

late, 4 to 9 cm. long, 1 to 2.4 cm. wide, apex caudate-acuminate, the acumen narrowly obtusish, base acuminate, decurrent on the petiole, densely black-punctate, costa slightly impressed above, prominent beneath, main lateral veins 4 to 6 on each side, nearly obsolete; petioles slender, 1 to 1.8 cm. long. Panicles of pistillate flowers axillary, narrow, small, 1.5 to 3 cm. long, each node bibracteate, sparsely and minutely puberulent, glabrescent. Flowers sessile or subsessile, the pedicels less than 1 mm. long. Calyx small, 4-lobed, the lobes triangular, about 0.6 mm. long, puberulent above, ciliolate. Corolla puberulent, densely so above, about 4 mm. long, 4-lobed to the middle, the lobes broadly ovate or suborbicular, rounded. Staminalodes 2. Ovary glabrous, 2-celled, with 2 ovules in each cell. Style stout, about 1.5 mm. long. Stigma capitate, large. Fruits ellipsoid, about 13 mm. long, 8 mm. in diam.

Type in the Herbarium of the University of Michigan, Eizi Matuda 2023, collected on Cerro Laguna, Mapastepec, Chiapas, Mexico, Jan. 1938.

By its small narrow caudate-acuminate leaves, blackened when dry, costa impressed above, and large stigma, O. mexicana may be readily distinguished from the two other American species.

(a) Papers from the Herbarium of the University of Michigan.

ADDITIONAL NOTES ON THE ERIOCAULACEAE -- I

Harold N. Moldenke

On December 1, 1937, I published a discussion of the Eriocaulaceae of North America in North American Flora 19: 17--50. The editorial policy of this flora, however, is such that one is in many cases not permitted to give complete synonymy, complete lists of published illustrations in the case of abundantly illustrated species, or any lists of examined material. Of these the most serious omission is that of the citation of herbarium material examined, for only by a consultation of such a list of cited material can future workers retrace the steps of a monographer and see actually on what he based his concept of any given genus, species, or variety. Lists of examined material are also invaluable in showing exactly what is known of the geo-

graphic distribution of any form, where gaps occur which might be filled in by more intensive collecting, what the basis is for the limits given, and in what herbaria critical specimens are deposited and where they can be studied for verification. To make up for these omissions the following notes are presented as a permanent record of the material examined in the preparation of the above-mentioned work. Additional material examined since its publication is also included here, together with the description of several newly discovered species and other miscellaneous notes.

It should be noted that throughout the work in North American Flora the number of peduncles given in specific or varietal descriptions applies in each case to one individual plant only. This is worth emphasizing, for in many cases herbarium material has been mounted in such a way that several or many distinct plants are crowded so close together in one mass that the casual observer might be led to suppose that only one plant is represented and that the total number of peduncles per plant is actually much larger than the number given in the description. The phrase "per plant" was originally included in all descriptions to emphasize this necessity on the part of the observer to determine how many plants he is actually looking at on a given specimen, but was omitted by the editors to conserve space. It may also be mentioned, in passing, that the citation of literature references in this work is considerably at variance with that adopted in all my other publications; again, in order to comply with the established policies of North American Flora. In the present supplementary notes my own system, established in some 75 previous publications, is maintained.

In the citation of specimens on the following pages, the following abbreviations of the names of herbaria are employed: Bc = Barnard College, New York City; C = Columbia University, New York City; De = Delzie Demaree Herbarium, Monticello, Arkansas; Es = Estacion Experimental Agronomica, Havana; F = Field Museum of Natural History, Chicago; Go = Botaniska Trädgård, Göteborg; I = Langlois Herbarium, Catholic University of America, Washington; It = Cornell University, Ithaca, N. Y.; K = Royal Botanic Gardens, Kew; Ki = E. P. Killip Herbarium, Washington; M = Meisner Herbarium, New York Botanical Garden; Mi = University of Michigan, Ann Arbor, Mich.; N = Britton Herbarium, New York Botanical Garden, New York City; P = Muséum National d'Histoire Naturelle, Paris; Q = Jardin Botánico, Madrid; T = Torrey Herbarium, New York Botanical Garden; Tc = Torrey Botanical Club Herbarium, New York Botanical Garden; and Z = H. N. Moldenke Herbarium, Watchung, New Jersey. To the directors and curators of these 18 herbaria the author extends his sincere thanks for their kindness and cooperation in permitting him

to study their material of this group. All material so studied -- 920 specimens and mounted photographs -- is herein cited.

ERIOCAULON L. Sp. Pl., ed. 1, 87. 1753; Gen. Pl., ed. 5, 38. 1754.

Cespa Hill, Herb. Brit. 1: pl. 66 [some copies]. 1769; Nasmythia Huds. Fl. Ang., ed. 2, 414. 1778; Randalia Petiv. ex Desv., Ann. Sci. Nat. Paris, sér. 1, 13: 47, pl. 5, f. 2. 1828; Symphachne P. Beauv. ex Desv., Ann. Sci. Nat. Paris, sér. 1, 13: 47, pl. 5, f. 3. 1828; Sphaerochloa P. Beauv. ex Desv., Ann. Sci. Nat. Paris, sér. 1, 13: 47. 1828 ["Sphoerochloa", op. cit. pl. 5, f. 1. 1828]; Leucocephala Roxb. Fl. Ind. 3: 612. 1832; Electrosperma F. Muell., Trans. Phil. Soc. Victor. 1: 23. 1855; Dichrolepis Welw. Apont. Phyt.-geogr. 542. 1859; Lasiolepis Böck., Flora 56: 90. 1873.

A genus of about 360 species, widely distributed in marshy places in tropical and subtropical regions, the greatest number in tropical America; numerous also in tropical Asia and Africa; one species in northwestern Europe and northeastern North America.

Excluded species: Eriocaulon leptodictyon A. Gray is cited by Durand & Jackson, Ind. Kew. Suppl. 1: 158 (1902) to "S. Wats. in Proc. Am. Acad. 22 (1887) 420.--Mexic.", but this Watson reference plainly describes Eupatorium (not Eriocaulon!) leptodictyon.

3. ERIOCAULON ARENICOLA Britton & Small ex Britton, Bull. Torrey Club 44: 31. 1917.

This species inhabits white sand and has been collected in anthesis in February.

Citations: CUBA: Isla de Pinos: Britton, Britton, & Wilson 14,179 (N--type).

31. ERIOCAULON BENTHAMII Kunth, Enum. Pl. 3: 545. 1841.

Eriocaulon Benthamii Kunth ex Ruhl. in Engl. Pflanzenreich 4³⁰: 48, sphalm. 1903.

The Herb. Hooker specimen of Hartweg 258 at Kew is inscribed "Zacatecas", but the other two specimens of this number are inscribed "Lagos" (in Jalisco). The species inhabits swamps and marshes, often growing directly in the water, and has been collected in anthesis in March and from June to August.

Citations: MEXICO: Chihuahua: E. W. Nelson 6028 (N--2); Jalisco: Hartweg 258 (K--2 isotypes, N--isotype); Mexico: Hinton 627 (K), 3488 (K), 3638 (K, N), 4549 (K, N).

1. ERIOCAULON BILOBATUM Morong, Bull. Torrey Club 19: 226. 1892.

Eriocaulon Jaliscanum S. Wats., Proc. Amer. Acad. 26: 157, in part (1891) is often cited as a synonym of this species, but Watson's name more properly is synonymous with E. Schiedeanum. E. bilobatum inhabits wet hollows and wet places in rocky slopes, ascending to 5000 feet, and has been collected in anthesis in October.

Citations: MEXICO: Jalisco: Pringle 3855 (C--type), 6299 (C).

7. ERIOCAULON COMPRESSUM Lam. Encycl. Méth. 3: 276. 1789.

Eriocaulon decangulare Walt. Fl. Car. 83. 1788 [not E. decangulare L., 1753]; Eriocaulon gnaphalodes Michx. Fl. Bor. Am. 2: 165. 1803; Eriocaulon cephalotes Michx. ex Poir. in Lam. Encycl. Méth. Suppl. 3: 161. 1813; Sphaerochloa compressa (Lam.) P. Beauv. ex Desv., Ann. Sci. Nat. Paris, sér. 1, 13: 47, pl. 5, f. 1. 1828 ["Sphaerochloa compressa Beauv." in N. Am. Fl. 19: 22. 1938]; ?Eriocaulon filiformis Raf. Atl. Journ. 121. 1832 [not E. filiformis Bong., Act. Petrop. Sci. Math. sér. 4, 1: 634. 1831].

The species inhabits moist sandy pinelands, cypress ponds and swamps, pine-barren swamps, bogs, flatwoods, millponds, swampy woods, moist pine-barrens, open or shaded muddy places, hammocks, sandhills, wet sandy soil, sandy low ground in woods, borders of ponds, everglades, and even the water of canals, and has been collected in anthesis from January to August.

Illustrations: Britton & Br. Ill. Fl., ed. 1, 1: f. 900. 1896; Ann. Rep. New Jersey State Mus. 1910: pl. 64, f. 2. 1912; Britton & Br. Ill. Fl., ed. 2, 1: f. 1142. 1913.

Citations: NEW JERSEY: Burlington Co.: Chrysler s.n. [13 July, 1930] (N), s.n. [Chatsworth, 3 June, 1931] (N); Commons s.n. [Atsion, June 22, 1882] (N); Eames s.n. [Chatsworth, VI.12.1894] (N); H. H. Rusby s.n. [Bass River, Aug. 1875] (M1); Torrey & Cooper s.n. [Near Quaker Bridge] (N); Torrey Botanical Club s.n. [Forked River, May 29--June 2, 1896] (C); Ocean Co.: Kraemer s.n. [Tom's River, June 30, 1891] (C); MacElwee 658 (N); H. N. Moldenke 10,577 (N); Rich s.n. [Tom's River, May 30, 1887] (C); Camden Co.: Beringer s.n. [Atco, June, 1895] (M1); Atlantic Co.: Bassett s.n. [Hammonton] (I, N--2); Beals s.n. [Hammonton Lake, July 1, 1922] (N); Gross 3118 (N), s.n. (N); Cape May Co.: C. S. Williamson s.n. [Bennet, June 16, 1907] (N); County undetermined: T. F. Allen s.n. [Pine barrens, June, 1871] (C); Herb. Columbia University s.n. [Pine barrens] (C); Herb. Torrey s.n. [Pine barrens] (T). MARYLAND: Baltimore Co.: Morong s.n. [Cantonsville, Aug. 11, 1873] (Bc); Wicomico Co.: A. V. Smith 325 (I), 333 (I), s.n. [May, 1936] (I). NORTH CAROLINA: Onslow Co.: House 5108 (N). SOUTH CAROLINA: Lexington Co.: Weatherby 6123 (N); Charleston Co.:

