

ADDITIONAL NOTES ON THE ERIOCAULACEAE. XLI

Harold N. Moldenke

ERIOCAULACEAE Lindl.

Additional & emended bibliography: Mart., Flora 24, Beibl. 2: 58, 60, & 61. 1841; J. Hutchinson, Fam. Flow. Pl. 2: 65—67 & 236, fig. 21. 1934; Moldenke in Gleason & Killip, Brittonia 3: 157—159. 1939; Rambo, An. Bot. Herb. Barb. Rodr. 1: 11, 128, & 132. (1949) and 2: 128. 1950; Moldenke, Phytologia 25: 68—99. 1972; Stalter, Castanea 37: 220. 1972.

BLASTOCAULON Ruhl.

Additional bibliography: J. Hutchinson, Fam. Flow. Pl. 2: 67 & 234. 1934; Moldenke, Phytologia 24: 335—336. 1972.

ERIOCAULON Gron.

Additional & emended bibliography: Mart., Flora 24, Beibl. 2: 58, 60, & 61. 1841; J. Hutchinson, Fam. Flow. Pl. 2: 67 & 236. 1934; Moldenke in Gleason & Killip, Brittonia 3: 157. 1939; Rambo, An. Bot. Herb. Barb. Rodr. 1: 11, 128, & 132 (1949) and 2: 128. 1950; Moldenke, Phytologia 25: 68—91. 1972; Stalter, Castanea 37: 220. 1972.

The L. C. Wheeler 12061, distributed as Eriocaulon sp., is actually Eleocharis congesta D. Don in the Cyperaceae.

ERIOCAULON AFZELIANUM Wikstr.

Additional bibliography: Gledhill, Check List Flow. Pl. Sierra Leone 31. 1962; Moldenke, Phytologia 24: 340. 1972.

ERIOCAULON ANGUSTIFOLIUM Körn.

Additional bibliography: Moldenke, Phytologia 24: 341. 1972.

Hatschbach has collected this plant in flower and fruit in August in "nas aguas de correjo sobre lageados".

Additional citations: BRAZIL: Minas Gerais: Hatschbach 29929 (Ld).

ERIOCAULON AQUATICUM (J. Hill) Druce

Additional bibliography: Stieber, Castanea 36: 277. 1971; Moldenke, Phytologia 24: 456, 473, 489, & 490 (1972) and 25: 73. 1972.

ERIOCAULON ATRATUM Körn.

Additional bibliography: Moldenke, Phytologia 24: 343 (1972) and 25: 69 & 80. 1972.

Recent collectors describe this plant as having the leaves light-green, "flowering stems" [presumably peduncles] 10—20 cm. tall, flower-heads hemispheric, 4—5 mm. in diameter, the bracts blackish, and the flowers white or grayish-white, growing in muddy places along paths or locally abundant in shady places among moist rocks at

streamsides, at 1200—1550 meters altitude, flowering in March and September.

Additional citations: CEYLON: Grierson 1043 (W—2611926); Van Beusekum & Van Beusekum 1543 (W—2656062).

ERIOCAULON ATRATUM var. MAJOR Thwaites

Additional bibliography: Moldenke, *Phytologia* 24: 456 (1972) and 25: 69 & 80. 1972.

Hoogland found this plant growing in the transition zone between wet patana and forest, at 2300 meters altitude, flowering in March.

Additional citations: CEYLON: Hoogland 11503 (W—2656033).

ERIOCAULON BIFISTULOSUM Van Heurck & Muell.-Arg.

Additional bibliography: Gledhill, *Check List Flow. Pl. Sierra Leone* 31. 1962; Lewalle, *Bull. Jard. Nat. Belg.* 42 [Trav. Univ. Off. Bujumb. Fac. Sci. C.20]: [237]. 1972; Moldenke, *Phytologia* 24: 346 (1972) and 25: 74. 1972.

Lewalle (1972) records E. setaceum L. from Burundi, but I assume that he is referring to E. bifistulosum. He cites Lewalle 5407.

ERIOCAULON BROWNIANUM var. LATIFOLIUM Moldenke

Additional bibliography: Moldenke, *Phytologia* 24: 347—348. 1972.

Hoogland found this plant growing in the transition zone between wet patana and forest and on rocks along creeks in rain-forests, at 300—2300 meters altitude, flowering in February and March.

Additional citations: CEYLON: Hoogland 11448 (W—2656337), 11502 (W—2656032).

ERIOCAULON BURCHELLII Ruhl.

Additional bibliography: Moldenke, *Phytologia* 24: 348. 1972.

Additional citations: BRAZIL: Distrito Federal: Irwin & Soderstrom 5421 (W—2587216a).

ERIOCAULON CEYLANICUM Körn.

Additional bibliography: Moldenke, *Phytologia* 24: 349. 1972.

Recent collectors have found this species growing in sunny mucky wet meadows and common in wet patanas, at 1590—2300 meters altitude, flowering in March and July and fruiting in March.

Additional citations: CEYLON: Hoogland 11505 (W); L. C. Wheeler 12176 (W—2611449).

ERIOCAULON CINEREUM R. Br.

Additional bibliography: Billore & Hemadri, *Bull. Bot. Surv. India* 11: 345. 1969; N. P. Singh, *Bull. Bot. Surv. India* 11: 357. 1969; Moldenke, *Phytologia* 24: 457, 474, & 485 (1972) and 25: 75. 1972.

Billore & Hemadri (1969) cite their no. 115926 from Kedarnath

and Singh (1969) cites his no. 33535 from Uttar Pradesh, India. Cook & Rix found this plant locally abundant as a weed in shallow water and on wet mud at the edge of ricefields in northern Italy. I am not at all convinced that all of their material represents this species. Some of it has been previously cited by me (1972) as E. luzulaefolium Mart., but studies now under way may show that all is really E. cinereum. The leaves on their nos. 42 & 49 seem far too large and broad for typical E. cinereum. Similarly, the peduncles on the California material previously cited seem far too long. The material from these introduced colonies, so far from their native homes, needs more study, and it is hoped that these studies will soon be made.

Additional citations: ITALY: Cook & Rix 30 (Z), 45 (Z), 49 (Z). JAPAN: Honshu: Hashimoto 1624 (Ws, Zu); Itô & Koyama 826 (Ws).

