

are erect or slightly divergent, not reflexed to the ground, and are of the narrow shape and rather thin texture of the typical form of the species.

The type of the form was collected by Julian A. and Cora Steyermark, John and Marie Wurdack, and Hans Wiehler (no. 106632) on dry ground on a rocky sandstone plateau on top of Kamá-merú, "Carretera El Dorado hacia Santa Elena de Uairen, km. 198 al sur de El Dorado", at an altitude of 1200 to 1400 meters, Bolívar, Venezuela, between December 7 and 10, 1972, and is deposited in my personal herbarium at Plainfield, New Jersey.

SYNGONANTHUS KERANTHEMOIDES var. TRICOSTATUS (Gleason) Moldenke, stat. nov.

Syngonanthus tricostatus Gleason, Bull. Torrey Bot. Club 56: 16. 1929.

ADDITIONAL NOTES ON THE ERIOCAULACEAE. XLV

Harold N. Moldenke

ERIOCAULACEAE Lindl.

Additional & emended bibliography: S. Ell., Sketch Bot., pr. 1 & 2, 2: 564--567 & 728 (1824) and pr. 3, 2: 564--567 & 728. 1971; Thanikaimoni, Inst. Franç. Pond. Trav. Sect. Scient. & Techn. 12: 91, 130, 134, 152, 173, & 294. 1972; E. G. Voss, Mich. Fl. 1: 49, 53, 374, 478, & 483, fig. 7 & pl. 4 D. 1972; Altman & Dittmer, Biol. Data Book 1: 527. 1972; Encke & Buchheim in Zander, Handwörterb. Pflanzennam., ed. 10, 56. 1972; Moldenke, Phytologia 26: 15--47 & 136--147. 1973; F. C. Seymour, Phytologia 26: 90. 1973; D. R. & B. K. Windler, Phytologia 26: 107. 1973.

Encke & Buchheim (1972) classify this family in their Suborder Eriocauloneae in Order Commelinales.

ERIOCAULON Gron.

Additional & emended bibliography: S. Ell., Sketch Bot., pr. 1 & 2, 2: 564--567 & 728. 1824; Zinderenbakker, S. Afr. Pollen 1: 32, 36, & 79, pl. 7, fig. 33 & 44. 1953; S. Ell., Sketch Bot., pr. 3, 2: 564--567 & 728. 1971; Thanikaimoni, Inst. Franç. Pond. Trav. Sect. Scient. & Techn. 12: 91. 1972; E. G. Voss, Mich. Fl. 1: 53, 374, & 478, map 561, fig. 7 & pl. 4 D. 1972; Moldenke, Phytologia 26: 16--42, 47, 139, & 143--145. 1973; F. C. Seymour, Phytologia 26: 90. 1973.

The Craighead s.n. [28 April 1967], distributed as Eriocaulon sp., is actually Syngonanthus flavidulus (Michx.) Ruhl.

ERIOCAULON ARGENTINUM Castell.

Additional bibliography: Moldenke, Phytologia 26: 17 & 27. 1973.

Additional citations: ARGENTINA: Corrientes: Pedersen 1192 (W--2122707).

ERIOCAULON ATRATUM Körn.

Additional bibliography: Moldenke, *Phytologia* 25: 238, 239, & 248. 1973.

The flowers of this plant are described by Lewalle as grayish-white and he found it in bloom in December.

Additional citations: CEYLON: Lewalle 6733 (Z).

ERIOCAULON BROWNIANUM Mart.

Additional bibliography: Moldenke, *Phytologia* 26: 18. 1973.

The Koyama & Herat 13640, previously cited by me as E. brownianum, seems to be E. ceylanicum Körn. instead.

ERIOCAULON BROWNIANUM var. *LATIFOLIUM* Moldenke

Additional bibliography: Moldenke, *Phytologia* 25: 122. 1973.

Maxwell & Jayasuriya describe this plant as a common marsh plant, encountered in marshes and ditches, and found it in anthesis in June.

Additional citations: CEYLON: Maxwell & Jayasuriya 869 (N).

ERIOCAULON CEYLANICUM Körn.

Additional bibliography: Moldenke, *Phytologia* 26: 19. 1973.

Recent collectors have found this plant growing on the wet margins of narrow streams at the bottom of swampy depressions in black Patana grasslands along with Fimbristylis monticola and Carex arnottiana, at an altitude of 7200 feet, flowering in May and June. Maxwell & Jayasuriya refer to it as "very common" in marshy areas along forest roads. The Koyama & Herat collection, cited below, was previously erroneously cited by me as E. brownianum Mart.

Additional citations: CEYLON: Koyama & Herat 13640 (N); Maxwell & Jayasuriya 877 (N).

ERIOCAULON COLLINUM Hook. f.

Additional bibliography: Moldenke, *Phytologia* 26: 20 & 28. 1973.

Maxwell & Jayasuriya refer to this plant as "common" in marshy areas along forest roads, describe the flowers as white, and found it in anthesis in June.

Additional citations: CEYLON: Maxwell & Jayasuriya 876 (N).

ERIOCAULON COMPRESSUM Lam.

Additional & emended bibliography: S. Ell., *Sketch Bot.*, pr. 1 & 2, 2: 565--566 & 728 (1824) and pr. 3, 2: 565--566 & 728. 1971; Moldenke, *Phytologia* 26: 20--22 & 34. 1973.

Craighead found this species growing in Florida sloughs. Kushlan found it "emergent in cypress moat border of hammock, growing in heavy shade, the leaves are submerged while the flowers are emergent. My wife and I, this spring, observed it in many roadside

ditches in Georgia, Florida, and Alabama, very often in extensive colonies, almost always in shallow water, the basal rosette of leaves completely submerged. On being removed from the water, the thin, weak, more or less flabby leaves had a tendency to droop very quickly and often adhered to the newspapers between which they were dried. The almost pellucid and decidedly fenestrate bases to the outer leaves were very noticeable and afforded an easy method of distinguishing this typical form from the var. harperi Moldenke.

Additional citations: GEORGIA: Baker Co.: Moldenke & Moldenke 26903a (Ac). Dougherty Co.: Moldenke & Moldenke 26909 (Ba). Early Co.: Moldenke & Moldenke 26888 (Ac, Ba, Ld, Ws). McIntosh Co.: Moldenke & Moldenke 26417 (Ac, Ba, Ld). FLORIDA: Bay Co.: Moldenke & Moldenke 26768 (Ld). Collier Co.: Craighead s.n. [4 December 1964] (Ft—9647). Escambia Co.: Moldenke & Moldenke 26769 (Ba). Franklin Co.: Moldenke & Moldenke 26629 (Ld). Monroe Co.: Craighead s.n. [31 December 1961] (Ft—13003); Kushlan JK.3 (Ft—11960, Ft—11977, Ld). Wakulla Co.: Moldenke & Moldenke 26605 (Z). ALABAMA: Mobile Co.: Moldenke & Moldenke 26770 (Ld).

ERIOCAULON COMPRESSUM var. HARPERI Moldenke

Additional bibliography: Moldenke, *Phytologia* 26: 20 & 22. 1973.

Experience in the field this spring has shown that while the leaves of typical E. compressum are usually very thin, tending quickly to become flabby, and often almost translucent at their base, those of var. harperi are comparatively firm and stiff, completely opaque to the base, remaining in their extended position when removed from the water and not at all adhering to the paper when being pressed between newspaper sheets. The leaves of the true E. compressum, on the other hand, quickly collapse when withdrawn from the water and very often attach themselves so firmly to pressing newspaper sheets that they are damaged on removal after drying. These characters are very distinct and obvious in the field. My wife and I encountered this variety very abundantly in the shallow water of roadside ditches and the edges of swamps in western Florida and southern Alabama and Mississippi this spring, often growing in large purestand colonies.

Additional citations: FLORIDA: Bay Co.: Moldenke & Moldenke 26702 (Ld). Escambia Co.: Moldenke & Moldenke 25746 (Ba). Franklin Co.: Moldenke & Moldenke 26656 (Ba). Gulf Co.: Moldenke & Moldenke 26658 (Ac). Orange Co.: Moldenke & Moldenke 26549 (Ac), 26551 (Ba, Ld, Ws). ALABAMA: Baldwin Co.: Moldenke & Moldenke 26750 (Ac). MISSISSIPPI: George Co.: Moldenke & Moldenke 26781 (Ac). Jackson Co.: Moldenke & Moldenke 26780 (Ld).

ERIOCAULON DECANGULARE L.

Emended synonymy: Eriocaulon decangulare L. apud S. Ell., Sketch Bot., pr. 1, 2: 565, sphalm. 1824 [not E. decangulare Walt., 1834].