Gibbes s.n. [1st March, 1839] (N). GEORGIA: Sumter Co.: R. M. Harper 2219 (N); Bryan Co.: R. M. Harper 2170 (N); Charlton Co.: J. S. Harper 394 (N); County undetermined: A. Gray s.n. [1840] (M). FLORIDA: Duval Co.: Curtiss 3017 (Bc, I); Hogg 8 (C); Lighthipe 172 (N); Clay Co.: Canby s.n. [Hibernia, March, 1869] (T); St. Johns Co.: M. C. Reynolds s.n. [St. Augustine, 1877] (C); Levy Co.: O'Neill 732 (I); Lake Co.: Nash 92 (C, M1); Underwood 1928 (C); Orange Co.: Huger s.n. ["X.Q."] (N); E. J. Palmer 38,325 (N); Pasco Co.: O'Neill 1947 (I), 7780 (I); Hillsboro Co.: Leavenworth s.n. [Tampa Bay] (T); Polk Co.: McFarlin 4491 (I); Topping 2611 (N); De Soto Co.: Small & Dewinkeler 9044a (N); Lee Co.: H. N. Moldenke 689a (N); Sheehan s.n. [Cat-tail Island, Feb. 26, 1919] (N); C. Skottsberg s.n. [Buckingham, 19.5.1935] (Go); J. P. Standley 15 (N); Broward Co.: Small, Carter, & Small 3361 (N); Seminole Co.: O'Neill 6512 (I); Dade Co.: O'Neill 7778 (I); J. K. Small 7386 (N); Small & Carter 2991 (N); Small, Carter, & Small 3264 (N); Collier Co.: O'Neill 7779 (I--2); County undetermined: Chapman s.n. [Florida] (T); Herb. Chapman s.n. [Florida] (C--2). ALABAMA: Mobile Co.: Gates, Fletcher, & Jewett 191 (M1); Herb. Univ. Michigan s.n. [Mobile, May 7, 1839] (M1); Escambia Co.: C. F. Baker 1557 (N). LOUISIANA: Calcasieu Par.: E. J. Palmer 7718 (N). UNITED STATES: State undetermined: Collector undesignated 272 (T); Walsh s.n. [Southern States] (T--2).

7a. ERIOCAULON COMPRESSUM var. HARPERI Moldenke, N. Am. Fl. 19: 23. 1937.

This variety inhabits dry or moist pine-barrens, low or dry sandy pinelands, sandhills, wet sandy ditches, swamps, and shallow ponds, and has been collected in anthesis from February to July.

Citations: GEORGIA: Sumter Co.: R. M. Harper 1395 (N); Charlton Co.: F. Harper 383 (N). FLORIDA: Jackson Co.: R. M. Harper 79 (N--type); Washington Co.: Small & Wherry 11,695 (N); Franklin Co.: Biltmore Herb. 2296a (N); Leon Co.: Kurz s.n. [May 16, 1926] (N); Wakulla Co.: H. N. Moldenke 1123 (N); De Soto Co.: Small & Dewinkeler 9044 (N); Lee Co.: H. N. Moldenke 689 (N). ALABAMA: Mobile Co.: Gates, Fletcher, & Jewett 189 (M1), 190 (M1), 192 (M1), s.n. [Mobile, May 15, 1839] (M1). MISSISSIPPI: Harrison Co.: C. F. Baker 1558 (N); Langlois s.n. [Pass Christian, March, 1880] (I); Tracy 5032 (M1, N). LOUISIANA: St. Tammany Par.: Langlois s.n. [Near Mandeville, 1.V.1893] (I).

2. ERIOCAULON CUBENSE Ruhl. in Fedde, Repert. 22: 29. 1925.

This species inhabits alkali flats and white sand, and has been collected in anthesis in November.

Citations: CUBA: Isla de Pinos: Ekman 12,065 (N-isotype).

4. ERIOCAULON DECANGULARE L. Sp. Pl., ed. 1, 87. 1753.

Eriocaulon statices Crantz, Inst. 1: 360. 1766; Eriocaulon serotinum Walt. Fl. Car. 83. 1788; Randalia decangulare (L.) P. Beauv. ex Desv., Ann. Sci. Nat. Paris, sér. 1, 13: 47, pl. 5, f. 2. 1828 ["Randalia decangularis" according to Index Kewensis, Ruhland, and North American Flora]; Symphachne xyrioides P. Beauv. ex Desv., Ann. Sci. Nat. Paris, sér. 1, 13: pl. 5, f. 3. 1828 ["Symphachne xyrioides" according to North American Flora]; Randalia americana Petiv. ex Ruhl. in Engl. Pflanzenreich 4³⁰: 33, in syn. 1903.

The species inhabits wet or moist meadows, argillaceous or siliceous boggy depressions, swamps, wet sandy soil, flatwoods, mountain bogs, savannas, wet or low pinelands, moist pine-barrens, pine-barren swamps and ponds, wet or boggy places, sandy bogs, moist ditches, cypress swamps, ponds, and pond-margins, ascending to 2500 feet, and has been collected in anthesis from May to January. Pennell 9075 has the heads binary on two very short stalks at the apex of the peduncle, while the Columbia University sheet of Herb. Chapman s.n. also has binary heads with many of the outer bractlets elongated into stiff leafy proliferations.

Illustrations: Ann. Sci. Nat. Paris, sér. 1, 13: pl. 5, f. 2 & 3. 1828; Lodd. Bot. Cab. 14: pl. 1310. 1828; Curtis, Bot. Mag. 59: pl. 3126. 1832; Britton & Br. Ill. Fl., ed. 1, 1: f. 901. 1896; Ann. N. Y. Acad. Sci. 17¹: pl. 24, f. 1. 1906; G. T. Stevens, Ill. Guide Fl. Pl. pl. 9, f. 5. 1910; Ann. Rep. New Jersey State Mus. 1910: pl. 28, f. 2. 1912; Britton & Br. Ill. Fl., ed. 2, 1: f. 1143. 1913.

Citations: NEW JERSEY: Monmouth Co.: D. C. Eaton s.n. [1860] (C); Burlington Co.: Chrysler s.n. [W. of Speedwell, 13 July, 1930] (N); Fogg 4602 (N), 4655 (N); Leggett s.n. [Quaker Bridge, July 8, 1864] (Tc); H. H. Rusby s.n. [Bass River, Aug. 1875] (M1); Van Pelt s.n. [Chatsworth, Aug. 20, 1907] (N); Ocean Co.: N. L. Britton s.n. [Forked River, Aug. 17, 1889] (C); Clute 214 (N); Mackenzie 1050 (N), 1638 (N), 2361 (N), 3694 (N), 4257 (N), 4741 (N--2), 5482 (N); Poggenburg s.n. [Manchester, Sept. 19, '85] (Tc); Ruger s.n. [Manchester] (Tc); Schrenk s.n. [Manchester, July 25, '77] (Tc); N. Taylor 2853 (N); F. Wilson s.n. [Opposite Island Heights, July 26, 1909] (N--3); Camden Co.: Bassett s.n. [Atco] (I), s.n. [Atco, July 19, 1923] (N); Beringer s.n. [Atco, Aug. 1890] (M1); Morong s.n. [Atco, Sept. 3, 1873] (Bc); Pennell 9075 (N), 9079 (N); Atlantic Co.: Gross 3016 (N); Cumberland Co.: Dreisbach 3593 (M1); Pennell 1927 (N); Cape May Co.: Parker s.n. [Opp. Sea Isle City, Aug. 18, '82] (Bc); County undetermined: T. F. Allen s.n. [1870] (N); Collector undesignated s.n. [Pine barrens] (C); Commons s.n. [Pine barrens, Oct. 1, 1872] (N); Herb. Torrey s.n. [Pine barrens, June, 1818] (T); Leggett s.n. [Pine bar-

rens, Sept. 16--18, 1873] (Tc); A. V. Smith s.n. [N. J. pine barrens, July 28, 1935] (I). DELAWARE: Sussex Co.: N. L. Britton 56 (M); Canby s.n. [Ellendale, July 24, 1893] (M); Commons s.n. [June 18, 1875] (Bc); O'Neill 9096 (I); Pennell 12,903 (N). MARYLAND: Prince Georges Co.: S. F. Blake 10,665 (I); Tidestrom s.n. [July 4, 1907] (I); Worcester Co.: H. H. Rusby s.n. [Stockton, Aug. 1889] (C); County undetermined: Holm s.n. [Surattsville, Aug. 6, 1900] (I). DISTRICT OF COLUMBIA: Holm s.n. [Holmead, July 22, 1888] (I). VIRGINIA: Prince George Co.: Fernald, Long, & Smart 6790 (N). NORTH CAROLINA: Catawba Co.: Small & Heller 180 (C); Rowan Co.: A. A. Heller 180 (C, N), 181 (C), s.n. (N); J. K. Small s.n. [Dunn's Mtn., Aug. 18--27, 1894] (C); Dare Co.: Bartley & Pontius 503 (N); Buncombe Co.: Biltmore Herb. 3867a (I, N), 3867d (N); Rugel s.n. [Swanano, Jul. 1841] (M); Cumberland Co.: Biltmore Herb. 3867f (N); Brunswick Co.: Drushel 10,075 (N); New Hanover Co.: Biltmore Herb. 3867b (N); Coville 202 (N); County undetermined: Schweinitz s.n. (T). SOUTH CAROLINA: Orangeburg Co.: Eggleston 5027 (N). GEORGIA: Columbia Co.: Collector undesignated s.n. [1832] (C); Sumter Co.: R. M. Harper 444 (N); Lee Co.: Earle 3123 (N), s.n. [Leesburg, 6/20/1895] (N); McIntosh Co.: J. K. Small s.n. [About Darien Jct., June 25--27, 1895] (C); Lowndes Co.: J. K. Small s.n. [Near Valdosta, June 6--12, 1895] (C); County undetermined: Boykin s.n. (T). FLORIDA: Holmes Co.: Drushel 10,095 (N); Franklin Co.: Biltmore Herb. 3867c (N); Leon Co.: Berg s.n. [Near Tallahassee] (N); Duval Co.: Curtiss 3016 [June] (Bc, C), 3016 [July] (Bc), 5690 (N); Highlands Co.: McFarlin 7545 (N); Marion Co.: O'Neill 7781 (I); Charlotte Co.: J. H. Simpson 396 (C); Lake Co.: Nash 847 (C, M), 1722 (M); Orange Co.: O'Neill 7782 ["Count 13"] (I); Pasco Co.: O'Neill 81 (I), 1153 (I), 1815 (I); Hillsboro Co.: Leavenworth s.n. [Tampa Bay] (T); Polk Co.: McFarlin 3418 (I); Brevard Co.: H. N. Moldenke 233 (N); Manatee Co.: Tracy 7587 (N); Lee Co.: A. S. Hitchcock 375 (N); Broward Co.: Small & Carter 1029 (N); Dade Co.: H. N. Moldenke 5591 (N); County undetermined: Herb. Chapman s.n. [Florida] (C--2). ALABAMA: Mobile Co.: C. F. Baker s.n. [Mobile, 7/20/1897] (N); Bush 71 (N); Mackenzie 4051 (N); Pennell 4472 (N); Baldwin Co.: O. Blanton 86 (I); Mohr s.n. [Oct. 4, 1894] (I); Tracy 8043 (N--2). MISSISSIPPI: Harrison Co.: C. F. Baker 780 (C), s.n. [Biloxi, 7-23-1897] (N); Lloyd & Tracy 319 (N); Tracy 3428 (N), 6417 [Biloxi] (N), 6417 [Ocean Springs] (N--2). LOUISIANA: Natchitoches Par.: E. J. Palmer 7981 (N); Calcasieu Par.: A. Allison 207 (N); St. Tammany Par.: Langlois s.n. [9.IX. 1892] (I), s.n. [Mandeville, 15.VIII.1892] (I); Pennell 4144 (N); Orleans Par.: T. Drummond 356 (N); Parish undetermined: Hale 456 (T), s.n. (N). TEXAS: Smith Co.: Reverchon 2766 (N); Waller Co.: E. Hall 635 (N). UNITED STATES: State un-

determined: M. A. Curtis s.n. (C).