ERIOCAULON COMPRESSUM Lam.

Additional bibliography: Moldenke, Phytologia 24: 457. 1972; Stalter, Castanea 37: 220. 1972.

Stalter (1972) records this species from Georgetown County, South Carolina.

The Iltis, Crosswhite, & Kawano 21540 & 21553 and G. J. Pierce 354, distributed as E. compressum, are actually var. harperi Moldenke.

Additional citations: SOUTH CAROLINA: Berkeley Co.: Ahles, Radford, Orndorff, & Baker 56515 (Ws). GEORGIA: Sapelo Island: Duncan, Adams, & Connell 20000 (Ws).

ERIOCAULON COMPRESSUM var. HARPERI Moldenke

Additional bibliography: Moldenke, Phytologia 24: 351. 1972.

Recent collectors have found this plant growing in moist sandy pitcherplant flats and pine savannas with Sarracenia purpurea x drummondii, S. psittacina, Drosera tracyi, etc., in flat sandy recently burned grass-sedge prairies with Calopogon, many Sarracenia drummondii and S. sledgei and scattered Pinus sp., in wet Pinus palustris savannas with Sarracenia drummondii, S. sledgei, S. purpurea, and hybrids, Pinguicula lutea, P. caerulea, Chaptalia tomentosa, Drosera tracyi, and Polygala polygama, in damp clay roadside ditches with other species of Eriocaulon, Xyris, Drosera, Helenium, Utricularia, Chaptalia tomentosa, and Sarracenia sledgei, and along roadsides in general, flowering in April and May.

Additional citations: FLORIDA: Wakulla Co.: I. L. Wiggins 20032 (W—2587332a). ALABAMA: Baldwin Co.: Iltis, Crosswhite, & Kawano 21540 (Ws), 21553 (Ws); G. J. Pierce 354 (Ws). Washington Co.: Iltis & Univ. Wisc. Pl. Geog. Field Trip 25154 (Ws), 25156 (Ac, Ws).

ERIOCAULON CRASSISCAPUM Bong.

Additional bibliography: Moldenke, *Phytologia* 24: 352 & 470. 1972.

The Krapovickas, Cristóbal, Arbo, Maruffak, Maruffak, & Irogoyen 17252, distributed as E. crassiscapum, is actually E. leptophyllum Kunth.

ERIOCAULON CUSPIDATUM Dalz.

Additional bibliography: Moldenke, *Phytologia* 24: 349 & 353. 1972.

Additional citations: INDIA: Kerala: Manilal 5 (Ac).

ERIOCAULON DECANGULARE L.

Additional synonymy: Eriocaulon decangulilare Richardson, in herb.

Additional bibliography: Moldenke, *Phytologia* 24: 457 (1972) and 25: 82. 1972; Stalter, *Castanea* 37: 220. 1972.

Recent collectors have found this plant growing in roadside ditches, pine savannas, mixed pine-hardwood forests, open pine-palmetto forests, open swales, and inundated pineland glades, in swamp and shallow lake areas in oak woods, in shady depressions in pinelands with hammocks and cypress-heads, in boggy freshwater flats and swales with an abundance of Sarracenia spp., and in wet acid roadside ditches adjacent to Pinus palustris woods with Lachnanthes caroliniana, Rhexia alifanus, Dichromena latifolia, Polygala ramosa, and Linum medium. Stalter (1972) records it from Georgetown County, South Carolina.

The Gould 10436, distributed as E. decangulare, is actually var. minor Moldenke, while Tharp, Turner, & Johnston 54954 is f. parviceps Moldenke.

Additional citations: NORTH CAROLINA: Carteret Co.: Helms & Helms 1188 (Ws). SOUTH CAROLINA: Allendale Co.: C. R. Bell 3983 (Ws). GEORGIA: Brantley Co.: Kuns 98 (Ws). Ware Co.: Kuns 3a (Ws), 3b (Ws). FLORIDA: Alachua Co.: I. L. Wiggins 20018 (W—2587328a). Collier Co.: Lakela 29033 (Ws). Hernando Co.: R. A. Howard 12953 (Ws). Hillsborough Co.: Lakela & Almeda 30124 (Ws, Ws). Polk Co.: Conard s.n. [22 May 1964] (Ws). Volusia Co.: J. T. Richardson s.n. [1939] (Ws). ALABAMA: Baldwin Co.: Hansen & Hansen 47 (Ws); Marcks & Marcks 646 (Ws).

ERIOCAULON DECANGULARE var. MINOR Moldenke

Additional bibliography: Moldenke, *Phytologia* 24: 354 (1972) and 25: 82. 1972.

Gould found this plant growing in a small bog at the base of a gentle slope in open pasture, associated with Sarracenia and Utricularia.

Additional citations: TEXAS: Leon Co.: Gould 10436 (Ws).

ERIOCAULON DECANGULARE f. PARVICEPS Moldenke

Additional bibliography: Moldenke, Phytologia 24: 354. 1972.

Recent collectors describe this plant as having "leaves long, heads snow white", and found it growing in acid Sphagnum bogs and in hardwood forests with sandy bottoms, flowering in June. The Tharp, Turner, & Johnston 54954, cited below, was previously erroneously cited by me as E. texense Körn.

Additional citations: TEXAS: Robertson Co.: Lonard 1956 (Ws). Tyler Co.: Tharp, Turner, & Johnston 54954 (Ws).

ERIOCAULON DIANAE Fyson

Additional bibliography: Billore & Hemadri, Bull. Bot. Surv. India 11: 345. 1969; Cherian & Pataskar, Bull. Bot. Surv. India 11: 395. 1969; Moldenke, Phytologia 24: 355--356. 1972.

Billore & Hemadri (1969) found this plant growing on hillslopes in Kedarnath and cite their no. 115530, while Cherian & Pataskar (1969) assert that it is "common" in muddy areas of paddy fields in Boripada, India, flowering and fruiting in September and October, citing their no. 112702.

ERIOCAULON HONDOENSE Satake

Additional bibliography: Moldenke, Phytologia 24: 464 (1972) and 25: 72. 1972.

Material of this species has been misidentified and distributed in some herbaria as E. sikokianum Maxim.

