collected at San Bernardino, California, in 1891 -- in 1914 a note was added by one of the collectors "this station is destroyed and I no longer find the species at San Bernardino."

The A. S. Hitchcock s.n. [McPherson, July 1892], cited below, is cited in the Flora Kansana as "V. hastata x bracteosa", while the s.n. [Wabaunsee Co., Aug. 23, 1896] is there cited as V. canadensis. Over s.n. [July 14, 1914], Cutter 33, and Smith & Rinehart 82 are mixtures with V. bipinnatifida Nutt.; Oyster s.n. [July 1885] is a mixture with something boraginaceous, while Bethel s.n. [1910] in the herbarium of the California Academy of Sciences is mixed with a species of Lycopus; Arsène 1885 in the Pomona College herbarium is a mixture with V. plicata Greene, and Burk s.n. [Girard Point] is a mixture with V. canadensis (L.) Britton. G. D. Fuller 10186 in the herbarium of the Illinois State Museum, distributed as V. bracteata, is actually Veronica arvensis L. in the Scrophulariaceae; Loomis 3133, distributed as this species, is Monarda mollis L.; C. Wright 1545, at least insofar as the Columbia University Herbarium specimen is concerned, is not verbenaceous; Earle s.n. [Auburn, 16 May 1896], distributed as Verbena bracteata, is Phryma leptostachya L. in the Phrymaceae. Wallis 4944-1 is a mixture with V. bipinnatifida. J. Lauber 101 [4483], distributed as V. bracteosa, is actually V. ciliata Benth., Edw. Palmer 342 is V. lasiostachys var. septentrionalis Moldenke, J. B. Davy 16 is V. quadrangulata Heller, and Lapham s.n. [M. Spear, 1858] is xV. perriana Moldenke.

In spite of the extremely distinctive characters of Verbena bracteata, material of this species has been misidentified and distributed in herbaria as V. ambrosifolia Rydb., V. aubletia L., V. bipinnatifida Nutt., V. canadensis (L.) Britton, V. canescens H.B.K., V. canescens var. neo-mexicana A. Gray, V. caroliniana Gmel., V. ciliata Benth., V. gracilis Desf., V. hastata L., "V. hastata var.", V. hastata x bracteosa Gates, V. menthaefolia Benth., V. plicata Greene, V. prostrata R. Br., V. pumila Rydb., V. robusta Greene, V. spuria L., V. wrightii A. Gray, Lippia cuneifolia Steud., and even Gentiana bracteosa Greene!

As is to be expected in the case of a species with such a wide distribution, the list of popular names is rather long, including "bracteated vervain", "bracted verben", "bracted vervain", "hoary vervain", "large bracted vervain", "large-bracted vervain", "large-bracted vervaine", "large bracted vervane", "large-bracted vervane", "large bracted verwain", "large-leaved vervain", "lavender ground-flower", "long-bracted vervain", "mat verben", "prostrate vervain", "small verben", "spreading vervain", "verbean vervain", "verben", "vervain", "verveine", and "vervian". It should be noted, however, that the name "hoary vervain" is more properly applied to V. stricta Vent., while "verveine" is applied also to the genus Verben as a whole as well as to V. bonariensis L., xV. hybrida Voss, V. officinalis L., Phyla nodiflora (L.) Greene, and Stachytarpheta jamaicensis (L.) Greene, and "verben" is applied to the genus Verben as a whole, as well as to V. bonariensis L., V. corymbosa Ruiz & Pav., V. hastata L., xV. hybrida Voss, V. litoralis H.B.K., V. officinalis L., V. peruviana (L.) Britton, V. platensis Spreng., V. stricta Vent., V. urticifolia L., Bouchea prismatica (L.) Kuntze and its var. longirostra Grenz., Clerodendrum fragrans var. pleniflorum Schau., Priva lappulacea (L.) Pers., Stachytarpheta calderonii Moldenke, S. cayennensis (L. C. Rich.) Vahl, S. frantzii Polak., S. guatemalensis Moldenke, and S. jamaicensis (L.) Vahl.

Our species is mentioned by Wyman & Harris (1941) under the form-genus name "ʔaze.(č'il) bilátaḥ do.ʔ' izígi", and is said to be used by the Navajos to stop postpartem hemorrhage. Seymour (1929) records the following fungi as infesting it: Aecidium verbenae Auct. Amer., A. verbenicola Ell. & Kellerm., Dicaeoma verbenicola Arth., Puccinia sydowiana Diet., P. verbenicola Arth., Erysiphe cichoracearum DC., and Septoria verbenae Rob. It was introduced into cultivation in 1801 or earlier, and Bailey (1935) lists Cronamere as offering it to the horticultural trade. The "8743" cited in Univ. Calif. Publ. Bot. 24: 198 & 274 (1951) is probably a misprint for Clokey 8473.

MacDougal (1907) suggests that what he calls V. bracteosa Michx. (now more correctly known as V. bracteata Lag. & Rodr.) may hybridize in the wild with V. canadensis (L.) Britton, with V. hastata L., and with what he calls V. angustifolia Michx. (now more correctly known as V. simplex Lehm.). However, he cites no specimens, gives no descriptions of the supposed hybrids, and does not say that he actually ever saw any such hybrid plants. I doubt very much whether these species hybridize and certainly have never yet seen any such hybrids myself. The only hybrids which I recognize are xV. bingenensis Moldenke [V. bracteata Lag. & Rodr. x V. lasiostachys var. septentrionalis Moldenke], xV. deamii Moldenke [V. bracteata Lag. & Rodr. x V. stricta Vent.], and xV. perriana Moldenke [V. bracteata Lag. & Rodr. x V. urticifolia L.].

A. H. Smith (1868) records V. bracteata as "rare" at Kaign's Point, Philadelphia, Pennsylvania. Jones (1941) records it from Ross County, Ohio, on the basis of a Bartley & Pontius collection. Lowe (1943) says it is occasional on prairies and waste ground at Elgin, Lena, Lyleton, and Ninga, Manitoba -- I have not yet seen material from the first two of these localities. Jepson (1943) records it from Kern County, California; Braun (1943) from Mc Creary County, Kentucky; Harper (1924) from Scioto County, Ohio; Clausen (1939) from Camden County, New Jersey; Monachino (1960) from Bronx County, New York; Porter, Woodward, Pride, & Howard (1940) from Worcester County, Massachusetts; Deam, Yunker, & Friesner (1950) from Marion County, Indiana; and Ogden, Steinmetz, & Hyland (1948) from Cumberland and Penobscot Counties, Maine; while Palmer (1916) cites his no. 454 from Jasper County, Missouri. Schauer (1847) cited a Schrader collection from Illinois, as well as non-localized Michaux and Douglas collections; Farwell (1938) records it from Houghton and Wayne Counties, Michigan, and says "The Keweenaw stations extend the range of this species much farther north than it is generally recorded". Muenscher says that it is "Native from Ohio westward and southward; locally introduced in the northeastern states and on the Pacific coast." Groh (1944) says that in Canada it is an annual, found in sod and waste places in dry land. He cites the following material not as yet seen by me: ONTARIO: Lambton Co.: Groh s.n. [Pt. Edward, 1924]. Middlesex Co.: Groh s.n. [Strathroy, 1924]. "Westmeath": Grylls s.n. [1935]. MANITOBA: Brandon Co.: Groh s.n. [Wawanesa, 1932]. "Long River Valley": Burman s.n. SASKATCHEWAN: Maple Creek Co.: Campbell 95. Regina Co.: Carmichael 89. Swift Current Co.: Groh s.n. [Cabri, 1933]. "Forget": Russell & Ledingham 1345. ALBERTA: Lethbridge Co.: Fyles s.n. [Lethbridge, 1914]; Groh s.n. [Lethbridge, 1929]. North Battleford Co.: Carmichael 75. "Cavendish": Campbell 44. BRITISH COLUMBIA: Cariboo Co.: Fletcher s.n. [Lake Kamloops, May 29, 1885]. Yale Co.: Eastham s.n. [Osoyoos, 1938]; Groh 243. He notes that the Point Edward "infestation" dates back to 1889, at least, since the species was found there by Dearness, according to Macoun's Catalogue. David Macoun also collected it "near the forks of the Red Deer and Saskatchewan rivers, Aug. 8, 1879."

Douglas H. Kent, in a letter to me dated November 28, 1949, says that the species is adventive in England. Thurston & Vigurs (1922) cite a Harvey collection from Bodmin Road Station, Cornwall, collected in 1918. Gay (1849) says "En la quinta noticia de las plantas raras del jardin botánico de Ginebra, A. de Candolle indica esta especie como propria igualmente de Chile, lo que es muy dudoso." I have not as yet seen any material of it from Chile, wild or cultivated.

Perry (1933) cites the following 320 additional specimens not as yet seen by me: ONTARIO: Lambton Co.: Macoun s.n. [Point Edward, Lake Huron, 19 July 1901] (N). BRITISH COLUMBIA: Cariboo Co.: Macoun s.n. [Kamloops, June 13th 1889] (W). MAINE: Cumber-

land Co.: Chamberlain 418 (G). MASSACHUSETTS: Norfolk Co.: Rich s.n. [Dedham, 4 Aug. 1900] (G). Worcester Co.: Dewhurst s.n. [Worcester, 27 June 1904] (G). CONNECTICUT: Fairfield Co.: Eames 8137 (G). Litchfield Co.: Fernald s.n. [Winsted, Winchester, 5 Sept. 1909] (G). NEW YORK: Suffolk Co.: Von Schrenk s.n. [Montauk Point, 23 July 1895] (E). NEW JERSEY: Camden Co.: Parker s.n. [Kaign's Point, Camden, 20 July 1866] (E, G). Hudson Co.: Van Sickle s.n. [Weehawken, Aug. 1894] (W). PENNSYLVANIA: Lancaster Co.: A. A. Heller s.n. [Lancaster, 29 Aug. 1900] (W). Lehigh Co.: Churchill s.n. [Cementon, 20 Aug. 1923] (G). NORTH CAROLINA: Iredell Co.: Ruger s.n. [Statesville, June 1872] (W). GEORGIA: Bartow Co.: Ravenel s.n. [Cartersville] (N). DeKalb Co.: Eggert s.n. [Stone Mountain, 24 May 1897] (E). Gwinnet Co.: H. A. Allard 207 (E, W). Lee Co.: J. D. Smith s.n. [Smithville, 18 Aug. 1885] (E). FLORIDA: Franklin Co.: Biltmore Herb. 1082b (W). County undetermined: Buckley s.n. (E); Chapman s.n. (E). ALABAMA: DeKalb Co.: Ruth 518 (E). Etowah Co.: Eggert s.n. [near Atalla, 9 July 1898] (E, N). Jackson Co.: Ward s.n. [Stevenson, 5 Sept. 1877] (W). Lee Co.: Earle & Baker s.n. [Auburn, 13 May 1898] (W). Mobile Co.: Mohr s.n. [Mobile, 22 May 1884] (W). County undetermined: Rugel s.n. [Sept. 1843] (E). OHIO: Erie Co.: Moseley s.n. [Sandusky, 14 Aug. 1920] (G). ILLINOIS: Kane Co.: Sherff 1797 (E). Mason Co.: Gleason s.n. [Havana, 18 Aug. 1904] (G). Menard Co.: E. Hall s.n. [Athens] (W). Piatt Co.: Seymour & Waite s.n. [Monticello, 17 June 1886] (G). Winnebago Co.: M. S. Bebb s.n. [Fountaindale, 1887] (G). INDIANA: La Porte Co.: Mell & Knopf s.n. [Michigan City, 6 July 1903] (E). Steuben Co.: C. C. Deam 1272 (E, W). IOWA: Black Hawk Co.: Burk 542a (E). Chickasaw Co.: Rolfs s.n. [Lawler, 1890] (G). Fayette Co.: Fink s.n. [30 July 1894] (W). Pottawattamie Co.: Vasey s.n. [Council Bluffs] (G). Story Co.: Ball s.n. [Ames, 5 Aug. 1896] (E, G, N, W); H. S. Fawcett 12 (E, G, W). KENTUCKY: Jefferson Co.: Bergmann s.n. [southern Louisville, 19 Aug. 1892] (E). County undetermined: Rafinesque s.n. (G). TENNESSEE: Cheatham Co.: Eggert s.n. [Kingston Springs, 19 Aug. 1897] (E). Franklin Co.: Eggert s.n. [Sherwood, 9 June 1897] (E). Shelby Co.: Fendler s.n. [Memphis, 22 June 1851] (G). MICHIGAN: Cheboygan Co.: J. H. Ehlers 627 (G). Manistee Co.: Morong s.n. [Manistee, 8 Aug. 1882] (G). WISCONSIN: Dane Co.: Churchill s.n. [Madison, 27 Aug. 1893] (G). Sauk Co.: Eggert s.n. [near Mirror Lake, 13 July 1903] (E). County undetermined: Schuette s.n. [Fort Howard, 22 July 1887] (G, W). MINNESOTA: Hennepin Co.: Mearns 524 (W); Schuette s.n. [hills between Minnehaha and Fort Snelling, 5 July 1888] (G). Mille Lacs Co.: E. P. Sheldon s.n. [Princeton, July 1892] (G, W). Stearns Co.: Chandonnet

s.n. [Collegeville, 29 July 1912] (E). Wabasha Co.: Manning s.n. [Lake City, 25 July 1883] (G). NORTH DAKOTA: Benson Co.: Lunell s.n. [Leeds, 10 Sept. 1896] (G, W). Morton Co.: Sarvis 122 (W). Richland Co.: Bergman 2370 (E). Stark Co.: Holgate s.n. [Dickinson, 14 Aug. 1908] (G). SOUTH DAKOTA: Lawrence Co.: Carr 179 (E, G, W); Rydberg 934 (W). Meade Co.: Forwood 298 (W). Walworth Co.: Visher 3359 (E). KANSAS: Grant Co.: C. H. Thompson 42 (E, W). Hamilton Co.: Rydberg & Imler 1008 (E). Kearney Co.: A. S. Hitchcock 1129 (E). Morton Co.: Rose & Fitch 17106 (W). Riley Co.: J. B. S. Norton 392 (E, G, W). MISSOURI: Butler Co.: Kellogg 15276 (E). Greene Co.: P. C. Standley 9362 (W). Jackson Co.: B. F. Bush 2109 (E), 4010 (E, G), 8537 (E). Jasper Co.: E. J. Palmer 454 (E); W. Trelease 494 (E). Jefferson Co.: F. Wislizenus 284 (E). Marion Co.: J. Davis 2691 (E), 3587 (E), 9039 (E). Pike Co.: J. Davis 2414 (E). Polk Co.: W. Trelease 715 (E). Taney Co.: B. F. Bush 601 (E). Wayne Co.: E. J. Palmer 6106 (E). Saint Louis: Egbert s.n. [Jefferson Ave., St. Louis, 2 July 1875] (E); Engelmann s.n. [St. Louis, Sept. 1841] (G, W); Riehl 9 (E). ARKANSAS: Craighead Co.: Demaree 3353 (E), 3371 (E, G). Hempstead Co.: B. F. Bush 1034 (E). Independence Co.: W. Trelease s.n. [Batesville, 1 Sept. 1897] (E). Sebastian Co.: Bigelow s.n. [Fort Smith, 1853-54] (W). Washington Co.: F. L. Harvey 62 (E). LOUISIANA: Rapides Par.: C. R. Ball 553 (E, G, W). MONTANA: Dawson Co.: J. Ball s.n. [near Glendive, 19--21 Aug. 1884] (G); Ward s.n. [Glendive, 17 July 1883] (W). Sanders Co.: Sandberg, MacDougal, & Heller 972 (G, W). IDAHO: Ada Co.: J. A. Clark 55 (E, G, W), 279 (E, G, W); Mulford s.n. [Boise, July 1892] (E, G). Canyon Co.: J. F. Macbride 200 (E, W). Fremont Co.: Merrill & Wilcox 776 (G, W). Nez Perce Co.: Sandberg, MacDougal, & Heller 264 (E, G, W). County undetermined: L. F. Henderson 4070 (W). WYOMING: Albany Co.: A. Nelson 7671 (E, G, W). Natrona Co.: Goodding 207 (E, G, W). Yellowstone National Park: Mearns 2698 (W), 5009 (W). County undetermined: A. Nelson 320 (E, G, W). UTAH: Beaver Co.: Goodding 1022 (E). Emery Co.: M. E. Jones 5478 (E, W). Piute Co.: Rydberg & Carlton 7043 (G, W). Salt Lake Co.: Pammel & Blackwood 3589 (E, G); S. Watson 823 (G, W). Sanpete Co.: Ward 256 (G, W). NEVADA: Clark Co.: Goodding 2312 (E, G); S. B. Parish 10288 (E, G). COLORADO: Archuleta Co.: C. F. Baker 564 (E, F, G). Denver Co.: Eastwood 25 (E, G, W). El Paso Co.: Clements 9 (E, G, W); Drushel 4387 (E). Gunnison Co.: C. F. Baker 920 (E, G, W). Larimer Co.: C. S. Sheldon 38 (G). Montrose Co.: C. F. Baker 288 (E, G). Otero Co.: Rose & Fitch 17503 (E, W). NEBRASKA: Cedar Co.: Clements 2612 (G, W). Kimball Co.: A. A. Heller 14303 (E). Lancaster Co.: Webber s.n. [Lincoln, 20 June 1888] (W). County undetermined:

Hayden 10 [banks of Yellowstone River] (E). OKLAHOMA: Comanche Co.: M. K. Clemens 11750a (E). Creek Co.: Bush 436 (E). Kiowa Co.: G. W. Stevens 1192 (G, N). LeFlore Co.: Blakeley 1462 (G). Texas Co.: G. W. Stevens 391 (E). Woods Co.: G. W. Stevens 680 1/2 (G), 2889 (G). TEXAS: Dallas Co.: Reverchon 736 (E), 2116 (E). El Paso Co.: C. Wright 454 (G, W), 567 (G), 1499 (E, G, N). Howard Co.: Havard s.n. [west of Big Spring, Sept. 1881] (W). Lubbock Co.: E. J. Palmer 12496a (E). Randall Co.: Eggert s.n. [banks of Red River, 13 Aug. 1900] (E); E. J. Palmer 13861 (E). Tarrant Co.: Ruth 109 (E, G, W). Taylor Co.: S. M. Tracy 8001 (E, G, W). Val Verde Co.: Parry, Bigelow, Wright, & Schott s.n. [below Doñana] (W). NEW MEXICO: Bernalillo Co.: Arsène & Benedict 16600 (E); C. C. Ellis 221 (E, W); E. J. Palmer 31117 (E). Chaves Co.: Earle 351 (E, W). Colfax Co.: Griffiths 5560 (E); P. C. Standley 6268 (W). Dona Ana Co.: Wooton 409 (E, G, W); Wooton & Standley 3330 (E, F). Eddy Co.: Wooton s.n. [Queen, 2 Aug. 1909] (E, W). Grant Co.: O. B. Metcalfe 137 (E, G, W). Sandoval Co.: Arsène & Benedict 16790 (D). San Juan Co.: Wooton 2831 (W). San Miguel Co.: Arsène 18399 (D), 18407 (E); P. C. Standley 5136 (E, W). Santa Fe.: Arsène & Benedict 15734 (E); P. C. Standley 4458 (E, W), 4549 (E, G, W). Sierra Co.: O. B. Metcalfe 897 (E), 1008 (E, G, W). Socorro Co.: H. H. Rusby 336 (E). County undetermined: Fendler 587 (D, E, G, W), 592 (E). ARIZONA: Apache Co.: Goodman & Hitchcock 1317 (E). Coconino Co.: Clute 93 (E, G, W); H. C. Hanson A. 147 (E); MacDougal 286 (D, G, W). Yavapai Co.: Peebles, Harrison, & Kearney 4243 (W). WASHINGTON: Benton Co.: Cotton 621 (E, G, W). Douglas Co.: Sandberg & Leiberg 340 (E, G, W). Kittitas Co.: Cotton 1363 (G, W). Stevens Co.: Kreager 474 (G, W); Lyall s.n. [Cascades Mts. to Ft. Colville, 1860] (G). Whitman Co.: Elmer 324 (E). Yakima Co.: Vasey 468 (G, W). OREGON: Clackamas Co.: E. P. Sheldon 8856 (E, W). Morrow Co.: J. W. Thompson 4880 (E, G, W). Umatilla Co.: H. E. Brown 58 (E, W); Griffiths & Hunter 18 (W); Leiberg 902 (E, G, N, W). Wallowa Co.: E. P. Sheldon 8202 (E). Wasco Co.: Abrams 9487 (E); Engelmann s.n. [The Dalles, 2 Aug. 1880] (E). County undetermined: W. C. Cusick 1967 (E, G); E. Hall 393 (E, G). CALIFORNIA: Humboldt Co.: Abrams s.n. [Blue Lake, 1 April 1903] (E, N). Inyo Co.: Coville & Funston 953 (W). Los Angeles Co.: Abrams 2574 (E, G). Monterey Co.: Bolander 426 (G); Vasey 512 (W). Orange Co.: D. L. Crawford s.n. [Laguna Canyon, 26 July 1916] (E). San Bernardino Co.: Parish & Parish 2171 (W). Tulare Co.: Palmer 2699 (W). MEXICO: Baja California: C. R. Orcutt 1228 (E), 1546 (E), 1549 (E), s.n. [Tia Juana] (F, W). Chihuahua: Gregg 433 (E); Stearns 7 (F, W). Coahuila: Gregg 623 (E), 636 (E); Edw. Palmer 1048 (D, G, W); Purpus 4524, in part (W). Sonora: Kennedy 7032 (W). CULTIVATED: Spain: Herb. Bot.

Gard. Madrid s.n. (E--photo of type).

In all, I have examined 2293 herbarium specimens of this species, including the type collections of most of the names involved.

