

PLATE 351. *ASTER SUBULATUS* Michx., var. *EUROAUSTER*, n. var.: FIG. 1, portion of flowering plant, $\times 1$, from North Landing, Norfolk Co., Virginia, Fernald & Griscom, no. 2919 (TYPE); FIG. 3, heads, $\times 2$, from TYPE.

A. SUBULATUS (typical): FIG. 2, heads, $\times 2$, from Scituate, Massachusetts, September 6, 1896. *E. F. Williams*.

ADDITIONAL NOTES ON THE FLORA OF COLUMBIA, MISSOURI

FRANCIS DROUET

DURING the past season, study in the flora of Columbia, Missouri, has been continued; and many of the older collections by Daniels (Univ. Mo. Stud. Sci. Ser. 1(2). 1907), Rickett (Univ. Mo. Stud. 6(1). 1931), and their associates have been carefully reviewed. In the course of the field work, an attempt has been made to visit the intermediate and outlying parts of the region from which specimens have not before been recorded. If the field study proceeds at the rate it has assumed the past year, it may safely be predicted that the entire region will require examination during all seasons of the year for at least five more years before we can generalize as to the abundance or rarity of individuals or of species. A number of species reported by Tracy (Mo. State Hort. Soc. Rep. 1885, appendix. 1886) and by Daniels¹ but not substantiated by specimens in the Herbarium of the University of Missouri (or elsewhere, according to our present knowledge) have been restored to the known flora in the lists in my previous notes (*RHODORA* 35: 359 ff. 1933) and in the present paper.

Collections made in September, 1933, indicate that in certain portions of southern Boone and Callaway Counties not covered by the Memphis silt loam (brown loess) many species found otherwise in Missouri only in the Ozarks may be encountered. *Bumelia lanuginosa*, *Cunila origanoides*, *Solidago petiolaris* var. *Wardii*, *Aster patens*, and others were found in an afternoon about Claysville. Spring and summer collecting may discover more of such "Ozarkian" species new or "lost" to the flora, perhaps among them the once collected *Erythronium americanum* and *Castilleja coccinea*. On the

¹ We must recognize the fact that Dr. Francis Daniels possessed a considerable knowledge of the flora of the northeastern States and discriminated carefully among the specific entities represented on his herbarium sheets, though we at present disagree with much of his nomenclature and many of his identifications. It may well be noted here that his accumulation of specimens, most of which were of his own collecting, comprises almost half of our present herbarium.

railroad tracks north of Browns Station and Hallsville, where the original prairie vegetation is partially preserved in the right-of-way, *Lespedeza capitata*, *Cornus racemosa*, *Boltonia latisquama*, and *Helianthus rigidus* were found to be abundant. These areas, with the Perche Creek valley near Harrisburg and the great unknown north-western and eastern parts of the Columbia region, offer almost untouched collecting-grounds for future students of the local flora.

Mr. Lisle Jeffrey has been a tireless collector and critic during the past season's work. Mr. B. F. Bush, Dr. J. A. Steyermark, and Mr. E. J. Palmer have seen and given opinions on many of the specimens cited below; and I am grateful to them for their suggestions. Dr. L. H. Bailey reviewed the collections of *Vitis* and *Rubus*. Dr. R. C. Friesner looked over certain of the goldenrods. I am indebted also to Dr. W. E. Maneval, Mr. A. A. Jeffrey, and many others for specimens and invaluable criticism.

In the list below, the species collected and reported in the region for the first time are marked by an asterisk (*).

ADIANTUM CAPILLUS-VENERIS L. A fragmentary specimen marked "Columbia, Mo." in the G. C. Broadhead Herbarium, Mo. Bot. Gard. Cited by Pinkerton, Ann. Mo. Bot. Gard. 20: 46, fig. 2. 1933.

ATHYRIUM ASPLENIODES (Michx.) Desv. *Asplenium Filix-femina* of Gray's Manual, 7th ed., in part. See RHODORA 21: 179. 1919. A single frond marked "From bed, Columbia, Mo.," also in the Broadhead Herbarium, Mo. Bot. Gard. Cited by Palmer and Steyermark, Amer. Fern Jour. 22: 114, and by Pinkerton, *loc. cit.* Whether or not the specimen was taken from a cultivated plant is uncertain.