Additional & emended bibliography: S. Ell., Sketch Bot., pr. 1 & 2, 2: 565--566 & 728 (1824) and pr. 3, 2: 565--566 & 728. 1971; Moldenke, Phytologia 26: 21--22 & 33. 1973; F. C. Seymour, Phytologia 26: 90. 1973.

Craighead found this plant inhabiting glades in sandy pine-lands. In the Charleston, South Carolina, area the dried flower-heads are often used for dried flower arrangements in garden club exhibits.

Additional citations: NORTH CAROLINA: Columbus Co.: E. L. Braun s.n. [July 26, 1938] (W--2666390). SOUTH CAROLINA: Charleston Co.: Moldenke & Moldenke 26388 (Ps). FLORIDA: Collier Co.: Craighead s.n. [4 December 1964] (Ft--9647).

ERIOCAULON DECANGULARE f. PARVICEPS Moldenke

Additional bibliography: Moldenke, Phytologia 26: 22. 1973; F. C. Seymour, Phytologia 26: 90. 1973.

Recent collectors have found this plant growing on savannas and in black soil of open swamps, at elevations from sealevel to 100 meters, in Nicaragua.

Additional citations: NICARAGUA: Cabo Gracias á Dios: F. C. Seymour 5766 (N). Zelaya: Nelson & Atwood 4468 (N).

ERIOCAULON DICTYOPHYLLUM Körn.

Additional bibliography: Moldenke, Phytologia 26: 23, 37, & 38. 1973.

Additional citations: BRAZIL: Mato Grosso: Ratter, Santos, Souza, & Ferreira R.1724 (K).

ERIOCAULON DICTYOPHYLLUM f. VIVIPARUM Moldenke

Additional bibliography: Moldenke, Phytologia 24: 356--357. 1972.

Santos & Souza found this plant growing in water at the edge of a river and record the vernacular name "capim cebola" for it.

Additional citations: BRAZIL: Mato Grosso: Harley & Souza 10097 (K--isotype); Santos & Souza R.1758 (K).

ERIOCAULON DISEPALUM Ruhl.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahresber. 54 (2): 582. 1934; Moldenke, Phytologia 24: 357. 1972.

ERIOCAULON HUMBOLDTII Kunth

Additional bibliography: Moldenke, Phytologia 26: 26. 1973.

Santos and his associates describe this plant as attaining a height of 70 cm., with white flowers, and found it in anthesis in June on waterlogged grassy campos.

Additional citations: BRAZIL: Mato Grosso: Harley, Souza, & Ferreira 10400 (K); Santos, Souza, & Bertoldo R.1689 (Ld).

ERIOCAULON LIGULATUM (Vell.) L. B. Sm.

Additional bibliography: Moldenke, *Phytologia* 26: 28 & 29. 1973.

Dombrowski and Kuniyoshi refer to this species as "abundant" in Paraná, Brazil.

Additional citations: BRAZIL: Paraná: Dombrowski 1972 [Kuniyoshi 1697] (Ld).

ERIOCAULON LINEARE Small

Additional bibliography: Moldenke, *Phytologia* 26: 28. 1973.

The E. L. Braun s.n. [July 26, 1938], distributed as E. lineare, is actually E. decangulare L.

ERIOCAULON MELANOCEPHALUM Kunth

Additional bibliography: Moldenke, *Phytologia* 25: 126 & 229. 1973.

Richards states that he found this plant floating in a pool of an old dried-up river course, flowering and fruiting in July.

Additional citations: BRAZIL: Mato Grosso: Philcox & Freeman 4639 (K); P. W. Richards 6496 (Ld), 6496a (Ld).

ERIOCAULON PELLUCIDUM Michx.

Additional bibliography: E. G. Voss, *Mich. Fl.* 1: 53, 374, 478, & 483, map 561, fig. 7, & pl. 4 D. 1972; Moldenke, *Phytologia* 26: 20 & 33--34. 1973.

Additional illustrations: E. G. Voss, *Mich. Fl.* 1: 53, fig. 7, & pl. 4 D (in color). 1972.

Additional citations: MAINE: Lincoln Co.: Mrs. E. C. White 374 (W--1895662). MICHIGAN: Marquette Co.: E. L. Braun s.n. [Rush Lake, Huron Mts., July 23, 1943] (W--2666389).

ERIOCAULON PILGERI Ruhl.

Additional bibliography: Moldenke, *Phytologia* 24: 491. 1972.

Recent collectors have encountered this plant on the mud of a dried-up portion of a stream bottom, flowering in May, and describe the flower-heads as white.

Additional citations: BRAZIL: Mato Grosso: Ratter, Santos, Souza, & Ferreira R.1538 (Z).

ERIOCAULON QUINQUANGULARE L.

Additional bibliography: Thanikaimoni, *Inst. Franç. Pond. Trav. Sect. Scient. & Techn.* 12: 294. 1972; Moldenke, *Phytologia* 26: 34, 36, & 41. 1973.

ERIOCAULON STEYERMARKII Moldenke

Additional bibliography: Moldenke, *Phytologia* 26: 40. 1973.

Recent collectors describe this plant as having flaccid pale-green leaves submerged in the water of a swamp with standing water 0.5 m. or more deep, growing at altitudes of 1200--1400 m., and found it in bloom in February.

Additional citations: VENEZUELA: Bolívar: Steyermark, Smith,

Smith, Dunsterville, & Dunsterville 105518 (Ld).

LACHNOCAULON Kunth

Additional & emended bibliography: S. Ell., Sketch Bot., pr. 1 & 2, 2: 566 & 728 (1824) and pr. 3, 2: 566 & 728. 1971; Thanikaimoni, Inst. Franç. Pond. Sect. Scient. & Techn. 12: 130. 1972; Moldenke, Phytologia 26: 42-43. 1973.

The A. Chase 10365, distributed as Lachnocaulon sp., is actually Paepalanthus canescens (Bong.) Körn., not P. incanus (Bong.) Körn. as previously stated.

LACHNOCAULON ANCEPS (Walt.) Morong

Additional & emended bibliography: S. Ell., Sketch Bot., pr. 1 & 2, 2: 566 & 728 (1824) and pr. 3, 2: 566 & 728. 1971; Moldenke, Phytologia 26: 42. 1973.

Additional citations: FLORIDA: Bay Co.: Moldenke & Moldenke 26689 (Ac). Franklin Co.: Moldenke & Moldenke 26655 (Ac, Ba, Ld).

LACHNOCAULON DIGYNUM Körn.

Additional bibliography: Uphof, Am. Journ. Bot. 14: 44. 1927; Moldenke, Phytologia 25: 91-92. 1972.

Additional citations: FLORIDA: Franklin Co.: Moldenke & Moldenke 26628 (Z).

LACHNOCAULON ECILIATUM Small

Additional bibliography: Moldenke, Phytologia 25: 128. 1973.

The Biltmore Herb. 1500ld and R. M. Harper 7, cited by me as L. eciliatum in previous publications, seem to be L. minus (Chapm.) Small. Kral, in fact, has reduced L. eciliatum to synonymy under L. minus and in this he may be correct. More field observation is required.

LACHNOCAULON ENGLERI Ruhl.

Additional bibliography: Moldenke, Phytologia 26: 42-43. 1973.

Additional citations: FLORIDA: Orange Co.: Moldenke & Moldenke 26550 (Ac, Ba, Ld, Ws, Z).

LACHNOCAULON MINUS (Chapm.) Small

Additional bibliography: Moldenke, Phytologia 26: 43. 1973.

Craighead found this plant in flower and fruit in October. The Biltmore Herb. 1500ld and R. M. Harper 7, cited below, were previously erroneously cited by me as L. eciliatum Small.

Additional citations: FLORIDA: Lake Co.: Biltmore Herb. 1500ld (N). Orange Co.: Craighead s.n. [27 October 1962] (Ft--13121); Moldenke & Moldenke 26543 (Ac, Ba, Ld, Ws, Z). Putnam Co.: R. M. Harper 7 (N).

LEIOTHRIX Ruhl.

Additional bibliography: Thanikaimoni, Inst. Franç. Pond. Trav. Sect. Scient. & Techn. 12: 134. 1972; Moldenke, Phytologia 26: 43-

45. 1973.

LEIOTHRIX ARAXAENSIS Alv. Silv.

Additional bibliography: Wangerin in Just, Bot. Jahresber. 57 (1): 475. 1937; Moldenke, Phytologia 25: 95. 1972.

LEIOTHRIX FLAVESCENS (Bong.) Ruhl.

Emended synonymy: Leiothrix flavescens Ruhl. in Engl., Pflanzenreich 13 (4-30): 223 [as "flavescente"]. 1903; Prain, Ind. Kew. Suppl. 3: 101. 1908.

Additional bibliography: Moldenke, Phytologia 26: 44-45. 1973.