Citations: CANADA: ONTARIO: Lambton Co.: C. K. Dodge s.n. [Point Edward, 7-15-96] (Fc, Mi), s.n. [Pt. Edward, 7/8/97] (Au, Au, Mi, Ob--87445), s.n. [Point Edward, Aug. 12, 1914] (Mi, Mi); G. L. Fisher s.n. [Sarnia, July 10th, 1902] (S); Gaiser 2304 PE (Gp, Gp, Mm), 2517 PE (Gp, Gp, Mm); Gaiser & Montgomery 2237 PE (Gp, Gp, Mm); J. Macoun 54635 (N). Middlesex Co.: Dearness & Colgrove s.n. [northeast of Strathroy, 31st August 1934] (Mg). County undetermined: W. Dearness 84 (Mg). MANITOBA: Crystal City: G. Thomas s.n. [Crystal City] (Wp). Lyleton: Scoggan 10009 (Vi, Wp). Melita: Scoggan 9887 (S, Vi, Wp). Ninga: Sage s.n. [Ninga] (Wp). SASKATCHEWAN: Gainesborough: J. I. S. Reynolds CS.261 (Ew). Kyle: R. C. Russell CS.590 (S). Maple Creek: Boivin & Perron 12135 (N); J. A. Campbell 95 (Mn--35075). ALBERTA: Lethbridge Co.: Macoun 24268 (N). Macleod Co.: E. H. Moss 204 (N). Medicine Hat Dist.: Boivin & Alex 9477 (N). North Vattleford Co.: Breitung 15643 (N, N). County undetermined: Degener & Degener 25650 [Frank] (N, W). BRITISH COLUMBIA: Cariboo Co.: Macoun s.n. [Kamloops, June 13th, 1889] (C). Yale Co.: Macoun 76775 (N); J. W. Thompson 11909 (Cm), 14374 (Ba, Ca--882591, Gg--310864, It, N, Se--20142, Se--57749). UNITED STATES OF AMERICA: VERMONT: Chittenden Co.: Muenschner, Manning, & Maguire 494 (Vt). Windsor Co.: J. P. Poole s.n. [West Hartford, 8/12/1946] (Dt). County undetermined: Herb. Carpenter s.n. (Vt). CONNECTICUT: Fairfield Co.: Eames 8137 (N); Jansson s.n. [Shelton, June 23, 1928] (Go). Hartford Co.: Jansson s.n. [Bristol, July 12, 1945] (Go). NEW YORK: Chemung Co.: S. G. Smith 2620 (N). Dutchess Co.: H. Ahles 726 (Aa). Monroe Co.: Beckwith 15 (Al). Queens Co.: A. Brown s.n. [Hunter's Point, Aug. 2, 1879] (Tc). Rensselaer Co.: C. H. Peck s.n. [West Troy] (Al); Puissant s.n. [West Troy, Aug. 30, 1870] (Al, Br). Saratoga Co.: H. D. House 29411 (Al, Au, Au, B, Ca--882600, N, Ok, Ur); O. P. Phelps s.n. [July 24, 1925] (Al). Suffolk Co.: E. J. Alexander s.n. [Montauk Point, Aug. 20, 1933] (N); H. N. Moldenke 11382 (N). Barren Island: Monachino 122 (Bt--35372, Dp, H--40668, I, Io--145160, Ka--90369, N, Ok, Um--251, Up, Ur), s.n. [Aug. 4, 1936] (N). NEW JERSEY: Hudson Co.: Van Sickle s.n. [Weehawken, July 20, 1894] (Tc). Sussex Co.: Ahles 914/48 (Ur); Clausen & Edwards 3538 (Ba). PENNSYLVANIA: Delaware Co.: Fogg 5299 (Up). Philadelphia Co.: I. Burk s.n. [Girard Point] (Up--17095); Diffenbaugh s.n. [Navy Yard, June 9, 1866] (Up--17092); Fogg 9870 (Up); C. F. Parker s.n. [July 28, '77] (Pr), s.n. [July 25/78] (Pr). Wyoming Co.: Glowenke 11298

(Ur). DISTRICT OF COLUMBIA: Mrs. L. M. Jenkins s.n. [Washington, July 1911] (Up--58797). VIRGINIA: Accomac Co.: H. A. Gleason 8547 (N). Giles Co.: R. Bebb 1687 (Ok). Southampton Co.: A. A. Heller 1012 (C, Mm--15394, Up--17088). WEST VIRGINIA: Hampshire Co.: E. L. Core 4391 (We); Frye 1198 (We). Monongalia Co.: Davis & Davis 7180 (We). Pocahontas Co.: West Va. Univ. Bot. Exped. 1039 (We). NORTH CAROLINA: Clay Co.: Huger 18 (N). Forsyth Co.: P. O. Schallert 11832 (No--23996). Iredell Co.: M. E. Hyams s.n. (Du--24161). McDowell Co.: LeRoy & Ruger s.n. [Foot Black, June 1872] (N). GEORGIA: Bibb Co.: J. K. Small s.n. [July 8-9, 1895] (C). Catoosa Co.: J. K. Small s.n. [August 6-12, 1895] (C). Charlton Co.: E. M. Hall 511 (N). Clarke Co.: K. M. Drewry E.1988 (Up); Mrs. K. M. Drewry s.n. [Aug. 25, 1929] (Gu--E.1988); W. H. Duncan 7745 (Gu). DeKalb Co.: J. K. Small s.n. [Stone Mountain, July 1--6, 1895] (C, Io--20750, S). Fulton Co.: T. P. Cleveland s.n. [Atlanta, 1860] (Fl--21086). Gwinnett Co.: H. A. Allard 207 (N). Hancock Co.: Cuthbert s.n. [Mayfield, May 1903] (Fl--21087). Jefferson Co.: H. M. Hopkins s.n. (N). Muscogee Co.: Boykin s.n. [Columbus] (C); Saurman s.n. [Columbus] (Pr, Up--17098). Screven Co.: J. M. Reade s.n. [May 18, 1928] (Gu--E.8353). FLORIDA: Franklin Co.: Chapman s.n. [Biltmore Herb. 1082b] (N), s.n. [Apalachicola] (C). County undetermined: Buckley s.n. (Io--15342); Chapman s.n. [Florida] (C). ALABAMA: DeKalb Co.: Ruth 495 (N). Etowah Co.: Eggert s.n. [8 July 1898] (N); Vasey s.n. [Gadsden, 1878] (Pr, Vt). Lee Co.: C. F. Baker 914 (C); Earle & Baker s.n. [Auburn, 10 May 1896] (Cm), s.n. [Auburn, 5/13/1898] (Cm, M1, Po--63897, Ur, Vt); Earle & Underwood s.n. [Auburn, 20 May 1896] (C). Tuscaloosa Co.: Pollard & Maxon 333 (Gu--E.7022, N). Wilcox Co.: Buckley s.n. [May 1840] (T). County undetermined: Rugel s.n. [Alabama medium, Sept. 1843] (Br, Ca--80478, Go, M). OHIO: Butler Co.: Demaree 27351 (N, Qu); J. Ferguson s.n. [July 6, 1932] (Ob--80591). Hamilton Co.: Aiken 10676 (L1); E. L. Braun s.n. [6/12/06] (Cn, Cn); C. G. Lloyd 1962 (M1), s.n. [July 9, 1881] (Al), s.n. [July 12, 1883] (Go). Lake Co.: H. C. Beardslee s.n. [June 7th, 1871] (Ob--80592). Richland Co.: Moseley s.n. [8/24/24] (Ob--97292). ILLINOIS: Adams Co.: Evers, Jones, & Jones 1207 (Il--25614, Ur); A. B. Seymour s.n. [Camp Point, Aug. 4, 1877] (H--106598), s.n. (Ur--14175). Alexander Co.: H. M. Franklin 62 (Ur); Winterringer 3137 (Il--28358). Bureau Co.: Winterringer 7996 (Il--37244). Carroll Co.: Ahles 4322 (Ur); Winterringer 2770 (Il--28112). Champaign Co.: Ahles 6299 (Ur, Ur), 6300 (Ur, Ur); M. H. Bell 131 (Ur); G. N. Jones 11815 (Ur), 12457 (Il--15845, N, Ur), 16465 (Ur); Stubbs 87 (We); Winterringer 4022 (Il--29322). Cook Co.: H. H. Babcock 9254 (Bz--23748), s.n. [Hyde Park, June 19, 1871] (N), s.n. [Jul.

18, 1874] (Sg--16115); L. H. Bailey s.n. [Chicago, July 27, 1880] (Ba); H. R. Bennett s.n. [July 6, 1957] (Go); M. A. Chase 1570 (Ur, Ur); Collector undesignated s.n. (Cn); G. D. Fuller 1645 (Il--15852), 11205 (Il--19417); Lansing 2616 (Ur), 2616 bis (Ur); H. N. Patterson s.n. (Bz--23749). DeKalb Co.: G. N. Jones 17260 (Ur). DuPage Co.: W. S. Moffatt 383 (Ur), s.n. [Warrenville, July 11/93] (Ur); Moffatt & Moffatt 348 (Ur). Fayette Co.: A. Hoffman 191 (Dt). Hancock Co.: Mead 1842 (Tl), s.n. [Augusta, 1842] (Vt). Henderson Co.: H. N. Patterson s.n. [July 1877] (Cm). Iroquois Co.: Winterringer 6462 (Il--33754). Jackson Co.: G. D. Fuller 319 (Ur); Fuller & Welch 319 (Il--15849). Jo Daviess Co.: Ahles 4366 (Ur). Kane Co.: Sherff 1797 (Ur). Kankakee Co.: E. J. Hill 71. 1871 (Ur). Lake Co.: R. K. Brown s.n. [July 9, 1949] (Ur); Umbach 5812 (Ca--441524), 6562 (N). LaSalle Co.: Kofoid s.n. [Aug. 12, 1889] (Ob--50780). Lawrence Co.: Sivert s.n. [July 25, 1952] (Ur). Lee Co.: Keithley 113 (Il--15844), s.n. [June 23, 1943] (Ur). Livingston Co.: G. N. Jones 18955 (Ur). Macon Co.: R. G. Mills s.n. [July 3, 1944] (Ur); Weigel s.n. [July 24, 1950] (Ur). Mason Co.: Ahles 2010 (Ur), 4068 (Ur); Burrill & Clinton s.n. [Havana, June 22, 1894] (Ur); H. A. Gleason 9183 (N), s.n. [Havana, Aug. 18, 1904] (Io--176180). McDonough Co.: G. N. Jones 22408 (Ur). McHenry Co.: V. H. Chase 9524 (Ur); Nason s.n. [Algonquin, August 2, 1878] (Ur), s.n. [Aug. 23, 1912] (Il--20859); Vasey 30013 (Ur), s.n. [Ringwood] (Pa, Up--17090). McLean Co.: G. D. Fuller 173 (Il--15847). Menard Co.: E. Hall s.n. [Athens, July 1863] (Pa). Monroe Co.: Winterringer 3921 (Il--29051), 3955 (Il--29021). Morgan Co.: Winterringer 5252 (Il--35416). Ogle Co.: A. L. Hills 3630-0 (Il--15843); Waite s.n. (Ur--14176). Peoria Co.: V. H. Chase 9707 (Ur, Ur), 14548 (Ur); M. Fisher s.n. [6-13-1880] (Ka); Heading s.n. [1875] (Ur); F. E. McDonald s.n. [Peoria, June 1887] (Ur), s.n. [Peoria, July 1890] (Ca--67681), s.n. [Peoria, June 1903] (N), s.n. [Peoria, Jul. 1903] (Gg--31304), s.n. [Peoria, Aug. 1913] (La, Um--240, S). Randolph Co.: V. A. Anderson 15196 (Il--31496). Richland Co.: Scherer 316 (Il--26357, Ur). Rock Island Co.: G. D. Fuller 13805 (Il--31344); H. N. Moldenke 7656 (N). Saint Clair Co.: Eggert s.n. [East St. Louis, June 11, 1879] (Au, Ca--181583, Cm, Io--79813, Mn--6884, Po--161455, Up--60753); J. Neill 311 (Il--23391). Sangamon Co.: G. D. Fuller 5086 (Il--15846), 5105 (Il--15848), 8795 (Il--16015, Ur). Shelby Co.: Batson s.n. (N); G. D. Fuller 13123 (Il--23793). Stark Co.: V. H. Chase s.n. [July 11, 1896] (Ur), s.n. [Aug. 26, 1897] (Ur). Stephenson Co.: C. F. Johnson s.n. [Freeport, July 30, 1898] (N). Tazewell Co.: V. H. Chase 1112 1/2 (Ur), 11123 1/2 (Ur), 13539 (Au--123201); Churchill s.n. [E. Peoria, June 9, 1912] (Ba). Ver-

million Co.: W. S. Moffatt s.n. [Danville, Aug. 3, '89] (Ur). Wabash Co.: Schneck s.n. [June 15, 1879] (Ur), s.n. [July 8, 1880] (Ur), s.n. [Aug. 6, 1888] (Ur); Shearer 191 (Dt), s.n. [June 10, 1900] (La), s.n. [Mount Carmel, July 4, 1900] (Ur, Vi). Whiteside Co.: Ahles 4264 (Ur). Winnebago Co.: M. S. Bebb s.n. [Fountaindale, 1871] (Dt, Pa); R. Bebb s.n. [Spring 1879] (Ok); Fell & Fell F.46358 (Il--21234); Fuller & Haime 248f (Il--15851), 2528h (Il--15850). Woodford Co.: V. H. Chase 9697 (Ur). County undetermined: Collector undesignated s.n. (Gg--31297); Marie-Victorin 6914 (Vi); Seymour s.n. [1881] (Sd--4251); Underwood s.n. [Auna, June 1882] (Cp); Vasey 6 (Il--16005), s.n. (Pr). INDIANA: Bartholomew Co.: C. C. Deam 36915 (Dm); Friesner 19217 (Au). Cass Co.: Ek s.n. [near Logansport, 8-25-1942] (Bt--64072). Clark Co.: J. F. Baird s.n. [Charlestown, 5-30-77] (Mi). Crawford Co.: C. C. Deam s.n. [July 12, 1899] (Dm). Daviess Co.: H. J. Clements s.n. [7/31/95] (Pu); C. C. Deam 25582 (Dm). Elkhart Co.: C. C. Deam 34430 (Dm), 66163 (No--19967); Ek s.n. [July 27, 1942] (Dp--33216), s.n. [Goshen, 9-1-1942] (Bt--63357); H. N. Moldenke 7559 (N). Fountain Co.: C. C. Deam s.n. [June 5, 1905] (Dm). Fulton Co.: C. C. Deam 39234 (Dm); Friesner 13937 (Bt--47968, Fn--1656). Gibson Co.: C. C. Deam 43828 (Dm). Grant Co.: Ek s.n. [8-15-1938] (Bt--56919). Hendricks Co.: G. W. Wilson s.n. [Danville, Aug. 1895] (Dp). Howard Co.: Ek s.n. [6-16-1939] (Bt--49325). Jasper Co.: C. C. Deam 42087 (Dm); Friesner 14593 (Bt--50734); W. H. Welch 124 (Ur), 204 (Dp), s.n. (In--6176). Jefferson Co.: C. C. Deam 13409 (Pu); A. H. Young s.n. [Hanover, 1875] (In--10225, Pr). Knox Co.: C. C. Deam 54330 (Dm); Lipps s.n. [August 28, 1941] (Ok); S. McCoy 1906 (Dp--4669), s.n. [near Bruceville, 6-3-34] (Bt--18428). Kosciusko Co.: C. C. Deam 5132 (Dm); Friesner 19249 (N, Ob--201452, Ok, St). Lagrange Co.: C. C. Deam 14934 (Dm); Friesner 15977 (Bt--54044, N); Weatherwax s.n. [Ontario] (In--3666). Lake Co.: M. A. Chase 100 (Ur); Umbach s.n. [Lake Station, June 6, 1896] (N, N), Laporte Co.: C. C. Deam 53971 (Dm); W. S. Moffatt 1685 (Se--95718, Ur); C. P. Smith s.n. [July 24, 1904] (Mi). Lawrence Co.: Kriebel 3098 (H--56280); Wible 72 (In--4584). Madison Co.: C. R. Barnes s.n. [Madison, 6/18/77] (Pu). Miami Co.: Ek s.n. [6-14-1942] (Bt--63700, Pl--132302, We). Monroe Co.: F. C. Anderson s.n. [Bloomington] (In--1729); Lewis & Brown s.n. [East Pike, July '06] (Au). Montgomery Co.: W. Rhoades 971 (Bt--14479, Dp--4668). Newton Co.: C. C. Deam 50589 (Dm). Noble Co.: C. C. Deam 14690 (Dm); Van Gorder 139 (Pu). Perry Co.: C. C. Deam 25057 (Dm). Posey Co.: C. C. Deam 43500 (Dm); W. H. Welch 6899 (Bl--42290, Casey Co.: C. C. Deam 29861 (Dm); 882597, Dp--14065, Ky, We). Pulaski Co.: C. C. Deam 29861 (Dm); Friesner 14473 (Bt--50777). Putnam Co.: Friesner 17832 (Bt--67504,

Mi); Grimes 671 (Dp); Yunker 10480 (Ca--744097, Dp--14453).
 Starke Co.: S. McCoy 4199 (Dp--13912); W. H. Rhoades s.n. [Knox,
 July 1932; Moldenke 17078] (Bt, Hs, N, St), s.n. [near Knox] (Hs).
 Steuben Co.: C. C. Deam 1272 (Dm, Mi, N, N); Friesner 6071 (Bt--
 13377, Bt--13380, Bt--13382, Ca--540454), 15717 (Bt--55228, Ca--
 882598). Tippecanoe Co.: H. J. Clements s.n. [8/17/96] (Pu); C.
C. Deam 17735 (Dm), s.n. [June 23, 1901] (Dm); Dorner 205 (Pu);
Ek s.n. [June 10, 1942] (Bt--63542, Dp--32006); Friesner 22856
 (S); Herb. Purdue Univ. s.n. [7/29/91] (Pu). Vermillion Co.: C.
C. Deam 11910 (Dm). Warren Co.: Umbach s.n. [Pine, June 29,
 1898] (Ka--62598). White Co.: M. McKee 141 (Dp). County undeter-
 mined: Grimes 2160 (Dp). IOWA: Allamakee Co.: A. Hayden 5019 (Io-
 148804). Benton Co.: Folck s.n. [Sept. 15, 1932] (Io--139569).
 Black Hawk Co.: Burk 542a (Ur). Boone Co.: Pammel, Buchanan, &
King 3882 (Io--31762). Buchanan Co.: Bode s.n. [Lamont, Aug. 13,
 1919] (Io--97035). Carroll Co.: L. H. Pammel s.n. [Carrollton,
 Jul. 21, 1919] (Io--93962). Cerro Gordo Co.: L. H. Pammel s.n.
 [Wheelerwood, Sept. 20, 23, 1902] (Io--82424). Chickasaw Co.:
Rolfs s.n. [Lawless, 1890] (Io--15318); Spiker s.n. [1925] (Io--
 118281). Dickinson Co.: Conard s.n. [July 4, 1923] (Se--19992);
W. B. Fox 2 (We). Dubuque Co.: Mertz s.n. [Aug. 18, 1871] (Cm),
 s.n. [Dubuque, Aug. 15, 1877] (Vt). Emmet Co.: Wolden 437 (Io--
 105473), s.n. [July 16, 1930] (Go). Fayette Co.: Fink s.n. [Fay-
 ette, Aug. 1893] (Io--28697), s.n. [Fayette, July 30, 1894] (Io-
 26814). Greene Co.: J. B. Hatcher s.n. [Cooper] (Ca--25179).
 Guthrie Co.: L. H. Pammel 562 (Io--118733). Hamilton Co.: Pammel
 & Zimmerman 300 (Io--118096). Hardin Co.: L. H. Pammel s.n.
 [Steamboat Rocks, 9-12-12] (Io--52668). Henry Co.: J. H. Mills
 s.n. [Mt. Pleasant, 1897] (Io--15315). Iowa Co.: Shimek s.n.
 [July 2, 1903] (Ur). Johnson Co.: Anderson & Harrington s.n.
 [May 30, 1932] (Bt--58018); Fitzpatrick & Fitzpatrick s.n. [8-
 17-1901] (Dm); A. S. Hitchcock s.n. [Iowa City, 6/8/89] (Io--
 15311). Lee Co.: Fults 1416 (Io--138969). Linn Co.: Treat s.n.
 [Lisbon, June 1865] (Ms). Mahaska Co.: Augustine 397 (Ok, Ok).
 Marshall Co.: L. H. Pammel s.n. [Marshalltown, Jul. 13, 1929]
 (Io--134205, Io--134228). Muscatine Co.: Shimek s.n. [June 28,
 1913] (Ur), s.n. [Sept. 2, 1922] (N). Pottawattamie Co.: Demaree
 23679 (Sm). Story Co.: Arthur s.n. [Ames, June 12, 1871] (Ah,
 Ah), s.n. [Ames, July 17, 1877] (Ah, Ah, Cm); C. R. Ball 86 (Fc,
 Fl--21088, Fl--21090, Io--15316, N); C. E. Bessey s.n. [Ames]
 (Io--15310); Carver s.n. [Ames, 1894] (Io--15314), s.n. [Ames,
 1895] (Io--15313); P. Clayton 9 (Io--84551), 34 (Io--84552);
Cratty s.n. [Ames, Jul. 29, 1925] (Io--117331); J. B. Elder 365
 (St); H. S. Fawcett 12 (Fl--21090, Io--76853, N); A. Hayden 340
 (Au, Io--142437, N), s.n. [October 15, 1934] (N, N); Herb. Iowa