4a. ERIOCAULON DECANGULARE var. LATIFOLIUM Chapm. ex Moldenke, N. Am. Fl. 19: 21. 1937.

This variety inhabits sandy pinelands, and has been collected in anthesis in August.

Citations: FLORIDA: Franklin Co.: Herb. Chapman s.n. [Florida] (C--type). ALABAMA: Mobile Co.: Pennell 4465 (N).

6. ERIOCAULON DIOECUM Ruhl. in Fedde, Repert. 22: 29. 1925.

This species has been collected in anthesis in March.

Citations: CUBA: Pinar del Río: Ekman 12,807 (N--photo of type).

19. ERIOCAULON ECHINOSPERMOIDEUM Ruhl. in Fedde, Repert. 22: 31. 1925.

16. ERIOCAULON ECHINOSPERMUM C. Wright ex Sauv., Anal. Acad. Ci. Habana 7: 716. 1871.

This species inhabits borders of pineland lagoons, moist savannas, and shallow water at the edge of ponds, and has been collected in anthesis in January, September, and November.

Citations: CUBA: Pinar del Río: Britton, Britton, & Gager 7257 (N); Ekman 18,128 (N); Shafer 11,705 (N); C. Wright 3738 (T--isotype); Province undetermined: C. Wright s.n. (T).

38. ERIOCAULON EHRENBORGIANUM Klotzsch ex Körn. in Mart. Fl. Bras. 3 : 491. 1863.

Eriocaulon Benthami Schlecht. ex Körn. in Mart. Fl. Bras. 3' : 491, in syn. 1863 [not E. Benthami Kunth, 1841]; Eriocaulon Benthami Seem. apud Hemsl. Biol. Centr. Am. Bot. 3: 443, in syn. (1885), Hook. f. & Jacks. Ind. Kew. 1: 877. 1895 [not E. Benthami Kunth, 1841]; Eriocaulon microcephalum Hook. & Arn. apud Seem. Bot. Voy. Herald 221, in syn. (1854) and apud Hemsl. Biol. Centr. Am. Bot. 3: 443, in syn. 1885 [not E. microcephalum H.B.K., 1816]; Eriocaulon anceps Sessé & Moc. Fl. Mex. 17. 1893 [not E. anceps Walt., 1788].

Cotypes of E. Ehrenbergianum are Schiede s.n. from swamps in the valley of Toluca near La Ventilla, Mexico, and Ehrenberg & Aschenborn 531, Berlandier 760, and Schiede s.n. from marshy meadows in the neighborhood of Mineral del Monte and in the hills and other localities around Mexico City, Federal District. The first of these 4 cotypes is by inference designated as the logotype in N. Am. Fl. 19: 35 (1937). Cotypes of E. anceps are Sessé, Mociño, Castillo, & Maldonado 456 and 465, deposited in the Madrid herbarium.

E. Ehrenbergianum inhabits springy bogs and open marshes at high elevations, ascending to 7500 feet, and has been

collected in anthesis from July to October and December.

Citations: MEXICO: Chihuahua: Townsend & Barber 117 (N--2); Nayarit: J. N. Rose s.n. [August, 1897] (N); Jalisco: Beechey s.n. [Jalisco] (K); Collector undesignated s.n. [Sept. 6, '92] (F); Edw. Palmer 44 (C, K); Hidalgo: Pringle 8989 (N); Mexico: Schaffner 226 (C, M1), 226a (N); Oaxaca: W. H. Camp 2265 (N); State undetermined: Sessé, Mociño, Castillo, & Maldonado 456 (N--photo, Q, Z--photo), 465 (N--photo, Q, Z--photo). GUATEMALA: Chimaltenango: Skutch 617 (M1, N).

26. ERIOCAULON EKMANNII Ruhl. in Fedde, Repert. 22: 30.1925.

It is worth noting that Ruhland apparently intentionally spelled this specific name "Ekmanii", for he did the same with Lachnocaulon Ekmanii. In the opinion of the present writer the original spelling should be retained. The species inhabits swamps and has been collected in anthesis in October.

Citations: CUBA: Pinar del Río: Cuesta 374 (N); Ekman 17,888 (N--isotype).

20. ERIOCAULON FULIGINOSUM C. Wright ex Griseb. Cat. Pl. Cub. 226. 1866.

Eriocaulon scirpoides Griseb. Cat. Pl. Cub. 226. 1866; Eriocaulon trichosepalum C. Wright ex Sauv., Anal. Acad. Ci. Habana 7: 715. 1871; Eriocaulon sphaerospermum C. Wright ex Sauv., Anal. Acad. Ci. Habana 7: 716. 1871.

This species has been confused by some with E. Schiedeae-num and specimens have been erroneously distributed under that name. It inhabits moist and pineland savannas, banks of lagoons, mud at brooksides or in the shade of grasses, pine-lands, and the edges of ponds, and has been collected in anthesis from September to December. The type collection of E. trichosepalum is C. Wright 3740 and of E. sphaerospermum is C. Wright 3739, while a cotype collection of E. scirpoides is C. Wright 3238.

Citations: CUBA: Pinar del Río: Britton, Britton, & Gager 7060 (N); Ekman 17,864 (N), 18,127 (N); Shafer 10,663 (N); C. Wright 3239 (N--isotype, T--2 isotypes), 3740 (T); Isla de Pinos: Ekman 12,106a (N); Santa Clara: Combs 588 (N); León & Cazanás 5910 (N); Oriente: C. Wright 753 (N), 3238 (N, T); Province undetermined: C. Wright 3739 (T). BRITISH HONDURAS: Gentle 993 (F, I, M1--2, N); Pelly 73 (F).

29. ERIOCAULON FUSIFORME Britton & Small in Britton, Bull. Torrey Club 44: 32. 1917.

This species inhabits pinelands and has been collected in anthesis in February.

Citations: CUBA: Isla de Pinos: Britton, Britton, & Wils-

on 14,951 (N--type).

39. *ERIOCAULON GUADALAJARENSE* Ruhl. in Engl. Pflanzenreich
4³⁰: 60. 1903.

This species inhabits wet places and has been collected in anthesis in November.

Citations: MEXICO: Jalisco: Pringle 1734 (C--isotype, K--isotype).

27. *ERIOCAULON HETEROPETALUM* Ruhl. in Fedde, Repert. 22: 33. 1925.

This species inhabits moist white sand on the shores of lakes and has been collected in anthesis in September.

Citations: CUBA: Pinar del Río: Ekman 17,253 (N--photo of type).

21. *ERIOCAULON INSULARE* Ruhl. in Fedde, Repert. 22: 32. 1925.

This species inhabits wet grassy places, pinelands, moist white sand barrens, and the borders of lakes, and has been collected in anthesis from September to November.

Citations: CUBA: Pinar del Río: Britton, Britton, & Gager 6960 (N); Ekman 17,808 (N--isotype); Isla de Pinos: Ekman 12,029a (N).

9. *ERIOCAULON KINLOCHII* Moldenke, N. Am. Fl. 19: 23--24. 1937.

Citations: BRITISH HONDURAS: Kinloch 213 (F--type, N--photo of type, Z--photo of type).

25. *ERIOCAULON KÖRNICKIANUM* Van Heurck & Müll. Arg. in Van Heurck, Obs. Bot. 101. 1870.

This specific name is often written "Koernickianum", but in the opinion of the present writer the original spelling should be retained. The species inhabits springy places on prairies and wet sandy ground, and has been collected in anthesis in June and July.

Citations: ARKANSAS: Benton Co.: F. L. Harvey s.n. [Siloam Spring, June, 1885] (N); Logan Co.: Pyle 754 (De). OKLAHOMA: Pushtamaha Co.: E. J. Palmer 8320 (N).

35. *ERIOCAULON LACUSTRE* Ruhl. in Fedde, Repert. 22: 33. 1925.

This species inhabits the water of shallow lakes and has been collected in anthesis in October.

Citations: CUBA: Pinar del Río: Ekman 17,877 (N--isotype).

8. *ERIOCAULON LINEARE* Small, Fl. SE. U. S., ed. 1, 236 & 1328. 1903.

This species inhabits moist or wet pine-barrens, the shallow or miry margins and wet sandy shores of ponds, shal-

low pine-barren ponds, bogs, wet woods, and even still water to 2 feet deep, and has been collected in anthesis from April to June and September.

Illustrations: Ann. N. Y. Acad. Sci. 17¹: pl. 23 & 25, f. 2. 1906; Small, Man. SE. Fl. 258. 1933.

Citations: NORTH CAROLINA: Henderson Co.: Wherry s.n. [Flat Rock Sta., 5-30-1927] (N). GEORGIA: Montgomery Co.: R. M. Harper 2146 (N); Bulloch Co.: R. M. Harper 830 (N--type); Lowndes Co.: R. M. Harper 1608 (N). FLORIDA: Santa Rosa Co.: R. M. Harper 85 (N); Walton Co.: Curtiss s.n. [Summer, 1885] (N--2); R. M. Harper 47 (N); Gulf Co.: Biltmore Herb. 3865a (N); Leon Co.: R. M. Harper 223 (N); Pasco Co.: O'Neill s.n. [Fish Lake, Feb. 20, 1927] (I). ALABAMA: Baldwin Co.: R. M. Harper 22 (N).

34. ERIOCAULON MELANOCEPHALUM Kunth, Enum. Pl. 3: 549. 1841.

Eriocaulon aquaticum Sagot ex Körn. in Mart. Fl. Bras. 3¹: 498, in syn. 1863; Lasiolipsis aquatica Böck., Flora 56: 91. 1873.

Citations: CUBA: Oriente: C. Wright 756 (N); Province undetermined: C. Wright 3240 (N, T).

34a. ERIOCAULON MELANOCEPHALUM var. LONGIPES Griseb. Cat. Pl. Cub. 226. 1866.

E. P. Killip, in a letter dated July 5, 1938, reports that his No. 32,380 from southwestern Pinar del Río is clearly this variety. He comments, however: "I just can't reconcile myself to its being even a variety of a South American species. We have no material [in the U. S. National Herbarium] of the species from South America, but you might just make a mental note that it is worth considering if the Cuban is not a full-fledged species". I may say, in response, that I, too, had my doubts about the Cuban "E. melanocephalum" and its variety longipes being conspecific with the South American E. melanocephalum. However, no authentic South American material of this species has been available to me for study and comparison and the original description yields no characters which would separate the two. Furthermore, some members of this family seem to have unusual distributions. For instance, Tonina fluviatilis and Paepalanthus Lamarckii are found both in Cuba and the Guianas. More intensive collecting in the West Indies and Central America may reveal all three species in the intervening area.