LEIOTHRIX GLAUCA Alv. Silv.

Additional bibliography: Wangerin in Just, Bot. Jahresber. 57 (1): 475. 1937; Moldenke, Phytologia 25: 132. 1973.

LEIOTHRIX HETEROPHYLLA Alv. Silv.

Additional bibliography: Wangerin in Just, Bot. Jahresber. 57 (1): 475. 1937; Moldenke, Phytologia 25: 132. 1973.

LEIOTHRIX ITACAMBIRENSIS Alv. Silv.

Additional bibliography: Wangerin in Just, Bot. Jahresber. 57 (1): 475. 1937; Moldenke, Phytologia 25: 133. 1973.

LEIOTHRIX LONGIPES Alv. Silv.

Additional bibliography: Wangerin in Just, Bot. Jahresber. 57 (1): 475. 1937; Moldenke, Phytologia 25: 133. 1973.

LEIOTHRIX LUXURIANS (Körn.) Ruhl.

Additional & emended bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 10, 235-237, 284, 288, & 290, fig. 34. 1903; Moldenke, Phytologia 25: 133-134. 1973.

LEIOTHRIX MICHAELII Alv. Silv.

Additional bibliography: Wangerin in Just, Bot. Jahresber. 57 (1): 475. 1937; Moldenke, Phytologia 25: 134. 1973.

LEIOTHRIX OBTUSIFOLIA Alv. Silv.

Additional bibliography: Wangerin in Just, Bot. Jahresber. 57 (1): 475. 1937; Moldenke, Phytologia 25: 134-135. 1973.

LEIOTHRIX PEDUNCULOSA Ruhl.

Additional & emended bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 8, 235, 237, & 288. 1903; Moldenke, Phytologia 25: 135. 1973.

LEIOTHRIX RETRORSA Alv. Silv.

Additional bibliography: Wangerin in Just, Bot. Jahresber. 57 (1): 475. 1937; Moldenke, Phytologia 25: 135. 1973.

LEIOTHRIX SCLEROPHYLLA Alv. Silv.

Additional bibliography: Wangerin in Just, Bot. Jahresber. 57

(1): 475. 1937; Moldenke, *Phytologia* 25: 135 & 136. 1973.

LEIOTHRIX SPERGULA Ruhl.

Additional bibliography: Moldenke, *Phytologia* 25: 136. 1973.

Additional citations: BRAZIL: Minas Gerais: Mexia 5781 (Ba).

LEIOTHRIX TRIANGULARIS Alv. Silv.

Additional bibliography: Wangerin in Just, Bot. Jahresber. 57

(1): 475. 1937; Moldenke, *Phytologia* 25: 137. 1973.

LEIOTHRIX TRIFIDA Alv. Silv.

Additional bibliography: Wangerin in Just, Bot. Jahresber. 57

(1): 475. 1937; Moldenke, *Phytologia* 25: 137. 1973.

LEIOTHRIX TURBINATA Gleason

Additional bibliography: Fedde & Schust. in Just, Bot. Jahresber. 59 (2): 19. 1939; Moldenke, *Phytologia* 25: 137. 1973.

LEIOTHRIX VIVIPARA (Bong.) Ruhl.

Additional & emended bibliography: Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 235, 238, 284, 287, 288, & 291. 1903; Moldenke, *Phytologia* 25: 138. 1973.

MESANTHEMUM Körn.

Additional & emended bibliography: T. C. E. & R. E. Fries in R. E. Fries, *Wiss. Ergebn. Schwed. Rhod.-Kong.-Exped.* 1911-12 Bot. 1: 218-219, pl. 16, fig. 4. 1916; Fedde & Schust. in Just, Bot. Jahresber. 60 (2): 29. 1940; Wangerin & Krause in Just, Bot. Jahresber. 60 (1): 741. 1941; Assémien, *Ann. Fac. Sci. Univ. Dakar* 19 (3): 9-25. 1966; Razafind. in Debray, Jacquem., & Razafind., *Contrib. Invent. Pl. Medic. Madag.* 3: 70. 1971; Thanikaimoni, *Inst. Franç. Pond. Trav. Sect. Scient. & Techn.* 12: 152. 1972; Letouzey, *Man. Bot. Forest. Afr. Trop.* 2 (B): 378. 1972; Moldenke, *Phytologia* 25: 138-142, 231, & 508. 1973.

MESANTHEMUM ERICI-ROSENII T. Fries

Additional & emended bibliography: T. C. E. & R. E. Fries in R. E. Fries, *Wiss. Ergebn. Schwed. Rhod.-Kong.-Exped.* 1911-12 Bot. 1: 218-219, pl. 16, fig. 4. 1916; Fedde & Schust. in Just, Bot. Jahresber. 60 (2): 29. 1940; Moldenke, *Phytologia* 25: 139, 140, & 231. 1973.

Emended illustrations: T. C. E. & R. E. Fries in R. E. Fries, *Wiss. Ergebn. Schwed. Rhod.-Kong.-Exped.* 1911-12 Bot. 1: pl. 16, fig. 4. 1916.

This species is based on R. E. Fries 806, collected by Eric von Rosen in Lake Bangleowo, on Moswala island, in northern Zambia, and is deposited in the Stockholm herbarium.

Emended citations: ZAMBIA: Moswala Island: Von Rosen s.n. [R. E. Fries 806] (B--isotype, Z--isotype).

PAEPALANTHUS Mart.

Additional bibliography: Kuprianova, *Comm. Komarow Inst. Acad.*

Sci. 1 (7): 163--262. 1948; Thanikaimoni, Inst. Franç. Pond. Trav. Sect. Scient. & Techn. 12: 173. 1972; Moldenke, Phytologia 26: 17, 24, 27, 28, 46--47, & 136--147. 1973.

PAEPALANTHUS ACCRESCENS Alv. Silv.

Additional bibliography: Wangerin in Just, Bot. Jahresber. 57 (1): 475. 1937; Moldenke, Phytologia 25: 144. 1973.

PAEPALANTHUS ACULEATUS Alv. Silv.

Additional bibliography: Wangerin in Just, Bot. Jahresber. 57 (1): 475. 1937; Moldenke, Phytologia 25: 144. 1973.

PAEPALANTHUS ACUTALIS Alv. Silv.

Additional bibliography: Wangerin in Just, Bot. Jahresber. 57 (1): 475. 1937; Moldenke, Phytologia 25: 145. 1973.

PAEPALANTHUS ACUTIPILUS Alv. Silv.

Additional bibliography: Wangerin in Just, Bot. Jahresber. 57 (1): 475. 1937; Moldenke, Phytologia 25: 145. 1973.

PAEPALANTHUS AEREUS Alv. Silv.

Additional bibliography: Wangerin in Just, Bot. Jahresber. 57 (1): 475. 1937; Moldenke, Phytologia 25: 145. 1973.

PAEPALANTHUS ALBESCENS Alv. Silv.

Additional bibliography: Wangerin in Just, Bot. Jahresber. 57 (1): 475. 1937; Moldenke, Phytologia 25: 145. 1973.

PAEPALANTHUS ALBO-VAGINATUS Alv. Silv.

Additional bibliography: Moldenke, Phytologia 26: 47. 1973.

Dombrowski describes this species as "frequent" on campos in Paraná, Brazil.

Additional citations: BRAZIL: Paraná: Dombrowski 3802 (Ld).

PAEPALANTHUS ALBO-VILLOSUS Alv. Silv.

Additional bibliography: Wangerin in Just, Bot. Jahresber. 57 (1): 475. 1937; Moldenke, Phytologia 25: 146. 1973.

PAEPALANTHUS AMOENUS (Bong.) Körn.

Additional bibliography: Moldenke, Phytologia 25: 146--147. 1973.

Philcox & Onishi describe this plant as an herb, 1.5 m. tall, with white flower-heads, and found it growing on wet campos, flowering in May.

Additional citations: BRAZIL: Distrito Federal: Philcox & Onishi 4892 (K).

PAEPALANTHUS ARBORESCENS Alv. Silv.

Additional bibliography: Wangerin in Just, Bot. Jahresber. 57 (1): 475. 1937; Moldenke, Phytologia 25: 148. 1973.

PAEPALANTHUS CAPILLACEUS Klotzsch

Synonymy: Paepalanthus capillaceus Kunth ex Körn. in Mart., Fl. Bras. 3 (1): 299. 1863. Dupatya capillacea (Klotzsch) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya capillacea Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902. Eriocaulon capillaceus Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: [146]. 1969.