Additional citations: JAPAN: Honshu: Hiroe 16583 (Ws, Ws); Ohwi & Koyama 1124 (Ws); Togasi 722 (Ws), 914 (Ws), 1101 (Ws).

ERIOCAULON HUMBOLDTII Kunth

Additional bibliography: Moldenke in Gleason & Killip, Brittonia 3: 157. 1939; Moldenke, Phytologia 24: 465. 1972.

ERIOCAULON LEPTOPHYLLUM Kunth

Additional bibliography: Moldenke, Phytologia 24: 470. 1972.

Material of this species has been misidentified and distributed in some herbaria as E. crassiscapum Bong.

Additional citations: ARGENTINA: Corrientes: Krapovickas, Cristóbal, Arbo, Maruffak, Maruffak, & Irigoyen 17252 (Ws).

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

Additional bibliography: Rambo, An. Bot. Herb. Barb. Rodr. 1: 128 & 132. 1949; Moldenke, Phytologia 24: 469 & 471--473. 1972.

ERIOCAULON LINEARE Small

Additional bibliography: Moldenke, Phytologia 24: 473 (1972) and 25: 82. 1972.

The Hansen & Hansen 80, distributed as E. lineare, is actually Lachnocaulon anceps (Walt.) Morong, while Kuns 4 & 99 are Syngonanthus flavidulus (Michx.) Ruhl.

ERIOCAULON MAGNIFICUM Ruhl.

Additional & emended bibliography: Rambo, An. Bot. Herb. Barb. Rodr. 2: 128. 1950; Moldenke, Phytologia 24: 474--475 (1972) and 25: 86. 1972.

ERIOCAULON MAGNUM Abbiatti

Additional bibliography: Moldenke, Phytologia 24: 475. 1972.
Additional citations: PARAGUAY: Krapovickas & Cristóbal 13474 (Ws).

ERIOCAULON MEGAPOTAMICUM Malme

Additional & emended bibliography: Rambo, An. Bot. Herb. Barb. Rodr. 1: 11 (1949) and 2: 128. 1950; Moldenke, Phytologia 24: 476. 1972.

ERIOCAULON MELANOCEPHALUM Kunth

Additional bibliography: Moldenke, Phytologia 24: 476 (1972) and 25: 74. 1972.

Additional citations: BRAZIL: Goiás: Irwin, Anderson, Stieber, & Lee 34424 (Id).

ERIOCAULON MERRILLII Ruhl.

Additional bibliography: Moldenke, Phytologia 24: 477. 1972.
In addition to the months previously reported by me, this plant has been found flowering in November and December.

Additional citations: GREATER SUNDA ISLANDS: Sumatra: Boeea 8764 (W--2275433).

ERIOCAULON MICROCEPHALUM H.B.K.

Additional bibliography: Moldenke, Phytologia 24: 477. 1972.
Rzedowski describes this plant as growing on "ladera andesítica con vegetación de bosque de Pinus hartwegii", the flower-heads "blanco-azulosas".

The Mori & Anderson 220, distributed as E. microcephalum, is actually Paepalanthus karstenii Ruhl., while Cutler 7038 is P. manicatus var. pulvinatus Herzog.

Additional citations: MEXICO: México: J. Rzedowski 25963 (Ws, Z).

ERIOCAULON MODESTUM Kunth

Additional & emended bibliography: Rambo, An. Bot. Herb. Barb. Rodr. 2: 128. 1950; Moldenke, Phytologia 24: 479 & 482. 1972.

ERIOCAULON MOLINAE L. O. Williams

Additional bibliography: Moldenke, Phytologia 24: 480. 1972.
Williams & Correll describe the flower-heads of this species as blackish and found the plant "common" in swampy swales and meadows at 1350 meters altitude, flowering and fruiting in December. The collection cited below is a mixture with Eleocharis sp.

Additional & emended citations: HONDURAS: Morazán: Williams & Correll 29289, in part (N, Ws).

ERIOCAULON NILAGIRENSE Steud.

Additional bibliography: Moldenke, Phytologia 24: 483. 1972.

Hoogland found this plant growing in the transition zone between wet patana and forest, at 2300 meters altitude, flowering in March.

Additional citations: CEYLON: Hoogland 11504 (W).

ERIOCAULON NUDICUSPE Maxim.

Additional bibliography: Moldenke, Phytologia 24: 484. 1972.

Additional citations: JAPAN: Honshu: Imami 956 (Ws).

ERIOCAULON PELLUCIDUM Michx.

Additional bibliography: Stieber, Castanea 36: 277. 1971; Moldenke, Phytologia 24: 473 & 489—491 (1972) and 25: 73. 1972.

Recent collectors report finding this plant on sandy shores of lakes and in shallow water over sand and mud bottoms. Stieber (1971) records the species from Anne Arundel County, Maryland, where he says that it is called "duckgrass" and "white buttons".

Additional citations: CANADA: NEWFOUNDLAND: Pimlott 62 (Ws). QUEBEC: Argenteuil Co.: Rolland-Germain s.n. [August 21, 1946] (Ws). Missisquoi Co.: Racicot s.n. [Sept. 8, 1936] (Ws). VERMONT: Caledonia Co.: F. C. Seymour 18034 (Ws).

ERIOCAULON ROBUSTIUS (Maxim.) Mak.

Additional synonymy: Eriocaulon robustus Mak., in herb.

Additional bibliography: Moldenke, Phytologia 24: 497. 1972.

Additional citations: JAPAN: Honshu: Hashimoto 850 (Ws);

Togasi 915 (Ws); Togawi s.n. [Oct. 20, 1953] (Ws).

ERIOCAULON SCHIMPERI Körn.

Additional bibliography: Moldenke, Phytologia 25: 70—71. 1972.

Lewalle describes this plant as having white flowers and found it growing at 2150 meters altitude, flowering in November.

Additional citations: BURUNDI: Lewalle 2337 (W—2595452).

ERIOCAULON SETICUSPE Ohwi

Additional bibliography: Moldenke, Phytologia 25: 74. 1972.

Additional citations: JAPAN: Kyushu: Togasi 1415 (Ws).

ERIOCAULON SIKOKIANUM Maxim.

Additional bibliography: Moldenke, Phytologia 25: 76. 1972.