Citations: CUBA: Pinar del Río: C. Wright 3241 (T--isotype).

33. ERIOCAULON MEXICANUM Moldenke, N. Am. Fl. 19: 33. 1937.

This species inhabits springy places and has been col-

lected in anthesis in July.

Citations: MEXICO: Jalisco: Pringle 11,202 (N--type).

37. *ERIOCAULON MICROCEPHALUM* H.B.K. Nov. Gen. & Sp. Pl. 1: 253. 1816.

Eriocaulon pusillum Willd. ex Körn. in Mart. Fl. Bras. 3: 492, in syn. 1863 [not E. pusillum R. Br., 1810]; Eriocaulon brachypus Van Heurck & Müll. Arg. in Van Heurck, Obs. Bot. 1: 96. 1870; Eriocaulon mexicanum Liebm., in herb. [not E. mexicanum Moldenke, 1937].

The species has been collected in wet meadows and gravelly soil around mountain springs, at altitudes of 9000 to 10,000 feet, flowering in July, August, and October.

Citations: CALIFORNIA: Kern Co.: Xantus de Vesey s.n. [Fort Tijon] (T). MEXICO: Mexico: Pringle 6144 (C, K), 7361 (I, K, N), 13,228 (K); Rose & Painter 7929 (N); Schaffner 226b (C, M1, N), 426 (N); Puebla: Liebm. s.n. [Chinantla] (K). COSTA RICA: San José: Standley & Valerio 43,637 (F), 43,830 (F). ECUADOR: Carchi: Lehmann 567 (K); Pichincha: Jameson 206 (K); Province undetermined: André K.1737 (K).

13. *ERIOCAULON MINUTISSIMUM* Ruhl. in Fedde, Repert. 22: 32. 1925.

The species inhabits moist places among grasses and has been collected in anthesis in November.

Citations: CUBA: Pinar del Río: Ekman 17,948 (N--isotype).

24. *ERIOCAULON MISERRIMUM* Ruhl. in Fedde, Repert. 22: 30. 1925.

The species inhabits moist places along roadsides and has been collected in anthesis in October.

Citations: CUBA: Isla de Pinos: Ekman 11,956 (N--isotype).

5. *ERIOCAULON OLIVACEUM* Moldenke, N. Am. Fl. 19: 22. 1937.

The species inhabits wet places and moist white sand of barrens and has been collected in anthesis in November.

Citations: CUBA: Isla de Pinos: Ekman 12,029 (N--type).

28. *ERIOCAULON OVOIDEUM* Britton & Small in Britton, Bull. Torrey Club 44: 32. 1917.

The species inhabits white sand areas and has been collected in anthesis in February.

Citations: CUBA: Isla de Pinos: Britton, Britton, & Wilson 14,220 (N--type).

32. *ERIOCAULON PALMERI* Ruhl. in Engl. Pflanzenreich 4³⁰: 48. 1903.

The species has been collected in anthesis from April to

November.

Citations: MEXICO: Durango: Edw. Palmer 172 (N--isotype).

30. ERIOCAULON PANAMENSE Moldenke, N. Am. Fl. 19: 31--32. 1937.

Citations: PANAMA: Chiriquí: Killip 3614 (F--type, It--photo of type, Ki--isotype, N--photo of type, Z--photo of type); Woodson, Allen, & Seibert 1130 (N).

18. ERIOCAULON PARKERI B. L. Robinson, Rhodora 5: 175. 1903.

Illustrations: Britton & Br. Ill. Fl., ed. 2, 1: f. 1141. 1913; Marie-Vict. Fl. Laurent. f. 244. 1935.

Cotypes are T. P. James s.n. from the shore of the Delaware River near Cooper's Creek, N. J., and C. F. Parker s.n. from between high and low water mark, Camden, N. J. The former is by inference regarded as the logotype in N. Am. Fl. 19: 27. 1937, although if one of the two collections is to be so designated it should certainly be the Parker collection, since the species is named after Parker and not after James! The species inhabits tidal mudflats, tidal pools in argillaceous ledges, shallow water along river shores and banks, and other places mostly submerged at high tide, flowering from July to October. The leaves and peduncles are often purplish-green throughout.

Citations: MAINE: Penobscot Co.: Fernald & Long 13,165 (I, Mi, N--2), 13,166 (N); Sagadahoc Co.: Fassett 157 (N); Fernald & Long, Plant. Exsicc. Gray. 174 (I, Mi, N--2), 15,167 (N). CONNECTICUT: Fairfield Co.: Eames 8976 (N); New London Co.: R. W. Woodward s.n. [Old Lyme, Aug. 1, 1918] (N). NEW YORK: Greene Co.: House 25,128 (N); Columbia Co.: Muenschner & Curtis 5600 (N); Rockland Co.: Muenschner & Curtis 5598 (N). PENNSYLVANIA: Philadelphia Co.: Conrad s.n. [Near Philadelphia] (T). NEW JERSEY: Mercer Co.: Mackenzie 7236 (N); Monmouth Co.: Carter s.n. [Belmar, July 12, 1910] (N); Burlington Co.: B. Long 4767 (N); Mackenzie 5671 (N), 5684 (N); N. Taylor 2558 (N); Ocean Co.: Mackenzie s.n. [West of Mantoloking, Sept. 21, 1912] (N); Camden Co.: Mackenzie 7344 (N); Pennell 9898 (N); C. S. Williamson s.n. [Fish House, Oct. 2, 1905] (N), s.n. [Fish House, July 28, 1906] (N); Atlantic Co.: B. Long 4721 (N); Cumberland Co.: B. Long s.n. [Millville, Oct. 7, 1909] (N). DELAWARE: Sussex Co.: N. L. Britton 24 (N). MARYLAND: Wicomico Co.: Carter s.n. [Salisbury, July 15, 1904] (N); County undetermined: Carter s.n. [Gunpowder Sta., Aug. 27, 1903] (N). VIRGINIA: Alexandria Co.: Dowell s.n. [Aug. 13, 1910] (N); New Kent Co.: Grimes 4135 (N).

14. ERIOCAULON PINARENSE Ruhl. in Fedde, Repert. 22: 32. 1925.

This species inhabits pinelands, mud, and the borders of small ponds, and has been collected in anthesis in February and March.

Citations: CUBA: Pinar del Río: Ekman 18,769 (N--isotype); Isla de Pinos: Britton, Britton, & Wilson 15,008 (N).

43. *ERIOCAULON PRINGLEI* S. Wats., Proc. Am. Acad. 23: 283. 1888.

The species is found in damp and wet places on plains, and has been collected in anthesis in October.

Citations: MEXICO: Chihuahua: Pringle 2018 (C).

11. *ERIOCAULON PSEUDOCOMPRESSUM* Ruhl. in Urb. Symb. Ant. 1: 492. 1900.

Eriocaulon gnaphalodes C. Wright apud Ruhl. in Urb. Symb. Ant. 1: 492, in syn. 1900 [not E. gnaphalodes Michx., 1803].

The species inhabits the Eleocharis belt at the edges of lakes and lagoons, and has been collected in anthesis in February.

Citations: CUBA: Pinar del Río: Cuesta 371 (N); Ekman 11,221 (N); Province undetermined: C. Wright 3741 (N--isotype, T--2 isotypes).

17. *ERIOCAULON RAVENELII* Chapm. Fl. S. U. S., ed. 1, 503. 1860.

The species inhabits wet places, low pinelands, hammocks, and everglades, and has been collected in anthesis from October to January.

Citations: SOUTH CAROLINA: Berkeley Co.: Ravenel s.n. [St. Johns] (C--type). FLORIDA: Broward Co.: Small & Small 4429 (N), 4447 (N); Dade Co.: A. A. Eaton s.n. [Miami, Nov. & Dec. 1903] (N); Small & Carter 654 (N), 888 (N), 1148 (N), 3067 (N), s.n. [Between Cocconut Grove & Cutler] (N); Small & Nash s.n. [West of Miami, Nov. 1 & 9, 1901] (N).

42. *ERIOCAULON SCHIEDEANUM* Körn. in Mart. Fl. Bras. 3¹: 492. 1863.

Eriocaulon Jaliscanum S. Wats., Proc. Am. Acad. 26: 157 (1891), of which the type is Pringle 2936, properly a straight synonym of this species, is sometimes cited "in part" as synonymous with E. bilobatum Morong. The specific name is usually lower-cased, but was originally published with a capital initial letter. Some specimens from British Honduras have been distributed under the name "E. Schiede-
anum", but are actually E. fuliginosum, which see.

The species inhabits swamps and wet hollows in rocky slopes, ascending to 5000 feet, and has been collected in anthesis in October and November.

Citations: MEXICO: Jalisco: Barnes & Land 159 (F);

Pringle 2936 (C), 6146 (C), s.n. [Near Guadalajara, Oct. 7, 1890] (C).

36. ERIOCAULON SCHIPPPII Standl. in Standl. & Record, Field Mus. Publ. Bot. 12: 90, hyponym (1936); Moldenke, N. Am. Fl. 19: 34. 1937.

The species inhabits the water of shallow pools in brackish swamps at low elevations, and has been collected in anthesis in September.

Citations: BRITISH HONDURAS: Schipp 647 (F--isotype, M--isotype, N--type).

15. ERIOCAULON SCLEROCEPHALUM Ruhl. in Fedde, Repert. 22: 31. 1925.

Cotypes of this species are Ekman 12191, 11975, 11990, and 10822 from moist places near the bay at Los Indios on white quartzite sand in mostly dried-out holes between dense tussocks of grass at Santa Bárbara, Isla de Pinos, and in sandy somewhat damp places at Herradura, Pinar del Río, Cuba. The species also inhabits pinelands, mud along brook-sides, and sand where water sifts through, and has been collected in anthesis in February, October, and November.

Citations: CUBA: Isla de Pinos: Britton, Britton, & Wilson 14,948 (N); Ekman 11,975 (N--cotype), 11,990 (N--cotype), 12,106 (N).

22. ERIOCAULON SEEMANNII Moldenke, N. Am. Fl. 19: 28--29. 1937.

Citations: PANAMA: Canal Zone: Seemann 295 (K--type, N--photo of type, Z--photo of type); Panamá: Woodson, Allen, & Seibert 1650 (N).