Bibliography: Klotzsch in M. R. Schomb., Reisen Brit.-Guian. [Vers. Fauna & Fl. Brit.-Guian.] 3: 1063 & 1115. 1848; Körn. in Mart., Fl. Bras. 3 (1): 279, 280, 295, 299, 308, 311, 415--416, 500, & 507, pl. 53, fig. 2. 1863; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 401. 1893; N. E. Br., Trans. Linn. Soc. Lond. Bot., ser. 2, 6: 72. 1901; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 2, 8, 9, 25, 26, 121, 220--221, & 289, fig. 3 B & C. 1903; W. E. Roth, Schomb. Travels 2: 3. 1923; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 40, 42, 43, & 53. 1930; Stapf, Ind. Lond. 4: 518. 1930; H. A. Gleason, Bull. Torrey Bot. Club 58: 328. 1931; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 401. 1946; Moldenke, Known Geogr. Distrib. Erioc. 6, 29, 46, & 60. 1946; Moldenke in Maguire & al., Bull. Torrey Bot. Club 75: 196. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 63, 66, & 208. 1949; Moldenke, Alph. List Cit. 3: 701, 975, & 976 (1949) and 4: 985. 1949; Moldenke, Phytologia 4: 137. 1952; Moldenke in Maguire, Mem. N. Y. Bot. Gard. 8: 97. 1953; Moldenke in Maguire & Wurdack, Mem. N. Y. Bot. Gard. 9: 279. 1957; Moldenke in J. A. Steyer., Fieldiana Bot. 28: 825. 1957; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 72, 75, 96, 279, & 486. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 401. 1960; Eden, McGill Univ. Savanna Res. Ser. 1: 135--137. 1964; J. A. Steyer., Act. Bot. Venez. 1 (3/4): 47, 89, & 222. 1966; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: [146], 158, 161, 163, 184, 190, & 191. 1969; Moldenke, Phytologia 20: 296 & 297. 1970; Moldenke, Fifth Summ. 1: 124, 130, 159, & 479 (1971) and 2: 496, 579, & 949. 1971; Moldenke, Phytologia 26: 147. 1973.

Illustrations: Körn. in Mart., Fl. Bras. 3 (1): pl. 53, fig. 2. 1863; Ruhl. in Engl., Pflanzenreich 13 (4-30): 9, fig. 3 B & C. 1903.

The type of this characteristic species was collected by Sir Moritz Richard Schomburgk (no. 1222) on a dry savanna in the vicinity of Mount Roraima and Mt. Humirida, Guyana. Ruhland (1903) cites only the original collection. Gleason, in his unpublished Flora of British Guiana, describes the species as follows:

"Leaves very densely cespitose near the summit of the short caudex, filiform, soft and lax; peduncles 8--15 cm. long, subterete, very abruptly twisted, their sheaths sharply twisted, 3--4 cm. long; heads hemispheric, 4--5 mm. wide; bracts oblong, black, appressed in several series, glabrous at the rounded apex; subtending bracts slightly pubescent distally; perianth glabrous. Sa-

vannas, Kukenaam River, Quelch & McConnell 314; Roraima district, Schomburgk 1222, Appun 1217; Kurupung River, Alston 397. (Endemic)."

Recent collectors describe the plant as having bright-green leaves, inflorescence-heads dirty-white or whitish, and the flowers brownish-white, growing at altitudes of 130--1650 meters, and have collected it in flower in April, May, July, October, and December. Wurdack & Adderley found it to be "locally abundant on rocks in rapids of blackwater canyon", Maguire & Fanshawe found it "locally abundant in rapidly flowing water on submerged rocks", Wurdack & Maguire also describe it as "locally abundant in clumps on rocks in running water", while Steyermark found it "submerged in running water, south-facing densely forested slopes along fast-running stream" and "in fast water on edge of waterfall and above waterfall".

Eden (1964) reports that this species has a 1 percent incidence of density in imperfectly drained land and occurs also in moderately and well drained sites.

The Cowan & Soderstrom 2125 collection appears to be a mixture with var. proliferus Gleason, the viviparous form so often found in the strictly aquatic members of this plant family, while Steyermark, Dunsterville, & Dunsterville 104196 probably should also be regarded as (mostly) also that variety.

Additional citations: VENEZUELA: Amazonas: Farifas, Velasquez, & Medina 420 (N); Maguire, Wurdack, & Maguire 42492 (N, S); Wurdack & Adderley 43602 (N). Bolívar: J. A. Steyermark 59453 (S); Steyermark & Nilsson 16, in part (Mi). GUYANA: Cowan & Soderstrom 2125, in part (Fg); Maguire & Fanshawe 32382 (N); Sandwith 1327 (N, Ut--44182a); M. R. Schomburgk 1222 (B--type). BRAZIL: Amazonas: Ule 8554 [Herb. Mus. Goeldi 13616] (K, Ut--48961, Z).

PAEPALANTHUS CAPILLACEUS var. PROLIFERUS Gleason

Bibliography: H. A. Gleason, Bull. Torrey Bot. Club 58: 328. 1931; Moldenke, Known Geogr. Distrib. Erioc. 6 & 46. 1946; Moldenke in Maguire & al., Bull. Torrey Bot. Club 75: 196. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 63, 66, & 208. 1949; Moldenke, Alph. List Cit. 3: 701 & 975 (1949) and 4: 985. 1949; Moldenke, Phytologia 4: 137. 1952; Moldenke in Maguire, Mem. N. Y. Bot. Gard. 8: 97. 1953; Moldenke, Résumé 72, 75, 96, & 486. 1959; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 191. 1969; Moldenke, Phytologia 20: 297. 1970; Moldenke, Fifth Summ. 1: 124, 130, & 159 (1971) and 2: 949 & 967. 1971.

The type of this viviparous form of the species was collected by George Henry Hamilton Tate (no. 552) on rocks under water in a streambed at Central Camp, Mount Duida, Amazonas, Venezuela, at an altitude of 4800 feet, and is deposited in the Britton Herbarium at the New York Botanical Garden. The plant has been found growing at altitudes of 550 to 1600 meters, flowering in December and fruiting in February. Maguire & Wurdack refer to it as "abundant" in streams and forming dense mats along small streams in sa-

vannas, the flowers white. Steyermark calls it a submerged aquatic perennial herb, with the heads emergent, white, becoming brown, abundant in creek beds and locally common in stream beds. Only some of the heads on the specimens cited below have the proliferation described by Gleason, but all the heads show the characteristic pilosity not seen on any of the specimens of the typical form of the species thus far examined by me.

Additional citations: VENEZUELA: Amazonas: Maguire, Cowan, & Wurdack 29611 (Be, F, K, N, Ve, W); Maguire & Maguire 29153 (Bm, Bo, E, G, Ja, N, Ut, Ve, W). Bolívar: Maguire & Wurdack 34007 (N); Steyermark, Dunsterville, & Dunsterville 92378 (Z), 104196 (Ft); Steyermark & Nilsson 16, in part (N). GUYANA: Maguire, Bagshaw, & Maguire 40625 (N); Maguire & Fanshawe 23243 (Se—182995). BRAZIL: Amazonas: Froes 25383 (N).

PAEPALANTHUS CAPILLACEUS var. SPIRALIS Moldenke in Maguire & Wurdack, Mem. N. Y. Bot. Gard. 9: 279. 1957.

Bibliography: Moldenke in Maguire & Wurdack, Mem. N. Y. Bot. Gard. 9: 279. 1957; Moldenke, Résumé 75 & 486. 1959; Moldenke, Phytologia 20: 297. 1970; Moldenke, Fifth Summ. 1: 130 (1971) and 2: 949. 1971.

This variety differs from the typical form of the species in having all of its leaves regularly contorted in a spirally undulate or corkscrew fashion. It is based on Maguire & Fanshawe 32292, collected in rapidly running water of a river at 1250 meters altitude, Maipuri Falls, Karaurien River, Imbaimadai Savannas on the Upper Mazaruni River, Guyana, on October 25, 1951, deposited in the Britton Herbarium at the New York Botanical Garden. The collectors note that this plant is an abundant aquatic perennial at the type locality and is completely uniform in regard to its unique leaf-character throughout the colony.

Citations: GUYANA: Maguire & Fanshawe 32292 (N—type).

PAEPALANTHUS CAPILLARIS (Bong.) Körn. in Mart., Fl. Bras. 3 (1): 367. 1863.

Synonymy: Eriocaulon capillare Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 625, [pl. 48]. 1831. Paepalanthus capillaris Körn. in Mart., Fl. Bras. 3 (1): 366 & 367. 1863. Dupatya capillaris (Bong.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya capillaris Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902.