The Hiroe 16583, distributed as E. sikokianum, is actually E. hondoense Satake.

Additional citations: JAPAN: Honshu: Muramatsu s.n. [Sept. 6, 1931] (Ws).

ERIOCAULON TEXENSE Körn.

Additional bibliography: Moldenke, Phytologia 25: 82. 1972.

The Tharp, Turner, & Johnston 54954, previously cited by me (1970) as E. texense, is actually E. decangulare f. parviceps Moldenke.

ERIOCAULON TRUNCATUM Hamilt.

Additional bibliography: Moldenke, *Phytologia* 25: 85—86. 1972.

Wheeler found this plant growing in clay soil of sunny roadside ditches "more or less in water", flowering in June.

Additional citations: CEYLON: L. C. Wheeler 12056 (W—2611469).

ERIOCAULON VOLKENSII Engl.

Additional bibliography: Moldenke, *Phytologia* 25: 87. 1972.

Fosberg & Mwangangi state that this species is "rare in Carex bogs" in open scrub of Erica and other shrubs of the heath zone in Kenya, growing in sticky very black fine soil at 3300—3400 meters altitude, and found it in flower and fruit in March.

Additional citations: KENYA: Fosberg & Mwangangi 49906 (W—2580263a).

ERIOCAULON WALKERI Hook. f.

Additional bibliography: Moldenke, *Phytologia* 25: 87. 1972.

Wheeler found this plant in flower in July.

Additional citations: CEYLON: L. C. Wheeler 12078 (W—2611475).

LACHNOCAULON Kunth

Additional bibliography: Stalter, *Castanea* 37: 220. 1972; Moldenke, *Phytologia* 25: 90—94, fig. 7. 1972.

LACHNOCAULON ANCEPS (Walt.) Morong

Additional bibliography: Stalter, *Castanea* 37: 220. 1972; Moldenke, *Phytologia* 25: 91. 1972.

Recent collectors have found this plant growing in sunny meadows adjacent to creek-bottom woods with Mimosa pudica and in shallow bogs and roadside ditches with Sarracenia, Drosera, Zygadenus, Lycopodium carolinianum, L. alopecuroides, etc.

Material has been misidentified and distributed in some herbaria as Eriocaulon lineare Small.

Stalter (1972) records L. anceps from Georgetown County, South Carolina.

Additional citations: NORTH CAROLINA: Scotland Co.: Musselman 3001 (Ws). ALABAMA: Conecuh Co.: Hansen & Hansen 80 (Ws).

LACHNOCAULON ECILIATUM Small

Additional bibliography: Moldenke, *Phytologia* 25: 92. 1972.

The Meriläinen R.24, distributed as L. eciliatum, is actually L. engleri Ruhl.

LACHNOCAULON ENGLERI Ruhl.

Additional bibliography: Moldenke, *Phytologia* 25: 92. 1972.

Meriläinen found this plant growing in moist disturbed open sandy areas between ponds with scattered clumps of Eragrostis, Andropogon, and Juncus. Material has been misidentified and distributed in some herbaria as L. eciliatum Small. On the other hand, the Iltis, Crosswhite, Kawano, & al. 21439, distributed as L. engleri,

actually is the type collection of var. caulescens Moldenke.

Additional citations: FLORIDA: Pasco Co.: Meriläinen R.24 (Ws, Ws).

LACHNOCAULON ENGLERI var. CAULESCENS Moldenke, Phytologia 25: 117. 1973.

Bibliography: Moldenke, Phytologia 25: 117. 1973.

Citations: ALABAMA: Baldwin Co.: Iltis, Crosswhite, Kawano, & al. 21439 (Ws--type).

LACHNOCAULON MINUS (Chapm.) Small

Additional bibliography: Moldenke, Phytologia 25: 92--94, fig. 7. 1972.

Recent collectors have found this plant growing at pond margins, at the edges of limestone sinks, and even in lawns around buildings!

Additional citations: NORTH CAROLINA: Brunswick Co.: Bradley & Stevenson 3306 (Ws). SOUTH CAROLINA: Bamberg Co.: Ahles & Haesloop 30588 (Ws). FLORIDA: Putnam Co.: I. L. Wiggins 19895 (W--2587329a).

LEIOTHRIX Ruhl.

Additional bibliography: J. Hutchinson, Fam. Flow. Pl. 2: 67 & 238. 1934; Moldenke in Gleason & Killip, Brittonia 3: 157. 1939; Moldenke, Phytologia 25: 94--99. 1972.

LEIOTHRIX CURVIFOLIA var. MICROPHYLLA Alv. Silv.

Additional bibliography: Moldenke, Phytologia 25: 98. 1972.

Anderson and his associates describe the flower-heads of this plant as white and found it growing in sandy meadows in an area of rocky campo and cerrado, sloping down to wet-sand meadows adjacent to gallery forest along streams, in sandy soil with sandstone outcrops.

Additional citations: BRAZIL: Minas Gerais: Anderson, Stieber, & Kirkbride 36203 (Ld).

LEIOTHRIX CURVIFOLIA var. PLANTAGO (Mart.) Ruhl.

Additional bibliography: Moldenke, Phytologia 25: 98. 1972.

Hatschbach found this plant growing in "solo arenoso junto aos afloramentos rochosos".

Additional citations: BRAZIL: Minas Gerais: Hatschbach 30178 (Ld).

LEIOTHRIX CURVIFOLIA var. SETACEA Ruhl.

Additional bibliography: Moldenke, Phytologia 25: 99. 1972.

Hatschbach has found this plant growing on wet rocky campos, flowering and fruiting in August.

Additional citations: BRAZIL: Minas Gerais: Hatschbach 30064 (Ld).

LEIOTHRIX DISTICHOPHYLLA Alv. Silv., Fl. Mont. 1: 287--288. 1928.

Additional bibliography: Moldenke, *Phytologia* 20: 102--103. 1970; Moldenke, *Fifth Summ.* 1: 153 (1971) and 2: 945. 1971.

LEIOTHRIX DUBIA Alv. *Silv., Fl. Mont.* 1: 306, pl. 193. 1928.