THELYPTERIS HEXAGONOPTERA (Michx.) Weatherby. *Phegopteris hexagonoptera* (Michx.) Fée. See RHODORA 21: 179. 1919. On shady loess banks at a salt lick one mile north of Highway 40 just west of the M. K. & T. Railroad bridge, Howard Co., Drouet 432, May 30, 1933.

*OSMUNDA CLAYTONIANA L. A few plants were discovered by Mr. Jeffrey and Dr. Steyermark on wooded banks near the sandstone bluffs of Hinkson Creek, Jeffrey 248, Sept. 6, 1933.

ALISMA PLANTAGO-AQUATICA L. subsp. BREVIPES (Greene) Sam., Ark. f. Bot. 24A (7): 19. 1932. "Shore of Hinkson dam," Daniels, July 15, 1902.

ALISMA SUBCORDATUM Raf. *A. Plantago-aquatica* of the Columbia Floras, in part. Not uncommon in old ponds and along shores of creeks. See Ark. f. Bot. 24A (7): 33. 1932.

*LEMNA PERPUSILLA Torr. Pond near Rocheport, L. R. Setty, Aug. 1933. The specimen was determined by Dr. Albert Saeger.

*POGONIA TRIANTHOPHORA (Sw.) BSP. On rotted logs in low woods

near Highway C, three miles east of Harrisburg, *Jeffrey & Drouet 1207*, Sept. 23, 1933.

SPIRANTHES GRACILIS (Bigel.) Beck. "Low sandstone woods 1 mile west of Highway 63 on Harrisburg Road," *Jeffrey 324*, Sept. 23; pasture-land on the Roby Farm southeast of Rocheport, *Jeffrey 249*, Sept. 8, 1933. See Rickett's *Flora*, p. 25. Reported by Daniels.

URTICA PROCERA Muhl. *U. gracilis* of Amer. Auth., not Ait. See *RHODORA 28*: 192–195. 1926. See Rickett's citation in the *Flora*, p. 29.

COMANDRA RICHARDSIANA Fernald. *C. umbellata* of the Columbia Floras, not Nutt.

POLYGONUM HYDROPIPER L. var. *PROJECTUM* Stanford, *RHODORA 29*: 86. 1927. *P. Hydropiper* of Amer. Auth., in part. *P. Hydropiper* of the Columbia Floras.

POLYGONUM HYDROPIPEROIDES Michx. See *RHODORA 28*: 24. 1926. Abundant in swampy ground along Gans Creek $2\frac{1}{2}$ miles northeast of Providence, *Drouet 1023*, Aug. 24, 1933. Reported by Daniels.

POLYGONUM SAGITTATUM L. See *RHODORA 35*: 362. 1933. Additional collections were made in low ground along Gans Creek $2\frac{1}{2}$ miles northeast of Providence, *Drouet 1026*, and in a swale just east of Mill Creek by Highway KK, *Drouet 1040*, Aug. 24, 1933.

**POLYGONUM TENUE* Michx. Prairie by Highway 63 west of Sturgeon, *Drouet 1092*, Sept. 3, 1933.

ATRIPLEX PATULA L. var. *HASTATA* (L.) Gray. A naturalized weed that may prove to be generally distributed in waste places about Columbia, as described by Daniels (Mo. State Hort. Soc. Rep. 1898: 156). Recently found in a yard on College Ave., *Drouet 941*, Aug. 11, and in an alley by Hitt St. north of Cherry St., *Drouet 1219*, Sept. 29, 1933.

ACNIDA TAMARISCINA (Nutt.) Wood. Generally distributed as a weed. New collections come from a garden in East Highlands, Columbia, *Drouet 915*, Aug. 9, and from cut-over timber-land northeast of Claysville, *Drouet 1233*, Sept. 30, 1933. A fragmentary specimen, Daniels, Aug. 1897, from "bottoms of the Missouri, Providence," and labeled *Amarantus hybridus*, is referable to this species.

**OXYBAPHUS LINEARIS* (Pursh) Robinson. *Allionia linearis* Pursh. On limestone bluffs of the Missouri River southeast of Rocheport, *Jeffrey & Drouet 1116*, Sept. 8, 1933. To be referred to this species is a broader-leaved specimen from near Balanced Rock, south of Columbia, *Drouet*, Aug. 27, 1931.