Bibliography: Bong., Ess. Monog. Erioc. 25. 1831; Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 625, [pl. 48] (1831) and 2 (3): 219. 1832; Steud., Nom. Bot., ed. 2, 1: 585. 1840; Kunth, Enum. Pl. 3: 573—574 & 612. 1841; D. Dietr., Syn. Pl. 5: 266—267. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 276 & 333. 1855; Körn. in Mart., Fl. Bras. 3 (1): 366, 367, & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 877 (1893) and 2: 401. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzen-

reich 13 (4-30): 8, 125, 132, 136--137, [283], 285, & 289. 1903; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11, 29, & 46. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 877 (1946) and 2: 401. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 96, 279, 286, & 486. 1959; Moldenke, Résumé Suppl. 1: 20. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 877 (1960) and 2: 401. 1960; Moldenke, Fifth Summ. 1: 159 & 479 (1971) and 2: 496, 579, & 949. 1971.

This species appears to be based on L. Riedel 497, collected in shady rocky places at Agua-Quente, Goiás, Brazil, and deposited in the Leningrad herbarium. An isotype was photographed by Macbride in Berlin as his type photograph number 10582.

Bongard's original description of this taxon is worth quoting here since it is difficult to find in many libraries: "subacaule; foliis linearibus acuminatis mucronulatis pubescentibus glaucis; pedunculis capillaribus subpubescentibus; vaginis glabris subintegris apice piloso-barbatis. Tab. XLVIII. Habitat in umbrosis prope Aguas quentes. Floret Septembri. ☉. Obs. Praecedenti [P. saxatilis (Bong.) Körn.] valde affine, a quo optime distinguendum: vaginis glabris subintegris apice piloso-barbatis (nec pilosis et apice oblique fissis)." Ruhland (1903) cites only the type collection and comments: "Cum P. pullo et gyrotricho affinis".

Kunth (1841) asserts that Bongard's plate "48" was never actually published [although it is cited by Jackson (1893)]; it probably is to be found only in the Leningrad herbarium or library.

Citations: BRAZIL: Goiás: L. Riedel 497 [Macbride photos 10582] (B--isotype, Br--isotype, N--isotype, N--photo of isotype, N--photo of isotype, Ut--352--isotype, W--photo of isotype).

MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B).

PAEPALANTHUS CAPILLATUS Alv. Silv., Fl. Mont. 1: 79--80, pl. 46 & 47. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 79--80 & 403, pl. 46 & 47. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 476. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11 & 46. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Moldenke, Résumé 96 & 486. 1959; Moldenke, Fifth Summ. 1: 159 (1971) and 2: 949. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 46 & 47. 1928.

The type of this species was collected by Álvaro Adolpho da Silveira (no. 562) in dry sandy fields near Curraes, in the Serra do Cipó, Minas Gerais, Brazil, in April of 1919 and is deposited in the Silveira herbarium. On page 403 of his work (1928) Silveira gives "1909" as the date of collection, but whether this is intended as a correction of the date given in his original diagnosis or is just a typographic error, is not clear. He comments that "Species pilositate pedunculorum et bracteis involucrentibus quam flores brevioribus insignis."

PAEPALANTHUS CAPITATUS Alv. Silv., Fl. Mont. 1: 164--165, pl. 104. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 164--165 & 403, pl. 104. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 476. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11 & 46. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Moldenke, Résumé 96 & 486. 1959; Moldenke, Fifth Summ. 1: 159 (1971) and 2: 949. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 104. 1928.

This species is based on A. Silveira 820, collected "Secus margines capoeiras" near Serrinha, Grão Mogol, Minas Gerais, Brazil, in July, 1926, and is deposited in the Silveira herbarium. On page 403 of his work (1928), Silveira gives "Serrinha, Cipó" as the locality of collection of his type specimen. He notes that the species is "A. P. acutipilo Alv. Silv. pilis capitatis et forma ac colore bractearum involucrantium praecipue differt". It is known thus far only from the original collection.

PAEPALANTHUS CAPITO Körn. in Mart., Fl. Bras. 3 (1): 392. 1863.

Synonymy: Dupatya capito (Körn.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya capito Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 299, 392, & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 401. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 127, 144, 145, [283], & 289. 1903; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11, 29, & 46. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 401. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 96 & 279. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 401. 1960; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 158. 1969; Moldenke, Fifth Summ. 1: 159 & 479 (1971) and 2: 949. 1971.

The type of this species was collected by Carl Friedrich Philipp von Martius in damp sandy openings among rocks at Tejuco [now known as Diamantina], in the Serra Frio, Minas Gerais, Brazil, flowering in May, and deposited in the herbarium of the Botanische Staatssammlung at Munich where it was photographed by Macbride as his type photograph number 18696. Ruhland (1903) asks: "An P. flavorutilus Ruhl. fortasse varietas modo hujus speciei?" Hatschbach found it growing on rocky campos, flowering and fruiting in August. Anderson and his associates encountered it in a wet marsh and slightly above in drier ground, at 1300 meters altitude, in an area of sedge meadows and sandy hillocks along a stream and in brushy woods above the stream, flowering and fruiting in February.

Citations: BRAZIL: Minas Gerais: Anderson, Stieber, & Kirkbride 3556 (Ld); Hatschbach 30232 (Z); Martius s.n. [Serra Frio,

prope Tejuco; Macbride photos 18696] (N--photo of type, W--photo of type).

PAEPALANTHUS CARACENSIS Alv. Silv., Fl. Mont. 1: 403. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 403. 1928; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Moldenke, Résumé 96 & 486. 1959; Moldenke, Fifth Summ. 1: 159 (1971) and 2: 949. 1971.

This species is apparently based on A. Silveira 430, collected in the Serra do Caraça, Minas Gerais, Brazil, in 1906, and deposited in the Silveira herbarium. A description of this plant seems not to have been published to date.

PAEPALANTHUS CARDONAE Moldenke, Phytologia 3: 39--40. 1948.

Bibliography: Moldenke, Phytologia 3: 39--40 (1948) and 3: 80. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 63 & 208. 1949; Moldenke, Phytologia 4: 137. 1952; E. J. Salisb., Ind. Kew. Suppl. 11: 175. 1953; Moldenke, Résumé 72 & 486. 1959; Moldenke, Fifth Summ. 1: 125 (1971) and 2: 949. 1971.

Additional citations: VENEZUELA: Bolívar: Cardona 2281 (V--isotype).

PAEPALANTHUS CASTANEUS Alv. Silv., Fl. Mont. 1: 249--251, pl. 166. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 249--251 & 403, pl. 166. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 476. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11 & 46. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Moldenke, Phytologia 4: 138. 1952; Moldenke, Résumé 96 & 486. 1959; Moldenke, Fifth Summ. 1: 159 (1971) and 2: 949. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 166. 1928.

The type of this species was collected by Álvaro Adolpho da Silveira (no. 555) in sandy fields in the Serra do Cipó, Minas Gerais, Brazil, in April, 1909, and is deposited in the Silveira herbarium. Silveira (1928) comments that the "Species ob bracteis flores stopantes et flores ipsos cum P. habenulifero Alv. Silv. valde affinis, sed pilis supremis bractearum perigoniorumque obtusis (non laterale mucronatis neque gibbosis) insignis. Ab aliis speciebus affinibus seu colore bractearum involucrium seu indumento perigoniorum foliorumque differt."

Additional citations: BRAZIL: Minas Gerais: P. Clausen 10 (Br).

PAEPALANTHUS CATHARINAE Ruhl. in Engl., Pflanzenreich 13 (4-30): 147. 1903.

Synonymy: Paepalanthus brevipedunculatus Moldenke, Résumé Suppl. 8: 5, in syn. 1964.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 127, 147, & 289. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Moldenke, Known Geogr. Distrib. Erioc. 11 & 46. 1946; Moldenke, Known Geo-

gr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Rambo, An. Bot. Herb. Barb. Rodr. 1: 128. 1949; Moldenke, Phytologia 3: 142 (1949) and 4: 138. 1952; Reitz, Sellowia 6: 252 & 256 (1954) and 7: 124. 1956; Rambo, Sellowia 7: 248 & 284. 1956; Angely, Fl. Paran. 10: 14. 1957; Moldenke, Résumé 96 & 486. 1959; Reitz, Sellowia 11: 31 & 119. 1959; Angely, Fl. Paran. 16: 66 (1960) and 17: 24. 1961; Reitz, Sellowia 13: 72 & 90. 1961; Moldenke, Résumé Suppl. 8: 5. 1964; Angely, Fl. Anal. Paran., ed. 1, 200. 1965; Reitz, Sellowia 22: 104. 1970; Moldenke, Fifth Summ. 1: 159 (1971) and 2: 578 & 949. 1971.

The type of this species was collected by Ernst Heinrich Georg Ule (no. 1621) in swamps at the edge of the Serra da Oratoria, Santa Catarina, Brazil, in January of 1890 and deposited in the herbarium of the Botanisches Museum at Berlin, where it was photographed by Macbride as his type photograph number 10583. The initial letter of the specific epithet is often uppercased and Ruhland (1903) notes that the "Species praeter vaginae et folia etiam pilis insignis. Bracteeae involucrantes serius floribus reflexis occultae".