Additional bibliography: Moldenke, *Phytologia* 20: 90 & 103 (1970) and 21: 352. 1971; Moldenke, *Biol. Abstr.* 52: 10547. 1971; Anon., *Biol. Abstr.* 52 (19): B.A.S.I.C. S.143 & S.196. 1971; Moldenke, *Fifth Summ.* 1: 153 (1971) and 2: 945. 1971.

Irwin and his associates describe this plant as producing inflorescences to 15 cm. tall and found it growing in extensive patches in cerrado on brown sand interspersed with extensive outcrops, at 1175 meters altitude, flowering in March.

Additional citations: BRAZIL: Minas Gerais: Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 27648a (Ac, N).

LEIOTHRIX DUBIA var. VILLOSA Moldenke, *Phytologia* 21: 352. 1971.

Bibliography: Moldenke, *Phytologia* 21: 352. 1971; Moldenke, *Biol. Abstr.* 52: 10547. 1971; Anon., *Biol. Abstr.* 52 (19): B.A.S.I.C. S.143 & S.196. 1971; Moldenke, *Fifth Summ.* 2: 945 & 968. 1971.

Citations: BRAZIL: Minas Gerais: Irwin, Maxwell, & Wasshausen 20481 (N--type).

LEIOTHRIX ECHINOCEPHALA Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 232. 1903.

Additional bibliography: Moldenke, *Phytologia* 20: 103--104. 1970; Moldenke, *Fifth Summ.* 1: 153 (1971) and 2: 581 & 945. 1971.

LEIOTHRIX EDWALLII Alv. *Silv., Fl. Serr. Min.* 70. 1908.

Additional bibliography: Moldenke, *Phytologia* 20: 104. 1970; Moldenke, *Fifth Summ.* 1: 153 (1971) and 2: 581 & 945. 1971.

LEIOTHRIX FLAGELLARIS (Guill.) Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 237. 1903.

Additional bibliography: Tomlinson in C. R. Metcalfe, *Anat. Monocot.* 3: 174 & 189. 1969; Moldenke, *Phytologia* 20: 248--249, 261, 264, & 265. 1970; Moldenke, *Fifth Summ.* 1: 153 & 480 (1971) and 2: 500, 547, 582, 583, 633, & 945. 1971.

LEIOTHRIX FLAVESCENS (Bong.) Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 231. 1903.

Emended synonymy: Paepalanthus falcatus Mart. ex Moldenke, *Résumé Suppl.* 1: 20, in syn. 1959 [not P. falcatus (Bong.) Körn., 1863, nor Gardn., 1972, nor Körn., 1894].

Additional & emended bibliography: Moldenke in Gleason & Killip, *Brittonia* 3: 157. 1939; J. A. Steyerl., *Act. Bot. Venez.* 1: 98 & 208. 1966; Tomlinson in C. R. Metcalfe, *Anat. Monocot.* 3: 149, 159, 161, 174, 182--187, 189, & 191, fig. 39K. 1969; Moldenke, *Phytologia* 20: 249, 251, & 263. 1970; Reitz, *Sellowia* 22: 80. 1970; Moldenke, *Fifth Summ.* 1: 124, 129, 142, 153, 183, & 480 (1971) and 2: 499, 500, 547, 578, 581--583, 587, 592, & 945. 1971.

Additional illustrations: Tomlinson in C. R. Metcalfe, *Anat.*

Monocot. 3: 182, fig. 39K. 1969.

Irwin and his associates refer to this plant as having inflorescences 25--50 cm. tall, the flower-heads light-gray when fresh. They found it growing in gray sandy soil in cerrado and low forest among sandstone outcrops on a summit and in wet sand on sandstone in wooded river-margins, at 1100 meters altitude, flowering and fruiting in February and March. Hatschbach also found it growing in sandy soil.

The Paepalanthus falcatus (Bong.) Körn. and P. falcatus Körn., referred to in the synonymy above, are synonyms of P. pedunculatus (Bong.) Ruhl., while P. falcatus Gardn. belongs in the synonymy of P. geniculatus (Bong.) Kunth.

Additional citations: BRAZIL: Bahia: Irwin, Harley, & Smith 32384 (Ld). Minas Gerais: Hatschbach 27346 (Ld); Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 27113 (Ld, N). Paraná: Hatschbach 28663 (Ld). Santa Catarina: Ule 1306 (Hg).

LEIOTHRIX FLAVESCENS var. ALPINA Moldenke, Mem. N. Y. Bot. Gard. 9: 279. 1957.

Additional bibliography: Moldenke, Phytologia 20: 109. 1970; Moldenke, Fifth Summ. 1: 124 & 130 (1971) and 2: 945. 1971.

LEIOTHRIX FLAVESCENS var. GLABRA Alv. Silv., Fl. Mont. 1: 291. 1928.

Additional bibliography: Moldenke, Phytologia 20: 109. 1970; Moldenke, Fifth Summ. 1: 153 (1971) and 2: 945. 1971.

LEIOTHRIX FLAVESCENS var. PARVIFOLIA Moldenke, Phytologia 24: 498. 1972.

Bibliography: Moldenke, Phytologia 24: 498. 1972.

Citations: BRAZIL: Minas Gerais: Irwin, Harley, & Onishi 28946 (Z--type).

LEIOTHRIX FLEXUOSA Alv. Silv., Fl. Mont. 1: 302, pl. 189. 1928.

Additional bibliography: Moldenke, Phytologia 20: 109--110. 1970; Moldenke, Fifth Summ. 1: 153 (1971) and 2: 945. 1971.

LEIOTHRIX FLUITANS (Mart.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 225. 1903.

Additional & emended bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 25, 26, 225--226, [283], 288, & 290. 1903; Moldenke, Phytologia 20: 110. 1970; Moldenke, Fifth Summ. 1: 153 & 481 (1971) and 2: 546, 547, 583, & 945. 1971.

LEIOTHRIX FLUMINENSIS Ruhl. in Engl., Pflanzenreich 13 (4-30): 230. 1903.

Additional bibliography: Hocking, Excerpt. Bot. A.6: 455. 1963; Moldenke, Phytologia 20: 110--111. 1970; Moldenke, Fifth Summ. 1: 153 (1971) and 2: 945. 1971.

LEIOTHRIX FLUMINENSIS var. *PUBERULA* Moldenke, *Phytologia* 8: 162. 1962.