ARENARIA STRICTA Michx. var. *TEXANA* Robinson. *Sabulina texana* (Robinson) Rydb. This species is of possibly wider distribution in the Columbia region than Rickett (*Flora*, p. 33) indicates. Daniels (*Flora*, p. 137) says of it: "rare south along Hinkson Creek." We have collected it on limestone pinnacles along Cedar Creek two miles southeast of Selby (Barnes Chapel), *Allan Jeffrey & Drouet 956*, Aug. 12, 1933.

CLAYTONIA VIRGINICA L. Including *C. robusta* of Drouet, RHODORA 35: 362, not Rydb.?

Plants answering to the description of *C. robusta* were collected and observed in various places in the spring of 1933. These robust, broad-leaved individuals were found invariably in shady, loose soil—about trunks of trees and bases of large rocks and beneath bushes. In adjacent open ground, packed more or less hard by animals and rain and exposed to the sun, linear-leaved plants referable to *C. virginica* grew. Between the two extremes of soil types were plants with leaves intermediate in shape. At least about Columbia, the forms characterized by broad leaves appear to belong to but one species and should be retained in *C. virginica*. Plants with still broader and more bluntly tipped blades appear as solitary specimens to be referable to *C. caroliniana* Walt. in its more robust state; but these plants have been seen likewise only in shady, loose soil, always accompanied by the linear-leaved individuals in the full sunlight a few feet away. A host of intermediate forms are found between. My 303, from the Ashland Road just south of Columbia, April 8, 1933, illustrates a few types of these plants collected in a small area. The problem is made more interesting by the observation that the plants in the loose soil begin growth and attain maturity earlier in the season than do those in the packed soil.

NELUMBO PENTAPETALA (Walt.) Fernald. *N. lutea* Ait. In a pond by Oakland Road just north of Paris Road, Jeffrey & Drouet 712, July 21, 1933. See RHODORA 36: 23. 1934.

DELPHINIUM AJACIS L. Escaped in waste places and established on banks of Highway K south of Hinkson Creek, Drouet 730, July 24, 1933. See Rickett's note in the *Flora*, p. 35.

BENZOID AESTIVALE (L.) Nees. Ridge northeast of Huntsdale, Jeffrey 222, Aug. 27, 1933. This is the first specimen that we have seen from Boone Co. since Broadhead's collection in 1857 (see Rickett's *Flora*, p. 36).

CARDAMINE PARVIFLORA L. var. ARENICOLA (Britton) O. E. Schultz. *C. parviflora* of Amer. Auth., not L. See RHODORA 29: 191-192. 1927.

DESCURAINIA INTERMEDIA (Rydb.) Daniels, Univ. Mo. Stud. Sci. Ser. 1(2): 147. 1907. *Sisymbrium canescens* Nutt. var. *brachycarpon* (Richards.) Wats. All specimens placed in *S. brachycarpon* and *S. canescens* by Rickett and in *D. intermedia* and *D. canescens* by Daniels are referred to this species.

SEDUM TRIPHYLLUM (Haw.) S. F. Gray. *S. purpureum* Tausch. *S. Telephium* of the Columbia Floras, not L. See RHODORA 11: 46. 1909.

AMELANCHIER CANADENSIS (L.) Medic. Including var. *Botryapium* of Rickett's *Flora*. See RHODORA 14: 150. 1912.

MALUS IOENSIS Brit. var. PALMERI Rehd., in Man. Cult. Trees & Shrubs, 399. 1927. *Pyrus ioensis* Bailey var. "Thicket s[outh] of golf-links, Columbia," Daniels, Apr. 26, 1902.

POTENTILLA SIMPLEX Michx. var. TYPICA Fernald. *P. canadensis* Amer. Auth., in part, not L. See RHODORA 33: 189. 1931. *P. canadensis* and the var. *simplex* of Rickett's *Flora*.

RUBUS ALLEGHENIENSIS Porter, not of Rickett's *Flora*. See Gentes Herb. 2(6): 380. 1932. Along a roadside eight miles north of Columbia, Drouet 405, May 18, 1933.

RUBUS ENSLENII Tratt. See Gentes Herb. 2(6): 325. "Wild places, Columbia," Daniels, July 1903; County Road Prairie, Callaway Co., Drouet 475, June 3, 1933.