State Coll. 76544 (Io); A. S. Hitchcock s.n. [Ames, June 1882] (Io--15312), s.n. [Ames, 1889] (Io--15317); L. H. Pammel s.n. [Ames, 1909] (Io--76463), s.n. [Ames] (Io--20752, Io--57765); W. A. Weber 431 (Bl--48182, Io--152969), 723 (Bl--48181). Union Co.: T. L. Andrews s.n. [Creston] (Io--22908). Webster Co.: Blumer 4443 (Io--107694); Paige s.n. [Fort Dodge] (Io--131041); Somes s.n. [7/27/05] (Bl--42295). Winneshiek Co.: Goddard s.n. [Decorah, 6-1-95] (Io--72021); Holway s.n. [Decorah, Aug. 1, '79] (Io--92225), s.n. [Decorah, June 14, 1881] (Io--38751); Tolstead s.n. [Decorah, July 10, 1933] (Ca--882594, Ew), s.n. [Aug. 4, 1933] (Io--144285). County undetermined: Suksdorf s.n. [July 26, 1873] (Pl--138429). KENTUCKY: Anderson Co.: Wildburger 1962 (Ka). Hickman Co.: Anderson & McFarland 230 (Ky, Vi); McFarland & Anderson 230 (S). Jefferson Co.: Gun J.189 (N); C. W. Short s.n. [Louisville] (Ll, Pr). Union Co.: Shacklette 500 (Ky). County undetermined: C. W. Short s.n. [west of Kentucky, 1831] (T), s.n. [sandy banks of the Ohio & Salt Rivers, Sept. 1835] (Ky--1778), s.n. [1854] (Ca--379995); Snow s.n. (S). TENNESSEE: Blount Co.: Ruth 3260 (N). Cheatham Co.: C. S. Williamson s.n. [Kingston Springs] (N). Decatur Co.: G. L. Ames s.n. [May 9, 1855] (Mi). Hamilton Co.: Collector undesignated s.n. [Chattanooga, Aug. 1868] (Pr). Humphreys Co.: Galloway s.n. [June 8, 1889] (Ob--50783). Montgomery Co.: T. L. Anderson s.n. [Clarksville, 1846] (Io--32956). Obion Co.: Jennings & Jennings s.n. [Reelfoot Lake, 1924] (Cm, Cm). County undetermined: G. B. Grant 2810 (Po--267640); Nason s.n. [May 9, 1855] (Ur). MICHIGAN: Allegan Co.: F. T. McFarland s.n. [Douglas Lake, Aug. 15, 1915] (Ky). Cass Co.: F. C. Gates 1321 (Mi). Cheboygan Co.: J. H. Ehlers 472 (Mi), 627 (Mi), 1771 (Mi); F. C. Gates 13222 (Ka--66182); M. McKee 613 (Dp). Dickinson Co.: C. A. Davis s.n. [Norway, July 24, '05] (Mi); Fernald & Pease 3495 (Mi). Emmet Co.: E. G. Voss 2420 (Mi). Houghton Co.: C. D. Richards 2710 (Mi). Iosco Co.: C. A. Davis s.n. [Oscoda, Sept. 3, 1902] (Mi). Keweenaw Co.: F. J. Hermann 509 (Mi). Leelanau Co.: Hanes s.n. [Paul's, Aug. 11, 1953] (Mi). Livingston Co.: D. Lynch s.n. [September 9, 1947] (Au--121789). Menominee Co.: Grassl 2620 (Mi, N). Montcalm Co.: Bazuin 5746 (Mi). Muskegan Co.: Bazuin 8007 (Mi). Ottawa Co.: J. S. Douglas s.n. [Grand Haven, 1870] (Ws); Mulliken & Cole s.n. [Grand Haven, Aug. 11, 1896] (Mi). Saint Joseph Co.: Hanes s.n. [Three Rivers Park, Aug. 22, 1954] (Mi). Van Buren Co.: W. H. Rhoades s.n. [between Papaw and Kalamazoo] (Hs). Wayne Co.: Parker s.n. [Fort Gratiot, 1829] (C). County undetermined: F. D. Kelsey s.n. [August 6, 1899] (Ob--50778). WISCONSIN: Adams Co.: R. T. Brown 116 (Ws); H. H. Iltis 13356 (Ws). Brown Co.: Gillman s.n. [Aug. 4, 1871] (Pr); Shinners 3801 (Ca--882593, Ws). Buffalo Co.: Iltis & Neess 9352 (Ws); Il-

tis & Noamesi 8136 (Ws). Columbia Co.: C. C. Albers 34010 (Au);
H. P. Chandler 374 (Ca--25178); Marx s.n. [6/3/58] (Ws); F. C. Seymour 10279 (Ws). Crawford Co.: Fassett 9789 (Ws); D. Houghton s.n. [Prairie du Chien, Aug. 1831] (Mi); H. H. Smith 7455 (B, Ws). Dane Co.: C. C. Albers 36007 (Au); Bergseng s.n. [Madison, July 7, 1946] (Ws); Bokde, Kempen, & Gabert s.n. [June 9, 1957] (Ws); R. Burton 123 (Ws); Cull 6924 (Ws); T. J. Hale s.n. [Madison] (Ws); Heddle 706 (Ws), 2477 (Ws), 2574 (Ws); S. H. Watson s.n. [Madison] (Pa). Dunn Co.: E. A. Baird s.n. [Caryville, Aug. 15, 1920] (Ws); Buss s.n. [Falk City, July 8, 1940] (Ws). Grant Co.: Busch 25 (Ws). Green Co.: G. Cottam 54 (Ws); E. W. Fell 58-729 (Ws); J. W. Thomson s.n. [south of Albany, September 25, 1949] (Ws). Green Lake Co.: Hein 65 (Ws); Shinners 1 (Ws). Iowa Co.: Clikeman, Drescher, Gisvold, & Leiderman s.n. [Blue Mounds, June 10, 1932] (Ws). Jackson Co.: Grether 6585 (Ws), 7194 (Ws); H. H. Smith 6835 (B). Jefferson Co.: P. O. Schallert 8451 (H--5404). Juneau Co.: J. W. Thomson s.n. [Armenia, Aug. 18, 1938] (Ws); Wills s.n. [Camp Douglas, June 25, 1957] (Ws). Lacrosse Co.: Hartley 2929 (Ws); A. M. Peterson 223 (Ws). Lafayette Co.: L. S. Cheney s.n. [Fayetteville, Aug. 27, 1888] (Ws); P. K. Nelson s.n. [Darlington, July 22, 1946] (Ws). Lincoln Co.: Peroutky s.n. (Ws); F. C. Seymour 14442 (Ws). Marathon Co.: L. S. Cheney 3286 (Ws). Marinette Co.: J. W. Thomson s.n. [Camp Bird, July 13, 1946] (Ws). Marquette Co.: Grotjan 156 (Ws); Iltis, Bell, Melchert, Patman, & Witt 12369 (Ws); Iltis, Trenk, & Noamesi 6163 (Ws); Koeppen 382 (Ws). Milwaukee Co.: J. S. Douglas s.n. [Wis.] (Je--3152); Shinners s.n. [Milwaukee, Oct. 2, 1937] (Ws). Pepin Co.: Kinney s.n. [Sept. '96] (Ob--99769). Pierce Co.: Weinzirl s.n. [River Falls, Sept. 3, '92] (Ws). Portage Co.: F. W. Stearns 797 (Ws); W. R. Taylor 2808 (Up--75579); J. W. Thomson s.n. [Arnott, Aug. 24, 1938] (Ws). Racine Co.: J. J. Davis s.n. [Racine, July 7, 1879] (Ur, Ws); Wadmond s.n. [7/7/8] (Al). Richland Co.: M. A. Fosberg 335 (Ws). Rock Co.: R. B. Anthony s.n. [Bebit, June 19, 1934] (Ws); E. W. Fell 57-652 (Ws), 57-741 (Ws); Skavlene s.n. [Janesville, June 27, '89] (Ws). Sauk Co.: C. C. Albers 33019 (Au, Au, Au), 33020 (Au); Fassett 2687 (Ws); Greene & Curtis 8093 (Ws); True s.n. [Greenfield, July 3] (Ws). Sheboygan Co.: Goessl s.n. [Plymouth, Aug. 1914] (Ws). Trempealeau Co.: Hartley 372 (Ws); F. J. Hermann 8954 (N, Ws). Vernon Co.: J. B. Marks s.n. [Coon Valley, 1939] (Ws). Walworth Co.: Almon s.n. [East Troy, July 4, 1926] (Ws); H. C. Benke 6077 (N); Blatchford s.n. [July 19, 1875] (Ca--882595, N); Kleeberger s.n. [Whitewater, June 7, 1878] (Gg--31300); J. W. Thomson s.n. [Lake Geneva, Aug. 5, 1940] (Ws); Wadmond 3765 (Ky),

13034 (S, Ws). Waukesha Co.: Lapham s.n. [Ottawa & Genesee, Aug. 11th, 1847] (Ws), s.n. [Eagle] (Ws); R. W. Pohl P.1203 (Bt--50492, Cm, Mi, Ws). Waupaca Co.: Rill s.n. [July 19, 1959] (Ws). Wau-shara Co.: Bartlett & Richards 952 (Mi); Pochmann s.n. [Sept. 4, '58] (Ws). County undetermined: Univ. Wisc. Econ. Coll. s.n. [Wauwatosa, July 18, 1890] (Ws). MINNESOTA: Anoka Co.: Cratty s.n. [Anoka, Aug. 20, 1918] (Io--96199). Crow Wing Co.: A. B. Sey-mour s.n. [Brainerd, Aug. 22, 1884] (H--106467); E. B. Watson s.n. [Brainerd, 8-4-1902] (Io--45775). Goodhue Co.: J. H. Sandberg s.n. [Red Wing, July 1885] (S). Hennepin Co.: G. B. Aiton 982 (Ur, Ur), s.n. [Aug. '90] (Dt); Buell 551 (H--58006, No--8604); F. H. Burtlehaus 8455 (Se--14961); E. J. Hill 269.1889 (Ur); Ramaley 420 (Bl--42284); J. H. Sandberg 267 (Fc--2279, Io--44135, Ka), s.n. [Aug. 1889] (Ca--25141). Jackson Co.: Cratty s.n. [Jul. 24, 1923] (Io--109581). Mille Lacs Co.: E. P. Sheldon s.n. [Princeton, July 1892] (N, S). Ottertail Co.: Chandonnet s.n. [July 14, 1910] (Dm). Ramsey Co.: F. Blanchard s.n. [St. Paul, July 31, 1890] (Dt); Saint Lawrence 24 (N). Rice Co.: G. K. Knight s.n. [North-field] (Bt--31378). Rock Co.: H. A. Gleason 9394 (N). Stearns Co.: R. Gmelin s.n. [St. Cloud, Aug. 1875] (Io--94752); E. B. Watson s.n. [St. Cloud, 7-16-02] (Io--82404). Winona Co.: Holzinger s.n. [July 1901] (N, Vt). Wright Co.: Jesup 1962 (Dt). NORTH DAKOTA: Benson Co.: Bolley s.n. [Leeds, Aug. 14, 1891] (La); Lun-ell s.n. [Leeds, July 2nd, 1898] (Dt), s.n. [Leeds, July 24th, 1898] (Ur), s.n. [July 12, 1904] (Ok), s.n. [Leeds, July 24, 1906] (Du--77581, S), s.n. [Butte, July 28, 1907] (Dm, N), s.n. [Leeds, July 22, 1909] (Ur), s.n. [October 16, 1916] (Dm). Bil-lings Co.: Facey 98 (Au--121808). Bottineau Co.: Boivin & Dore 8198 (N). Burleigh Co.: F. P. Metcalf 366 (Gg--31311). Cass Co.: Bergman & Stevens s.n. [Fargo, July 19, 1910] (Ca--587762, Cm). Stark Co.: Holgate s.n. [Aug. 14, 1908] (Gg--31306, N, Pl--103657). County undetermined: Brenckle 2282 (Dm). SOUTH DAKOTA: Brookings Co.: F. C. Gates 16647 (Ka--81020); E. C. Pammel s.n. [Brookings, July & Aug. 1902] (Io--22907). Brule Co.: E. N. Wil-cox s.n. [Chamberlain, July 1893] (Ob--50772). Butte Co.: F. L. Bennett 618 (Gg--310863). Custer Co.: Degener & Peiler 16061 (N, Si); Jones & Jones 10657 (Ur); Over s.n. [June 19, 1914] (Se--14959). Deuel Co.: C. & W. 348 [Herb. Corbett 1039] (We); T. A. Williams s.n. [Clear Lake, 20 August 1894] (N). Fall River Co.: Whitham s.n. [Hot Springs, Sept. 15th, 1909] (Io--50180). Hanson Co.: G. F. Weber s.n. [Farmer, 8-18-27] (Fl--21085). Hughes Co.: L. Adams s.n. [6/27/94] (Ur). Lawrence Co.: W. P. Carr 179 (Vi), s.n. (Vi--6012); C. M. King s.n. [Spearfish Canon, Aug. 1916] (Io--74097); Rydberg 934 (N). Lyman Co.: Over s.n. [July 14, 1914] (Se--14956). Meade Co.: A. D. Pratt s.n. [Piedmont, June

1895] (Ob—50782, S). Pennington Co.: Enander s.n. [1-4/9/1921] (S); J. W. Leedy 431 (Bt—55627). Roberts Co.: Over 14387 (Du—146412). Shannon Co.: Visher 2028 (N). Spink Co.: Brenckle 39-64 (Sd—26485), 39-74 (N); Petrak s.n. [20.VII.1950] (S); A. E. Ricksecker 66 (Ca—475503, Ob—50781, Po—215249, Po—215263, Um—244, Ur). Todd Co.: Tolstead 4-527 (Io—145162). Turner Co.: Fessenden s.n. [Hurley] (Io—70756). County undetermined: O. M. Clark 6059 (B); Petrak 50072 [Badlands National Park] (N), s.n. [Bad Lands, 3.VIII.1950] (S). KANSAS: Allen Co.: A. S. Hitchcock s.n. [Allen Co., July 1896] (Ka). Atchison Co.: Clothier & Whitford s.n. [Aug. 2, 1897] (Ka); A. S. Hitchcock s.n. [Atchison Co., Oct. 3, 1896] (Ka); Jeanette 162 (N). Barton Co.: A. S. Hitchcock s.n. [Barton Co., August 1895] (Ka). Bourbon Co.: Z. D. Thompson 547 (Lw). Butler Co.: A. S. Hitchcock s.n. [White Water, July 1892] (Ka); D. J. Johnson s.n. [July 1926] (Ka—71718). Chautauqua Co.: A. S. Hitchcock s.n. [Aug. 8, '96] (Ka); W. H. Horr s.n. [July 5, 1930] (Lw). Cherokee Co.: A. A. Jacobs 102 (Ka—74038); Kellerman s.n. [Galena, July 8, 1887] (Ka). Cheyenne Co.: F. C. Gates 16835 (Ka—76132); Steller & Jacobs 337 (N); N. White s.n. [June 16, 1931] (Ka—77629). Clark Co.: A. S. Hitchcock s.n. [Minneola, July 1892] (Ka). Clay Co.: Imler s.n. [June 8, 1929] (Lw); J. B. S. Norton s.n. [Wakefield, June 1891] (Ka). Cloud Co.: Carleton s.n. [Warren, July 30, 1883] (Ur); S. V. Fraser 441 (Ka—79079). Cowley Co.: Rydberg & Imler 484 (Ka—74607, Lw). Crawford Co.: C. L. Merritt s.n. [Spring 1941] (Ka—93368). Decatur Co.: Kellerman s.n. [Oberlin, July 11, 1888] (Ka); R. L. McGregor 2116 (Lw). Dickinson Co.: A. S. Hitchcock s.n. [Dickinson Co., June 1896] (Ka); Imler s.n. [6/8/29] (Lw). Doniphan Co.: Clothier & Whitford s.n. [July 31, 1897] (Ka). Douglas Co.: Z. D. E. Brown s.n. [July 6, 1896] (Ka); W. H. Horr E.570 (Ca—45083, Gg—396795, No—15637, Ok, S, St, Ur, Vi, We); R. L. McGregor 116 (Lw); Snow s.n. [August] (Fl—21092). Edwards Co.: A. S. Hitchcock s.n. [Edwards Co., Sept. 1, 1897] (Ka). Elk Co.: Clothier & Whitford s.n. [Aug. 20 & 21, 1897] (Ka). Ellis Co.: Bondy 269 (S), s.n. [June 7, 1935] (We), s.n. [August 19, 1935] (Go); A. S. Hitchcock s.n. [Ellis Co., July 1895] (Ka); Imler s.n. [May 12, 1928] (Lw). Ellsworth Co.: A. S. Hitchcock s.n. [Ellsworth Co., July 1895] (Ka). Finney Co.: Menke s.n. [Garden City, May 31, 1891] (Ka); Wilson & Miller s.n. [7-18-12] (Lw). Ford Co.: F. C. Gates 15973 (Ka—74161); A. S. Hitchcock s.n. [Bucklin, July 1892] (Ka). Geary Co.: F. C. Gates 17838 (Ka), 18696 (Ka); Gayle 511 (C); Imler s.n. [May 1929] (Lw). Gove Co.: A. S. Hitchcock s.n. [Gove Co., July 1895] (Ka); Inkenberry 6 (St—15962). Graham Co.: A. S. Hitchcock s.n. [Graham Co., June 20, 1897] (Ka). Grant Co.: C. H. Thompson 42 (N), 212 (Ka). Gray Co.: A. S. Hitch-

cock s.n. [Gray Co., Sept. 1, 1897] (Ka). Greeley Co.: J. P. Anderson s.n. [Aug. 26, 1908] (Io—53321); M. Reed s.n. [Tribune, July 29, 1892] (Ca—104826), s.n. [Tribune, Aug. 3, 1892] (Ka). Greenwood Co.: W. H. Horr s.n. [June 28, 1930] (Lw). Hamilton Co.: Clothier s.n. [May 17, 1898] (Ka); A. S. Hitchcock s.n. [Coolidge, July 4, 1892] (Ka); Rydberg & Imler 1008 (Lw). Harvey Co.: Clothier & Whitford s.n. [Aug. 24, 1897] (Ka); Doell 40 (Lw); Mrs. F. Muck 53 (S). Hodgeman Co.: A. S. Hitchcock s.n. [Hodgeman Co., August 1895] (Ka). Jackson Co.: Clothier & Whitford s.n. [July 28, 1897] (Ka). Jewell Co.: W. H. Horr 4394 (N); J. B. S. Norton s.n. [Webber, Sept. 23, 1895] (Ka). Johnson Co.: Clothier & Whitford s.n. [Aug. 7, 1897] (Ka). Kearney Co.: A. S. Hitchcock 1129 (Ka—79463, Ka, Mi, N), s.n. [Kearney Co., Aug. 29, 1897] (Ka). Kiowa Co.: Kellerman "a" (Ka). Labette Co.: Gwartney 5 (Ka—94531). Lane Co.: A. S. Hitchcock s.n. [Lane Co., August 1895] (Ka). Leavenworth Co.: A. S. Hitchcock s.n. [Leavenworth Co., May 1896] (Ka); W. H. Horr s.n. [6/23/30] (Lw); R. L. McGregor 828 (Lw). Lincoln Co.: A. S. Hitchcock s.n. [Lincoln Co., July 1895] (Ka). Linn Co.: A. S. Hitchcock s.n. [Pleasanton, Aug. 1892] (Ka). Logan Co.: A. S. Hitchcock s.n. [Logan Co., July 1898] (Ka). Marshall Co.: Clothier & Whitford s.n. [July 25, 1897] (Ka); Howell & Farrant s.n. [Oketo, Sept. 12, 1927] (Ka—71474). McPherson Co.: A. S. Hitchcock s.n. [McPherson Co., July 1892] (Ka). Meade Co.: Kellerman s.n. [Meade Centre, June 27, 1888] (Ka). Miami Co.: Clothier & Whitford s.n. [Aug. 8, 1897] (Ka); Oyster s.n. [July 1885; Herb. Prager 18631] (Gg—31298). Mitchell Co.: H. V. Dwyer s.n. [July 1896] (Ka). Montgomery Co.: A. S. Hitchcock s.n. [Montgomery Co., August 1896] (Ka); W. H. Horr s.n. [July 5, 1930] (Lw). Morris Co.: A. S. Hitchcock s.n. [Morris Co., August 1895] (Ka); W. H. Horr s.n. [July 17, 1929] (Lw). Morton Co.: A. S. Hitchcock s.n. [Morton Co., August 1895] (Ka); J. N. Rose 17106 (La); Rose & Fitch 17106 (N). Nemaha Co.: Clothier & Whitford s.n. [July 27, 1897] (Ka); A. S. Hitchcock s.n. [Nemaha Co., Dec. 11, 1896] (Ka). Neosho Co.: Hummer s.n. [1898] (Ka). Osage Co.: E. G. Spalding 258 (Ka—92568). Osborne Co.: Neher 94 (Ka—79838). Ottawa Co.: A. S. Hitchcock s.n. [Ottawa Co., July 1895] (Ka). Pawnee Co.: A. S. Hitchcock s.n. [Pawnee Co., August 1895] (Ka). Pottawatomie Co.: G. Een s.n. [8.8.1950] (S); Imler s.n. [June 7, 1929] (Lw); Norton, Clothier, & Pond s.n. [July 1896] (Ka). Pratt Co.: A. S. Hitchcock s.n. [Pratt Co., Aug. 1896] (Ka). Rawlins Co.: L. B. Fry s.n. [Atwood, May 1891] (Ka). Reno Co.: A. S. Hitchcock s.n. [Turon, July 1892] (Ka). Republic Co.: D. K. Thomas s.n. [Scandia, 1890] (Ka). Rice Co.: A. S. Hitchcock s.n. [Rice Co., August 1895] (Ka). Riley Co.: F. C. Gates 12655 (Mi), 12748 (Ka—72836, Um—57); Imler s.n. [5/27/29] (Lw); Nason

s.n. [5-31-1899] (Ka); J. B. S. Norton 392 (Ka, N), s.n. [Manhattan, Aug. 1892] (Ka). Rooks Co.: E. Bartholomew s.n. [Rockport, June 25, 1889] (Ka); Mayhew 4 (Ky). Rush Co.: A. S. Hitchcock s.n. [Rush Co., August 1895] (Ka). Russell Co.: A. S. Hitchcock s.n. [Russell Co., July 1895] (Ka). Saline Co.: Eccles 10676 (Ll); Hancin 418 (Ka--76789); A. S. Hitchcock s.n. [Saline Co., June 1896] (Ka). Scott Co.: F. C. Gates 16688 (Ka--75859); A. S. Hitchcock s.n. [Scott Co., August 1895] (Ka). Sedgwick Co.: T. L. Andrews s.n. [Wichita] (Io--48485); Aquinas 122 (Ka--87579); A. S. Miller s.n. [Wichita, Mar. 1892] (Ka). Seward Co.: Kellerman s.n. [Arkalon, June 27, 1888] (Ka). Shawnee Co.: Norton & Clothier s.n. [July 4, 1895] (Ka). Sheridan Co.: A. S. Hitchcock s.n. [Sheridan Co., June 21, 1897] (Ka). Sherman Co.: A. S. Hitchcock s.n. [Goodland, June 26, 1892] (Ka). Smith Co.: Kellerman s.n. [Smith Centre, July 10, 1888] (Ka). Stafford Co.: H. T. Porter s.n. [Stafford Co., July 13, 1896] (Ka). Stanton Co.: A. S. Hitchcock s.n. [Stanton Co., August 1895] (Ka). Stevens Co.: G. B. Henry 103 (Vi); A. S. Hitchcock s.n. [Stevens Co., August 1895] (Ka). Sumner Co.: A. S. Hitchcock s.n. [Wellington, July 1892] (Ka). Thomas Co.: A. S. Hitchcock s.n. [Thomas Co., June 27, 1897] (Ka); W. C. Wallace 10 (Ky). Trego Co.: A. S. Hitchcock s.n. [Trego Co., July 1895] (Ka). Wabaunsee Co.: A. S. Hitchcock s.n. [Wabaunsee Co., Aug. 23, 1896] (Ka); Norton & Clothier s.n. [7-4-1895] (Ka). Wallace Co.: Demaree 29411 (Le); Sci. Exped. '85 s.n. [July 5, 1885] (Ka, Ka). Washington Co.: Imhoff 6 (Ka--93160). Wichita Co.: A. S. Hitchcock s.n. [Wichita Co., July 31, 1895] (Ka). Woodson Co.: G. M. Clark s.n. [Batesville, Aug. 20, 1894] (Ka); W. H. Horr s.n. [7/11/30] (Lw). Wyandotte Co.: K. K. Mackenzie s.n. [Argentine, May 4, 1895] (C), s.n. [Kansas City, Aug. 15, 1897] (Ka, We). MISSOURI: Adair Co.: C. S. Sheldon 1962 (N), 6512 (N). Atchison Co.: H. A. Gleason 9285 (N). Clay Co.: Broussard s.n. [VII.2.1947] (Je--5959); C. J. Elmore s.n. [Liberty, Aug. 17, 1923] (Je--3151); Gier 8077 (S, S), s.n. [VII-10-50] (Je--6780); K. K. Mackenzie 109 (S). Greene Co.: Blankinship s.n. [Springfield, 6-11-1887] (Ka). Jackson Co.: B. F. Bush 287 (C), 4010 (N), 12675c (Bt--15524); K. K. Mackenzie s.n. [May 16, 1896] (N); G. Smith s.n. [Kansas City, July 26, 1871] (Up--17093). Lincoln Co.: J. Davis s.n. [Whiteside, 1-6-15] (Vt). Marion Co.: J. Davis s.n. [29-7-12] (Au), s.n. [13-6-18] (Gg--31312). Mercer Co.: Palmer & Steyermark 41310 (N). Pike Co.: J. Davis 2414 (Du--87277). Platte Co.: Radloff s.n. [June 29, 1956] (Ur). Saint Louis Co.: Flatfelter s.n. [Near St. Louis, 7-16-92] (Mi); Letterman s.n. [Allenton, July 6, 1911] (Or--14361). Schuyler Co.: Palmer & Steyermark 41085 (N). Wayne Co.: E. J. Palmer 6106 (Po--217664). Saint Louis: Drummond s.n. [St. Louis] (Au--121810); Eggert s.n.