Additional bibliography: Moldenke, *Phytologia* 20: 111. 1970; Moldenke, *Fifth Summ.* 1: 153 (1971) and 2: 945. 1971.

LEIOTHRIX FULGIDA Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 233. 1903.

Additional bibliography: Tomlinson in C. R. Metcalfe, *Anat. Monocot.* 3: 186, 188, & 191. 1969; Moldenke, *Phytologia* 20: 111. 1970; Moldenke, *Fifth Summ.* 1: 154 (1971) and 2: 583 & 945. 1971.

LEIOTHRIX GLANDULIFERA Alv. Silv., *Fl. Mont.* 1: 294. 1928.

Additional bibliography: Moldenke, *Phytologia* 20: 111-112 & 262. 1970; Moldenke, *Fifth Summ.* 1: 154 (1971) and 2: 945. 1971.

LEIOTHRIX GLAUCA Alv. Silv., *Fl. Mont.* 1: 279, pl. 185. 1928.

Additional bibliography: Moldenke, *Phytologia* 20: 112. 1970; Moldenke, *Fifth Summ.* 1: 154 (1971) and 2: 945. 1971.

LEIOTHRIX GOMESII Alv. Silv., *Fl. Mont.* 1: 289. 1928.

Additional bibliography: Moldenke, *Phytologia* 20: 112 & 115. 1970; Moldenke, *Fifth Summ.* 1: 154 (1971) and 2: 547 & 945. 1971.

LEIOTHRIX GOUNELLEANA Beauverd, *Bull. Herb. Boiss.*, sér. 2, 8: 298, fig. 12 C 22-29. 1908.

Additional & emended bibliography: Beauverd, *Bull. Herb. Boiss.*, sér. 2, 8: 296 & 298, fig. 12 C 22-29. 1908; Moldenke, *Phytologia* 20: 112-113. 1970; Moldenke, *Fifth Summ.* 1: 154 (1971) and 2: 547 & 945. 1971.

Emended illustrations: Beauverd, *Bull. Herb. Boiss.*, sér. 2, 8: 296, fig. 12 C 22-29. 1908.

LEIOTHRIX GRAMINEA (Bong.) Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 234. 1903.

Additional & emended bibliography: Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 228, 234, [283], 285, 288, & 290. 1903; Moldenke, *Phytologia* 20: 90, 100, & 113-114. 1970; Moldenke, *Fifth Summ.* 1: 154 & 481 (1971) and 2: 501, 547, 584, & 945. 1971.

LEIOTHRIX HETEROPHYLLA Alv. Silv., *Fl. Mont.* 1: 300, pl. 187. 1928.

Additional bibliography: Moldenke, *Phytologia* 20: 114. 1970; Moldenke, *Fifth Summ.* 1: 154 (1971) and 2: 945. 1971.

LEIOTHRIX HIRSUTA (Wikstr.) Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 229. 1903.

Additional bibliography: Tomlinson in C. R. Metcalfe, *Anat. Monocot.* 3: 149, 173, 174, 185, 186, & 189. 1969; Moldenke, *Phytologia* 20: 249. 1970; Moldenke, *Fifth Summ.* 1: 154 & 481 (1971) and 2: 502, 511, 516, 547, 584, & 945. 1971; Moldenke, *Phytologia* 23: 418 & 454. 1972.

Recent collectors have found this plant in flower and fruit in

March. The Strang & Castellanos 26306 collection, cited below, is a mixture with f. vivipara Moldenke.

Additional citations: BRAZIL: Guanabara: Strang & Castellanos 26306, in part [Herb. Brad. 49648, in part] (Ld).

LEIOTHRIX HIRSUTA var. BLANCHETIANA (Körn.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 230. 1903.

Additional bibliography: Moldenke, Phytologia 20: 249. 1970; Moldenke, Fifth Summ. 1: 154 & 478 (1971) and 2: 547, 578, & 945. 1971.

LEIOTHRIX HIRSUTA var. OBTUSA Alv. Silv., Fl. Mont. 1: 291. 1928.

Additional bibliography: Moldenke, Phytologia 20: 116. 1970; Moldenke, Fifth Summ. 1: 154 (1971) and 2: 945. 1971.

LEIOTHRIX HIRSUTA f. VIVIPARA Moldenke, Phytologia 23: 454. 1972.

Bibliography: Moldenke, Phytologia 23: 418 & 454. 1972.

The type collection of this form is a mixture with typical L. hirsuta (Wikstr.) Ruhl.

Citations: BRAZIL: Guanabara: Strang & Castellanos 26306, in part [Herb. Brad. 49648, in part] (Z--type).

LEIOTHRIX ITACAMBIRENSIS Alv. Silv., Fl. Mont. 1: 307, pl. 194. 1928.

Additional bibliography: Moldenke, Phytologia 20: 116--117. 1970; Moldenke, Fifth Summ. 1: 154 (1971) and 2: 945. 1971.

LEIOTHRIX LANIFERA Alv. Silv., Fl. Mont. 1: 295. 1928.

Additional bibliography: Moldenke, Phytologia 20: 117. 1970; Moldenke, Fifth Summ. 1: 154 (1971) and 2: 945. 1971.

LEIOTHRIX LINEARIS Alv. Silv., Fl. Mont. 1: 298. 1928.

Additional bibliography: Moldenke, Phytologia 20: 117. 1970; Moldenke, Fifth Summ. 1: 154 (1971) and 2: 945. 1971.

LEIOTHRIX LONGIPES Alv. Silv., Fl. Mont. 1: 303--304, pl. 190. 1928.

Additional & emended bibliography: Alv. Silv., Fl. Mont. 1: 303--304 & 400, pl. 190. 1928; Moldenke, Phytologia 20: 117. 1970; Moldenke, Fifth Summ. 1: 154 (1971) and 2: 945. 1971.

LEIOTHRIX LUXURIANS (Körn.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 236. 1903.

Additional & emended bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 235--237, 284, 288, & 290, fig. 34. 1903; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 190. 1969; Moldenke, Phytologia 20: 117--118 & 254. 1970; Moldenke, Fifth Summ. 1: 154 & 482 (1971) and 2: 547, 585, & 945. 1971.