RUBUS FRONDOSUS Bigel. See Gentes Herb. 2(6): 402 and 3(5): 258. A "western representative," according to Dr. Bailey's label. In the "swamp south," Drouet, May 29, 1932. Rickett's *R. frondosus* is *R. abactus* Bailey.

*RUBUS LAUDATUS Berger. See Gentes Herb. 3(5): 265-267. 1934. Sandstone bluffs of Hinkson Creek, Rickett 362, May 16, 1932; Tinspout Spring, Drouet 413, May 21, 1933.

RUBUS OSTRYIFOLIUS Rydb. See Gentes Herb. 2(6): 392. Including Rickett's *R. allegheniensis* and Daniels' *R. nigrobaccus*.

CROTALARIA SAGITTALIS L. Abundant by the railroad north of Browns Station, Jeffrey & Drouet 697, July 21, 1933.

TRIFOLIUM DUBIUM Sibth. "Pastures; rare. Columbia, Mo.," Daniels, July, 1897.

ACALYPHA GRACILENS Gray var. MONOCOCCA Engelm. See RHODORA 29: 203. 1927. *A. gracilens* of the Columbia Floras.

EUPHORBIA OBTUSATA Pursh. *E. missouriensis* Small. *E. dictyosperma* of Daniels and Rickett.

*CALLITRICHE HETEROPHYLLA Pursh. Pond in the County Road Prairie, Callaway Co., Jeffrey & Drouet 470, June 3, 1933.

VITIS CINEREA Engelm. Including *V. aestivalis* of the Columbia Floras.

VITIS LINSECUMII Buckl. Two specimens probably referable to this species, according to Dr. Bailey: "swamp s[outh], Columbia," Daniels, Aug. 1904; "Round Pool," Rickett, May 25, 1927. See Gentes Herb. 3(4): 192. 1934.

VITIS PALMATA Vahl. "Along streams, Columbia," Daniels, Aug. 1904.

*HIBISCUS MILITARIS Cav. Low ground between McBaine and Huntsdale, Jeffrey 221, Aug. 27, 1933.

GAURA PARVIFLORA Dougl. Abundant on hillsides on the University Farm east of the sheep barn, Columbia, Jeffrey & Drouet 575, June 27, 1933.

*LUDWIGIA POLYCARPA Short & Peter. Bank of Hinkson Creek at Grindstone Creek, Jeffrey & Drouet 1147, Sept. 15; low ground along railroad north of Hallsville, Jeffrey & Drouet 1176, Sept. 16, 1933.

CORNUS RACEMOSA Lam. *C. paniculata* L'Hér. *C. candidissima* of Rickett and of Drouet. Apparently more widely distributed in the region than formerly supposed. Additional collections are: thickets near the sandstone bluffs of Hinkson Creek, *Drouet* 805, July 29, 1933; hillside by Hinkson Creek north of Tinspout Spring, *Drouet* 904, Aug. 9, 1933; fence-rows and low thickets by the railroad north of Hallsville, *Jeffrey & Drouet* 1174, Sept. 16, 1933. See Rehder, *Man. Cult. Trees & Shrubs*, 670. 1927.

*BUMELIA LANUGINOSA Walt. Missouri River bluffs near Wilton P. O., *A. A. Jeffrey* 307, Sept. 17, 1933; along Claysville Road near Highway 63, Boone Co., *Jeffrey* 351, Sept. 30, 1933.

*CUSCUTA GLOMERATA Choisy. *C. paradoxa* Raf. County Road Prairie, Callaway Co., *Jeffrey & Drouet* 827, 830, July 30; roadside two miles east of Deer Park, *Jeffrey & Drouet* 946, Aug. 12; railroad north of Hallsville, *Jeffrey & Drouet* 1173, Sept. 16, 1933.

IPOMOEA COCCINEA L. By Black's Mill Road south of Columbia, *Drouet* 1159, Sept. 15; weed about buildings in Claysville, *Drouet* 1221, Sept. 30, 1933. Steyermark (*RHODORA* 35: 289) describes this species as "only sporadically adventive in the state."

IPOMOEA LACUNOSA L. "Fence-row; rare. Columbia," *Daniels*, July 1897; horticultural plots, University of Missouri, *Jeffrey & Drouet* 1044, Aug. 28; cornfield by Highway 63 west of Sturgeon, *Drouet* 1093, Sept. 3; by Black's Mill Road south of Columbia, *Jeffrey & Drouet* 1155, Sept. 15; waste ground east of the Stadium, Columbia, *Drouet* 1181, Sept. 20, 1933.