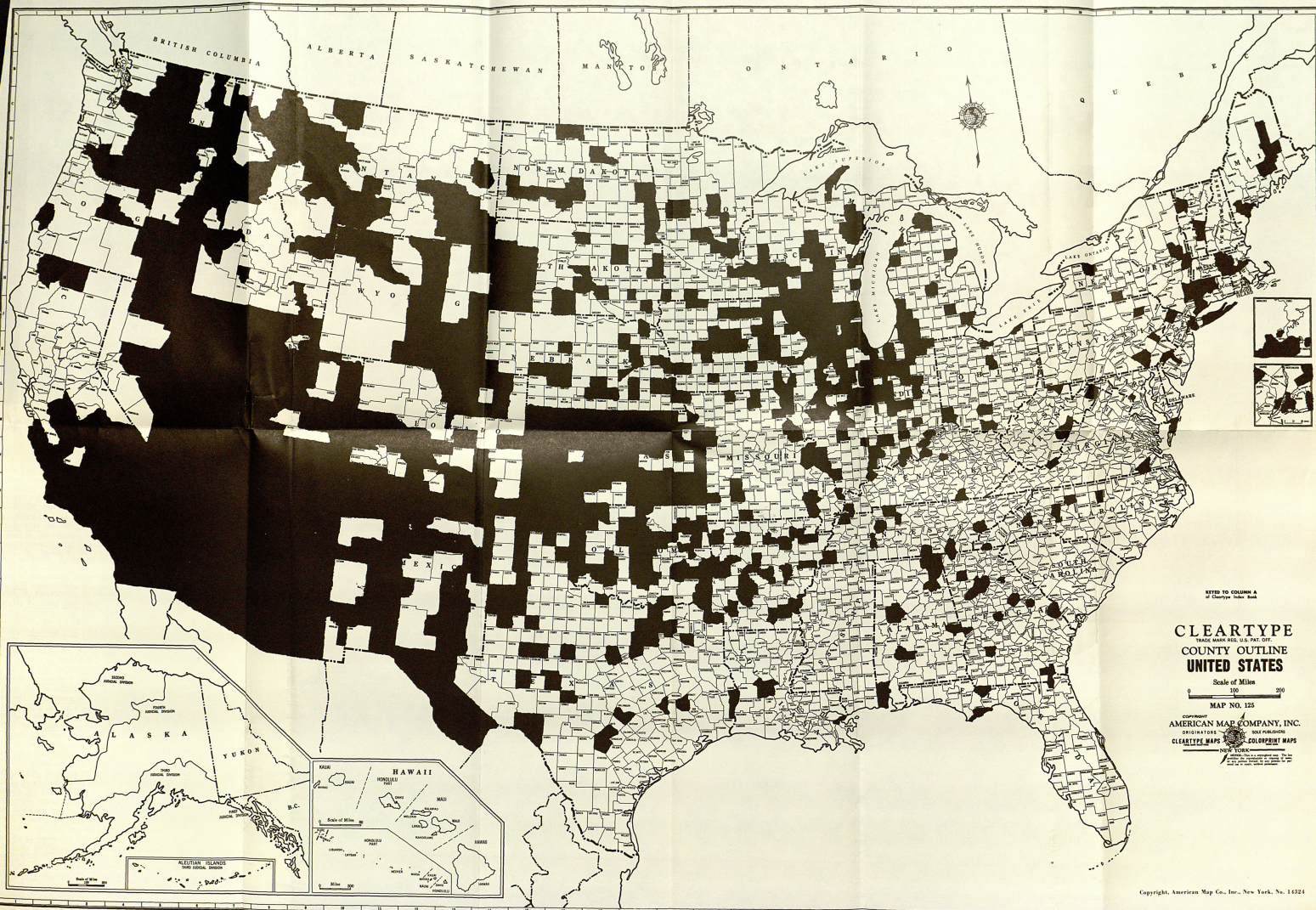
[Herb. Geete 5699] (Go); Engelmann 335 (Pr), s.n. [St. Louis, July 1848] (Au--121797); Letterman 78 (Po--267658); M. Martens s.n. (Br); Riehl 9 (Br, M). ARKANSAS: Bradley Co.: Demaree 25503 (Bm), 25505 (Sm). Clark Co.: Demaree 17826 (N). Conway Co.: Demaree 25085 (Bm). Craighead Co.: Demaree 7027 (N), 27044 (N, Ok, St). Desha Co.: Demaree 26522 (N). Drew Co.: Demaree 18053 (N), 24901 (Sm). Garland Co.: Demaree 20412 (N, Sm). Hot Spring Co.: Demaree 17958 (N, Pl--131512), 18469 (N), 19335 (N, Sm). Lawrence Co.: Demaree 30767 (N). Logan Co.: Mrs. H. S. Young s.n. [1925] (Cm). Newton Co.: D. M. Moore 32347 (Au). Prairie Co.: Demaree 37763 (Sm, Z). Pulaski Co.: Demaree 8623 (Du--234144, Gg--237851, N); Hasse s.n. [May 9, 1885] (N). Saint Francis Co.: Demaree 11415 (Bt--31371, V); S. McDaniel 1124 (N). Scott Co.: Demaree 18179 (N). Stone Co.: Demaree 42729 (Gg). Washington Co.: F. L. Harvey 62 (Cm, Cm, Mi, Ur), s.n. [Curtiss 1962] (I), s.n. [Fayetteville, May] (Ur). County undetermined: Welch 1108 [Mt. Magazine, Ozark Mts.] (Dp). LOUISIANA: Orleans Par.: Cocks s.n. [N. O., July 1901] (Tl). Rapides Par.: C. R. Ball 553 (N). MONTANA: Broadwater Co.: Hitchcock & Muhlick 11825 (N). Carter Co.: Lovisik 911 (Mn--35077), 1098 (Mn--35078). Cascade Co.: F. W. Anderson 102 (Ca--25140), 333 (Mn--11789), s.n. [Sand Coulee, Sept. 1888] (Mn--15380); V. L. Marsh 668 (Mn--26734). Custer Co.: Wahl-gemt 417 (Mn--35076). Dawson Co.: L. H. Pammel s.n. [Glendive, Aug. 14, 1904] (Io--46429). Flathead Co.: Rogers & Rogers 1066 (Pl--127462). Gallatin Co.: J. W. Blankinship 410 (Me, Mn--6882, S, Vi), s.n. [Bozeman, July 22, 1898] (Mn--30578, N); Hitchcock & Muhlick 12478 (N); W. W. Jones s.n. [Bozeman, July 15, 1901] (Ca--164937). Jefferson Co.: H. R. Flint 20-31 (Mn--31847). Lake Co.: B. T. Butler 637 (N), 639 (N); M. E. Jones s.n. [Ravalli, July 14, 1909] (Po--74944). Lewis & Clark Co.: B. T. Butler 4110 (N); Cramer s.n. [Herb. U. S. Dept. Agr. 44046] (Mn--10164); J. T. Howell 7899 (Gg--241082); G. N. Jones 5351 (Ur); F. D. Kelsey s.n. [7/21/92] (Ob--50867). Liberty Co.: Rishoff 627 (Mn--26733). Missoula Co.: Bache 270 (Mn--27227); F. A. Barkley 1685 (Mn--28558); M. E. Jones s.n. [Fort Missoula, August 2, 1909] (Po--74943); Kirkwood 2095 (Ca--352334, Ca--882602, Mn--16133, N); V. L. Marsh 591 (Mn--33742); F. H. Rose 213 (Mn--35074), 533 (Mn--33088, Pl--98764); J. H. Sandberg s.n. [Missoula, Aug. 1892] (Ca--25139, Pl--45403). Park Co.: Hitchcock & Muhlick 13567 (N); C. W. Simpson 7a (Ca--882607, N); Suksdorf 917 (Pl--139839). Powder River Co.: F. H. Rose 335 (Mn--34292, Pl--98765). Powell Co.: Hitchcock & Muhlick 11520 (N). Rosebud Co.: J. W. Blankinship s.n. [Forsyth, June 29, 1898] (Se--43545), s.n. [Rosebud, June 29, 1898] (Se--43359); B. D. Lund 49310 (Mn--8987). Sanders

Co.: Sandberg, MacDougal, & Heller 972 (N, Po--84184). Silver Bow Co.: Babich 381 (Mn--26732). Stillwater Co.: E. W. Elliott 29 (Mn--35083, N); G. Peterson 1006 (Mn--35071). Sweetgrass Co.: Eggleston 7970 (N); Hitchcock & Muhlick 13305 (Ca--757473, Gg, N, S). Teton Co.: Senn, Franklin, & Gillett 5646 (Vi). Toole Co.: Rishoff 575 (Mn--26731). Wheatland Co.: C. L. Hitchcock 2335 (Mn--23760, Po--221514, Rs--14046), 2427 (Mn--23947, Po--222072, Rs--13978). County undetermined: Engelmann s.n. [July 1839] (Br); F. D. Kelsey s.n. [Montana] (Ob--50865); Lamson-Scribner 209 [Indian Creek] (Pa); Lejeune s.n. (Br); Severy 17 [Kootenai National Forest] (Mn--14309, Ob--50864); Wied-Neuwied s.n. [1833] (Br). IDAHO: Ada Co.: J. A. Clark 55 (Ba, Ca--450173, Du--24169, N, Po--63861, S), 279 (Ba, Ca--450172, Ca--882615, Du--24159, Fg--4311, N, N, Pl--44968, Po--63855, S); Mulford s.n. [Boise, July '92] (C). Adams Co.: J. H. Christ 12950 (N); R. J. Davis 2412 (Pl--109493). Bannock Co.: J. H. Christ 2321 (N), 9003 (N); Cronquist 213-36 (Ua--46497, Ua--46498); R. J. Davis 69-34 (N), 327-37 (Id); Intermountain Herb. 3730 (Ca--528594, Ua--11381). Benewah Co.: C. Epling s.n. [Santa, July 1929] (La). Boise Co.: R. J. Davis 162-37 (Id); Hitchcock & Muhlick 9960 (N, Pl--155093, Se--93284). Bonner Co.: J. H. Christ 11554 (N); C. Epling 10380 (La), s.n. [Granite Station, July 1929] (La); Pammel & Dudgeon s.n. [Sand Point, 8-4-05] (Io--93832). Canyon Co.: J. F. Macbride 200 (Cm, N, Pl--22565, Ur). Clark Co.: J. H. Christ 5807 (N); Cronquist 757-37 (Ua--30546, Ua--46499); H. J. Rust 457 (Gg--31305). Franklin Co.: C. B. Maguire 17171 (N, N, Pl--124747, Ua--47422). Fremont Co.: Cronquist 1473 (Ua--33710); Merrill & Wilcox 776 (N). Gem Co.: A. Beard 11862 (N). Gooding Co.: E. Knox s.n. [Gooding, June 2, 1931] (Sd--23977). Idaho Co.: J. H. Christ 12668 (N); Colson s.n. [Horseshoe Bend, May 17, 1946] (S); R. J. Davis 3207 (Pl--127067); Q. Jones 366 (N). Kootenai Co.: J. H. Christ 10256 (N), 12973 (N); H. J. Rust 457 (Gg--31301). Latah Co.: Aldrich 13677 (N); J. H. Christ 1646 (N); Stillinger 309 (Mn--35080); B. L. Turner 2279 (Tl). Lewis Co.: Hunter 102 (Pl--46881). Minidoka Co.: Christ & Christ 18535 (N). Nez Perce Co.: W. H. Baker 5895 (N), 5918 (N); J. H. Christ 2529 (N), 3955 (N), 9066 (N); Gail 13679 (N); Ownbey & Weber 2746a (Gg--381233, N), 2746b (Gg--381234); Sandberg s.n. [June 1892] (La), 264 (Gg--31309); Sandberg, MacDougal, & Heller 264 (Du--24160, Fc, Me, N, Po--84181). Payette Co.: J. H. Christ 8578 (N); R. A. Harper s.n. [Payette, Aug. 4, 1890] (S, Um--241, Um--247). County undetermined: L. F. Henderson 4070 [Link of Big Lost River] (Mi); Sandberg 972 (Gg--31308). WYOMING: Albany Co.: Benson 5059 (Po--267656); A. Nelson 1652 (Po--70646, Ur), 7671 (Cm, Io--22910, N, Po--63871); L. O.

Williams 1060 (Ca--882611, Gg--210261, Go, I, N, S, Ua--11380).
 Carbon Co.: Cantelow s.n. [Rawling to Laramie, July 15, 1942]
 (Gg--316096). Crook Co.: L. W. Carter s.n. [Devil's Tower, 8/14/
 1897] (N). Goshen Co.: Petrak 50081 (N), s.n. [4.VIII.1950] (S).
 Hot Springs Co.: O. Degener 1300 (N). Johnson Co.: Tweedy 3365
 (N, Se--20576). Laramie Co.: R. J. Davis 319-W (Id); Fremont s.n.
 [Evening Camp from N. to South Fork, July 12] (C); F. W. Johnson
13 (N); Ownbey 294 (Pl--98767). Natrona Co.: Goodding 207 (Du--
 75655, N, Po--63896). Niobrara Co.: F. H. Knowlton 148 (N). Park
 Co.: Marston 359x (S). Platte Co.: C. L. Porter 3987 (Ca--714781,
 N, S). Sheridan Co.: Reppert, Paddock, & Ellis 83 (Io--111462);
Tweedy 2663 (N). Yellowstone National Park: Bright s.n. [7-30-
 19] (Cm); Mearns 3432 (Du--24163), 5009 (N). County undetermined:
Black 36-5182 [Sherman Pass] (Be--45869); Hayden Survey s.n. [Aug.
 1 - Sept. 13, 1870] (N); A. Nelson 320 [Blue Grass Hills] (C, Cm,
 Ur); B. Taylor 26 [Cherokee, Park Colorado] (Ok). UTAH: Beaver
 Co.: Parker, McClintock, & Robbins 6347 (Ca--736876, N). Box El-
 der Co.: Brendel s.n. [Brigham City] (Ur); B. Maguire 228 (Ua--
 11372). Cache Co.: A. D. Smith s.n. [August 3, 1938] (Ua--47458).
 Emery Co.: Clover & Jotter 1934 (Mi); M. E. Jones 5478 (Ca--
 159677, N, Po--70155). Garfield Co.: F. A. Barkley 4414 (Mn--
 35070). Grand Co.: Rydberg & Garrett 8365 (N). Juab Co.: Becraft
& Starr 391 (Ua--11378); Cutler 2432 (Ca--882609, Gg--271241);
Maguire & Becraft 2786 (Ua--11379). Kane Co.: B. Maguire 18937
 (Ua--47421); F. M. Stone 316 (N); Tidestrom 2390 (Mi). Millard
 Co.: D. D. Keck 632 (Ca--423603, Du--199162, Po--194725); Maguire
& Becraft 2785a (Ua--11371). Morgan Co.: Pammel & Blackwood 3960
 (Io--32026). Piute Co.: Rydberg & Carlton 7043 (N). Rich Co.: M.
E. Jones 1488 (Ua--11373), s.n. [Alta Wahsatch Mts., Aug. 2,
 1879] (Br, Go, N). Salt Lake Co.: M. S. Baker 4835a (Ro), 4835b
 (Ca--421125); M. K. Clemens s.n. [July 10, 1908] (Du--24162); A.
O. Garrett 1726 (N), 8620 (Ca--882604); Jepson 21228 (Ca); M. E.
Jones s.n. [City Creek Canon, Sept. 1, 1900] (Po--70649), s.n.
 [City Creek Canon, Sept. 4, 1905] (Gg--153863); F. E. Leonard
85/83 (Po--214222), s.n. [July 11, 1885] (Ob--50868); Pammel &
Blackwood 3529 (Io--83752), 3589 (Io--28506, Io--70428); Rydberg
& Carlton 6894 (N); S. Watson 823 (C). San Juan Co.: Rydberg &
Garrett 9200 (N). Sanpete Co.: Olsen s.n. [July 12, 1934] (N, Ua--
 47420). Summit Co.: A. O. Garrett 6454 (Dp). Uintah Co.: E. H.
Graham 6078 (Cm, N), 7341 (Cm, Gg--236313). Utah Co.: H. Ream
9298 (Ca--882605). Wasatch Co.: Harrison & Larsen 7754 (Ua--
 35864); Waterfall 15097 (St). Washington Co.: S. B. Benson 32
 (Ca--526426); Degener & Peiler 16476 (N); Gierisch 569 (N, Ua--
 47419); F. W. Gould 2027 (Ca--882592, N); Edw. Palmer 401 (C, N,
 Pa), s.n. [St. George, 1875] (Bc). County undetermined: Capt.

Figure 5. Distribution of *Verbena bracteata* in the United States

Mapping by counties done by Andrew R. Moldenke



OFFER TO COLLECTOR A
of Chicago Value Book

CLEARTYPE
TRADE MARK REG. U.S. PAT. OFF.
COUNTY OUTLINE
UNITED STATES

Scale of Miles
0 100 200
MAP NO. 125

AMERICAN MAP COMPANY, INC.

ORIGINATORS 1900 PUBLISHERS
CLEARTYPE MAPS AND COLUMBIAN MAPS

Bishop s.n. [1872] (Ka); G. A. Black 36-7647 (N); E. W. Davis s.n. [Cove Fort, 11 July 1927] (Um--249); Elrod s.n. [Utah, '86] (Mn--6881); Tidestrom 11183 [Preuss Lake near Clay's Ranch] (I); Ward 30012 (Ur). NEVADA: Churchill Co.: R. A. Allen 272 (N), 375 (Ca--882588, Du--286896); B. A. B. Ross 67 (Ca); Tidestrom 10773 (La). Clark Co.: A. M. Alexander 661 (Ca--625572); Alexander & Kellogg 1739 (Ca--541322); Clokey 5571 (Ba, Bl--42293, Ca--900542, Ca--900939, Du--269964, N, Se--47256, Ua--31277), 8096 [Herb. Forestry Serv. 91934] (Ak--15513, Al, Au, Au, Ba, Bt--58933, Ca--900541, Cm, Dp--4676, Du--283209, En, Fc, Ge, Gg--310861, Gu--19775, H--71857, I, Io--155041, It, Ka--94615, Ky, Mh, Mn--35081, Ms, N, N, Ob--201144, Ok, Or--41063, Pl--95255, Po--258168, Rs--23943, S, Se--20425, Se--54785, St, St--19052, Ua--39356, Up, Ur, We), 8097 (Ca--900546, N), 8473 (Ca--900545, Dp--14043, Gg--310860, N, Pl--110326, S, Se--84785, Ua--43899), 8473a (Ca--900543); T. Craig 1468 (Po--184576); Goodding 2312 (Ca--146624, Cm, N); Louise Kellogg 1739 (Se--62361); LaRivers & Hancock 574 (Ca--882589, Ca--900550); S. B. Parish 10288 (Ca--183650, Du--91086); Tidestrom 9582 (S); Train 1913 (Ca--900548, Tu--35538), 1984 (Ca--900540, Du--286897, N, N). Elko Co.: A. H. Holmgren 1459 (Ca--676171, N); P. B. Kennedy 3069 (Du--16340). Eureka Co.: M. E. Jones s.n. [Palisade, June 14, 1882] (Po--70652). Humboldt Co.: Archer 196 (Mi); Hillman s.n. [Sept. 1, 1897] (Po--70561). Lander Co.: Goodner & Henning 1097 (H--69222). Lincoln Co.: G. W. Gullion 582 (Ca--52111); M. E. Jones s.n. [Panaca, Sept. 6, 1912] (Po--69911); Minthorn 253 (Ca--450174). Lyon Co.: R. A. Allen 259 (Ca--882590). Nye Co.: Bentley s.n. [Currant, June 1916] (Du--140008, N, Po--129057, Po--267642); Goodner & Henning 1329 (Ca--900547, Fs); LaRivers & Hancock 716 (Ca--900549). Storey Co.: C. A. Purpus 5946 (Ca--104818). White Pine Co.: M. A. King s.n. [Warm Springs, Oct. 1917] (Gg--31310). COLORADO: Adams Co.: Demaree 29526 (Le, Sm, Sm). Arapahoe Co.: Garfield Univ. Sci. Exped. 332 (Ur). Archuleta Co.: C. F. Baker 564 (B, Ca--104860, N, Po--64520, S); F. S. Earle 25 (N); Schmoll 1074 (Bl--42302). Boulder Co.: R. E. Buchanan s.n. [Ward, 8/10/1901] (Io--107610); H. W. Campbell 552 (Bl--42264); A. T. Evans 189 (Bl--42266), 239 (Bl--42268), 273 (Bl--42267); Ewan 11418 (Gg--345033), Pl. Exsicc. Gray. 1090 (Al, Au, Ba, Ca--717704, Dp--22366, Du--277515, En, Gg--284501, H--67363, I, Mi, Ms, Ms, N, Ok, Pl--108606, Po--257693, S, Sm, Um--250, Up, Ur, We); Hynes s.n. [Boulder, Aug.-Sept. 1924] (Au); S. L. James 103 (Bl--42363); McFarlane s.n. [1881] (Bl--42255); K. E. Phelps s.n. [Bloomfield, June 1915] (Gg--31315); Ramaley 1108 (Bl--42262), 9568 (Bl--42265), 9720 (Bl--42249), A.120 (Bl--42258); W. W. Robbins 4173 (Bl--42360), 4405 (Bl--42250), 4470 (Bl--42257); Skinkle 150 (We); Tweedy 5126 (N); M.