Hatschbach found this plant growing in dry sandy soil, while Anderson and his associates found it on dry sand in open places in an area of steep sandstone cliffs and open rocky hillsides,

sloping down through sandy grassy meadows to a stream and adjacent brejo and gallery forest, at altitudes of 1300—1360 meters, flowering and fruiting in February.

Additional citations: BRAZIL: Minas Gerais: Anderson, Stieber, & Kirkbride 35480 (Ld); Hatschbach 30065 (Ld).

LEIOTHRIX MENDESII Moldenke, *Phytologia* 3: 313—314. 1950.

Additional bibliography: Moldenke, *Phytologia* 20: 118. 1970; Moldenke, *Fifth Summ.* 1: 154 (1971) and 2: 945. 1971.

LEIOTHRIX MICHAELII Alv. *Silv.*, *Fl. Mont.* 1: 304, pl. 191. 1928.

Additional bibliography: Moldenke, *Phytologia* 20: 90, 110, & 118—119. 1970; Moldenke, *Fifth Summ.* 1: 154 (1971) and 2: 547 & 945. 1971.

LEIOTHRIX MICHAELII var. LONGIPILOSA Moldenke, *Phytologia* 3: 311. 1950.

Additional bibliography: Moldenke, *Phytologia* 20: 119. 1970; Moldenke, *Fifth Summ.* 1: 154 (1971) and 2: 547 & 945. 1971.

LEIOTHRIX MILHO-VERDENSIS Alv. *Silv.*, *Fl. Mont.* 1: 291—292. 1928.

Additional bibliography: Moldenke, *Phytologia* 20: 119. 1970; Moldenke, *Fifth Summ.* 1: 154 (1971) and 2: 945. 1971.

LEIOTHRIX MUCRONATA (Bong.) Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 232. 1903.

Additional bibliography: Moldenke, *Phytologia* 20: 250. 1970; Moldenke, *Fifth Summ.* 1: 154 & 483 (1971) and 2: 506, 547, 586, & 945. 1971.

LEIOTHRIX NUBIGENA (Kunth) Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 229. 1903.

Additional synonymy: Leiothrix nubigena Kunth ex Tomlinson in C. R. Metcalfe, *Anat. Monocot.* 3: 191. 1969.

Additional bibliography: Tomlinson in C. R. Metcalfe, *Anat. Monocot.* 3: 178, 179, 184, 187, 188, & 191, fig. 37 H. 1969; Moldenke, *Phytologia* 20: 250—251, 256, & 262. 1970; Moldenke, *Biol. Abstr.* 52: 1321. 1971; Moldenke, *Excerpt. Bot. A.19:* 43. 1971; Moldenke, *Fifth Summ.* 1: 154 & 483 (1971) and 2: 508, 547, 587, & 945. 1971.

Additional illustrations: Tomlinson in C. R. Metcalfe, *Anat. Monocot.* 3: 178, fig. 37 H. 1969.

The Eitens found this plant growing on low rounded rocky outcrops in open fields at 1250 meters altitude and describe the flowers as "white".

Additional citations: BRAZIL: Minas Gerais: Eiten & Eiten 6709 (Ld); Irwin, Reis dos Santos, Souza, & Fonsêca 22056 (N).

LEIOTHRIX OBTUSIFOLIA Alv. *Silv.*, *Fl. Serr. Min.* 69, pl. 26. 1908.

Additional bibliography: Moldenke, *Phytologia* 20: 251. 1970; Moldenke, *Fifth Summ.* 1: 154 (1971) and 2: 945. 1971.

The Mendes Magalhães 2542 and Tryon & Tryon 6770 identified and cited by me in a previous installment of these notes (1970) as L. obtusifolia prove actually to represent L. sclerophylla Alv. Silv. instead.

LEIOTHRIX PEDUNCULOSA Ruhl. in Engl., Pflanzenreich 13 (4-30): 237. 1903.

Additional bibliography: Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 162 & 190. 1969; Moldenke, Phytologia 20: 251—252. 1970; Moldenke, Fifth Summ. 1: 154 (1971) and 2: 587 & 945. 1971.

LEIOTHRIX PILULIFERA (Körn.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 231. 1903.

Additional & emended bibliography: Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 178, 179, 185, 186, & 191, fig. 37 M. 1969; Moldenke, Phytologia 20: 50, 82, 252, & 260. 1970; Moldenke, Fifth Summ. 1: 154 & 484 (1971) and 2: 547, 588, & 946. 1971.

Additional illustrations: Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 178, fig. 37 M. 1969.

Additional citations: BRAZIL: Pernambuco: Pickel 3165 (Ml).

LEIOTHRIX POLYSTEMMA Alv. Silv., Fl. Mont. 1: 293—294. 1928.

Additional bibliography: Moldenke, Phytologia 20: 252—253. 1970; Moldenke, Fifth Summ. 1: 154 (1971) and 2: 946. 1971.

LEIOTHRIX POLYSTEMMA var. ROBUSTA Alv. Silv., Fl. Mont. 1: 294. 1928.

Additional bibliography: Moldenke, Phytologia 20: 253. 1970; Moldenke, Fifth Summ. 1: 154 (1971) and 2: 946. 1971.

LEIOTHRIX PROLIFERA (Bong.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 236. 1903.

Additional bibliography: Moldenke, Phytologia 20: 253—254, 264, & 265. 1970; Moldenke, Fifth Summ. 1: 154 & 484 (1971) and 2: 509, 547, 589, 633, & 946. 1971.

LEIOTHRIX PROPINQUA (Körn.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 237. 1903.

Additional & emended bibliography: Körn. in Mart., Fl. Bras. 3 (1): 418—419, 500, & 507, pl. 53, fig. 3. 1863; Moldenke, Phytologia 20: 254—255. 1970; Moldenke, Fifth Summ. 1: 154 (1971) and 2: 547, 589, & 946. 1971.

LEIOTHRIX RETRORSA Alv. Silv., Fl. Mont. 1: 299, pl. 186. 1928.

Additional bibliography: Moldenke, Phytologia 20: 255. 1970; Moldenke, Fifth Summ. 1: 154 (1971) and 2: 946. 1971.

LEIOTHRIX RUFULA (A. St. Hil.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 230. 1903.