10. ERIOCAULON SEPTANGULARE With. Veg. Brit. 784. 1776.

?Cespa aquatica Hill, Herb. Brit. 1: pl. 66 [some copies]. 1769; Nasmythia articulata Huds. Fl. Angl., ed. 2, 1: 415. 1778; Eriocaulon pellucidum Michx. Fl. Bor. Am. 2: 166. 1803; Eriocaulon pumilum Raf. Atl. Journ. 121. 1832; Eriocaulon Noveboracens Pluk. ex Hook. in Curtis, Bot. Mag. 59: pl. 3126, in syn. 1832; Nasmythia septangularis (With.) Mart., Nov. Act. Physico-med. Acad. Caes. Leopold.-Carol. Nat. Cur. 17¹: 58, pl. 2, f. 2, hyponym. 1835; Eriocaulon articulatum (Huds.) Morong, Bull. Torrey Club 18: 353. 1891; Eriocaulon decangulare Hope apud Hook. f. & Jacks. Ind. Kew. 1: 878, in syn. 1895 [not E. decangulare L., 1753]; Eriocaulon aquaticum (Hill) Druce, Pharm. Journ. ser. 4, 29: 700. 1909 [not E. aquaticum Sagot, in syn., 1863]; Eriocaulon septangulare var. natans Hexamer & Meier, in herb.

The 1762 date given by Ruhland for Nasmythia articulata is erroneous. This binomial was not published until 1778, as

has been pointed out by me in N. Am. Fl. The 1818 date given by Morong for E. septangulare is also erroneous (as has been pointed out by Fernald in *Rhodora*) and led to his faulty use of the specific name "articulatum", taken from Hudson's Nasmythia articulata (1778). Eriocaulon septangulare was actually first published in 1776.

The species inhabits tamarack and other bogs, swamps, ponds, brackish marshes, sandy and muddy tidal flats, quiet pools, muddy or mucky margins and banks of ponds and streams, stream deadwaters, shallow snady-bottomed ponds, low sandy or drying mucky shores, gravelly soil, sandy shallows and shallow pools in peaty barrens, sandy shores of rivers, pond-holes in savannas, boggy soil at the margins of ponds, and in shallow or even rather deep quiet water. It has been collected in anthesis from July to September.

Illustrations: Hill, *Herb. Brit.* 1: pl. 66 [some copies]. 1769; *Philos. Trans. Lond.* 59: 243, pl. 12. 1770; Sowerby & Sm. *Engl. Bot.* 11: pl. 733. 1800; Curtis, *Fl. Londin.*, ed. 2, 4: pl. 52. 1819--1821; *Nov. Act. Physico-med. Acad. Caes. Leopold.-Carol. Nat. Cur.* 17: pl. 2, f. 2. 1835; M. E. Jackson, *Pict. Fl. f.* 1387. 1840; Baxter, *Brit. Bot.*, ed. 2, 6: pl. 465. 1843; Deakin, *Florigr. Brit.* 3: f. 1457. 1847; Johnson & Sowerby, *Brit. Wild Fl. f.* 1303. 1858--1860; *Trans. Linn. Soc. Lond.* 22: pl. 68, f. 11--15. 1859; T. Moore, *Field Bot. Comp.* pl. 24. 1862; Benth. *Ill. Handb. Brit. Fl. f.* 1066. 1865; Le Maout & Decaisne, *Traité Gén. Bot.*, ed. 1, 597 & 598. 1868; Syme, *Engl. Bot.* 10: pl. 1546. 1870; Le Maout & Decaisne, *Gen. Syst. Bot.* 872. 1873; Pratt, *Fl. Pl. Grasses, Sedges, & Ferns Gr. Brit.*, ed. 3: 5: pl. 228. 1873; Le Maout & Decaisne, *Traité Gén. Bot.*, ed. 2, 611 & 612. 1876; Hogg & Johnson, *Wild Fl. Gr. Brit.* 11: pl. 894. 1880; Baillon, *Hist. Pl.* 12: 398, f. 371. 1894; Britton & Br. *Ill. Fl.*, ed. 1, 1: 371, f. 899. 1896; Creevey, *Flow. Field, Hill & Swamp* 129. 1898; Rendle, *Fl. Pl.* 1: f. 132. 1904; Praeger, *Tour. Fl. W. Ireland* pl. 6. 1909; Walton, *Pract. Guide Wild Fl. & Fr. f.* 32. 1909; *Journ. Roy. Hort. Soc. Lond.* 36: 301, f. 107. 1910; Karst. & Schenck, *Veg.-Bild.* 8: pl. 31. 1910; G. T. Stevens, *Ill. Guide Fl. Pl.* pl. 9, f. 9. 1910; *Ann. Rep. New Jersey State Mus.* 1910: pl. 28, f. 1. 1912; Creevey, *Harper's Guide Wild Fl.* 45. 1912; Horwood, *Plant Life Brit. Isles* 3: 340. 1915; Britton & Br. *Ill. Fl.*, ed. 2, 1: 454, f. 1140. 1913; Walton, *Flower-Finder*, ed. 1, 129. 1914; ed. 2, 129. 1916; House, *Wild Fl. New York* [*Mem. N. Y. State Mus.* 15:] 1: pl. 6, f. A. 1918; Fitch & Sm. *Ill. Brit. Fl.*, ed. rev. 4, Iss. 2: f. 1082. 1919; N. Taylor, *Guide Wild Fl. f.* 13. 1928; Pool, *Flowers & Fl. Pl.*, ed. 1, f. 169. 1929; Marie-Vict. *Fl. Laurent. f.* 244. 1935.

Citations: IRELAND: Groves & Groves s.n. [8.VIII.1892]

(I); Tidestrom 11,236 (I). SCOTLAND: Salmon s.n. [circa 1843] (I). ISLE OF SKYE: Greville s.n. (M1). ST. PIERRE: Ar-sène 130 (N). SABLE ISLAND: Macoun 22,639 (N); St. John 1168 (N). NEWFOUNDLAND: Fernald, Long, & Dunbar 26,459 (N); Fernald & Wiegand 5068 (N); Howe & Lang 856 (N), 1421 (N); Robinson & Schrenk 112 (C), s.n. [12 Aug. 1894] (C). NOVA SCOTIA: Cape Breton Co.: Howe & Lang 686 (N), 765 (N); Macoun s.n. [North Sydney, July 14, 1883] (C); Nichols 1623 (M1); C. B. Robinson 396 (N); Richmond Co.: Rousseau 35,579 [Nat. Herb. Canada 130,088] (N); Guysborough Co.: C. A. Hamilton 25,149 (N); Halifax Co.: Howe & Lang 1583 (N), 1603 (N); Digby Co.: Fernald & Long 20,594 (N); Yarmouth Co.: Fernald, Bissell, Graves, Long, & Linder 20,597 (N). NEW BRUNSWICK: St. John Co.: Fowler s.n. [St. John, Sept. 1873] (M1). QUEBEC: Rimouski Co.: C. S. Williamson 1106 (N); Temiscouata Co.: J. I. Northrop 184 (C); Portneuf Co.: Marie-Victorin s.n. [Lacs du Laurentides, Août, 1912] (I); Montcalm Co.: Pennell 16,704 (N); Ottawa Co.: Marie-Victorin 15,737 (N); County undetermined: Anselm 435 (N). ONTARIO: Simcoe Co.: Britton, Britton, & Timmerman s.n. [Port Sandfield, Sept. 1, 1889] (C); St. Joseph Island: Harper & Harper s.n. [Aug. 3, '97] (I). MAINE: Penobscot Co.: Fernald 369 (C); F. L. Harvey s.n. [Orono, 1884] (C); Waldo Co.: Fernald & Long 13,162 (N); Friesner 10,224 (N); Mount Desert Island: T. G. White s.n. [Shores of Jordan's Pond] (C); County undetermined: Briggs s.n. [Chemo Stream, Aug. 1891] (N). NEW HAMPSHIRE: Coos Co.: Minns s.n. [Crawford's, Aug. 1887] (C); Grafton Co.: Knight s.n. [Echo Lake, 12.7.79] (N); Langdon s.n. [Little Squaw Lake, July 27, 1894] (M1); Merrimack Co.: Clinton s.n. [Warner, August, 1935] (I); Cheshire Co.: E. J. C. Gilbert s.n. [Keene, Sept. 1875] (N); Hillsboro Co.: Batchelder s.n. [Merrimack, Aug. 4, 1917] (N); Sheehan s.n. [Goffstown, July 31, 1931] (I). VERMONT: Addison Co.: Brainerd s.n. [Lake Dunmore, Aug. 16, 1878] (M1, N); Herb. Chapman s.n. [Lake Dunmore, 1859] (C); Orange Co.: Denslow s.n. [Newbury, July 31, 1923] (N). MASSACHUSETTS: Berkshire Co.: E. Davis s.n. [Pittsfield] (T); Hampshire Co.: Collector undesignated s.n. [Southampton Pond, 1829] (C); Hampden Co.: Seymour 268 (N); Essex Co.: L. T. Chamberlain s.n. [Wenham Pond, Aug. 1899] (N); Morong s.n. [Hamilton, July 27, 1875] (Bc); R. H. Rich s.n. [July 26, 1896] (I); Middlesex Co.: H. H. Bartlett 313 (M1); Morong s.n. [South Natick, Sept. 15, 1881] (Bc); Norfolk Co.: S. F. Blake 4366 (I); Ruggles s.n. [Near Milton] (M1); Plymouth Co.: Herb. Torrey Botanical Club s.n. [Hanover] (Tc); Barnstable Co.: Hollick s.n. [Provincetown] (N); Dukes Co.: E. P. Bicknell 231 (N); Blodgett s.n. [Martha's Vineyard, Aug. 19, '93] (N--2); Fogg 2508 (N); A. B. Northrop s.n. [Nashawena, Aug. 1901] (N), s.n. [Nashawena, July--Aug. 1901] (N); Nantucket Co.: C. A.