ONOSMODIUM SUBSETOSUM Mack. & Bush. Including *O. molle* of the Columbia *Floras*. The specimens previously referred to *O. molle* are broken off just below the lowest branches, so that the character of the stems was not known. The nutlets, however, are those of *O. subsetosum*.

*CUNILA ORIGANOIDES (L.) Britton. Rocky woods north of Claysville, *Drouet* 1232, Sept. 30, 1933.

HEDEOMA HISPIDA Pursh. Widely distributed in the region, especially in old fields and barrens.

MENTHA ARVENSIS L. var. GLABRATA (Benth.) Fernald. Including *M. piperita* of Rickett's *Flora*.

SCUTELLARIA AMBIGUA Nutt. *S. parvula* Michx. var. *ambigua* (Nutt.) Fernald. Including *S. parvula* of Daniels, and of Rickett in part. Two sheets are retained in *S. PARVULA* Michx.: *Daniels*, June, 1897, as *S. campestris*, and *Rickett*, June, 1926. See *Contrib. U. S. Nat. Herb.* 22(10): 729. 1927.

PHYSALIS SUBGLABRATA Mack. & Bush. Collected in many localities in the Columbia region. One specimen from Rocheport, *Rickett*, July 23, 1927, is placed here.

MARTYNIA LOUISIANA Mill. University Orchard, Columbia, *C. G. Schmitt*, Sept. 1, 1933.

*PLANTAGO ELONGATA Pursh. *P. pusilla* Nutt. Moist loess banks near the salt lick one mile north of Highway 40 just west of the M. K. & T. railroad bridge, Howard Co., *Drouet* 434, May 30, 1933.

HOUSTONIA ANGUSTIFOLIA Michx. Hillsides along Bonne Femme Creek south of Pierpont, *Jeffrey*, June 14, *Drouet* 542, June 24, 1933.

DIPSACUS SYLVESTRIS Huds. Swampy ground by Mill Creek near Highway KK, *Jeffrey & Drouet* 1043, Aug. 24, 1933.

LOBELIA CARDINALIS L. Low ground by Cedar Creek two miles southeast of Selby (Barnes Chapel), *A. A. Jeffrey & Drouet* 955, Aug. 12; in a willow thicket below the sandstone bluffs of Hinkson Creek, *Drouet* 1100, Sept. 6, 1933.

AMBROSIA PSILOSTACHYA DC. Railroad embankments near the M. K. & T. Station, Columbia, *Drouet* 1195, Sept. 22, 1933. See Rickett's *Flora*, p. 72, and RHODORA 35: 361, footnote.

*ARTEMISIA LUDOVICIANA Nutt. var. LINDHEIMERIANA (Scheele) Bush, Amer. Midl. Nat. 11: 35. 1928. Spreading in fence-rows and in wild places, open woods in the southwest corner of Columbia Cemetery, *Drouet* 1122, Sept. 9, 1933.

*ASTER PATENS Ait. By the Claysville Road south of Highway 63, Boone Co., *Jeffrey* 356, loess woods north of Hartsburg, *Drouet* 1227, Sept. 30, 1933.

*BOLTONIA LATISQUAMA Gray. Prairie by Highway 63 west of Sturgeon, *Drouet* 1094, Sept. 3; low ground by the railroad north of Browns Station, *Drouet* 1167, Sept. 16, 1933.

*CENTAUREA MACULOSA Lam. Established in an old field north of Hartsburg, *Drouet* 1228a, Sept. 30, 1933.

CENTAUREA VOCHINENSIS Bernh. Established in Sanborn Field, Columbia, *Jeffrey* 239, Sept. 4, 1933.

COREOPSIS TRIPTERIS L. var. DEAMII Standley, RHODORA 32: 33. 1930. Abundant in low ground west of Browns Station, *Drouet* 878, Aug. 2, 1933. An old specimen, "Columbia, Mo.," *Daniels*, July, Aug., 1897, consisting of an inflorescence and upper cauline leaf, was recently discovered (see Rickett's *Flora*, p. 75) and may possibly be referred to the typical variety.

ERECTITES HIERACIFOLIA (L.) Raf. var. INTERMEDIA Fernald, RHODORA 19: 27. 1917. *E. hieracifolia* of Gray's Manual, 7th ed., in part, not Raf. *E. hieracifolia* of the Columbia Floras.