Paepalanthus brevipedunculatus was based on Smith, Reitz, & Klein 7721, also from Santa Catarina, and deposited in the herbarium of the University of Oklahoma at Norman, Oklahoma.

Recent collectors describe P. catharinae as an herb, 30--50 cm. tall, with white flowers, and have found it growing in swamps, on campos, and on wet campos, at altitudes of 850 to 1650 meters, flowering in September and from November to January, and fruiting in September and December. Dombrowski refers to it as "frequent" in wet ground or wet campos.

Reitz (1959) records for this plant (and other species of the genus) the vernacular names "capim manso", "capipoatinga", "gravatá manso", and "sempreviva do campo". The specimen of Dusén 15783 in the Stockholm herbarium was annotated "n. sp." by an unknown (to me) hand. Material has been misidentified and distributed in some herbaria under the designation P. hatschbachii Moldenke and as P. neglectus Körn.

Additional citations: BRAZIL: Paraná: Dombrowski 2936 [Kuniyoshi 2416] (Ld), 3824 (Ld); Dusén 15783 (S, S); Hatschbach 22500 (Ac, N), 25713 (Ft); Imaguire 502 (Ac); Jönsson 1143a (S). Rio Grande do Sul: Canisio s.n. (S); Emrich & Rambo 36782 (N); Rambo 35245 (S), 36782 (N, S), 45408 (S), 49439 (S), 53783 (B); Sehnem 4252 (B). Santa Catarina: Lourteig 2138 (S); Pabst 6076 [E. Pereira 6249; Herb. Brad. 21962] (Lw); Rambo 60197 (S); Reitz 1936 (S), 3474 (N, S), 4131 (Le), C.307 (G, Ja--51189); Reitz & Klein 22 [Herb. Reitz 4704] (Le, S), 2455 [Herb. Inst. Rodr. 10622; Herb. Reitz 10622] (N, S, Z), 5410 (Ok); Smith & Klein 7350 (Ok); Smith & Reitz 8611 (Ok), 10131 (Ok), 10317 (N, Ok), 10484 (Ok); Smith, Reitz, & Klein 7721 (Ok, Ok, W--2250647); Ule 86 (Hg, N--photo), 1621 [Macbride photos 10583] (B--type, N--photo of type, N--photo of type, W--photo of type).

PAEPALANTHUS CATHARINAE var. HATSCHBACHI (Moldenke) Moldenke & Smith in Moldenke, Phytologia 25: 430. 1973.

Synonymy: Paepalanthus hatschbachi Moldenke, Lloydia 13: 224--225. 1950. Paepalanthus hatschbachii Moldenke ex Angely, Fl. Paran. 10: 6, 12, & 14. 1957.

Bibliography: Moldenke, Lloydia 13: 224--225. 1950; E. J. Salisb., Ind. Kew. Suppl. 11: 175. 1953; Angely, Fl. Paran. 10: 6, 12, & 14 (1957) and 12: 9. 1958; Moldenke, Résumé 98 & 487. 1959; Angely, Fl. Paran. 16: 66 (1960) and 17: 24. 1961; Angely, Fl. Anal. Paran., ed. 1, 200. 1965; Moldenke, Fifth Summ. 1: 162 (1971) and 2: 952. 1971; Moldenke, Phytologia 25: 430. 1973.

The type of this variety was collected by Gert Hatschbach (no. 1743) — in whose honor it was named — on Pico Olimpo, at an altitude of 1547 meters, in the municipality of Morretes, Paraná, Brazil, on January 15, 1950, and is deposited in the Britton Herbarium at the New York Botanical Garden.

Smith & Reitz found the species growing on campos and in crevices of ledges at 1680 meters altitude in Santa Catarina. It has been found flowering in December and January, growing in "brejo" at altitudes of about 1547 meters. Its leaves are only to two cm. long and 3 mm. wide during anthesis, while in typical P. catharinae they are 8--11 cm. long and 6--8.1 [not "81"] mm. wide.

Material has been misidentified and distributed in some herbaria under the name P. ruhlandii Alv. Silv. and as Eriocaulon sp. On the other hand, the Lourteig 2138, distributed as P. hatschbachi, is actually typical P. catharinae Ruhl.

Citations: BRAZIL: Paraná: Hatschbach 1743 (N--type). Rio Grande do Sul: Pabst 6294 [E. Pereira 6467] (Bd--21966, Bd); E. Richter s.n. [Canela, 6.11.58] (Bd--7838); A. R. Schultz 728 (N). Santa Catarina: Smith & Reitz 14227 (W--2451593).

PAEPALANTHUS CEARAENSIS Ruhl. in Engl., Pflanzenreich 13 (4-30): 161. 1903.

Synonymy: Paepalanthus cearensis Ruhl. ex Moldenke, Résumé 324, in syn. 1959.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 153, 161, & 289. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Alv. Silv., Fl. Mont. 1: 404. 1928; Moldenke, Known Geogr. Distrib. Erioc. 11 & 46. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Moldenke, Résumé 96, 324, & 486. 1959; Moldenke, Résumé Suppl. 12: 4. 1965; Moldenke, Fifth Summ. 1: 159 (1971) and 2: 579 & 949. 1971.

The type of this species was collected by Jacob Huber (no. 53) "in der Nähe der Küste auf Land", Ceará, Brazil, and is deposited in the herbarium of the Botanisches Museum at Berlin where it was photographed by Macbride as his type photograph number 18697.

Ruhland (1903) notes that the "Species habitu P. dendroidi Kunth similis, sed bracteis involucrentibus cito recurvis facile distinguenda. Capitula illis P. Lamarckii simillima, ad quam species adeo accedit, ut dubius haeream, utrum potius modo illius

varietas sit. Differt foliis juvenilibus pilosulis, sensim ad apicem angustatis et capitulis minoribus." I certainly agree that P. cearaensis is extremely closely related to P. lamarckii Kunth, if not actually conspecific with it!

Recent collectors have found P. cearaensis growing in moist sand on rocks, flowering in May, August, and September. Murça Pires & Cavalcante refer to it as "infrequent in sandy soil along the road to the gold mines". Silveira (1928) cites A. Silveira 628 from Ilha Margunça, collected in 1914.

Citations: BRAZIL: Amapá: Murça Pires & Cavalcante 52527 (N, N). Ceará: Cutler 8362 (N); Ducke s.n. [Herb. Mus. Goeldi 1676] (Z); F. C. Hoehne 3508 [Macbride photos 18697] (N--photo, W--photo); Huber 53 (B--type); Löfgren 450 (S); Swallen 4554 (W--1592042).

PAEPALANTHUS CEPHALOTRICHUS Alv. Silv., Fl. Serr. Min. 39, pl. 14. 1908.

Synonymy: Baepalanthus cephalotrichus Alv. Silv., Fl. Mont. 1: 53, sphalm. 1928.

Bibliography: Alv. Silv., Fl. Serr. Min. 39, pl. 14. 1908; Alv. Silv., Fl. Mont. 1: 53--54 & 404, pl. 39. 1928; Stapf, Ind. Lond. 4: 518. 1930; A. W. Hill, Ind. Kew. Suppl. 8: 169. 1933; Wangerin in Just, Bot. Jahresber. 57 (1): 476. 1937; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11 & 46. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 208. 1949; Moldenke, Résumé 96 & 486. 1959; Moldenke, Fifth Summ. 1: 159 (1971) and 2: 949. 1971.

Illustrations: Alv. Silv., Fl. Serr. Min. pl. 14. 1908; Alv. Silv., Fl. Mont. 1: pl. 39 [prim.]. 1928.

This species is based on A. Silveira 349 from "In pratis prope Capão Redondo", in the Serra do Cipó, Minas Gerais, Brazil, collected in April, 1905, and deposited in the Silveira herbarium. In his text (1928) Silveira cites plate "XXIX", but the plate illustrating this species is labeled "XXXIX". It is actually the first of two plates so numbered -- the second depicts P. gomesii Alv. Silv. and is correctly cited as "XXXIX" on page 69 of the text. I am citing the latter as "pl. 39 [sec.]", while the illustration of P. cephalotrichus I am citing as "pl. 39 [prim.]".

Citations: BRAZIL: Minas Gerais: A. Silveira 349 (B--isotype, Z--isotype).

PAEPALANTHUS CHAPADENSIS Alv. Silv., Fl. Mont. 1: 232--233, pl. 154. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 232--233 & 404, pl. 154. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 476. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11 & 46. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 208. 1949; Moldenke, Résumé 96 & 486. 1959; Moldenke, Fifth Summ. 1: 159 (1971) and 2: 949. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 154. 1928.