S. Young s.n. [Boulder, Sept. 1913] (Au). Chaffee Co.: Waterfall 10906 (St). Cheyenne Co.: Cory s.n. [9-3-1940] (N). Conejos Co.: Ramaley 12984 (Bl--42286), 14147 (Bl--42288). Crowley Co.: M. T. Jones s.n. [May 28, 1932] (Bl--42361). Delta Co.: Burritt 97 (Bl--42252). Denver Co.: Babcock s.n. [Cory 27781] (N); Bethel s.n. [Denver, June 1893] (Fc), s.n. [1910] (Gg--31302); Demaree 15271 (N); Eastwood 25 (Bl--42260, Ca--148189, Gg--31317, Ok), s.n. [Denver, July 1886] (Bl--42256); Ferril s.n. [July 29, 1901] (Bl--42253); Heustis s.n. [Platte near Riverside, June 26, 1916] (Bl--42261), s.n. [Riverside, 6-26-16] (Bl--42251); T. Holm 61 (I), s.n. [6/8/1896] (S), s.n. [11/8/1896] (I); Redfield 521 (Pr); Schmoll 735 (Bl--42254); H. G. Smith s.n. [Denver, Aug. 17, 1888] (Ga, Pl--22622). El Paso Co.: Atkinson s.n. [July 15, 1895] (Pl--86890); Bacigalupi 919 (Du--195802, Po--172348); Biltmore Herb. 1082c (S); S. L. Clarke s.n. [September 19-21, 1895] (C, C); Clements & Clements 9 (Du--24158, Io--23730, N, Ob--86567); J. H. Ehlers 7630 (Mi), 7677 (Mi, Mi), 7761 (Mh, Mi); Harper & Harper s.n. [Manitou, July 12, 1900] (Io--133189); M. E. Jones 143 (Br, Go, N, Po--183131, Ua--11377); Loftfield 119 (Bl--42285); Rusk s.n. [C. C. campus, 7/10/1942] (Je); A. H. Smith s.n. [Manitou Springs, August 1878] (Up--17094); M. S. Young s.n. [Green Mountain Falls, 9/25/17] (Au). Fremont Co.: T. S. Brandegge s.n. [Canon City, 1877] (Ca--169222); Waterfall 10877 (St). Gunnison Co.: C. F. Baker 920 (N, Po--63872); H. N. Wheeler 626 (Bl--42263). Huerfano Co.: McAllister s.n. [Cuchara Camps, 8-16-23] (Au); Rydberg & Vreeland 5675 (N); Stigall s.n. [6/16/34] (Bl--42269). Jefferson Co.: L. S. Ehlers 218 (Mi); L. H. Pammel s.n. [Golden, Aug. 1919] (Io--100972); Ramaley 9906 (Bl--42273), 9913 (Bl--42272); W. W. Robbins 5780 (Bl--42271); Zobel s.n. [Deer Creek Canyon, May 25, 1934] (Bt--24675, Gg--220519). La Plata Co.: Moinat 22 (S); Way s.n. [Oxford, 1916] (Bl--42359). Larimer Co.: C. F. Baker s.n. [Fort Collins, 6-18-93] (Po--65183), s.n. [Fort Collins, 7-21-93] (Po--63894); M. S. Baker 4763b (Ca--421120, Ro); Collector undesignated s.n. [Ft. Collins, July 1926] (Nj); J. H. Cowen 2018 (Fc), 2019 (Fc, Mn--6883, Pl--22568), s.n. [Fort Collins, June 12, 1895] (N), s.n. [Fort C., July 29, 1896] (Io--22909, N); Crandall 172 [Halsted's Am. Weeds 172] (Ah, C, Fc, Io--15344, Mi, Ua--11375, Ua--27139, Ur, Vt, We), 311 (Fc); Kelso s.n. [Estes Park, July 1926] (Bt--18922); Lappin 185 (Ok), 186 (Au, Ok); W. F. Marshall 2017 (Fc); Pammel & Johnson 1749 (Io--24474); Preston s.n. [8-1-1921] (Fc); Ramaley 2758 (Bl--42259); C. S. Sheldon 38 (Al), s.n. [12 July 1884] (Ob--50866); G. F. Weber s.n. [Estes Park, 8/26/39] (Fl--21091). Las Animas Co.: Beckwith 161 (Gg--31307), 163 (Ca--216754). Logan Co.: E. J. Kraus s.n. [Sterling, June 19, 1926] (H--107720, Um--245).

Mesa Co.: S. G. Stokes s.n. [June 15, 1900] (Du--24174, N). Montezuma Co.: Bader s.n. (Bl--42274). Montrose Co.: C. F. Baker 288 (Ca--35042, Ca--104885, Du--143862, N, Pl--22567, Po--63873, Vt); Payson 934 (S); W. Stewart s.n. [Ute Pass, July 4, 1937] (La); E. P. Walker 402 (Ba, Pl--71400). Otero Co.: Rose & Fitch 17503 (N). Rio Grande Co.: Ramaley & Johnson 14568 (Bl--42289). Saguache Co.: Waterfall 12174 (Au--121809, Ok, St). Washington Co.: Ramaley 12462 (Bl--42287). Weld Co.: Ewan 12129 (En, Pl--122568); Osterhout s.n. [New Windsor, June 17, 1901] (Io--20753, Po--63899), s.n. [June 18, 1905] (Du--91087). County undetermined: J. E. Chase s.n. [Mammoth, 1904] (Ms); J. M. Coulter s.n. [Platte River, June 26, 1873] (N); Degener & Degener 27042 (N); McCosh & Greene s.n. [July-Aug. 1877] (Ml, Pr, Va); L. H. Pammel s.n. [Lookout Mt., Sept. 25, 1927] (Io--103087); Scovell s.n. [Colorado] (Mi); Vasey 527 (Ms). NEBRASKA: Adams Co.: R. de Lima 150 (I), 233 (I), 424 (N). Antelope Co.: Wernecke 82 (Gu--E.7745). Buffalo Co.: E. R. Holmes s.n. [Kearney, Aug. 1889] (Fc--2506); Pammel & Brownlie s.n. [Kearney, 6-27-99] (Io--15343). Cass Co.: M. E. Day s.n. [June 28, 1916] (Ob--99770). Dodge Co.: Engberg s.n. [Fremont, 1894] (Je). Douglas Co.: Eastman s.n. [Omaha, June 26, 1915] (Ur); Kleeberger s.n. [Omaha] (Gg--31299). Fillmore Co.: Muenschner & Muenschner 11607 (Ca--727596). Kearney Co.: C. Hapeman s.n. [Minden, May 31, '91] (Hp); H. Hapeman 8451 (H--5459), s.n. [Minden, Sept. 4, 1924] (Bt--45069, Up), s.n. [Minden, July 10, 1930] (En, Pl--61802, St--9230), s.n. [June 27, 1931] (Au), s.n. [Minden, June 15, 1933] (Ms, N); Herb. Univ. Nebr. 258 (Au, Au). Keith Co.: C. O. Erlanson 2253 (Ob--50776), 2255 (Mi). Kimball Co.: A. A. Heller 14303 (Au, Du--156892, Se--88034). Lancaster Co.: E. Armstrong s.n. [June 26, 1923] (Go); Herb. Okla. Coll. Women 312 (Ok); J. L. Sheldon s.n. [Lincoln, September 1897] (We), s.n. [Lincoln, 7.10.98] (We). Lincoln Co.: Plank s.n. [July 1896] (N). Madison Co.: F. J. Hermann 4504 (Mi). Merrick Co.: Mrs. E. J. Hill s.n. [E. J. Hill 208.1902] (Ur). Nemaha Co.: C. J. Elmore s.n. [Johnson, Oct. 1, 1890] (Je--3153); J. L. Sheldon s.n. [Peru, June 16, 1900] (We); Shubert s.n. [July 10, 1933] (Ob--50777). Otoe Co.: A. E. Allen s.n. [Talmage, June 18, 1891] (Je--3150); E. H. Jones 8 (Se--56453). Phelps Co.: McMillan s.n. [Holdrege] (Io--53119). Platte Co.: Clevenger s.n. [Columbus, June 10, 1904] (La). Thomas Co.: Krautter s.n. [Halsey, June 12, 1904] (Up--17132), s.n. [Halsey, July 26, 1907] (Up--46608); H. J. Webber s.n. [Aug. 7, 1889] (C). Washington Co.: Lallman s.n. [June 15, 1936] (Bt--45451). York Co.: M. K. Clemens s.n. [York, June 14, 1909] (Io--104447). Platte Islands [Buffalo Co.]: E. R. Holmes s.n. [Kearney, June 23, 1887] (Ca--216740). OKLAHOMA: Beaver Co.: Hindman 202 (St); Penfound P.387 (Ok). Beckham Co.: P. Hart 37

(Bt--48615); F. W. Pennell 10557 (N). Bryan Co.: W. S. Blain s.n. [Durant, July 6, 1935] (Bt--29682). Caddo Co.: Demaree 12533 (N, Ok); Edw. Palmer 246a (N); Van Vleet 32 (Ok--20480). Cherokee Co.: C. S. Wallis 646 (St). Cimarron Co.: Demaree 13290 (Ok, Ok), 13307 (N, Ok, Ok, Po--251719); F. C. Gates 20968 (Ka--92216); C. M. Rogers 4668 (Ok); Smith & Rinehart 82, in part (Ok); Stratton 5197 (Ml, N, St--26156); Waterfall 3139 (Ok, St), 3147 (Ok, St), 10756 (St). Cleveland Co.: Bamford s.n. [April 30, 1911] (Ok--20481); F. A. Barkley s.n. [5/19/28] (Ok--10289); Bayliff s.n. [July 4] (Ok--10294); Bruner s.n. [Norman, 8/2/24] (Io--117044, Ok--10287, Or--18975); Demaree 12471 (Ok--22198); C. T. Eskew 1938 (Ok), 2016 (Ok); Harness s.n. [May 5, 1911] (Ok--20482); Hopkins & Van Valkenburgh 5526 (Ok); Keesecker & Osborne 56 (Ok--20412); Louise Martin 19 (Ok--14226); I. J. Myers 64 (Ok--10297); Osborne & Keesecker 56 (St--12769); Perkinson 207 (Ok--20507), s. n. [6/28/19] (Ok--10296); Pusonet 90 (Ok--10293); Stemen 251 (Ok); C. Whaley 42 (Ok--10291). Comanche Co.: M. K. Clemens 11750a (Ba, Gg--37141); W. S. Myers 314 (Ok); D. Robertson 75 (Ok). Creek Co.: A. J. Sampson 73 (Or--40069). Delaware Co.: C. S. Wallis 2381 (St). Ellis Co.: Bruner s.n. [8/2/24] (Du--172645). Garfield Co.: Gephardt 379 (Ok). Garvin Co.: R. W. Pohl 5203 (Sm). Greer Co.: Bull 284 (Ok--10286). Harmon Co.: G. W. Stevens 1051 (Ok, St--9225). Harper Co.: McMurry 1180 (Ok). Kay Co.: Byler 277 (St); M. G. Wolfe s.n. [Sept. 15, 1931] (Ok--10273). Kingfisher Co.: Grace s.n. [June 20, 1935] (Ok--19055). Kiowa Co.: G. W. Stevens 1192 (Ok). Latimer Co.: Hopkins, Nelson, & Nelson 517 (Ok). Leflore Co.: Blakley 1462 (Du--66336), s.n. [G. W. Stevens 1462] (St--9223, Ur). Lincoln Co.: O. M. Clark 2223 (B); Payton 85 (St--9224). Logan Co.: E. Beck 47 (We); Keyser s.n. [G. W. Stevens 6044] (N, Ok). Mayes Co.: C. S. Wallis 3439 (St). McClain Co.: M. Hopkins 12 (Ba, Ok, Ok, St--12975), 13 (Mn--33215, Ok, Ok, St--12974), 13360 (Ok--20510, Ok). McCurtain Co.: H. W. Houghton s.n. [G. W. Stevens 3726] (N). Murray Co.: Broadbent 83 (Ok); M. Hopkins 6108 (Ca--882596, Ok, St--21418, We); Hopkins & Cross 6451 (N, Ok); Stratton 4732 (St--26141, St--26142). Muskogee Co.: E. L. Little 224 (Ok--10285), 1585 (Ok--10290). Noble Co.: Harding 92 (St--17568). Oklahoma Co.: W. S. Myers 90 [10-27-24] (Ok), s. n. [2-22-25] (Ok); F. W. Pennell 10579 (N); Waterfall 4442 (N, Ok, Si). Payne Co.: Ambrose 18 (Ob--84690); C. O. Chambers s.n. [Summer, 1919] (St--9231); Davy 102 (Au); Fry 110 (Au), s.n. [9-20-35] (Au); Gardenhire 77 (Ok); Graumann 39 (St--17553); Harding 257 (Ca--882606); Mader 22 (Ok); D. McLean 15 (Um--248); Powers 31 (N); L. E. Rose s.n. [August 2, 1939] (Bl--42296); Waterfall 113 (St). Pittsburg Co.: B. P. Keesecker 39 (Ok); E. Rogers s.n.

[June 12, 1957] (St). Pontotoc Co.: D. McCoy 722 (St), 1703 (St). Pottawatomie Co.: E. D. Barkley 296 (Ok--14474); F. A. Barkley 1452 (Mn--28598). Roger Mills Co.: J. Engelman 404 (Ok). Rogers Co.: Buffington 99 (Ok). Swanson Co.: G. W. Stevens 1192 (N, St--9229). Texas Co.: G. W. Stevens 391 (Du--65310, Ok, Ok, St--9240, St--9241); Q. Williams 36 (Tr--19291). Tulsa Co.: M. B. Clark 363 (St). Woods Co.: G. W. Stevens 680 1/2 (Ok), 2889 (Ok). Woodward Co.: P. J. White s.n. [July 9, 1900] (Dm). County undetermined: Gowan 26 (Ok--10292); "R. E. J." s.n. [7/1/19] (Ok--10295); Jeffs s.n. [Winding Stair Mtns., July 1, 1919] (Mn--25705); B. A. Kee-secker s.n. [June 11, 1936] (Ok--20601); G. W. Stevens A.1462 (Ok), A.1564 (Ok). TEXAS: Bailey Co.: Harns 82 (Um--243). Bexar Co.: J. B. Davy 11 (Ca--25138). Bowie Co.: Correll & Correll 12398 (Ca--907252, Sm). Brazos Co.: Reeves 192 (N). Brewster Co.: Collector undesignated L.20-459 (Sr); Cory 9147 (Fs); Parks & Cory 9147 (Tr). Cochran Co.: B. B. Harris 526 (Nt). Collin Co.: Timmons 743 (Au). Comal Co.: Depprich 7767 (Sm). Culberson Co.: Tharp 43253 (Au, N). Dallas Co.: F. C. Gates 20972 (Ka--92225); C. L. Lundell 14015 (Sm); J. Reverchon 420 (Pa); Shinners 26626 (Go). Denton Co.: B. B. Harris s.n. [7-20-27] (Nt). El Paso Co.: B. Barlow s.n. [7 July 1911] (Ca--882613, La); M. K. Clemens s.n. [El Paso, June 7, 1917] (Po--175086); Lee, Berkman, & Tharp 46199 (Au, N); Pringle s.n. [El Paso, 11 June 1885] (Vt); Shinners 8941 (Sm); Thurber 90 (T); Vasey s.n. [El Paso, May 1881] (S), s.n. [El Paso, 1881] (Fl--21089); B. H. Warnock 4000/5818 (Au--122572); Waterfall 6622 (N); C. Wright 454 (Ca--215384). Erath Co.: Hoisington 83 (Au, Au, Ca--733348, Ok). Garza Co.: Tharp s.n. [7/9/41] (Au, N). Grayson Co.: Anderson & Hood 313 (Ok); R. Bebb 1412 (Ok). Hale Co.: J. F. Brenckle 48080 (Gg--381243, N); Waterfall 3703 (St); Whitehouse 9926 (N). Hansford Co.: Cutter 33, in part (Ok); G. J. Goodman 5289 (Ok). Hockley Co.: B. B. Harris s.n. [10-10-27] (Nt). Husbeth Co.: K. B. Reed s.n. [Grayson, Nov. 3] (Au); Tharp 46152 (Au, N). Hunt Co.: Legget s.n. [Loneoak, 7/15/1927] (Au); Tharp 2929 (Au, Au). Jeff Davis Co.: T. Head 10 (St). Johnson Co.: Whitehouse s.n. [Cleburne, 6-15-1930] (Au, Ca--882603, Mi, N). Lamb Co.: Demaree 40876 (Gg); Tharp 6274 (Au). Lipscomb Co.: C. S. Wallis 7118 (St). Lubbock Co.: Demaree 7562 (Au, Du--205782, H--52537), 7704 (Du--205758); F. W. Gould 7122 (Au--123217, Ca--38005); E. J. Palmer 12496a (Au--121765, Ca--425608); E. L. Reed 3940 (Bl--42292); Tharp 6284 (Au). Menard Co.: Cory 29734 (N); Parks & Cory 9765 (Tr). Mitchell Co.: R. W. Pohl 4998 (Sm). Moore Co.: Jespersen & Jespersen 2708 (Ca--774452, N). Newton Co.: Tharp s.n. [7-23-39] (Au). Ochiltree Co.: C. S. Wallis

4755 (St), 4762 (Au--123217, St). Potter Co.: York & Rogers 41
 (Au--123198). Presidio Co.: Hinckley 694 (N, N, Sm), s.n. [Marfa,
 July 1936] (Au, Au, Fc); Steiger 1308 (N). Randall Co.: Cory
13530 (Md); E. J. Palmer 13861 (B); Parks & Cory 13529 (Tr). Rea-
 gan Co.: Parks & Cory 18940 (Tr). Roberts Co.: C. S. Wallis
4944-1, in part (St). Sherman Co.: Weaver 17793 (Tr--16182).
 Swisher Co.: Whitehouse 9961 (N). Tarrant Co.: Ruth 109 (Cm, Io--
 113679, Ka--67108, N, N, Nt, Ob--50779, Up, Ur); Whitehouse 16263
 (N). Taylor Co.: S. M. Tracy 8001 (Au, Cm, Es, N, Vt). Terry Co.:
E. L. Reed 3774 (Au); Tharp 4506 (Au, Um--246). Tom Green Co.:
Cory "CI" (Po--19226). Travis Co.: Herb. Univ. Texas s.n. [Lake
 Austin, 5/10/33] (Au), s.n. [5/10/33] (Au). Walker Co.: Warner s.
n. [Huntsville, May 20th] (Hu). Wheeler Co.: Parks & Cory 16145
 (Tr), 16146 (Tr). Wichita Co.: Mahler 1258 (St). Wood Co.: C. L.
Lundell 12081 (N). County undetermined: Thurber 607 [Valley of
 the Rio Grande] (N); Warner s.n. (Hu). NEW MEXICO: Baca Co.: Her-
shey 2352 (Sm). Bernalillo Co.: C. C. Ellis 221 (N); M. E. Jones
s.n. [Albuquerque, 9-4-1884] (Po--246766); Koelz s.n. [Sandia
 Mts., June 28, 1926] (Mi), s.n. [Albuquerque, September 8, 1926]
 (Mi). Carson Co.: Hitchcock, Rethke, & Raadshooven 4180 (Ca--
 603818, Du--257367, Gg--267612, Pl--89844, Se--45728). Chaves
 Co.: Earle & Earle 351 (N, Po--63868); N. A. Palmer 60, in part
 (S). Colfax Co.: C. F. Baker s.n. [Cimarron, Jul. '01] (B); Lucas
164 (Au); P. C. Standley 14249 (Du--122874). Curry Co.: White-
house 8738 (Au). Dona Ana Co.: Archer 335 (Mi); Campbell & Keller
735 (Ca--882608); Wooton 409 (Ca--104811, Du--75589, Ka, N, Po--
 243563), s.n. [Mesilla Valley, May 17, 1893] (Ur), s.n. [Organ
 Mts., Aug. 28, 1897] (Po--70878, Tu--98879), s.n. [June 7, 1904]
 (N); Wooton & Standley 3330 (Au, Du--24177, Fs, Hp, Mn--6889, Or--
 8857, Pl--22571, S). Eddy Co.: Grassl 32 (Mi). Grant Co.: Maguire,
Richards, & Moeller 11963 (N, N, Ua--47418); O. B. Metcalfe 137
 (Ca--130178, Ca--138819, Ca--882810, Dm, Du--91158, N, Po--70887,
 Tu); W. S. Stewart s.n. [Pinos Altos, June 26, '36] (Bl--42297,
 En, La, La, Mi). Quay Co.: G. L. Fisher s.n. [Nara Visa, July 8,
 1911] (Ew). Rio Arriba Co.: Waterfall 11114 (St); C. B. Wolf 2925
 (Ba, Du--191126, Gg--174046, Rs--9995). Sandoval Co.: Koelz s.n.
 [James Springs, July 4, 1926] (Mi); Rousseau 35089 (Vi). San Juan
 Co.: Wooton 2831 (Ob--50876). San Miguel Co.: Arsène 1894 (B),
18343 (Gg--187237), 18543 (Po--148758), 18593 (Po--148392), 18634
 (N, Po--148686), 18885, in part (Po--148523), 18961 (Po--148657),
18964 (N, Po--148643), s.n. [Las Vegas] (N); P. C. Standley 5136
 (N); Whitehouse 8739 (Au). Santa Fe Co.: Arsène 15734 (Du--243429),
15840 (N), s.n. [vicinity of Santa Fe] (B); Clear s.n. [July 6,
 1947] (Gg); Marcelline 1819 (Mi); Renner 294 [Herb. Forest Serv.