Davis s.n. [Nantucket, 14 Aug. 1911] (M1); County undetermined: C. F. Austin s.n. [East Mass., 1860] (C). CONNECTICUT: Litchfield Co.: Leggett s.n. [Canaan Pond] (Tc); Underwood 3124 (C), s.n. [West Goshen, Aug. 1890] (C); Middlesex Co.: Denslow s.n. [Killingworth, Sept. 5, 1902] (N); County undetermined: D. C. Eaton s.n. (T). NEW YORK: St. Lawrence Co.: Phelps 296 (N); Oswego Co.: House 5822 (N); Hamilton Co.: B. B. Lambert 8 (N); Madison Co.: House s.n. [North Bay of Oneida Lake, July, 1901] (N), s.n. [North shore, Oneida Lake, Aug. 1903] (N); Warren Co.: W. Cooper s.n. [Lake George, Aug. 1817] (T); Wehmeyer s.n. [Hart Lake, Sept. 8, 1930] (M1); Washington Co.: A. Fitch s.n. [East Greenwich, 19.4.13] (M1); Rensselaer Co.: H. H. Eaton s.n. [Sand Lake, 1829] (T); House 21,951 (N); Steuben Co.: Lucy 2237 (N); Sullivan Co.: P. Wilson s.n. [Sand Pond, Aug. 13, 1918] (N), s.n. [Lake Shandeleo, Aug. 7, 1918] (N); Ulster Co.: P. Wilson s.n. [Lake Katrine, Aug. 18, 1916] (N); Dutchess Co.: Pennell 8431 (N); Orange Co.: Lt. Bailey s.n. [West Point] (T); Raup 7748 (N); Putnam Co.: Herb. Chapman s.n. [Lake Mahopac, Aug. 1848] (C); Westchester Co.: W. Cooper s.n. [Near Tarrytown, August, 1819] (T); Cushman & Word s.n. [Shore of South Pond, Aug. 1910] (N); Leggett s.n. [Lake Mohegan, Sept. 6, 1868] (C); Muenschler & Curtis 5611 (N); Pennell 8400 (N); Queens Co.: Bisky s.n. [Lakeville] (C); Nassau Co.: E. P. Bicknell 230 (N), s.n. [Rockville Center, July 25, '03] (N); Clute & Wilson s.n. [Hempstead, July 20--21, 1899] (N); Ferguson 2483 (N), s.n. [Meadow Brook, 8-26-20] (N), s.n. [Hempstead, 7-25-19] (N); P. Wilson s.n. [Merrick, Sept. 11, 1915] (N); Suffolk Co.: Clute 116 (N); Ferguson 302b (N), 1869 (N), 2296 1/2 (N), 7755 (N). PENNSYLVANIA: Luzerne Co.: J. K. Small s.n. [Lily Lake, Aug. 15, 1889] (N); Pike Co.: Nash s.n. [Twin Lakes, July 30, 1909] (N). NEW JERSEY: Sussex Co.: N. L. Britton s.n. [Morris Pond, Sept. 13, 1887] (C); Mackenzie 4417 (N--2), 7277 (N); W. de W. Miller 1334 (N); Nash s.n. [July 26, 1909] (N); J. K. Small s.n. [Budd's Lake, August 12--14, 1890] (I); Morris Co.: Collector undesignated s.n. [Schooley's Mtn., August, 1820] (C); Mackenzie 796 (N), 1021 (N); Tuckerman s.n. [Mountain Lakes] (T); Ocean Co.: Gleason, Smith, & Alexander 173 (N); Hexamer & Meier s.n. [Manchester pond, Aug. 25] (N); Mackenzie 3846 (N--2), 4850 (N), 5277 (N), s.n. [Waretown, Sept. 1922] (N); Camden Co.: Crawford & Bliss s.n. [Atco, July 10, 1927] (N); O'Neill 8190 (I); Atlantic Co.: Beals s.n. [Hammonton Lake] (N); Gross 3017 (N); Pennell 8194 (N); County undetermined: Brinton s.n. [Pine barrens, Sept. 1892] (C). MARYLAND: Harford Co.: C. S. Williamson s.n. [Havre-de-Grace, Sept. 1, 1906] (N); Wicomico Co.: Canby s.n. [Salisbury, Sept. 1887] (C); Worcester Co.: H. H. Rusby s.n. [Stockton, Aug. 1889] (C). INDIANA: Steuben Co.: C. C. Deam 1290 (N), 20,896 (N),

20,952 (N); Whitley Co.: C. C. Deam s.n. [Round Lake, 9-1-97] (N). MICHIGAN: Isle Royale Co.: C. A. Brown 3462 (M1), 3626 (M1); Foots s.n. [July 19, 1868] (M1); McFarlin 2381 (M1); Univ. of Michigan party s.n. [July, 1868] (M1), s.n. [1868] (M1); Houghton Co.: C. A. Davis s.n. [Sept. 1905] (M1); Iron Co.: C. A. Davis s.n. [Crystal Falls, Aug. 1905] (M1); Marquette Co.: C. K. Dodge 468 (N), s.n. [Aug. 30, 1916] (M1); Duckworth s.n. [Little Lake, Aug. 4, 1906] (M1); Metcalf 2172 (N); Alger Co.: Fernald & Pease 3220 (M1); Chippewa Co.: C. K. Dodge s.n. [Aug. 30, 1914] (M1); F. J. Hermann 7146 (M1, N); N. A. Wood s.n. [Whitefish Point, 1912] (M1); Cheboygan Co.: Ehlers 112 (M1), 1109 (M1), 1686 (M1), 5153 (M1); Erlanson 395 (M1); Gleason & Gleason 202 (N); Miner s.n. [Aug. 11, 1931] (I); Presque Isle Co.: Ehlers 5440 (M1), 6150 (M1); F. J. Hermann 7012 (M1, N); Mason Co.: Chaney 67 (N); Gratiot Co.: C. A. Davis s.n. [Alma, Aug. 13, '95] (M1--3), s.n. [Alma, Aug. '95] (M1); Cass Co.: Gates 858 (M1); Herb. Univ. of Michigan s.n. [Aug. 25, 1838] (M1). WISCONSIN: Burnett Co.: Fassett 7711 (N); Calumet Co.: Hasse s.n. [Lake Hilbert, Aug. '84] (N); County undetermined: Hasse s.n. [Northern Wisconsin, July, 1882] (N); Houghton s.n. [Lac des Isles, Aug. 5, 1831] (M1). MINNESOTA: St. Louis Co.: Butters s.n. [Clear Lake, Aug. 24, 1919] (N); Cook Co.: Butters & Buell 474 (N); Crow Wing Co.: Sandberg s.n. [Aug. 1891] (N); Chisago Co.: B. C. Taylor s.n. [Linn Lake, Aug. 1892] (C), s.n. [Center City, Aug. 1892] (M1). LOCALITY OF COLLECTION UNDESIGNATED: G. L. Ames s.n. [Mt. Lubber, W., Sept. 1857] (M1); Collector undesignated s.n. (C); G. W. Wright s.n. [1876] (Tc).

23. ERIOCAULON SIGMOIDEUM C. Wright ex Sauv., Anal. Acad. Ci. Habana 8: 48. 1871.

Citations: CUBA: Province undetermined: C. Wright 3737 (T--isotype).

40. ERIOCAULON TEPICANUM Moldenke, N. Am. Fl. 19: 36. 1937.

This species has been collected in anthesis in January and February.

Citations: MEXICO: Nayarit: Edw. Palmer 2029 (N--type).

12. ERIOCAULON TEXENSE Körn., Linnaea 27: 594. 1856.

This species inhabits swamps and the wet soil of moist pinelands, and has been collected in anthesis in May.

Citations: TEXAS: Smith Co.: Reverchon 4359 (N); County undetermined: T. Drummond II.409 (T--isotype).

41. ERIOCAULON WILLIAMSII Moldenke, N. Am. Fl. 19: 36. 1937.

This species inhabits the clay of dried-up ponds, and has been collected in anthesis in February and March.

Citations: BRITISH HONDURAS: W. C. Meyer 134 (F). PANAMA: Coclé: R. S. Williams 299 (N--type).

LACHNOCAULON Kunth, Enum. Pl. 3: 497. 1841.

A genus of about 10 species, all North American.

10. LACHNOCAULON ANCEPS (Walt.) Morong, Bull. Torrey Club 18: 360. 1891.

Eriocaulon anceps Walt. Fl. Car. 83. 1788; Eriocaulon villosum Michx. Fl. Bor. Am. 2: 166. 1803; ?Eriocaulon pubigerum Bong., Mém. Acad. St.-Pétersb., sér. 6, 1: 628, pl. 42. 1831; Lachnocaulon Michauxii Kunth, Enum. Pl. 3: 497. 1841.

The species inhabits sandy and wet places, low or moist sandy pinelands, flatwoods, ditches, marshes, pinewood swamps, wet peaty margins of pine woods, sphagnum-magnolia swamps, low grassy pine-barrens, and argillaceous or siliceous biggy depressions and prairies, and has been collected in anthesis from May to October. Some material of L. minus has been confused with this species in the past and distributed under the name of L. Michauxii.

The Beyrich specimen cited below is of special interest. It was originally identified and labelled as "Eriocaulon villosum Michx.", but in pencil has been added "L. Beyrichianum Körn. non villosum". It does not, however, agree with the description of L. Beyrichianum and so may not actually represent the type collection of that species.

Illustrations: Mém. Acad. St.-Pétersb., sér. 6, 1: pl. 42. 1831; Britton & Br. Ill. Fl., ed. 1, 1: 373, f. 903. 1896; Engl. Pflanzenreich 4³⁰: 241, f. 36. 1903; Britton & Br. Ill. Fl., ed. 2, 1: 456, f. 1145. 1913.

Citations: VIRGINIA: Isle of Wight Co.: Fernald & Long 6121 (N); James City Co.: Grimes 3761 (N); Prince George Co.: Fernald, Long, & Smart 5698 (N). NORTH CAROLINA: Bladen Co.: Biltmore Herb. 2755 (N); Oosting 3555 (N); New Hanover Co.: M. E. Hyams s.n. [Wilmington, July, 1879] (Bc). SOUTH CAROLINA: Kershaw Co.: House 2685 (N); Florence Co.: E. B. Bartram 2277 (N); Ravenel s.n. [Florence, 1879] (C, M1); Aiken Co.: Ravenel s.n. [Aiken, 1870] (C); Dorchester Co.: Gibbes s.n. [Summerville, May 25, 1855] (N). GEORGIA: Richmond Co.: Cuthbert 141 (N), s.n. [Augusta, May, 1881] (N); Sumter Co.: R. M. Harper 443 (N); Emanuel Co.: R. M. Harper 804 (N); Worth Co.: Pollard & Maxon 562 (N); County undetermined: Boykin 12 (T); Le Conte s.n. (T). FLORIDA: Alachua Co.: O'Neill 633 (I); Nassau Co.: Drushel 10, 135 (N); Duval Co.: Curtiss 3021 (Bc, C, I); Keeler s.n. [Vicinity of Mayport & Jacksonville] (C); Lighthipe 452 (N); Clay Co.: Canby s.n. [Hibernia, 1869] (N); Lake Co.: A. S. Hitchcock s.n. [Eustis, June--July, 1894] (I); Nash 1942 (C, M1); Okeecho-

bee Co.: O'Neill "Count 181" (I); Orange Co.: Huger s.n. ["X.C.I."] (N); O'Neill "Count 100" (I); Pasco Co.: O'Neill 786 (I), 7783 (I), 7787 (I); Hillsboro Co.: Britton & Wilson 19 (N); Folk Co.: McFarlin 6381 (I); Manatee Co.: Tracy 7586 (N); Seminole Co.: C. Skottsberg s.n. [Sanford, 14.5.1935] (Go); Monroe Co.: Blodgett s.n. [Key West] (T); County undetermined: Biltmore Herb. 2755a (N); Herb. Chapman s.n. [Florida] (C); Herb. Columbia Univ. s.n. [Fla.] (C--2); Herb. Le Roy s.n. [Fla.] (C); O'Neill s.n. [Prairies, Oct. 28, 1929] (I). ALABAMA: De Kalb Co.: Ruth 133 (N); Mobile Co.: C. F. Baker 841 (C); Bush 107 (N); Dukes 2 (N); Gates, Fletcher, & Jewett 188 (M1); Jewett s.n. [Mobile, May 9, 1839] (M1--2); MacKenzie 4059 (N); County undetermined: Buckley s.n. [June] (T). MISSISSIPPI: Harrison Co.: Lloyd & Tracy 320 (N); Jackson Co.: Tracy 5031 (M1, N). LOUISIANA: St. Tammany Par.: Langlois s.n. [Mandeville to Covington, April, 1879] (I); Orleans Par.: Ingalls s.n. (T); Parish undetermined: Hale 160 (T). TEXAS: Hardin Co.: Whitehouse 581 (N). CUBA: Isla de Pinos: Ekman 12,410 (N). LOCALITY OF COLLECTION UNDESIGNATED: Beyrich s.n. [Amer. bor.] (M1).