This species is based on A. Silveira 680 from fields near Itambé, in the Chapada do Couto, Minas Gerais, Brazil, collected in April, 1918, and deposited in the Silveira herbarium. Silveira (1928) comments that "A. P. sicaefolio Alv. Silv. ob folia minus rigida, vaginas majores et brateas involucrantibus dense villosas praecipue differt". The plant has been collected in anthesis in April.

Citations: BRAZIL: Minas Gerais: E. Pereira 2839 [Pabst 3675; Herb. Brad. 3831] (Bd).

PAEPALANTHUS CHASEAE Moldenke, Phytologia 8: 164. 1962.

Bibliography: Moldenke, Phytologia 8: 164. 1962; Moldenke, Résumé Suppl. 3: 13. 1962; Hocking, Excerpt. Bot. A.6: 455. 1963; Moldenke, Phytologia 20: 251. 1970; G. Taylor, Ind. Kew. Suppl. 14: 97. 1970; Moldenke, Fifth Summ. 1: 159 (1971) and 2: 949. 1971.

Material of this species has been misidentified and distributed in some herbaria as Leiothrix nubigena (Kunth) Ruhl.

Citations: BRAZIL: Minas Gerais: M. A. Chase 10358 (Mi--type, W--1495690--isotype, Z--isotype).

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

Bibliography: N. Am. Fl. 19: 39. 1937; Moldenke, Phytologia 1: 332, 350, & 360. 1939; Moldenke, Known Geogr. Distrib. Erioc. 4 & 46. 1946; Hill & Salisb., Ind. Kew. Suppl. 10: 158. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 31 & 208. 1949; Moldenke, Résumé 37 & 486. 1959; Moldenke, Fifth Summ. 1: 72 (1971) and 2: 949. 1971.

Additional citations: MEXICO: Chiapas: Purpus 10565 (Ca--277929--isotype).

PAEPALANTHUS CHIQUITENSIS Herzog in Fedde, Repert. Sp. Nov. 20: 86. 1924.

Bibliography: Herzog in Fedde, Repert. Sp. Nov. 20: 86. 1924; A. W. Hill, Ind. Kew. Suppl. 7: 174. 1929; Moldenke, Known Geogr. Distrib. Erioc. 19 & 46. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 97 & 208. 1949; Moldenke, Résumé 114 & 486. 1959; Moldenke, Fifth Summ. 1: 183 (1971) and 2: 949. 1971.

The type of this species was collected by Theodor K. J. Herzog (no. 114) in springy places on the campos of the Cerro de Santiago, at an altitude of 700--800 meters, where he says it was very abundant, Chiquitos, Bolivia, in the middle of May, 1907. Herzog (1924) comments that "Durch die langen kahlen Stengelblätter die kurzen Scheiden die 10-rippigen plattgedruckten Köpfchenstiele, die grossen Köpfe und die hellbraunen Brakteen von P. speciosum (Bong.), dem die neue Art ähnlich und nahe verwandt ist, gut unterschieden." Cárdenas describes the plant as an herb to 60 cm. tall and found it growing at 900 meters altitude.

Citations: BOLIVIA: Chiquitos: M. Cárdenas 4513 (N--photo, W--

1989932, Z--photo), 6255 (W--2481709).

PAEPALANTHUS CHLOROBLEPHARUS Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 139--140. 1903.

Bibliography: Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 8, 125, 139--140, & 289. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Ruhl. in Engl. & Prantl, *Nat. Pflanzenfam.*, ed. 2, 15a: 43. 1930; Moldenke, *Known Geogr. Distrib. Erioc.* 11 & 46. 1946; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 83 & 208. 1949; Moldenke, *Résumé* 96 & 486. 1959; Tomlinson in C. R. Metcalfe, *Anat. Monocot.* 3: 190. 1969; Moldenke, *Fifth Summ.* 1: 159 (1971) and 2: 949. 1971.

The type of this species was collected by Ernst Heinrich Georg Ule in swamps at Caraça, Minas Gerais, Brazil, flowering in March, 1892, and deposited in the herbarium of the Botanisches Museum at Berlin, where it was photographed by Macbride as his type photograph number 10584. Thus far the species is known only from the original collection. Ruhland (1903) says of it "Species habitu insigni".

Citations: BRAZIL: Minas Gerais: Ule s.n. [in Sümpfen bei Caraça; Macbride photos 10584] (B--type, N--photo of type, N--photo of type, W--photo of type, Z--isotype).

PAEPALANTHUS CHLOROCEPHALUS Alv. Silv., *Fl. Serr. Min.* 60, pl. 21. 1908.

Bibliography: Alv. Silv., *Fl. Serr. Min.* 60, pl. 21. 1908; Alv. Silv., *Fl. Mont.* 1: 268--270 & 404, pl. 178. 1928; Stapf, Ind. Lond. 4: 518. 1930; A. W. Hill, Ind. Kew. Suppl. 8: 169. 1933; Wangerin in Just, *Bot. Jahresber.* 57 (1): 476. 1937; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, *Known Geogr. Distrib. Erioc.* 11 & 46. 1946; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 83 & 208. 1949; Moldenke, *Résumé* 96 & 486. 1959; Rennó, *Levant. Herb. Inst. Agron.* 70. 1960; Moldenke, *Fifth Summ.* 1: 159 (1971) and 2: 949. 1971.

Illustrations: Alv. Silv., *Fl. Serr. Min.* pl. 21. 1908; Alv. Silv., *Fl. Mont.* 1: pl. 178. 1928.

This species is based on A. Silveira 372, collected in wet places in the Serra do Cipó, Minas Gerais, Brazil, in April, 1905, and deposited in the Silveira herbarium.

Citations: BRAZIL: Minas Gerais: Black & Magalhães 51-11910 (Be--69735); Maguire, Mendes Magalhães, & Maguire 49093 (N, Z); A. Silveira 372 (B--isotype, Z--isotype).

PAEPALANTHUS CHLORONEMA Alv. Silv., *Fl. Mont.* 1: 121--123, pl. 76. 1928.

Bibliography: Alv. Silv., *Fl. Mont.* 1: 121--123 & 404, pl. 76. 1928; Wangerin in Just, *Bot. Jahresber.* 57 (1): 476. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, *Known Geogr. Distrib. Erioc.* 11 & 46. 1946; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 83 & 208. 1949; Moldenke, *Phytologia* 4: 138. 1952; Moldenke, *Résumé*

96, 324, & 486. 1959; Moldenke, Fifth Summ. 1: 159 (1971) and 2: 579 & 949. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 76. 1928.

This species is based on A. Silveira 587 from fields near Burity da Samambaia, in the Serra do Cabral, Minas Gerais, Brazil, collected in May, 1910, and deposited in the Silveira herbarium.

PAEPALANTHUS CHLOROPHYLLUS Alv. Silv., Fl. Mont. 1: 80—82, pl. 9 & 48. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 80—82 & 404, pl. 9 & 48. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 476. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11 & 46. 1946; Moldenke, Alph. List Cit. 2: 412 (1948) and 3: 935. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 208. 1949; Moldenke, Phytologia 4: 138. 1952; Moldenke, Résumé 96 & 486. 1959; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 949. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 9 & 48. 1928.

This species is based on A. Silveira 563 from sandy fields near Morro da Garça, in the Serra do Cipó, Minas Gerais, Brazil, collected in April of 1909 and deposited in the Silveira herbarium. Through some mixup by the printer, plate "IX" in Silveira's work (1928) is labeled P. chloropus Alv. Silv. (and is so cited in the text description of that species) but the illustration is an exact duplication of the one on plate "XLVIII" which is correctly labeled P. chlorophyllus and is so cited in the text of that species.

Silveira notes for P. chlorophyllus "Cum P. Oerstediano Koern. valde affinis, sed bracteis involucrantibus dorso pilosis, summitate capituli albo-villosa (non ochracea), etc, differt."

Additional citations: BRAZIL: Minas Gerais: A. Silveira 563 [Herb. Marie-Victorin 15833] (N—photo of isotype, Z—photo of isotype).

PAEPALANTHUS CHLOROPUS Alv. Silv., Fl. Mont. 1: 24—25. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 24—25 & 404, pl. 9. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 476. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11 & 46. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 208. 1949; Moldenke, Résumé 96 & 486. 1959; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 949. 1971.

This species is based on A. Silveira 809 from "In campis argillosis" near the Serra da Moeda, Minas Gerais, Brazil, collected in July of 1926 and deposited in the Silveira herbarium. Silveira (1928) notes that the "Species a P. dichromolepidis Alv. Silv. bracteis involucrantibus ligulatis et pedunculis glabris valde distincta". Unfortunately, through what was probably a printer's error, the plate "IX", which Silveira (1928) cites as illustrating this species and which is so labeled (and so referred to by Worsdell), actually represents P. chloro-

phyllus Alv. Silv. instead, being an exact duplication of the illustration on plate "XLVIII", which is cited as representing P. chlorophyllus. Apparently the true picture of P. chloropus was lost.