43460] (Ca--137930); P. C. Standley 4458 (N), 4549 (N). Sierra Co.: Beals s.n. [Lake Valley, August 1904] (Mi); Cutler 2057 (Ca--882610); O. B. Metcalfe 897 (Gg--282672, Io--141748), 1008 (Gg--31303, N, Po--63858, Po--84185, Vi). Socorro Co.: Eggleston 20225 (W--1524413); H. H. Rusby 81 (St--24045), 336 (C, Mi, Ob--50869, Pr, Se--14960), s.n. [Ft. Craig, Aug. 1888] (Dt). Taos Co.: Whitehouse 8740 (Au). Union Co.: Demaree 12278 (N, Ok), 13278 (Ok, Pl--84105, Sd--24049). Valencia Co.: O. Degener 4873 (Ms); Wooton s.n. [Aug. 1, 1892] (C). County undetermined: Engleman s.n. [Therma, August 17, 1934] (Ok--18362); Fendler 585 (Pr), 587 (Ca--711045); C. Wright 1499 (T). ARIZONA: Apache Co.: Collector undesignated s.n. [Navaho Reservation, July 1918] (Ca--202336); Cutler, Goodman, & Payson 2951 (Du--272803); Deaver 3902 (Fg--5966), 4101 (B, Fg--5967); Goodman & Hitchcock 1317 (Bt--12931, Ca--426360, Du--191999, Gg--183907, Mi, Mi, N); Herb. Univ. Arizona s.n. [Navaho Reservation, July 1916] (Fs, N); Peebles & Smith 13568 (N, To); L. C. Whitehead s.n. [Navajo Reservation, June-Sept. 1916] (Ca--882612). Cochise Co.: Darrow, Phillips, Gould, & Pultz 1486 (Ca--777821, Tu--10880). Coconino Co.: Aubineau 5 (Fg--8037); R. S. Beal s.n. [Flagstaff, 30 June 1947] (Ca--942564); Benson 9618 (Po--267641), 9649 (Po--267655); Clover 5070 (Mi, Tu--18627); Clute 93 (N, Ur); Collom s.n. [Grand Canyon Village, Sept. 1, 1943] (Fg--9145); Deaver 2509 (Fg--3096), 3784 (Fg--5253), 4364 (Fg--8038); Demaree 42782 (Gg); Ellison 1107 (La); Fulton 6288 (To), 9654 (Ca--540265); Goodding 45-48 (Gg--415499), 163-49 (S), 1492 (Fg--8035), 1595 (Fg--8036); H. C. Hanson A.147 (Au, Bl--42294, Or--20489, Ur); A. A. Heller 15783 (Ca--726124, N, Se--87491); Herb. Univ. Ariz. s.n. [Flagstaff, June-July 1915] (Tu); J. T. Howell 24405 (Gg--342814), 24600 (Gg--342813); H. E. Lee s.n. [Flagstaff, 9-23-36] (Tu); MacDougal 286 (Ca--187471, Dp, Io--38749, N); Peebles 14346 (To); H. H. Rusby s.n. [Oak Creek, May 30, 1883] (C, Mi); P. O. Schallert s.n. [5/30/43] (N, Ur), s.n. [west of Winslow, 5/15/43] (N), s.n. [6/16/43] (Pl--133007, Ur), s.n. [9/1/43] (Au, Ok); J. J. Thornber s.n. [Flagstaff, August 5, 1907] (N, Tu--35537). Gila Co.: F. W. Gould 3918 (Ca--737174, N); Parker, McClintock, & Robbins 6111 (Ca--736880). Graham Co.: Bohrer 393 (Gg--377372); J. J. Thornber 5554 (Ok), 5674 (Tu). Mohave Co.: Ahles 9223 (Ur, We), 9408 (Ur). Navajo Co.: Eastwood & Howell 6572 (Dp--4677, Gg--261698); L. Hamilton s.n. [K. F. Parker 8338] (S); G. J. Harrison 5494 (To); Herb. Univ. Ariz. s.n. [Navaho Indian Reserv., July 1916] (Tu); Mrs. R. W. Hoyt s.n. [Ft. Apache, 1893] (C); Klinger s.n. [Newcomb's, June 24, 1934] (Tu); Peebles & Fulton 9636 (To); Pultz 1714 (Tu--16148); Whitehead s.n. [Navajo Indian Reserv., June-Sept. 1916] (Tu);

Whiting 854/2798 (To). Pima Co.: Darrow & Haskell 2072 (N), 2172 (Ca--705224, Tu--16143). Pinal Co.: Peebles & Harrison 1754 (To), 2061 (Io--128475). Yavapai Co.: W. W. Jones s.n. [Verde Valley, July 25, 1920] (Ca--407936), s.n. [Camp Verde, July 7, 1922] (Ca--407935, Ca--407937); E. B. Kurtz s.n. [July 18, 1937] (Up); Loomis 3133 (To); Peebles, Harrison, & Kearney 2692 (To), 4243 (La); H. H. Rusby 336 (Pa), 780 1/2 (Mi), s.n. [June, 1883] (C, Pr), s.n. [1883] (Up--17091). Yuma Co.: S. B. Parish 8490 (Tu--98876). WASHINGTON: Adams Co.: Jeffrey s.n. [June 22, 1946] (Ca--755256); St. John, Beedon, Davison, Ransom, & Ridout 7163 (Ca--613657). Asotin Co.: Hitchcock & Muhlick 8341 (Ca--968444, N, Pl--155092, Se--93285). Benton Co.: Cotton 621 (Pl--22585); Goff 136 (Ca--882601, Ro); L. F. Henderson s.n. [Prosser, May 26, '92] (Pl--22621); G. N. Jones 387 (Pl--41136); C. S. Parker 653 (Pl--47538); L. S. Rose 48153 (Go, N, S, S); R. Sprague s.n. [Aug. 16, 1938] (Or--37663). Chelan Co.: Muenschner & Muenschner 11215 (N); Purer 7792 (Du--268787, N, Sd--24252); Raven 10112 (Gg--409688); J. W. Thompson 6901 (Du--208092, Or--28268, Se--21478), 6930 (Se--21477), 10808 (St--15931); Whited 1373 (Pl--22581), s.n. [June 21, 1904] (Or--12376). Clark Co.: Suksdorf s.n. [Vancouver, Aug. 16, 1894] (Pl--138591). Douglas Co.: Sandberg & Leiberg 340 (Br, Ca--170667, Gg--31316, N, Pl--22616, S). Franklin Co.: Dana 694 (Pl--100118); Jennings & Jennings 8888 (Cm), 8911 (Cm); Raven 10363 (Gg--408548). Grant Co.: H. W. Smith 1178 (Pl--84538); J. W. Thompson 6732 (Se--21479). King Co.: Otis 803 (Gg--31313, Pl--128712). Kittitas Co.: Cotton 1363 (Pl--22584); Otis 2030 (Pl--93351); H. W. Smith 1410 (Se--38581), 1776 (Pl--84537); J. W. Thompson 9067 (Ca--518319, Du--224006, N, Po--204259, Se--21480). Klickitat Co.: F. E. Lloyd s.n. [Dalles, July 1894] (N), s.n. [23 Aug. 1894] (N); Suksdorf 207 (Pl--138428), 5102 (N, Pl--138363), s.n. [July 22, 1881] (Ca--192061, Cm, Mi, Pl--72005); J. W. Thompson 11109 (Se--15933). Okanogan Co.: Batie s.n. [Twisp, April 24, 1922] (Bt--35894); Dillon 832 (Ca--739565, Pl--151101); Fiker 14 (Pl--76371); R. A. Harper s.n. [Aug. 9, 1890] (S); M. E. Jones s.n. [Oroville, June 26, 1911] (Po--69916). Spokane Co.: Milburge 1420 (Se--10847), s.n. [May 1930] (Du--209473, Se--21476), s.n. [June 1931] (Se--21922); Suksdorf 1976 (N, Pl--138403). Stevens Co.: Kreager 474 (Ca--882614, N, Pl--22580, Se--68369, Um--242), 874 (Pl--22576), s.n. [Mission, Aug. 22, 1902] (Pl--22575). Wallawalla Co.: Wilkes Expl. Exped. s.n. [Wallawalla & Kooskookoo] (T). Whitman Co.: Eastwood & Howell 3074 (Gg--235441); Elmer 324 (N), s.n. [Wawawai, June 1896] (Po--63895), s.n. [Wawawai, June 1898] (Vt); Lake & Hull 606 (Pl--22618); Otis 1937 (N, Pl--93537, Se--16141, Se--26170), 1967 (Pl--92337); C. V. Piper 1542 (Pl--22619, Se--14950); St. John & Warren 3395 (Ca--613582, N, Pl).

Yakima Co.: L. F. Henderson s.n. [June 12, '92] (Se--14949);
Suksdorf s.n. [June 7, 1884] (Pl--138430); Vasey 468 (N, Pl--
 22579); Watt s.n. [Aug. 1895] (Pl--22617). County undetermined:
T. S. Brandegee 1032 (Ca--190923); J. H. Howell s.n. [Lower Cas-
 cades, June 1886] (Pa); Jennings & Jennings s.n. (Cm). OREGON:
 Baker Co.: W. A. Weber 3148 (N). Clackamas Co.: E. P. Sheldon
 8856 (N). Deschutes Co.: J. F. Brenckle 51440 (Le). Gilliam Co.:
Applegate 6519 (Du--239351); C. D. Mell s.n. [Arlington, Aug. 26,
 1903] (N). Hood River Co.: Gorman s.n. [Lower Cascades, July '90]
 (Se--14940); L. F. Henderson 797 (Or--8853); J. T. Howell s.n.
 [Cascades, June 1886] (Se--21476); Lyman s.n. [Cascade Locks, 7-
 30-95] (Dt); E. P. Sheldon 12179 (Du--92289). Malheur Co.: Ferris
 & Lorraine 12993 (Du--378824); Fleischman s.n. [Ontario, 5-20-30]
 (Or--35766); R. A. Pendleton s.n. [September 22, 1954] (N). Mor-
 row Co.: Hills 6 (Or--25509), 14 (Or--25512), 26 (Or--25510); L.
S. Rose 41413 (Al, Ca--882599, Gg--310865); J. W. Thompson 4880
 (Du--179362, Po--215928). Multnomah Co.: Suksdorf 3014 (Pl--
 138413), s.n. [Aug. 15, 1894] (Pl--138427). Sherman Co.: W. E.
Lawrence 413 (Du--100815). Umatilla Co.: H. E. Brown 58 (Dm, N);
Dana s.n. [Hermiston, Oct. 4, 1937] (Or--34436); Evinger s.n.
 [Pendleton, 9/3/27] (Or--31167); Gorman s.n. [near Weston, June
 1, '05] (Mn--16973); Griffiths & Hunter 18 (N); W. E. Lawrence
 806 (Du--104714); Leiberg 912 (N); W. A. Weber 3106 (Ca--754994,
 N); Zivney 5 (Or--38566). Wallowa Co.: E. P. Sheldon 8202 (N).
 Wasco Co.: Abrams 9487 (Du--133965, Po--127890); T. S. Brandegee
 s.n. [The Dalles, 1882] (Ca--169223); Gilkey s.n. [The Dalles,
 June 120, 1924] (Or--18252, Or--45975); M. E. Jones s.n. [The
 Dalles, June 27, 1897] (Po--70654); Lyman s.n. [The Dalles, 7-
 30-95] (Dt); E. P. Sheldon 12179 (Du--75590); Suksdorf s.n.
 [June 8, 1897] (Pl--138426); J. W. Thompson 2821 (Du--171167,
 Se--21474). Washington Co.: Solbrig 2909 (Ca--177947). Wheeler
 Co.: Ebert s.n. [July 20, 1944] (Or--48935). Hayden Island [Coos
 Co.]: J. W. Thompson 3789 (Du--171163, Se--21473), 3909 (Du--
 171801). Sauvin's Island [Multnomah Co.]: J. T. Howell s.n.
 [June 1886] (Or--8852). County undetermined: W. C. Cusick 1967
 [Eastern Oregon] (Ca--25134, Pl--22623); E. Hall 393 (N, Pa).
 CALIFORNIA: Kern Co.: T. S. Brandegee s.n. [Cameron Lake, March
 28, 1901] (Ca--104817); Hoover 2667 (Ca--596163, Ca--766870, N);
L. R. Short 295 [U. S. Forest Serv. 21066] (Ca--661057); Twissel-
mann 1264 (Gg--391012). Los Angeles Co.: Abrams 343 (Du--143860),
 1741 (Du--143861, Po--4005), 2574 (Du--24164, N, Po--156282), s.
 n. [Inglewood, June] (Ca--205361); M. K. Brandegee s.n. [Bixby,
 August 1, 1910] (Ca--185367); Braunton s.n. [May 10, 1902] (Du--
 9559), s.n. [5/15/1902] (Du--75592); L. T. Chamberlain s.n. (N);

Fosberg S.4105 (N, S, Up); Condit s.n. [Gardena, July 27, 1908] (Ca--456150); H. M. Hall 6724 (Ca--127514); I. M. Johnston s.n. [Nigger Slough, s. Calif., April 11, 1917] (Du--108994, Po--4006); McClatchie s.n. [Long Beach, 8/3/1896] (N, N); Parish & Parish 1596 (Br, Du--91089). Madera Co.: H. Barnes s.n. [Madera, Sept. 25, 1930] (Ca--420788). Merced Co.: Eastwood 17956 (Gg--176070); Jepson 17484 (Ca); Mason & Smith 8252 (Ca--192059); Nobs & Smith 165 (Ca--192060, Gg--417903). Modoc Co.: Woods & Tidestrom 2779 (I). Orange Co.: D. L. Crawford s.n. [Laguna Canyon, 7/26/16] (Ca--205360, Po--4004); Fosberg S.1020 (Up); E. R. Johnson 11285 (Rs--30445); Munz 2207 (Po--4014), 6349 (Po--12443), 6598 (Po--17441); E. L. Paddock 12733 (N); Peirson 4651 (Du--139670, En). Riverside Co.: Ewan 5220 (Ca--472156, Du--212741, En, Gg--194565, Po--182470). San Bernardino Co.: S. B. Parish 8490 (Du--91088), s.n. [3 June 1891] (Ca); Parish & Parish 2171 (Ca--25135, Du--90891, N, Or--8854, Pl--22620, S, Ua--11376, Ur--17458). San Diego Co.: Abrams 3198 (Du--24166, N); Cleveland 353 (Sd--6788); Fenoge 1235 (Po--148016); Orcutt s.n. [San Diego, 7-8-1884] (Cm), s.n. [S. D., 9-8-1884] (Mi), s.n. [San Diego, Sept. 1884] (Pa). San Joaquin Co.: M. K. Brandegee s.n. [Lathrop, Sept. 1907] (Ca--139765); Jepson 10285 (Ca); Suksdorf 7a (Pl--138408), 7b (Pl--138407). San Luis Obispo Co.: C. Dudley s.n. [Atascadero Lake, July 4, 1936] (Gg--235651); R. J. Ferris 9770 (Ca--652680, Du--269818, Gg--310871, Mi, Se--52775); Jepson 15888 (Ca); Edw. Palmer 342 (Pa). Santa Barbara Co.: J. L. Fox s.n. [Santa Barbara] (I); H. M. Pollard s.n. [Aug. 6, 1952] (Gg--385809). Siskiyou Co.: W. B. Cooke 15356 (Ca--45319, Du--277307, N, Or--42075). Stanislaus Co.: Hoover 94 (Ca, Ca--767060, N). Tulare Co.: Congdon s.n. [Oct. 1881] (Du--24165). Ventura Co.: Fendge 1838 (Po--145297); H. M. Pollard s.n. [Mirror Lake, May 3, 1946] (Gg--333017). County undetermined: M. K. Brandegee s.n. [Bissell Station, Mojave Desert, July 16, 1912] (Ca--185368); Edw. Palmer s.n. [1876] (Du--200649); Vasey s.n. (Bl--42291). CHANNEL ISLANDS: Santa Catalina: Fosberg S.5403 (N). MEXICO: Baja California: Mearns & Schoenfeld 2925 (Du--9556); C. R. Orcutt 1228 (Io), 1549 (Dt, Ur), s.n. [Tijuana, 4-7-1885] (Ca--24136), s.n. [Aug. 31, 1889] (Mi). Coahuila: E. G. Marsh 1214 (St); Edw. Palmer 1048 (Io, Pa, Vt). Federal District: Rutten & Rutten-Pekelharing 378 (Ut). San Luis Potosí: Parry & Palmer 715 (Pa). Sonora: Gregg s.n. [near St. Lorenzo, June 2, 1819] (T); P. B. Kennedy 7032 (Ca--373595). SWEDEN: Ander s.n. [VIII.1923] (Ew, Go, S); C. Sandberg s.n. [6/9/1913] (S). GERMANY: Kausch s.n. [Aug. 1915] (La). CULTIVATED: Belgium: Lejeune s.n. (Br); P. Martens s.n. [h.b.L.] (Br). Denmark: Herb. Schumacher s.n. (Cp). France: W. H. Harvey

s.n. [Julio 1818] (Du—166495). Germany: Herb. Molliano 528 (Br); Herb. Mus. Bot. Stockholm s.n. [h. Berol.] (S). Locality undesig-
nated: Herb. W. H. Harvey s.n. (Du—166494). LOCALITY OF COLLEC-
TION UNDETERMINED: Burke 1827 [Rocky Mountains near California]
(Ut—97722); Collector undesigned s.n. (Je); Cranwill s.n.
[July 23, 1917] (Ur); F. V. Hayden s.n. [Sargent's Bluff on banks
of Missouri, July 1856] (Dt); Herb. Coll. Pharmacy s.n. (Pa);
Herb. Decaisne s.n. (Br); Herb. Martius s.n. (Br, Br); Herb. Mol-
liano 288 (Br), s.n. (Br); Herb. Mus. Bot. Stockholm 2109 (S), s.
n. (S, S); Herb. Parry s.n. (Io); Herb. Torrey s.n. [Rocky Moun-
tains] (T), s.n. [N. W. Coast] (T); M. Martens s.n. (Br); C. R.
Orcutt s.n. (Ca—104882, Ca—104883); Edw. Palmer 341 [California,
Arizona, etc.] (C); Prier s.n. [Tablequah] (St—9227); Schleuse
35007 (Au); Show s.n. [Kansas & Nebraska boundary] (C); Wallberg
s.n. [1808] (Lu); A. Wood s.n. (Pa).

VERBENA BRACTEATA f. ALBIFLORA (Cockerell) Moldenke, *Phytologia*
2: 146. 1946.

Synonymy: Verbena bracteosa albiflora Cockerell in Daniels,
Fl. Boulder Colo. 204. 1911. Verbena bracteosa var. albiflora
Cockerell ex Moldenke, Prelim. Alph. List Invalid Names 45, in
syn. 1940. Verbena bracteosa f. albiflora Cockerell ex Moldenke,
Alph. List Invalid Names Suppl. 1: 22, in syn. 1947.

Literature: Cockerell in Daniels, Fl. Boulder Colo. 204.
1911; Perry, Ann. Mo. Bot. Gard. 20: 304. 1933; Moldenke, Prelim.
Alph. List Invalid Names 45. 1940; Moldenke, Alph. List Invalid
Names 45. 1942; Moldenke, *Phytologia* 2: 146. 1946; Moldenke, Alph.
List Invalid Names Suppl. 1: 22. 1947; Moldenke, Alph. List Cit.
2: 494 & 495 (1948) and 4: 981. 1949; Moldenke, *Known Geogr. Dis-*
trib. Verbenac., [ed. 2], 26 & 197. 1949; Moldenke, *Résumé* 32,
360, & 471. 1959; Moldenke, *Résumé* Suppl. 2: 3 (1960) and 3: 36.
1962.

This form differs from the typical form of the species in hav-
ing white corollas.

The type of the form was collected by Theodore Dru Alison
Cockerell on the campus of the University of Colorado at Boulder,
Boulder County, Colorado, on July 15, 1908. It is said to inhabit
bottomlands, and has been collected in anthesis in July and Aug-
ust. Even though Cockerell published the original name for this
taxon as a trinomial, in the manner of zoologic subspecies, he
followed it with the expression "n. var.", indicating that a var-
ietal status was intended. The only recorded common name is
"white-flowered large-bracted vervain". Three herbarium specimens
have been examined.

Citations: WASHINGTON: Klickitat Co.: Suksdorf s.n. [Bingen,
Aug. 11, 1895] (N, Pl—138404), s.n. [Aug. 24, 1898] (Pl—138356).

VERBENA BRASILIENSIS Vell., Fl. Flum. 17 (1825), Icon. 1: pl. 40.

1827.

Synonymy: Verbena littoralis a pycnostachya Schau. in A. DC., Prodr. 11: 542. 1847. Verbena littoralis f. angustifolia Chod., Bull. Herb. Boiss., sér. 2, 2: 818, hyponym. 1902. Verbena approximata Briq., Ann. Conserv. & Jard. Bot. Genève. 7-8: 292--293. 1904. Verbena littoralis var. pycnostachya Schau. ex Briq., Ann. Conserv. & Jard. Bot. Genève. 7-8: 292, in syn. 1904. Verbena littoralis var. brasiliensis (Vell.) Briq., Ann. Conserv. & Jard. Bot. Genève. 7-8: 292. 1904. Verbena cordobensis Briq., Ann. Conserv. & Jard. Bot. Genève. 10: 100--102. 1907. Verbena boliviana Briq. ex Moldenke, Suppl. List Invalid Names 8, in syn. 1941. Verbena brasiliensis Mart. ex Moldenke, Alph. List Invalid Names Suppl. 1: 22, in syn. 1947. Verbena braziliensis Vell. ex Moldenke, Alph. List Invalid Names Suppl. 1: 22, in syn. 1947. Verbena littoralis f. pycnostachya Schau. ex Moldenke, Alph. List Invalid Names Suppl. 1: 25, in syn. 1947. Verbena littoralis f. pycnostachya Osten ex Moldenke, Alph. List Invalid Names Suppl. 1: 25, in syn. 1947. Verbena hasta L. ex Moldenke, Alph. List Invalid Names Suppl. 1: 24, in syn. 1947. Verbena littoralis f. angustifolia Chod. ex Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 94 & 198. 1949. Verbena littoralis var. pycnostachya Schau. ex Moldenke in Humbert, Fl. Madag. 174: 9, in syn. 1956. Verbena bonariensis var. veris Hassler ex Moldenke, Résumé 359, in syn. 1959. Verbena officinalis var. gracibras Lehm. ex Moldenke, Résumé 371, in syn. 1959. Verbena littoralis var. pycnostachya DC. ex Moldenke, Résumé Suppl. 3: 40, in syn. 1962.