7. LACHNOCAULON BEYRICHIANUM Sporleder ex Körn., Linnaea 27: 567. 1856.

This species inhabits low or rather dry pine-barrens, the borders of swamps, sandy shores, and springy places, and has been collected in anthesis from March to June and August. The binomial is often inaccurately accredited to Körnicke. See under L. anceps for comments about a Beyrich specimen in the herbarium of the University of Michigan.

Citations: GEORGIA: Charlton Co.: R. M. Harper 1491 (N). FLORIDA: St. Johns Co.: M. C. Reynolds s.n. [St. Augustine, Mar.--June, 1875] (C, M1).

3. LACHNOCAULON CUBENSE Ruhl. in Fedde, Repert. 22: 34. 1925.

The species inhabits sandy savannas, and has been collected in anthesis in August.

Citations: CUBA: Santa Clara: Ekman 17,118 (N--photo of type).

6. LACHNOCAULON DIGYNUM Körn., Linnaea 27: 570. 1856.

Lachnocaulon diandrum Van Heurck & Mill.-Arg. in Van Heurck, Obs. Bot. 1: 108. 1870; Lachnocaulon anceps Benth. & Hook. f. apud Ruhl. in Engl. Pflanzenreich 4³⁰: 242, in syn. 1903 [not L. anceps (Walt.) Morong, 1891].

The species inhabits moist sandy pinelands, and has been collected in anthesis in September.

Citations: ALABAMA: Mobile Co.: Pennell 4474 (N). MISSISSIPPI: Harrison Co.: Lloyd & Tracy 318 (N).

8. LACHNOCAULON ECILIATUM Small, Fl. SE. U. S., ed. 1, 235 & 1328. 1903.

The species inhabits sandy shores of small lakes and margins of ponds, and has been collected in anthesis in January, August, and September.

Citations: FLORIDA: Walton Co.: Curtiss 3022 (Bo--isotype, C--type, I--isotype, N--isotype); Putnam Co.: R. M. Harper 7 (N); Lake Co.: Biltmore Herb. 15,001d (N).

2. LACHNOCAULON EKMANNII Ruhl. in Fedde, Repert. 22: 34. 1925.

The species inhabits wet sandy places, sandy banks of lakes, and white sand in pinelands, and has been collected in anthesis in November and December. It is worth pointing out that Ruhland apparently spelled this specific name "Ekmannii" intentionally, for he spelled it thus also in the case of Eriocaulon Ekmannii. In the opinion of the present writer, the original spelling should be retained. The species has in the past been confused with the continental L. Engleri and specimens distributed under that name.

Citations: CUBA: Pinar del Río: Ekman 18,132 (N--2, N--fragment & photo); Shafer 11,011 (N--2).

1. LACHNOCAULON ENGLERI Ruhl. in Engl. Pflanzenreich 4³⁰: 241. 1903.

Eriocaulon maritimum Chapm., in herb.; Lachnocaulon maritimum Torr., in herb.; Lachnocaulon glabrum Chapm., in herb. [not L. glabrum Körn., 1856].

The species inhabits damp sandy and springy places, ditches, and lake shores, and has been collected in anthesis in January and July. Vivipary is quite conspicuous on some heads of O'Neill 7785a. The species has been confused by some with L. glabrum, while the Cuban material distributed under this name is actually L. Ekmannii.

Citations: FLORIDA: Washington Co.: Chapman s.n. [St. Andrews Bay, 1838] (C); Herb. Le Roy s.n. [St. Andrews Bay] (N--2); Putnam Co.: R. M. Harper 8 (N); Lake Co.: Nash 1184 (C--isotype, Mi--isotype); Pasco Co.: O'Neill 7785a (I); Orange Co.: O'Neill s.n. [Lake Oia, July 2, 1929] (I); County undetermined: Chapman s.n. [Florida] (T); Collector undesignated s.n. [Florida] (N).

3. LACHNOCAULON FLORIDANUM Small, Fl. SE. U. S., ed. 1, 235 & 1328. 1903.

The species inhabits low sandy places, and has been collected in anthesis in June. The specific name is often written with a capital initial letter.

Citations: FLORIDA: Lake Co.: Nash 1981 (C--type, N--isotype).

4. LACHNOCAULON GLABRUM Körn., Linnaea 27: 568. 1856.

The species inhabits low pinelands, damp woods, prairies, palmetto hammocks, flatwood ponds, and wet sandy places, and has been collected in anthesis in March, May, July, August, October, and November.

Citations: FLORIDA: Lee Co.: A. S. Hitchcock 374 (N); J. K. Small 8339 (N--2); J. P. Standley 33 (N); Broward Co.: Small & Carter 1024 (N); Small & Wilson 1608 (N), 1783 (N); Dade Co.: Small & Carter 690 (N); Small, Mosier, & Small 6892 (N), 6912 (N); Small & Wilson 1613 (N).

9. LACHNOCAULON MINUS (Chapm.) Small, Fl. SE. U. S., ed. 1, 235. 1903.

Lachnocaulon Michauxii var. minor Chapm. Fl. S. U. S., ed. 3, 531. 1897; Lachnocaulon minor (Chapm.) Small, F. SE. U. S., ed. 1, 1328, sphalm. 1903; Lachnocaulon Michauxii minus Chapm. ex Small, Man. SE. Fl. 257, sphalm. 1933.

The species inhabits moist soil or cultivated ground, low pine-barrens, pinelands, and the area above high-water mark on the sandy shores and margins of ponds and lakes, and has been collected in anthesis in March, from May to September, and in November. It has been confused by some in the past with L. Beyrichianum, L. glabrum, and L. Michauxii [= L. anceps], and with Paepalanthus flavidulus [= Syngonanthus flavidulus] and the Brazilian P. pilulifer Körn. and herbarium material has been distributed under those names.

Citations: NORTH CAROLINA: Halifax Co.: C. S. Williamson s.n. [Weldon] (N); New Hanover Co.: Canby s.n. [Prope Wilmington, Oct. 1867] (M); C. S. Williamson s.n. [Wilmington] (N). GEORGIA: Lowndes Co.: R. M. Harper 1607 (N). FLORIDA: Walton Co.: Curtiss 5911 (N); Liberty Co.: Herb. Chapman s.n. [Bristol] (N--type); Leon Co.: Berg s.n. [Near Tallahassee] (N); Clay Co.: Canby s.n. [Hibernia, March, 1869] (N); Lake Co.: R. M. Harper 42 (N); A. S. Hitchcock s.n. [Eustis, June--July, 1894] (N); Nash 148 (C, M), 1295 (C, M), 1855 (C); Volusia Co.: Curtiss 6894 (N); Pasco Co.: O'Neill 7783 (I); Broward Co.: Small & Carter 1037 (N).

PAEPALANTHUS Mart., Nov. Act. Physico-med. Acad. Caes.

Leopold.-Carol. Nat. Cur. 17: 13. 1835.

Dupatya Vell. Fl. Flum. 35. 1825 [nom. rejic.]; Stephanophyllum Guill. in Deless. Icon. Sel. 3: 61, pl. 98, in obs. 1837; Cladocaulon G. Gardn. in Hook. Icon. Pl. pl. 528. 1843; Limnoxeranthemum Salzm. ex Steud. Syn. Pl. Cyp. 2: 281, in syn. 1855; Lasiolepis Böck., Flora 41: 90, in part. 1873.

Sections III and IV of Eriocaulon as considered in Steud. Syn. Pl. Cyp. 2: 273 (1855) also belong here. It is most unfortunate that the present International Rules force us to

use the generic name Paepalanthus instead of the name Dupatya, which was published validly 10 years earlier!

A genus of about 450 species of tropical America, most numerous in Brazil.

5. PAEPALANTHUS ALSINOIDES C. Wright ex Sauv., Anal. Acad. Ci. Habana 8: 49. 1871.

This binomial is accredited by Britton to Wright and Sauvalle and the synonymous cheironym, Dupatya alsinoides (Wright & Sauv.) Britton, occurs on widely distributed specimens. The species inhabits gravelly pinelands and dry sandy pine woods, and has been collected in anthesis in September and December.

Citations: CUBA: Pinar del Río: Britton, Britton, & Gager 7090 (N), 7130 (N); Ekman 17,918 (N); C. Wright 3743 (N--isotype, T--isotype); Province undetermined: C. Wright s.n. (T).

- 5a. PAEPALANTHUS ALSINOIDES var. MINIMUS Jennings, Ann. Carnegie Mus. 11: 89, pl. 17, f. E--H. 1917.

The variety inhabits white sand or gravelly soil, sandy pinelands and pine-barrens, and hillsides, and has been collected in anthesis in February, March, May, and October.

Illustrations: Ann. Carnegie Mus. 11: pl. 17, f. E--H. 1917.

Citations: CUBA: Pinar del Río: Ekman 11,034 (N); Shafer 10,682 (N--2); C. Wright 3743a (N); Isla de Pinos: Britton, Britton, & Wilson 14,144 (N); Ekman 11,965 (N), 12,100 (N); Jennings 387 (N--isotype).

3. PAEPALANTHUS CHIAPENSIS Moldenke, N. Am. Fl. 19: 39. 1937.

The species inhabits wet localities and even shallow water of ponds, and has been collected in anthesis in May.

Citations: MEXICO: Chiapas: Purpus 179 (N), 10,565 (N--type).

1. PAEPALANTHUS COSTARICENSIS Moldenke, N. Am. Fl. 19: 38. 1937.

The species inhabits sphagnum bogs at high elevations, ascending to 6400 feet, and has been collected in anthesis in December.

Citations: COSTA RICA: San José: P. C. Standley 42,326 (F--type, N--photo of type, Z--photo of type).

9. PAEPALANTHUS DOMINGENSIS Ruhl. in Urb. Symb. Ant. 1: 485. 1900.

Cotypes are Eggers 2216 and 2216b from among rocks at Valle Nuevo, altitude 2270 m., Dominican Republic. The species also inhabits grassy places at high elevations, and has

been collected in anthesis in June and July.

Citations: HISPANIOLA: Dominican Republic: Fuertes 1748 (N); Türckheim 3422 (N).

7. PAEPALANTHUS GENTLEI Moldenke, N. Am. Fl. 19: 40-41. 1937.

The species has been collected in anthesis in December. It apparently grown in company with P. Lamarckii, for both species are intimately mixed on many sheets of the type collection. The P. Lamarckii material is here regarded as Gentle 992a.

Citations: BRITISH HONDURAS: H. H. Bartlett 11,874 (M1); Gentle 992 (F--isotype, I--isotype, M1--2 isotypes, N--type); O'Neill 8547 (I, M1).