EUPATORIUM COELESTINUM L. Established on ballast along Stewart Road east of Garth Ave., Columbia, *Steyermark & Drouet* 1058, Sept. 2, 1933. See Rickett's *Flora*, p. 76.

GRINDELIA SERRULATA Rydb., Man. Fl. Prairies & Plains, p. 784. 1932. *G. squarrosa* of Rickett's *Flora*. "Agriculture Experimental Field," *Rickett*, June 28, 1928; pasture, 600 High St., Columbia, *Jeffrey* 100, Aug. 5, 1933.

KUHNTIA EUPATORIODES L. and the var. CORYMBULOSA T. & G. *K. suaveolens* of *Drouet*, RHODORA 35: 364.

LACTUCA CANADENSIS L. Including *L. sagittifolia* of the Columbia Floras and *L. integrifolia* Bigel. The four varieties (RHODORA 22: 9-11. 1920) are apparently widespread: var. TYPICA Wiegand, e. g., *Drouet* 597; var. LATIFOLIA O. Kuntze, e. g., County Road Prairie, *Rickett*, July 27, 1930; var. INTEGRIFOLIA (Bigel.) Gray, e. g., roadsides, *Daniels*, July, 1903; and var. OBOVATA Wiegand, e. g., *Drouet* 923.

POLYMNIA UVEDALIA L. var. GENUINA Blake, RHODORA 19: 46-48. 1917. Low woods near Roby's Spring, southeast of Rocheport, *Jeffrey & Drouet 1110*, Sept. 8, 1933. See Rickett's *Flora*, p. 79. Our plants have branches of the inflorescence copiously hispid-pilose, but the many glands are stipitate.

PRENANTHES CREPIDINEA Michx. In woods by Perche Creek south of Highway 40, *A. A. Jeffrey & Drouet 1184*, Sept. 21, 1933.

RUDBECKIA HIRTA L. Including *R. fulgida* of Drouet, RHODORA 35: 364.

RUDBECKIA SUBTOMENTOSA Pursh. Collected in low ground throughout the Columbia region. See RHODORA 35: 364 and Rickett's *Flora*, p. 79.

SOLIDAGO CANADENSIS L. var. GILVOCANESCENS Rydb. Much of *S. altissima* of Rickett's *Flora*.

*SOLIDAGO GLABERRIMA Martens. *S. missouriensis* Nutt. In the County Road Prairie, Callaway Co., *Jeffrey & Drouet 817*, July 30, 1933; roadside east of Deer Park, *Jeffrey & Drouet 945*, Aug. 12, 1933.

*SOLIDAGO GYMNOSPERMOIDES (Greene) Fernald. By the railroad north of Hallsville, *Jeffrey 305*, Sept. 16; by Highway 63 north of Hinton, *Drouet 1205*, Sept. 23; old field by Richland Road east of Columbia, *Jeffrey 337*, *Drouet 1217*, Sept. 27, 1933. The plants from near Hinton have smaller involucres, as Friesner describes for his *S. remota*, *Butler Univ. Stud.* 3(1): 63. 1933.

*SOLIDAGO PETIOLARIS Ait. var. WARDII (Britton) Fernald. Open rocky woods north of Claysville, Boone Co., *Drouet 1228*, Sept. 30, 1933.

SOLIDAGO RIGIDA L. Along railroad north of Hallsville, *Jeffrey 304*, *Drouet 1170*, Sept. 16, 1933.

XANTHIUM CHINENSE Mill. *X. canadense* of the Columbia Floras, not Mill.

XANTHIUM PENNSYLVANICUM Wallr. *X. canadense* of Gray's Manual, 7th ed., in part. Collected at several stations within the region.

DEPARTMENT OF BOTANY, UNIVERSITY OF MISSOURI.

Volume 37, no. 436, including pages 129-164 and plates 332-344, was issued 1 April, 1935.



Drouet, Francis. 1935. "ADDITIONAL NOTES ON THE FLORA OF COLUMBIA, MISSOURI." *Rhodora* 37, 189–196.

View This Item Online: <https://www.biodiversitylibrary.org/item/14507>

Permalink: <https://www.biodiversitylibrary.org/partpdf/188699>

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.

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>.