PAEPALANTHUS CHRYSOLEPIS Alv. Silv., Fl. Mont. 1: 256—258, pl. 170 [prim.]. 1928.

Synonymy: Paepalanthus chryselepis Alv. Silv. apud Wangerin in Just, Bot. Jahresber. 57 (1): 476, sphalm. 1937.

Bibliography: Alv. Silv., Fl. Mont. 1: 256—258 & 404, pl. 170 [prim.]. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 476. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11 & 46. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 208. 1949; Moldenke, Résumé 96 & 486. 1959; Moldenke, Phytologia 20: 301. 1970; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 949. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 170 [prim.]. 1928.

This species is based on A. Silveira 691 from fields near Barauna, Minas Gerais, Brazil, collected in April of 1918 and deposited in the Silveira herbarium. On page 404 of his work (1928) Silveira cites the type locality as "Baraunas (Diamantina)", perhaps as a correction of what was written in his original description.

It should be noted that Silveira's work has two plates labeled "CLXX", only the first of which actually depicts P. chrysolepis. The second represents P. acutalis Alv. Silv. On page 258 of his text he erroneously refers to plate "CLXIX" as depicting P. chrysolepis, but the plate so numbered actually illustrates what he calls P. mirabilis Alv. Silv., now known as P. senaeanus Ruhl. I am citing the plate which truly depicts P. chrysolepis as pl. 170 [prim.], although Worsdell (1941), for some reason not obvious to me, refers to it as plate "169 bis".

Citations: BRAZIL: Minas Gerais: L. Riedel 316 [Herb. Mus. Nac. Rio Jan. 29523] (S); Ule 2718 [Herb. Mus. Nac. Rio Jan. 29471] (S).

PAEPALANTHUS CHRYSOPHORUS Alv. Silv., Fl. Mont. 1: 176—178, pl. 114. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 176—178 & 404, pl. 114. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 476. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11 & 46. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 208. 1949; Moldenke, Résumé 96 & 486. 1959; Renné, Levant. Herb. Inst. Agron. 70. 1960; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 949. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 114. 1928.

This species is based on A. Silveira 828 from fields near Grão Mogol, Minas Gerais, Brazil, collected in July of 1926 and deposited in the Silveira herbarium. Irwin and his associates

describe the species as a slender ascending herb, 15--40 cm. tall, with white flower-heads, growing in wet places in cutover gallery forests in a deep valley, in meadows in the shade of a gallery forest, in an area of grassy meadows and adjacent sandy campos, and in brejo in areas of cerrado on outcrops, brejo, and gallery forest. It has been collected in anthesis from January to March and in July, and in fruit in March, at altitudes of 1200--1600 m. It appears to be closely related to P. flaccidus (Bong.) Kunth and material has been so misidentified and distributed in some herbaria.

Citations: BRAZIL: Goiás: Irwin, Harley, & Onishi 29543 (Ld); Smith & Macedo 4695 (W--2248222). Minas Gerais: Duarte & Garziela Berreros 7875 [Herb. Brad. 27774] (N), s.n. [A. P. Duarte 7874] (Bd--27772), s.n. [A. P. Duarte 7875] (Bd--27774); Godoy s. n. [Herb. Inst. Bot. S. Paulo 8431] (N); Hatschbach 27276 (Ld); Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 28576 (Ld, N); Irwin, Reis dos Santos, Souza, & Fonsêca 21958 (N, Z); Macedo 2780 (N, S), 3019 (N, S); Mello Barreto 6338 (N), 9844 [Herb. Jard. Bot. Belo Horiz. 25340] (N); Mendes Magalhães 1120 [Herb. Jard. Bot. Belo Horiz. 39318] (N). State undetermined: G. Gardner 5244 (N).

PAEPALANTHUS CILIATUS (Bong.) Kunth, Enum. Pl. 3: 517. 1841.

Synonymy: Eriocaulon ciliatum Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 622 & 624, pl. 5. 1831. Paepalanthus ciliatus Kunth apud Körn. in Mart., Fl. Bras. 3 (1): 323. 1863. Dupatya ciliata (Bong.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya ciliata Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902. Paepalanthus ciliatus (Bong.) Ruhl. apud Alv. Silv., Fl. Mont. 1: 404. 1928.

Bibliography: Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 622 & 624, pl. 5. 1831; Bong., Ess. Monog. Erioc. 22 & 45--46, pl. 5. 1831; Steud., Nom. Bot., ed. 2, 1: 585. 1840; Kunth, Enum. Pl. 3: 517, 572, 613, & 624. 1841; Mart., Flora 24, Beibl. 2: 36. 1841; D. Dietr., Syn. Pl. 5: 261. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 274 & 335. 1855; Körn. in Mart., Fl. Bras. 3 (1): 323, 326, & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 877 (1893) and 2: 401. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 189, 191, 192, [283], 285, & 289. 1903; Alv. Silv., Fl. Mont. 1: 213 & 404. 1928; Stapf, Ind. Lond. 3: 90. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Known Geogr. Distrib. Erioc. 11, 29, 33, & 46. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 877 (1946) and 2: 401. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 83 & 208. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 96, 279, 287, 324, & 486. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 877 (1960) and 2: 401. 1960; Moldenke, Phytologia

20: 364. 1970; Moldenke, Fifth Summ. 1: 160 & 479 (1971) and 2: 496, 579, & 949. 1971; Moldenke, Phytologia 25: 155. 1973.

Illustrations: Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: pl. 5. 1831; Bong., Ess. Monog. Erioc. pl. 5. 1831.

The type of this species was collected by Ludwig Riedel (no. 1183) in sandy-gravelly places on a high mountain near Cachoeira, Minas Gerais, Brazil, flowering in December, and deposited in the Leningrad herbarium. Bongard (1831) describes the species as "caulibus simplicibus; foliis radicalibus e basi lata lanceolata-acuminatis ciliatis; pedunculis facile deciduis subpubescentibus, vaginis bifidis. T. V. Habitat et floret cum praecedente [*P. brachypus* (Bong.) Kunth]." Ruhland (1903) cites only the original collection, but Silveira (1928) cites *A. Silveira* 502 from the Serro Pouso Alto, collected in 1908, and comments "Secundum specimina a me collecta hanc alterationem in descriptione a cl. Frederico Koernicke in 'Flora Brasiliensi' data indico: Rami simplices vel ramulos varios pedunculiferos proferentes, usque 70 cm alti. Bractee involucrantes summo dorso pilosae."

Martius (1841) claims that *P. ciliatus* is related to *P. brasiliensis* (Mart.) Mart., *P. polyanthus* (Bong.) Kunth, and *P. rigidus* (Bong.) Kunth. Kunth (1841) compares it with *P. bahiensis* (Bong.) Kunth as follows: "A *P. ciliato* praeter notas allatas differt: habitu diverso, foliis angustioribus, pilosis, minus dense ciliatis, pedunculis longioribus, crassioribus, pilosis, non deciduis, capitulis triplo majoribus".

Citations: BRAZIL: Minas Gerais: *L. Riedel* 1183 (B--isotype, Z--isotype).

PAEPALANTHUS CILIATUS var. *GLABRESCENS* Alv. Silv., Fl. Mont. 1: 213. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 213. 1928; Moldenke, Known Geogr. Distrib. Erioc. 11 & 46. 1946; Moldenke, Known Geograph. Distrib. Verbenac., [ed. 2], 83 & 208. 1949; Moldenke, Résumé 96 & 486. 1959; Moldenke, Fifth Summ. 1: 160 (1971) and 2: 949. 1971.

The type of this variety was collected by Álvaro Adolpho da Silveira (no. 774) in sandy fields near Milho Verde, in the Serra Geral, Minas Gerais, Brazil, in June of 1925 and is deposited in the Silveira herbarium. Silveira (1928) describes the plant as "Rami simplices vel ramulos pedunculiferos proferentes, usque 70 cm alti. Folia ramea subtus glabra." Thus far, the variety is known only from the original collection.

PAEPALANTHUS CILIOLATUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 147, fig. 1 E. 1903.

Synonymy: *Paepalanthus albo-ciliatus* Alv. Silv., Fl. Serr. Min. 40, pl. 4. 1908. *Paepalanthus albociliatus* Alv. Silv., Fl. Mont. 1: pl. 29. 1928. *Paepalanthus cillioatus* Alv. Silv., Fl. Mont. 1: 404, sphalm. 1928.

[to be continued]



Moldenke, Harold N. 1973. "Additional notes on the Eriocaulaceae. XLV." *Phytologia* 26, 179–202. <https://doi.org/10.5962/bhl.part.13720>.

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