6. PAEPALANTHUS LAMARCKII Kunth, Enum. Pl. 3: 506. 1841.

Eriocaulon fasciculatum Lam. Encycl. Méth. 3: 276. 1789 [not E. fasciculatum Rottb., 1778]; Paepalanthus Ottonis Klotzsch in Schomb. Reise in Br. Guian. 3: 1115. 1848; Eriocaulon Lamarckii (Kunth) Steud. Syn. Pl. Cyp. 276. 1855; Lasiolepis pilosa Bock., Flora 56: 9. 1873; Dupatya Lamarckii (Kunth) Kuntze, Rev. Gen. Pl. 2: 746. 1891.

The species apparently grows in company with P. Gentlei and Syngonanthus Bartlettii, for it is intimately mixed with these species on sheets of Gentle 992 and H. H. Bartlett 11,263. The latter collection also has several other contaminations, mostly xyridaceous, cyperaceous, and juncaceous. It inhabits roadsides, pinelands, swampy places, and savannas near sea-level and is said to be "rare" in British Honduras. It has been collected in anthesis in November and December and February. It occurs rather abundantly in Venezuela and the Guianas.

Illustrations: Lam. Encycl. Méth. Ill. pl. 50, f. 3. 1791.

Citations: BRITISH HONDURAS: H. H. Bartlett 11,263 (M1--2); Gentle 992a (M1, N); Schipp S-130 (F, N). PANAMA: Coclé: H. Pittier 4932 (N). CUBA: Pinar del Río: Ekman 18,121 (N--2); Isla de Pinos: Ekman 12,015 (M1, N); Province undetermined: C. Wright 3742 (T--2). TRINIDAD: W. E. Broadway 9310 (I).

8. PAEPALANTHUS MELLII Moldenke, N. Am. Fl. 19: 41. 1937.

The species has been collected in anthesis in November.

Citations: MEXICO: Veracruz: C. D. Mell s.n. [Minatitlan, Nov. 28, 1928] (N--type).

13. PAEPALANTHUS MONTANUS (Britton) Moldenke, Revista Sud-am. Bot. 4: 17. 1937.

Dupatya montana Britton, Bull. Torrey Club 44: 33. 1917.

The species inhabits compact red iron ore, open places along trailsides, banks of streams, and pine woods at high

elevations, ascending to 5000 feet, and is said to be scarce and local. It has been collected in anthesis in November, December, and February.

Citations: CUBA: Oriente: Ekman 3522 (N); Shafer 4104 (N--3), 4473 (N--type & 2 isotypes), 8045 (N), 8251 (N).

11. *PAEPALANTHUS PUNGENS* Griseb. Cat. Pl. Cub. 224. 1866.

Dupatya pungens (Griseb.) Britton, Bull. Torrey Club 44: 33. 1917.

The species is found along the coast, ascending to 2300 feet, and has been collected in anthesis in May and July.

Citations: CUBA: Oriente: Ekman 2341 (N), 5709 (N).

4. *PAEPALANTHUS RETUSUS* C. Wright ex Sauv., Anal. Acad. Ci. Habana 8: 50. 1871.

The species inhabits sandy pine woods and pinelands and is said to be "rare". It has been collected in anthesis in May.

Citations: CUBA: Pinar del Río: Ekman 12,806 (N); Province undetermined: C. Wright 3744 (T--isotype).

12. *PAEPALANTHUS RIPARIUS* Moldenke, N. Am. Fl. 19: 42--43. 1937.

The species inhabits moist banks bordering streams, ascending to 2700 feet, and has been collected in anthesis in February.

Citations: CUBA: Oriente: Shafer 4106 (N--type).

2. *PAEPALANTHUS SESLERIOIDES* Griseb. Cat. Pl. Cub. 224. 1866.

Dupatya seslerioides (Griseb.) Britton, in herb.

The species inhabits dry white quartz sand, sandy pine-lands and savannas, plains, pine-barrens, and the edge of clay banks of rocky rivers, and has been collected in anthesis in February, March, May, September, and December.

Citations: CUBA: Pinar del Río: Britton, Britton, & Gager 6980 (N), 7131 (N), 7251 (N); Ekman 11,033 (N), 17,810 (N); León & Roca 6970 (N); Shafer 10,882 (N--2), 10,956 (N); C. Wright 3234 (T--2 isotypes); Isla de Pinos: Britton, Britton & Wilson 14,225 (N); Britton & Wilson 14,319 (N), 15,689 (N); Jennings 338 (N); Oriente: Shafer 4093 (N); C. Wright 748 (N).

10. *PAEPALANTHUS TUERCKHEIMII* Ruhl. in Urb. Symb. Ant. 7: 173. 1912.

The species inhabits pine woods, ascending to 6800 feet, and has been collected in anthesis in September.

Citations: HISPANIOLA: Dominican Republic: Chardon 28 (N); Türckheim 3327 (N--isotype).

SYNGONANTHUS Ruhl. in Urb. Symb. Ant. 1: 487. 1900.

The following subgenera of Paepalanthus as considered in earlier works, belong here: Thyrsocephalus Körn. in Mart. Fl. Bras. 3¹: 429. 1863; Eulepis Bong., Mém. Acad. Sr.-Pétersb. Sci. Math., sér. 6, 1: 618 & 635. 1831; Andraspidopsis Körn., op. cit. 439; Pailocephalus Körn., op. cit. 451, in part; and Carphocephalus Körn., op. cit. 465.

A genus of about 160 species, mostly of tropical America; a few in tropical Africa.

2. SYNGONANTHUS ANDROSACEUS (Griseb.) Ruhl. in Urb. Symb. Ant. 1: 488. 1900.

Paepalanthus androsaceus Griseb. Cat. Pl. Cub. 225. 1866; Paepalanthus androsaceus var. flavescens Griseb. Cat. Pl. Cub. 225. 1866.

The species inhabits moist sand, sandy pastures and pine-lands, wet sandy savannas, roadsides, and the margins of railroad tracks, and has been collected in anthesis in January and April. The type collection of Paepalanthus androsaceus var. flavescens is C. Wright 3236.

Citations: CUBA: Pinar del Río: Ekman 10,792 (N); León 15,946 (N); Shafer 11,784 (N); Van Hermann 570 (N); C. Wright 749 (N), 3235 (T--isotype), 3236 (N, T).

7. SYNGONANTHUS BARTLETTII Moldenke, sp. nov.

Herba parva; foliis caespitosis 3--12 mm. longis valde recurvatis angustissimis; pedunculis solitariis vel paucis pilosis, pilis longis valde patentibus; bracteolis hyalinis.

Very small herb, 2--7 cm. tall; leaves caespitose, linear, dark-olivaceous, conspicuously recurved and appressed to the ground, 3--12 mm. long, about 0.5 mm. wide, blunt at apex, glabrate or very obscurely puberulent on both surfaces; sheaths closely appressed, conspicuously surpassing the leaves, conspicuously pilose with long wide-spreading (hirsute) hairs, sharply acute or acuminate at apex; peduncles solitary or few, very slender, obscurely sulcate, slightly twisted, conspicuously pilose throughout with elongated hirsute wide-spreading hairs like the sheaths; heads solitary, 2--5 mm. wide; involucrel bractlets hyaline, completely colorless throughout, elliptic-lanceolate, sharply acute or acuminate at apex, glabrous; staminate florets: pedicels about 0.5 mm. long, very densely long-tomentose at base; sepals 3, elliptic-obovate, 1--1.125 mm. long, free, hyaline, acute at apex, cuneate-narrowed at base; petals very hyaline, closely connate, forming a very narrow tube; pistillate florets: pedicels about 0.5 mm. long; sepals free, lanceolate-ovate, about 1.5 mm. long, acuminate at apex, not ciliate on the margins; petals linear-oblongate, very narrow, about half as wide as the sepals, connate by

their margins.

The type of this species was collected by Dr. Harley Harris Bartlett (No. 11,670) -- in whose honor it is named -- on a flat wet upland at Mountain Pine Ridge, El Cayo District, British Honduras, on February 22, 1931, and is deposited in the herbarium of the University of Michigan. The species also inhabits pine ridges and has been collected in anthesis in January and February. It apparently grows in company with Paepalanthus Lamarckii, since H. H. Bartlett 11,263 originally contained a mixture of these two species, the new species being here regarded as No. 11,263a.

BRITISH HONDURAS: H. H. Bartlett 11,263a (M1--2, N), 11,670 (M1--type & isotype, N--fragment of isotype).

10. SYNGONANTHUS CAULESCENS (Poir.) Ruhl. in Engl. Pflanzenreich 4³⁰: 267. 1903.

Eriocaulon caulescens Poir. in Lam. Encycl. Méth. Suppl. 3: 162. 1813; Eriocaulon splendens Bong., Mém. Acad. St.-Pétersb. Sci. Math., sér. 6, 1: 633, pl. 66. 1831; Paepalanthus caulescens (Poir.) Kunth, Enum. Pl. 3: 537. 1841; Paepalanthus surinamensis Miq., Linnaea 19: 126. 1847; Paepalanthus procerus Klotzsch in Schomb. Reise in Br. Guian. 3: 1115. 1848; Eriocaulon surinamense Miq. ex Steud. Syn. Pl. Cyp. 2: 275. 1855; Eriocaulon geraëense Steud. Syn. Pl. Cyp. 2: 276. 1855; Eriocaulon simillimum Steud. Syn. Pl. Cyp. 2: 277. 1855; Eriocaulon subuncinatum Steud. Syn. Pl. Cyp. 2: 277. 1855; Paepalanthus splendens (Bong.) Mart. ex Körn. in Mart. Fl. Bras. 3: 466. 1863; Dupatya caulescens (Poir.) Kuntze, Rev. Gen. Pl. 2: 745. 1891.

The species ascends to over 3300 feet and has been collected in anthesis in February.

Citations: COSTA RICA: Province undetermined: H. Pittier s.n. [Herb. Instit. Physico-geogr. Nat. Costaric. 11,043] (N).

1. SYNGONANTHUS FLAVIDULUS (Michx.) Ruhl. in Engl. Pflanzenreich 4³⁰: 256. 1903.

Eriocaulon flavidulum Michx. Fl. Bor. Am. 2: 166. 1803; ?Eriocaulon spathaceum Raf. Atl. Journ. 121. 1832; Paepalanthus flavidulus (Michx.) Kunth, Enum. Pl. 3: 532. 1841; Paepalanthus flavidus Kunth ex A. Gray, Man. Bot. North. U. S., ed. 2, 489, sphalm. 1856; Eriocaulon flavidum Michx. ex A. Gray, Man. Bot. North. U. S., ed. 2, 489, in syn., sphalm. 1856; Dupatya flavidula (Michx.) Kuntze, Rev. Gen. Pl. 2: 745. 1891.

The species inhabits low and wet sandy pinelands, margins of sandhill ponds, bogs, wet scrub-land, prairies, low and sandy pine-barrens, wet sandy ditches, moist sandy soil, and the borders of ponds.



Moldenke, Harold N. 1939. "Additional notes on the Eriocaulaceae--I." *Phytologia* 1(9), 309–336.

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