Literature: Vell., Fl. Flum. 17 (1825), Icon. 1: pl. 40. 1827; Schau. in A. DC., Prodr. 11: 542. 1847; Schau. in Mart., Fl. Bras. 9: 189. 1851; Jacks., Ind. Kew. 2: 1178. 1895; Chod., Bull. Herb. Boiss., sér. 2, 2: 818. 1902; Briq., Ann. Conserv. & Jard. Bot. Genève. 7-8: 292--293. 1904; Briq., Arkiv Bot. Stockh. 2 (10): 11. 1904; Briq. in Chod. & Hassler, Plant. Hassler. 10: 480--481. 1904; Briq., Ann. Conserv. & Jard. Bot. Genève. 10: 100--102. 1907; Prain, Ind. Kew. Suppl. 3: 187. 1908; Hicken, Chloris Plat. Argent. 197. 1910; Glaz., Mém. Soc. Bot. France 1: 544. 1911; Prain, Ind. Kew. Suppl. 4: 245. 1913; Sanzin, Anal. Soc. Cient. Argent. Buenos Aires 88: 114. 1919; Moldenke, List Spec. Mold. Southeast. Set 10. 1930; Stapf, Ind. Lond. 6: 429. 1931; Perry, Ann. Mo. Bot. Gard. 20: 252, 255--256, & 355. 1933; Fern., Rhodora 40: 371 & 455. 1938; Moldenke, Annot. & Classif. List 108. 1939; Moldenke, Prelim. Alph. List Invalid Names 44, 47, & 56. 1940; Moldenke, Suppl. List Invalid Names 8. 1941; Moldenke, Lilloa 6: 324--325 (1941) and 8: 428. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 3, 5, 6, 9, 10, 15, 31, 35, 39--42, 44, 74, 80, & 101. 1942; Moldenke, Alph. List Invalid Names 45, 46, & 48. 1942; Jepson, Fl. Calif. 3 (2): 380. 1943; Moldenke, Known Geogr. Distrib. Verbenac. Suppl. 1: 2. 1943; Sampaio & Peckolt, Arquiv. Mus. Nac. Rio Jan. 37: 392. 1943;

- Moldenke, *Lilloa* 10: 345 & 382. 1944; Cabrera & Dawson, *Rev. Mus. La Plata*, ser. 2, Bot., 5: 357 & 381. 1944; Moldenke, *Castanea* 10: 37, 39, & 42. 1945; Moldenke, *Alph. List Cit.* 1: 16, 17, 21, 22, 25, 28, 41, 42, 45, 56, 76, 82, 83, 90, 93, 94, 97, 121, 127, 139, 147, 158, 171, 172, 177, 192, 196, 204, 212, 219, 221, 222, 245, 263, 282--284, 288, 289, 291, 296, & 298. 1946; Kuhlmann & Kuhn, *Flor. Dist. Ibiti* 117. 1947; Moldenke, *Alph. List Invalid Names Suppl.* 1: 22, 24, & 25. 1947; Moldenke, *Phytologia* 2: 327--329 & 332. 1947; Moldenke, *Wrightia* 1: 222. 1948; Moldenke, *Castanea* 13: 112, 115, 116, 118, & 121. 1948; Moldenke, *Alph. List Cit.* 2: 363, 364, 366, 367, 369, 374, 393, 407, 444--446, 448, 456--458, 478, 479, 489, 495, 497, 506, 517, 520, 523, 526, 527, 530, 533, 534, 551, 554, 559, 575, 584, 585, 599, 601, 602, 610, 611, 626, 628, & 632 (1948), 3: 668, 672, 679, 685, 691, 693, 705, 710, 717, 730, 738, 742, 749, 751, 755, 767, 779, 781, 782, 807, 809, 815, 837, 841, 846--848, 852, 857, 861, 863, 869, 871, 874, 875, 885, 893, 894, 899, 913, 935, 949, 955, & 966 (1949), and 4: 980, 985, 1003, 1004, 1010, 1074, 1075, 1077, 1081, 1087, 1099, 1100, 1106, 1108, 1116, 1123, 1132, 1138, 1140, 1142, 1147, 1155, 1164, 1166, 1167, 1177, 1183, 1191, 1204, 1213, 1222, 1224, 1229, 1231, 1239, 1241, 1248, 1288, 1292, 1293, 1299, 1300, & 1302. 1949; Moldenke, *Am. Wild Fls.* 293 & 450. 1949; A. L. & H. N. Moldenke, *Anal. Inst. Biol. Mex.* 20: 12. 1949; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 6--8, 10, 11, 18, 19, 23, 26, 27, 47, 61, 73, 94, 97, 99--101, 105, 122, 163, 197, & 198. 1949; Moldenke, *Phytologia* 3: 135 (1949) and 3: 288, 290, 294, & 305. 1950; Moldenke, *Revist. Sudam. Bot.* 8: 165. 1950; Fern. in A. Gray, *Man. Bot.*, ed. 8, 1209--1210 & 1612. 1950; Moldenke, *Phytologia* 3: 449, 450, & 467. 1951; Stellfeld, *Trib. Farmac. [Vellozoa]* 19 (10): 166. 1951; Moldenke in Chittenden, *Roy. Hort. Soc. Dict. Gard.* 6: 2209 & 2210. 1951; Moldenke in Gleason, *New Britton & Br. Illustr. Fl.*, pr. 1, 3: 126--128. 1952; Moldenke, *Phytologia* 4: 266 (1953) and 5: 26. 1954; Thorne, *Am. Midl. Nat.* 52: 313. 1954; Moldenke, *Inform. Mold. Set* 48 Spec. [4] (1954), 49 Spec. 3 (1954), and 51 Spec. 4. 1956; Moldenke in Humbert, *Fl. Madag.* 174: 5, 7, & 9--10, fig. I, 3 & 4. 1956; Ahles, Bell, & Radford, *Rhodora* 60: 22. 1958; Moldenke in Gleason, *New Britton & Br. Illustr. Fl.*, pr. 2, 3: 126--128. 1958; Moldenke, *Am. Midl. Nat.* 59: 334 & 346. 1958; Reitz, *Sellowia* 11: 57 & 134. 1959; Moldenke, *Résumé* 9--11, 13--15, 22, 23, 28, 32, 33, 55, 69, 84, 109, 115, 118, 119, 121, 126, 154, 156, 223, 357--360, 362, 365, 368, 369, 471, & 472. 1959; Moldenke, *Résumé Suppl.* 1: 2, 3, & 7 (1959) and 2: 3 & 12. 1960; Rennó, *Levant. Herb. Inst. Agron. Minas* 150. 1960; Angely, *Fl. Paran.* 16: 78 (1960) and 17: 46. 1961; Lewis & Oliver, *Am. Journ. Bot.* 48: 639--641. 1961; Moldenke, *Résumé Suppl.* 3: 3--5, 7, 8, 10, 14, 25, 39, & 40. 1962; J. A. Clark, *Card Ind.* issue 24. n.d.
- Illustrations: Vell., *Fl. Flum. Icon.* 1: pl. 40. 1827; Moldenke in Gleason, *New Britton & Br. Illustr. Fl.*, pr. 1, 3: 128. 1952; Moldenke in Humbert, *Fl. Madag.* 174: fig. I, 3 & 4. 1956; Moldenke in Gleason, *New Britton & Br. Illustr. Fl.*, pr. 2, 3: 128. 1958; Lewis & Oliver, *Am. Journ. Bot.* 48: 640. 1961.

Erect, robust or coarse, perennial herb, to 3.1 m. tall, often suffrutescent or woody at the base, erect; stems rigid, wiry, stout, erect, often numerous, several from the base, very acutely tetragonal, often much branched, eventually constricted or slightly subarticulate at the nodes, green, smooth, glabrous throughout or practically glabrous below and somewhat scabrous-pubescent above, the upper parts often naked, the angles sometimes prominent and white; rhizome creeping; middle stem internodes 5--20 cm. long; branches ascending or divergent-ascending, their upper parts naked; leaves varying from sessile or subsessile to short-petiolate, the petiole (if regarded as such) 0.3--1 cm. long and broadly winged; lower and middle leaf-blades oblong or elliptic to oblong-lanceolate or lanceolate, 3--19 cm. long, 1--2.3 cm. wide, shortly acute at the apex, somewhat convex along the margins, shortly and cuneately attenuate at the base and prolonged into the petiole, rather rigid, green on both surfaces, scabridous or strigillose and somewhat pustulate above with impressed venation, sparsely pubescent beneath, penninerved, more or less crenate-dentate along the margins to sharply serrate or incised, at least above the middle, the teeth 0.5--1 mm. long and 1--2 mm. apart or the uppermost 1--2 mm. long and 3--6 mm. apart; upper leaf-blades greatly narrowed, lanceolate to linear-elliptic or linear, to 1.5 cm. long and 3--5 mm. wide, entire or subentire, more or less subrevolute along the margins; secondaries 4 or 5 per side, more or less prominulous beneath, eventually impressed above, subparallel on the upper leaves; spikes cylindric and compact during anthesis, mostly short and strict, slender, 1--8 cm. long (rarely to 1¼ cm. long), densely congested and densely flowered toward the apex, not uniformly loose, 4--5 mm. wide, sometimes with the lower flowers more loosely scattered, terminately pedunculate, fastigiately paniculate toward the apex of the branches, usually sessile in open cymes, not crowded, eventually elongating; bractlets ovate-lanceolate or lanceolate to lanceolate-setaceous, about 3 mm. long, scarcely as long as or longer than the calyx or subequalling the flowers, subulate at the apex, ciliate, appressed-puberulent on the back or strigose-pubescent especially along the margins; flower-buds purplish-brown; flowers small; calyx ovate-campanulate, 2.5--3.5 (or more) mm. long, its tube 2--2.5 mm. long, somewhat shortly appressed- or strigose-pubescent on the outside (especially on the ribs), the teeth 5, short, lanceolate, usually about 0.5 mm. long, acute, the short subulate tips connivent after anthesis; corolla small or minute, varying from blue, deep-blue, dark-blue, clear-blue, blue-violet, or blue-lilac to purplish-blue, lavender-blue, lavender, purplish, pale-lilac, lilac, pale-purple, or purple, sometimes violet, pale-violet, white-violet, pinkish, pink, or red, occasionally lavender with a pale center, slightly surpassing the calyx, its tube darker, finally exserted 0.5--0.8 mm. from the calyx, short-puberulent or pubescent outside, the limb inconspicuous, about 2.5 mm. wide, the lobes 5, small, subequal, emarginate, barbate-pubescent at the throat; pistil and the 5 stamens scarcely or not at all surpassing the corolla-

mouth, usually included; cocci oblong or oblong-linear, yellowish-brown or brown, 1.5--2 mm. long, shorter than the calyx, the dorsal surface strongly striate with 5 longitudinal ribs, raised-reticulate at the apex, the entire inner face minutely papillate, with the commissural surface plane and minutely scaberulous; chromosome number: $n = 14$, $2n = 28$.

The type of this species was collected by José Mariano da Conceicao Velloso at or near Rio de Janeiro, Brazil, and is no longer available for examination, and this fact has contributed to the considerable confusion regarding the true identity of the species. Briquet proposed several species to take care of what appear to be forms of one and the same taxon, although more study is needed here to dispel all doubts. The type of his V. approximata was collected by Benedict Balansa (no. 1027c) at Assomption, Paraguay, on January 5, 1875; the type of his V. cordobensis was collected by Paul Günther Lorentz (no. 131) at Estancia Germania, Córdoba, Argentina, between June and December, 1874; and the type of V. boliviana was gathered by Gilbert Mandon (no. 524) in Bolivia. The type of V. littoralis f. angustifolia was collected by Emil Hassler (no. 3853) in a swamp near Tucangua, Paraguay, in February, and is deposited in the Delessert Herbarium at the Conservatoire et Jardin Botaniques at Geneva, as are also the types of the other names referred to above. V. bonariensis var. veris is based on Teodoro Rojas 1045 from near San Bernardino, Paraguay, collected in February, 1915, and deposited in the herbarium of the Museo de Historia Natural at Montevideo.

The V. cordobensis form of the species is characterized by greatly elongate spikes, and is well represented by Morong 128 from Paraguay and by Ruiz Leal 8398 from Argentina. The short-spiked more typical form of the species is well represented by Barros Valenzuela 8045 from Chile and by a whole series of Argentinian specimens, including Cuezco 1290 and 2210, Luna Risso 935, and Villafañe 794, 917, and 970. The type of V. officinalis var. gracibras Lehm. is Jørgensen 3767 from Paraguay, deposited in the Dudley Herbarium at Stanford University.

Verbena brasiliensis, as interpreted by me, is a widespread species, native from Colombia and Brazil south through Peru, Bolivia, Paraguay, and Uruguay to Chile and Argentina, but widely introduced and naturalized in the United States from Virginia to Florida and along the Gulf coast to Texas, as well as in Oregon and California, Jamaica, South Africa, and Madagascar. It is cultivated in Brazil, Uruguay, Belgium, and Maryland, having been introduced into cultivation in 1904. It may be distinguished from V. bonariensis by its leaves being cuneate-attenuate to the sessile or subpetiolar base, not cordate nor amplexicaul as in V. bonariensis. Cabrera & Dawson (1944) call it a hemicryptophyte frequent in wet soil in Bolivia, Paraguay, Uruguay, and northern Argentina. Kuhlmann & Kuhn (1947) refer to it as a nomophyte.

Schauer (1851) divides his V. litoralis H.B.K. into two varieties [he calls them "forma"]. The first of these, α pycnostachya, he characterizes as "spicis virgineis densioribus subcylindricis" and to it he brings the V. litoralis H.B.K., V. brasiliensis Vell., V. bonariensis β litoralis Hook., and V. glabrata H.B.K. as synonyms. His second variety, β leptostachya, he characterizes as "spicis jam virgineis magis filiformibus, dein saepius valde elongatis et relaxatis" and to it he brings V. caracasana H.B.K. and V. lanceolata Willd. as synonyms. He notes "Forma umbrosa, plerumque magis glabrata, spicis pube appressa subcanescentibus. Varietates ceryis limitibus haud circumscribendae crebris modificationibus intermediis invicem transeuntes." He says also "Utraque forma vulgaris in campis Brasiliae meridionalis, e. gr. in prov. Sebastianopolitana circa urbem; Harrison, Gardner, Lhotsky, Sellow, Ackermann, Mart. (Herb. Fl. Bras. n. 1033), Guillemain, Vauthier (n. 192), Lund; in prov. Minarum: Riedel, Raben, Regnell (n. 326). Forma α etiam provenit in Bonaria, Chile, Peruvia, Colombia, Venezuela: — forma β in Mexico, Venezuela, Guiana." I regard V. litoralis, V. brasiliensis, and V. glabrata, as well as V. bonariensis, as separate species, albeit often with what appear to be intermediate forms (which may represent natural hybrids).

Concerning his V. approximata Briquet says: "Cette espèce est très voisine du V. litoralis et n'est pas facile à en distinguer quand les feuilles inférieures manquent. Le V. litoralis possède des feuilles inférieures moins oblongues, grossièrement et irrégulièrement incisées-dentées, tandis qu'elles sont régulièrement et finement crénelées-dentées dans le V. approximata. En outre, ce dernier a des tiges à angles plus aigus, presque subaillés grâce au sillonnement des faces, et des feuilles inférieures plus allongées étroitement linéaires, plus raides. L'inflorescence et les caractères floraux sont tout à fait ceux du V. litoralis var. brasiliensis." Concerning his V. cordobensis he says: "Cette espèce est rapportée par Grisebach dans l'exsiccata citée au V. ephedroides Cham. Mais ce dernier type, spécial au Brésil méridional et à l'Uruguay, en diffère abondamment par ses feuilles toutes réduites à de petits phyllomes linéaires très courts ou à des écailles, ses tiges bien moins robustes, à angles moins tranchants et moins saillants, à rameaux fastigiés, ramassés, ses épis très courts densiflores, ses calices oblongs dépassant sensiblement les bractées. Le V. cordobensis est plus voisin des V. littoralis et V. Isabellei par l'ensemble de son organisation; c'est cependant, dans ce dernier groupe, l'espèce qui se rapproche le plus des Junciformes."

Collectors state that V. brasiliensis is found along ditches, roadsides, and waysides, railroad tracks and low pastures, disturbed soil, between sugarcane fields, in and near cultivated ground, in wet uncultivated ground and fields, marshy and swampy

places, on ballast dumps and ballast ground, riverbanks, levees, and open rocky hillsides, in moist spots along watercourses and irrigation ditches, the edges of fields, in shallow pools on prairies, in shady places, pinelands, flax fields, roadside swales, marshes, fields, swampy meadows, irrigated fields, swampy lowlands, dry sandy or waste ground, swamps, rocky fields, and coastal prairies, in open woods or open places in woods, campos, batture, vacant lots and waste places in general, moist valley land and coastal areas, the sandy clay of road embankments, limestone soil at the edge of montes, black soil, open hillsides, and even subparamos. It is perhaps most characteristic of wet places. In Brazil it has been collected from sea-level to 900 m. altitude, in Arkansas at 300 feet, in California from 80 to 700 feet, in South Africa from 4200 to 5500 feet, in Bolivia from 6500 to 12,000 feet, in Chile from 200 to 1200 meters, in Argentina from 460 to 1620 meters, in Mexico from 1000 to 2000 meters, in Peru from 1000 to 3700 meters, and in Colombia from 1700 to 3250 meters. It has been collected in anthesis during every month of the year, and in fruit from April to December and in February. In the United States it blooms throughout the year, but mostly from April to September.

In Louisiana Ewan describes it as "common in grassy places" and "a tall rank weed along battures", while Ashbey says it is "frequent in cane fields" and "frequent in drainage ditches" and that it occurs mixed with Ambrina ambrosioides in sugarcane fields and along ditch banks. Demaree avers that it is "very common all along the coast in Mississippi. In Texas it was found by Gould in partial shade along roads through pine forests, while in California it is common in large clumps along roadsides in Yuba County according to Raven, is locally common in low ground in Butte County according to Howell, is found on ditch banks in irrigated pasture areas in San Joaquin County according to Crampton and occurs in light-colored clay-like soil on roadcut slopes in Eldorado County according to the same collector, who also refers to it as a "weed in vacant lots" in Sacramento County. Howell reports it as a "roadside weed" in Stanislaus County. This collector's no. 30055, by the way, is said to be from the type region of V. hansenii Greene. Feddema says that the species is common in wet meadows in loam soil exposed to the sun in Nayarit and in grasslands with occasional shrubs on moist clay loam in open sun in Michoacán.

In the Transvaal it occurs in mountainous areas with many springs and streams, some wooded and some grassy areas, on basically dolomites and limestone covered with deep humus in many places, according to Rodin.

Collectors in South Carolina report it there from waste ground, roadsides, railroad yards and rights-of-way, warehouse areas, creek bottom woods, fields, swamp forests and forest margins, and in sandy marl along waterways. In Alabama it has been found along roadsides and on old Amerind shell mounds. Kral & Redfearn say that it is "rare on wet sandy-peat of pondshores" in Florida. In

North Carolina collectors have found it along railroads and at railway stations, in waste places, about homesites, along roadsides, and on savannas.

The G. L. Fisher 48132 at Göteborg, cited below, is definitely V. brasiliensis!

Perry states that this is "A species very similar in habit to V. litoralis, but readily distinguished by the differences in inflorescence. The spikes of V. brasiliensis are short, compact, sessile, and regularly arranged in open cymes, whereas those of V. litoralis are longer, compact or somewhat elongate, peduncled, and arranged in more or less paniculate cymes."

Common names recorded for V. brasiliensis include "Brazilian vervain", "camaradinha", "erva de pai caetano", "formosa sem dote", "herva do pae caetano", "jurupeba", "oi", "quininha", and "verbena". The last-mentioned, however, is applied also to the genus as a whole, as well as to V. bonariensis L., V. bracteata Lag. & Rodr., V. corymbosa Ruiz & Pav., V. hastata L., xV. hybrida Voss, V. litoralis H.B.K., V. officinalis L., V. peruviana (L.) Britton, V. platensis Spreng., V. stricta Vent., V. urticifolia L., Bouchea prismatica (L.) Kuntze and its var. longirostra Grenz., Clerodendrum fragrans var. pleniflorum Schau., Priva lappulacea (L.) Pers., Stachytarpheta calderonii Moldenke, S. cayennensis (L. C. Rich.) Vahl, S. frantzii Polak., S. guatemalensis Moldenke, and S. jamaicensis (L.) Vahl.

Sampaio & Peckolt (1943) reduce V. brasiliensis to synonymy under V. litoralis, as do also Hooker & Jackson in the "Index Kewensis" (1895), while Schauer (1847) reduces it to a mere variety of V. litoralis. The two species are, however, reasonably distinct. The following brief key will help to distinguish V. brasiliensis from its immediate relatives:

1. Leaves sessile, clasping at the base.
 2. Leaves small, 2--4.5 cm. long, 3--8 mm. wide, subcoriaceous, serrate at the apex only or entire; pubescence on rachis, bractlets, and calyx glandulose.....V. intermedia.
 - 2a. Leaves large, 5--10 cm. long, 5--22 mm. wide, coarsely serrate from base to apex, membranous; pubescence on rachis, bractlets, and calyx not glandulose.....V. bonariensis.
 - 1a. Leaves distinctly petiolate or cuneately attenuate to a subpetiolar base.
 3. Inflorescence lax, elongate; flowers distant; pubescence on rachis, bractlets, and calyx very minute and closely appressed.....V. litoralis.
 - 3a. Inflorescence dense, contracted; flowers mostly closely congested; pubescence on rachis, bractlets, and calyx spreading.....V. brasiliensis.

Glaziou (1911) calls his no. 14162 "Verbena littoralis H.B.K." and 14162a "V. intermedia Gill. & Hook.", but the former of these numbers is herein cited as V. brasiliensis. Villafañe describes

the flowers on his no. 970 as "amarilla", but this must surely be an error. The printed label for the Congdon s.n. [Sept. 2nd 1903] collection cited below is inscribed "Plants of Mariposa Co.", but Bouldin Island is located at the mouth of the San Joaquin River in San Joaquin County, California. Killip & Garcia on the label of their no. 33849 report that the species is used in the treatment of typhoid fever in Colombia, but this collection looks very strange -- it is very leafy, like some forms of V. glabrata H.B.K., yet its inflorescences are very pubescent. Hammarlund 631 has much of the aspect of V. parvula Hayek and may prove to be that species. Tate 206, from an altitude of 12,000 feet at Pongo, Bolivia, may prove to be V. hispida Ruiz & Pav. The Sprague s.n. specimen in the Kew herbarium is anomalous and may actually prove to represent V. litoralis var. caracasana (H.B.K.) Briq. Lutz 1185 is a mixture with V. litoralis, while Worth & Morrison 16498 is a mixture with V. bonariensis L.

Glaziou (1911) identifies his no. 356 as V. bonariensis, but it is actually V. brasiliensis. Specimens of this species have also been misidentified and distributed in herbaria as V. angustifolia Michx., V. bonariensis L., V. bonariensis var. brevibracteata Kuntze, V. bonariensis var. longibracteata Kuntze, V. ephedroides Cham., V. hastata L., V. hispida Ruiz & Pav., V. intermedia Gill. & Hook., V. isabellei Briq., V. litoralis H.B.K., V. litoralis Kunth, V. litoralis var. caracasana Briq., V. litoralis var. caracasana (H.B.K.) Briq., V. litoralis var. caracasana Kunth, V. littoralis H.B.K., V. officinalis L., V. officinalis var. gracilescens Kuntze, V. polystachya H.B.K., V. stricta Vent., V. venosa Gill. & Hook., and even Verbesina occidentalis Walt. On the other hand, the Hassler 7064, distributed as V. approximata, and the Hassler 6685, distributed as V. litoralis var. brasiliensis Briq., are both V. montevidensis Spreng.

Demaree states that "a large field develops in less than 5 years" in Arkansas; Ahles, in Alabama, found the species very abundant along railroad tracks and on dry savannas. In Mississippi Demaree found it "very common all along the coast", while Bailey calls it "a common weed" in Louisiana. In Texas it grows abundantly in black soil according to Warnock. Smyth affirms that in Peru it is the "common tall verbena of the valley, common along railroad tracks and between cane fields." In Minas Gerais, Brazil, it is said by Irwin to be found "in red clay soil, common especially in waste places"; Lutz found it "abundant" in Rio de Janeiro, and Bailey refers to it as a "weed" in the same state. According to Rosengurtt it is "common in swamps and fields" in Uruguay. Hunziker refers to it as "rare" at La Vña, Salta, and Pedersen says that it is "not common on wet sandy soil" in Corrientes, Argentina. Miss Mexia reports it as "common and widespread in hedgerows and cultivated fields" in Minas Gerais. In Chile, Elliot

says it is "eaten by cattle". Bryant tells us that in the Cape of Good Hope it is a "large regular but open growing bush 3 feet high and several feet in circumference." Fasciation is seen on Barros Valenzuela 8002 in the Britton Herbarium at New York. The Sprague s.n., cited hereinafter as from Meta, Colombia, may well have been collected in Cundinamarca -- its label merely states "between Villavicencio and Bogotá". The surname of the collector, Freyreiss, is misspelled "Freyreis" on some Stockholm sheets.

Illustrative of the difficulty of identification attending some specimens of this species is Rojas 1045 -- this specimen was originally named V. bonariensis by the collector; then as V. bonariensis var. brevibracteata by Hassler; then as V. littoralis by Osten, and finally as V. bonariensis var. veris, also by Hassler. Sanzin 274 was identified as V. littoralis by Hauman, Rojas 1887 as "V. littoralis Kunth vel affinis" by E. Almquist, and Herb. Osten 18497 as "V. littoralis Kth. ad V. bonariensem L. spectans" by Osten.

It is of interest to note that Small (1933) recorded the species from only Louisiana; Fernald (1950) extended the range in the United States from "Fla. to La. and n. to se. Va.", while in 1952 I further extended it to include Arkansas and southern California. This is apparently an index to the rate with which it is spreading in the United States.

Briquet (1904) cites Hassler 1027b and 1027d from Paraguay and Regnell A.475 1/2, A.3647, and A.3651 from Brazil. Fernald (1938) records the species from Warwick County, Virginia, while Kuhlmann & Kuhn (1947) cite M. Kuhlmann 66 from São Paulo, Brazil. Ahles, Bell, & Radford (1958) cite Bell 2520 from Beaufort County, South Carolina.

Perry (1933) cites the following 28 additional specimens not as yet seen by me: NORTH CAROLINA: New Hanover Co.: Randolph 1004 (G); J. K. Small 5707 (E, G). GEORGIA: Chatham Co.: Kolthoff s.n. [27 May 1927] (W). FLORIDA: Escambia Co.: Curtiss 6490 (E, G, W); S. M. Tracy 8706 [E, F, G, W]. Washington Co.: F. S. Blanton 6598 (E, W). ALABAMA: Mobile Co.: C. T. Mohr s.n. [4 July 1893] (W). LOUISIANA: Plaquemines Par.: Lloyd & Tracy 20 (E, F, G, W). By error she cites the Louisiana specimens under Alabama. What she cites as "Small 5707" seems to be Herb. Biltmore 5707, at least in the Britton Herbarium at New York, as well as in the University of North Carolina Herbarium.

In all, I have examined 513 herbarium specimens, including the type collections of many of the names involved, and 4 mounted photographs.

Citations: VIRGINIA: Warwick Co.: Fernald & Long 7585 (N). NORTH CAROLINA: Bertie Co.: Ahles & Duke 46161 (Hi--121529). Bladen Co.: Ahles & Haesloop 29296 (Hi--104730). Brunswick Co.: C. R. Bell 13163 (Hi--121530); Fox & Godfrey 2823 (N, No--19606); A. A. Heller 14065 (Du--157392, Se--85940). Buncombe Co.: Biltmore Herb.

1089b (Up--11832). Columbus Co.: C. R. Bell 12800 (Hi--110659).
 Jones Co.: Radford 37242 (Hi--104728). New Hanover Co.: C. R. Bell
 12874 (Hi--110660); Biltmore Herb. 5707 (Hi--59468, N, N); Blom-
quist 4711 (H--19220), s.n. [Aug. 15, 1930] (Ob--70515); Randolph
& Randolph 1004 (Ba); P. O. Schallert s.n. [Wilmington, 5-31-37]
 (Mn--29556, Sd--25691, Tr--19773, Vt); A. W. Totten s.n. [Fort
 Fisher, Sept. 29, 1935] (Hi--59487). Northampton Co.: Fox, Boyce,
& Moreland 2097 (N); Fox & Godfrey 2279 (N). Onslow Co.: Ahles &
Haesloop 28262 (Hi--104862). Pender Co.: Ahles & Haesloop 28062
 (Hi--104861); Coker & Totten s.n. [July 17, 1932] (Hi--59482).
 Robeson Co.: Britt 2114 (Hi--177879). Scotland Co.: Ahles & Haes-
loop 28803 (Hi--104876). Union Co.: Ahles & Haesloop 27637 (Hi--
 104877). Wilson Co.: Radford 35706 (Hi--104878). SOUTH CAROLINA:
 Allendale Co.: C. R. Bell 3975 (Hi--92962). Bamberg Co.: Ahles &
Haesloop 25938 (Hi--104732, Hi--104733). Beaufort Co.: C. R. Bell
 2523 (Hi--92749). Berkeley Co.: Ahles & Haesloop 26670 (Hi--
 104731). Calhoun Co.: Ahles & Haesloop 25540 (St), 30276 (Hi--
 104729). Cherokee Co.: Ahles & Haesloop 26978 (Hi--164727); O. M.
Freeman 56425 (Hi--92724). Chester Co.: O. M. Freeman 56406 (Hi--
 92933). Clarendon Co.: Radford 24392 (Hi--92911). Dillon Co.:
Ahles & Haesloop 27677 (Hi--104865). Florence Co.: C. R. Bell
 7486 (Hi--92852). Greenwood Co.: Radford 22964 (Hi--92912). Hamp-
 ton Co.: C. R. Bell 2595 (Hi--92750). Horry Co.: C. R. Bell 7710
 (Hi--92913). Lancaster Co.: Ahles & Haesloop 27233 (Hi--104864).
 Lee Co.: Radford 24184 (Hi--92915). Lexington Co.: Radford 23392
 (Hi--92914). Marion Co.: C. R. Bell 6409 (Hi--92916). Marlboro
 Co.: Radford 15482 (Hi--92934). Newberry Co.: C. R. Bell 9820
 (Hi--92853). Orangeburg Co.: Ahles & Haesloop 25203 (Hi--104863).
 Richland Co.: C. R. Bell 16326 (Hi--180053). Sumter Co.: O. M.
Freeman 56809 (Hi--92935). Union Co.: O. M. Freeman 56402 (Hi--
 92856). Williamsburg Co.: Radford 21419 (Hi--92917). GEORGIA::
 Chatham Co.: D. E. Eyles 7339 (Sz); Kolthoff s.n. [27 May 1927]
 (S); Miller & Maguire 1260 (Ua--16575). Glynn Co.: H. N. Molden-
ke 1184 (E, Go, H--5461, N, S, Up, Ur); Pyron & McVaugh 1424
 (Gu--13995). FLORIDA: Escambia Co.: Curtiss 6490 (Ca--104820,
 Io--38750, N, Ur, Vt); Gander 7673 (Sd--25560); S. M. Tracy 8706
 (N, Tr, Up--50342). Holmes Co.: Kral & Redfearn 2875 (Hi--
 111315). Leon Co.: R. K. Godfrey 53362 (Hi--155440, N). Taylor
 Co.: R. K. Godfrey 55781 (N). Washington Co.: F. S. Blanton 6598
 (Ba, En, I, N, Po--215350, Um--22); O'Neill 6598 (N). ALABAMA:
 Escambia Co.: Ahles 7030 (Ur), 7158 (Ur); O. Blanton 114 (I).
 Mobile Co.: Demaree 33639 (Cb, Ss); Diener 637 (Tl); Shinners
 11584 (No--21011). Sumter Co.: S. B. Jones s.n. [3 July '60]
 (Hi--210902). Dauphin Island: S. B. Jones 602 (Hi--210617). MIS-

MISSISSIPPI: Forrest Co.: F. H. Sargent s.n. [Hattiesburg, Sept. 7, 1932] (N). Hancock Co.: Demaree 29590 (N), 32987 (Le). Harrison Co.: Demaree 28385 (N), 29009 (N, Ok, St), 31897 (Le). Jones Co.: W. H. Rhoades s.n. [near Laurel, Sept. 1940] (N). Lee Co.: J. D. Ray 5871 (Hi--199698, N); B. Shelton 85 (St). Pine Co.: J. D. Ray 5434 (N). County undetermined: W. H. Rhoades s.n. [9-1940] (Bt--61223). LOUISIANA: Ascension Par.: Ashbey 42 (Tl), 92 (Tl). Assumption Par.: Perkins & Hall 2621 (Po--256899). East Baton Rouge Par.: C. A. Brown 1008 (N). Jackson Par.: Shinners 24016 (Ur). Jefferson Par.: H. P. Riley s.n. [Barataria, Apr. 27, 1937] (Or--44063). Lafayette Par.: Perkins & Hall 2622 (Um--25). Lafourche Par.: Ashbey 16 (Tl). Orleans Par.: L. H. Bailey 7324 (Ba); Cocks s.n. [May 1901] (Tl), s.n. [New Orleans] (Tl); Ewan 18738 (Tl); Langman 1940 (Up); H. P. Riley s.n. [Apr. 20, 1937] (En, Se--47522), s.n. [Apr. 25, 1937] (Se--47524); E. Wall 5 (Go), s.n. [New Orleans, 10/5/31] (Ew). Plaquemines Par.: Ewan 17474 (Au--121754); Lloyd & Tracy 20 (N); Tracy & Lloyd 20 (Cm). Saint Bernard Par.: Demaree 13493 (W--1699223). Saint Charles Par.: Ewan 17707 (Tl). Saint John the Baptist Par.: Ashbey 1a (Tl), 74 (Tl). Saint Martin Par.: S. W. Hutchinson 7878, in part (En). Saint Tammany Par.: T. F. Hall s.n. [April 30, 1939] (Tl). Tensas Par.: J. F. Brenckle 40180 (N). Terrebonne Par.: Arceneaux 394 (It); Ashbey 65 (Tl); Bynum, Ingram, & Jayres s.n. [Houma, April 23, 1923] (N); W. H. Rhoades s.n. [Houma, August 1936] (Bt--71463, Hs, N); Wurzlow s.n. [Houma, May 29, 1914] (N, N). Vermillion Par.: Ashbey 114, in part (Tl); Constantin 46 (Hi--188555). ARKANSAS: Chicot Co.: Demaree 25689 (Sm). Cleveland Co.: Demaree 23329 (Sm). Saint Francis Co.: Demaree 15103 (Gg--267610, Ok). TEXAS: Hardin Co.: C. L. Lundell 14083 (N). Harris Co.: Fitzgerald 8c (Bl--42347), 85 (Bl--42345); W. H. Lewis 5301 (Nb). Jefferson Co.: J. F. Brenckle 48073 (N); G. L. Fisher 51042 (Go); Harold Gentry 53-230 (Au--121743); C. L. Lundell 14136 (N). Liberty Co.: F. W. Gould 6925 (Au--121746). Orange Co.: Cory 50840 (N, Sm); G. L. Fisher 48132 (Go). Wharton Co.: Warnock 46420 (Au, N, Or--55399, S, Vi). OREGON: Multnomah Co.: Suksdorf 1980 (Pl--138401). CALIFORNIA: Amador Co.: J. T. Howell 29996 (Gg--338069), 30055 (Gg). Butte Co.: W. Anderson s.n. [Gridley, Oct. 1959] (Gg); J. T. Howell 30519 (Gg), 34611 (Gg). Eldorado Co.: Crampton 2020 (Gg--388055). Nevada Co.: M. S. Baker 9971 (N). Sacramento Co.: Crampton 2228 (Gg--389520, Gg--389573). San Joaquin Co.: Crampton 2260 (Gg--389519, Gg--389572), 2260a (Gg--390129). Solano Co.: Rattan s.n. [Wallace, Rio Vista] (Du--10001). Stanislaus Co.: Hoover 93 (Ca, Ca--767079); J. T. Howell 29912 (Gg--388070), 30107 (Gg), 32697 (Gg--

409322); Nobs & Smith 206 (Gg--417904); Wiggins 14369 (Du--409390, N). Sutter Co.: Everett & Balls 23904 (Hi--198835); Mason & Grant 13039 (Ca--192057). Yuba Co.: Crampton 4133 (Gg), 4134 (Gg); Raven 8080 (Gg); L. S. Rose 39200 (Al, Bt--51937, Ca--882583, I, Mi); C. B. Wolf 1437 (Ba, Du--231426). Bouldin Island [San Joaquin Co.]: Congdon s.n. [Sept. 2nd, 1903] (Ca, Ca--138821). MEXICO: Michoacán: Feddema 23 (Mi). Nayarit: Feddema 583 (Mi). JAMAICA: Orcutt 2736 (Du--206013). COLOMBIA: Caldas: Dryander 2751 (N). Cundinamarca: V. Grant 7352 (W--1802322). Huila: Pérez Arbeláez & Cuatrecasas 8361 (Jc). Meta: T. A. Sprague s.n. [between Villavicencio and Bogotá] (K). Santander: Killip & Smith 17340 (N). Valle del Cauca: Killip & García 33849 (W--1770719). PERU: Cajamarca: Woytkowski 1751 (N). Cuzco: Hammarlund 631 (S). Huánuco: Sandeman 3486 (K). Junín: A. S. Kalenborn 160 (Du--103207); Kalenborn & Kalenborn 160 (N); Ochoa 121 (N). La Libertad: Ochoa 1444 (N); Smyth 6 (N). Lima: Ellenberg 13 (Ut--115378b). BRAZIL: Federal District: Harrison s.n. (Br); B. Lutz 578 (Ja--24126), s.n. [Rio de Janeiro, May 1926] (Ja--15901), s.n. (Ja--46519); Moldenke & Moldenke 19591 (N). Minas Gerais: Ackermann 2831 (Br); Bailey & Bailey 1212 (Ba); J. F. de Castro 43 (Sp--31291); P. Clausen s.n. [Aug.-April 1840] (Br); Heringer s.n. [Herb. Esc. Agr. Lavras 283; Lavras, Nov. 8, 1939] (N, Sp--42464); Irwin 2116 (N, W--2281271); Macedo 2889 (N); Mello Barreto 8140 [Herb. Jard. Bot. Bello Horiz. 23376] (N); Mello Mattos s.n. [Itabira do Campo, June 1902] (Ja--46555); Mexia 5275 (Gg--286630, Go, I, Mi, N, S, Vi); Regnell I.326 [Nov. 19, 1864] (Ja--14845), II.210 [7-1-1874] (S), s.n. [Caldas, 1864; Herb. Rio de Jan. 14845] (N); Sampaio 138 (Ja--46499), 244 (Ja--46500), 5971 (Ja--46509), 6006 (Ja--46510), 6023 (Ja--46511); Widgren 1211 (Br), s.n. [1845] (Lu, N, S); L. O. Williams 5002 (G, N). Paraná: Dusén 14320 (S), s.n. [Herb. Rio de Jan. 31553] (N); Hatschbach 3749 (Sm), 3753 (Sm); R. B. Lange 1110 [Hatschbach 4757] (Sm); Moure 989 [Herb. Mus. Paran. 1879] (Mp); Stellfeld 1288 [Herb. Mus. Paran. 2538] (N). Rio de Janeiro: Ackermann 1033 (Br, Br); N. J. Andersson s.n. [1851] (Lu, S, W--1323145); Bailey & Bailey 569 (Ba); Dusén s.n. [Rio de Janeiro, Julio] (La); Glaziou 356 (Br, Br), 14162 (Br, N); P. P. Horta Laclette s.n. [Ipiabas, Feb. 1943] (Ja--37435); B. Lutz 1185, in part (N), s.n. [Herb. Rio Jan. 24126] (N); Raben 521 (Br), 522 (Br); Sampaio 72 (Ja--46498), 1980 (Ja--46502), 3899 (Ja--46506), 7924 (Ja--46518); J. Vidal s.n. [Maticá, March 24--26, 1943] (Ja--39278); Warming s.n. [Rio de Janeiro] (S). Rio Grande do Sul: Reineck & Czermak 63 (S); Sehnem 4470 (B). Santa Catarina:

Reitz C.821 (Le); Reitz & Klein 292 (N), 1206 (Gg, Sm). São Paulo: Brade 5737 (Sp--6729); Campos Novaes s.n. [Campinas] (Sp--1977); Campos Porto 36 (Sp--15730); A. Carvalho 190 (Ba); Costa & Viégas s.n. [Herb. Inst. Agron. Est. 234] (N, Sp--31016); Edwall s.n. [Pirituba, Oct. 30, 1893; Herb. Comm. Geogr. & Geol. 654] (Sp--15728); Emelen 121 (Sp--28929); Freire & Azevedo s.n. [Herb. Rio Jan. 31561] (N); Hashimoto 42 [Herb. Jard. Bot. Rio Jan. 42711] (N), 285 (Sp--42920); F. C. Hoehne s.n. [Alto de Serra, Jan. 10, 1919] (Sp--3035); W. Hoehne 242 (N); Leite 3725 (El); Löfgren s.n. [Sorocaba, May 25, 1887; Herb. Comm. Geogr. & Geol. 251] (N, Sp--15714); Moldenke & Moldenke 19667 (Es, Lg, Mg, N, Ot, Sm); Pickel 4320 (Sp--40189), 5459 (N); Russel 27 (Sp--20060); Usteri s.n. [Barra Funda, Oct. 24, 1905] (N, Sp--15733); Venâncio 2018 (Hk). State undetermined: Freyreiss s.n. [e Brasilia] (S); G. Gardner 233 (N); Martius 1033 (M); Sampaio 3894 (Ja--46504), 3896 (Ja--46505); Siebeking 6 (S). BOLIVIA: Cochabamba: Kuntze s.n. [Cochabamba, III.92] (N). La Paz: Asplund 444 (S, Us), 812 (Us), 1259 (S, Us), 1564 (S); M. Bang 8, in part (Pa), 136 (C, Ka, Pa); Buchtien 136 (V), 310 (N), 354 (V); G. H. H. Tate 206 (N). Tarija: Pflanz 2021 (W--1234313); Steinbach 1630 (N). Province undetermined: G. H. H. Tate 865 [Okara to Ancoma] (N). PARAGUAY: Hassler 3135 (Ca--944362), 3853 (N, N), 4887 [Macbride photos 24679] (Kr--photo, N, N--photo), 11539 (S, W--1056970); Jørgensen 3767, in part [Herb. Osten 22248] (N, N, S, Ug); Morong 128 (C); Ponder s.n. [Asuncion] (Je--7614); T. Rojas 1045 [Hassler 2409; Herb. Hicken 45; Herb. Osten 7538] (N, Ug), 1877 [Herb. Hort. Parag. 10069; Herb. Osten 13562] (S, Ug), 1887 [Herb. Hort. Parag. 10072; Herb. Osten 13557] (Ug), 2522 [Herb. Osten 18180] (N, Ug). URUGUAY: Berro 8471 (N); Cabrera 3890 (N); Gallinal, Aragon, Bergalli, Campal, & Rosengurt B.765 1/3 (M1, N); Herter s.n. [Herb. Osten 18497] (Ug); Kuntze s.n. [Montevideo, 7/12/1891] (N); Osten 4293 (Ug), 22921 (S, Ug); Rosengurt B.865 (N), B.3364 (N). CHILE: Colchagua: Barros Valenzuela 8047 (N). Concepcion: Barros Valenzuela 8045 (N); Junge 2323 (Ba); Scott Elliot 77 (N, Pr). Coquimbo: Barros Valenzuela 8002 (N); Looser 4219 (N); Worth & Morrison 16380 (Ca--629836), 16498, in part (Ca--631730). Curicó: Barros Valenzuela 8051 (N), 8227 (N), 8228 (N), 8229 (N). Malleco: Kunkel 270 (Sm). Santiago: Looser 4381 (N); Moldenke & Moldenke 19760 (Es, Lg, N); Pählman s.n. [Los Nogales, 28/1/1913] (Lu). Valdivia: Hollermayer s.n. [Werdermann 1362] (Gg--149904, Ut--91273). Valparaiso: Behn s.n. [14 Dec. 1930] (Ca--446698). Province undetermined: Guzman 22 [Herb. Mus. Nac. Hist. Nat. Chile 59934] (N). ARGENTINA: Buenos Aires: R. Alvarez 190 (S), 228 (Ca--166257), 311 (S), 503 (S); Aurelius s.



Moldenke, Harold N. 1962. "Materials toward a monograph of the genus *Verbena*. V." *Phytologia* 8, 274–323.

View This Item Online: <https://www.biodiversitylibrary.org/item/50818>

Permalink: <https://www.biodiversitylibrary.org/partpdf/96792>

Holding Institution

Missouri Botanical Garden, Peter H. Raven Library

Sponsored by

Missouri Botanical Garden

Copyright & Reuse

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: Phytologia

License: <http://creativecommons.org/licenses/by-nc-sa/3.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.