Additional & emended synonymy: Eriocaulon (Paepalanthus) trinianum Mart., Flora 24, Beibl. 2: 58. 1841. Eriocaulon trinianum

Mart. apud Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 879, in syn. 1893.

Additional bibliography: Moldenke, *Phytologia* 20: 250 & 255--257. 1970; Anon., *Biol. Abstr.* 52 (2): B.A.S.I.C. S.133. 1971; Hocking, *Excerpt. Bot. A.19*: 43. 1971; Moldenke, *Fifth Summ.* 1: 154 & 485 (1971) and 2: 497, 511, 515, 547, 580, 591, 644, & 946. 1971.

LEIOTHRIX RUFULA var. *ELATIOR* (Körn.) Moldenke, *Phytologia* 20: 257. 1970.

Additional bibliography: Moldenke, *Phytologia* 20: 256 & 257. 1970; Anon., *Biol. Abstr.* 52 (2): B.A.S.I.C. S.133. 1971; Moldenke, *Biol. Abstr.* 52: 719. 1971; Hocking, *Excerpt. Bot. A.19*: 43. 1971; Moldenke, *Fifth Summ.* 1: 154 (1971) and 2: 590 & 946. 1971.

LEIOTHRIX SCHLECHTENDALII (Körn.) Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 231. 1903.

Additional bibliography: Moldenke, *Phytologia* 20: 257--258 & 260. 1970; Moldenke, *Fifth Summ.* 1: 154 & 485 (1971) and 2: 547, 590, & 946. 1971.

LEIOTHRIX SCLEROPHYLLA Alv. Silv., *Fl. Serr. Min.* 68, pl. 26. 1908.

Additional bibliography: Moldenke, *Phytologia* 20: 258. 1970; Moldenke, *Fifth Summ.* 1: 154 (1971) and 2: 946. 1971.

Recent collectors have found this species growing on rocky campos and in wet sand of grassland and sedgeland with shrubby areas and both sandstone and quartzite rocks and derived soils, flowering in November and fruiting in January and November. The Tryons encountered it at an altitude of 1295 meters. The Mendes Magalhães 2542 and Tryon & Tryon 6770, cited below, were previously (1970) incorrectly cited by me as *L. obtusifolia* Alv. Silv. and were so distributed in some herbaria.

Additional citations: BRAZIL: Minas Gerais: Hatschbach, Smith, & Ayensu 28849 (Ld); Mendes Magalhães 2542 (N); Tryon & Tryon 6770 (Z).

LEIOTHRIX SPERGULA Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 237--238. 1903.

Additional bibliography: Moldenke, *Phytologia* 20: 258--259 & 264. 1970; Moldenke, *Fifth Summ.* 1: 154 (1971) and 2: 590 & 946. 1971.

Irwin and his associates describe this plant as a rosette herb, the inflorescences to 15 cm. tall, and the flower-heads pale-brown when fresh. They found it growing in wet sand under overhanging rock outcrops in an area of rocky summits with soil-filled crevices and small areas of white sand, at 1100 meters altitude, flowering and fruiting in March.

Additional citations: BRAZIL: Minas Gerais: Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 27905 (Ld, N).

LEIOTHRIX SPIRALIS (Bong.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 226. 1903.

Additional bibliography: Moldenke, Phytologia 20: 259--260. 1970; Moldenke, Fifth Summ. 1: 154 & 486 (1971) and 2: 513, 547, 590, & 946. 1971.

LEIOTHRIX STEYERMARKII Moldenke, Phytologia 2: 379, nom. nud. (1947), Fieldiana Bot. 28: 118--119. 1951.

Additional & emended bibliography: J. A. Steyerl., Act. Bot. Venez. 1: 69 & 208. 1966; Moldenke, Phytologia 20: 260. 1970; Moldenke, Fifth Summ. 1: 124 (1971) and 2: 946. 1971.

LEIOTHRIX SUBULATA Alv. Silv., Fl. Mont. 1: 288. 1928.

Additional bibliography: Moldenke, Phytologia 20: 260. 1970; Moldenke, Fifth Summ. 1: 154 (1971) and 2: 946. 1971.

LEIOTHRIX TENUIFOLIA Alv. Silv., Fl. Mont. 1: 285. 1928.

Additional bibliography: Moldenke, Phytologia 20: 260--261. 1970; Moldenke, Fifth Summ. 1: 154 (1971) and 2: 946. 1971.

LEIOTHRIX TINGUENSIS Herzog ex Lützelburg, Estud. Bot. Nordést. 3: 148, hyponym (1923) and in Fedde, Repert. Spec. Nov. 20: 87. 1924.

Additional bibliography: Moldenke, Phytologia 20: 261. 1970; Moldenke, Fifth Summ. 1: 154 (1971) and 2: 547 & 946. 1971.

LEIOTHRIX TRIANGULARIS Alv. Silv., Fl. Mont. 1: 305--306, pl. 192. 1928.

Additional bibliography: Moldenke, Phytologia 20: 261. 1970; Moldenke, Fifth Summ. 1: 154 (1971) and 2: 946. 1971.

LEIOTHRIX TRICHOPUS Alv. Silv., Fl. Mont. 1: 281. 1928.

Additional bibliography: Moldenke, Phytologia 20: 261. 1970; Moldenke, Fifth Summ. 1: 154 (1971) and 2: 547 & 946. 1971.

LEIOTHRIX TRIFIDA Alv. Silv., Fl. Mont. 1: 277, pl. 184. 1928.

Additional bibliography: Moldenke, Phytologia 20: 261--262. 1970; Moldenke, Fifth Summ. 1: 154 (1971) and 2: 946. 1971.

LEIOTHRIX TURBINATA Gleason, Bull. Torr. Bot. Club 58: 331. 1931.

Synonymy: Leiothrix urbinata Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 173, sphalm. 1969.

Additional bibliography: Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 149, 153--162, 168, 169, 173, 175--177, 184, 186, 187, & 190, fig. 35 F & 36 G & H. 1969; Moldenke, Phytologia 20: 262. 1970; Moldenke, Fifth Summ. 1: 124 (1971) and 2: 547 & 946. 1971.

Illustrations: Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 168 & 176, fig. 35 F & 36 G & H. 1969.

LEIOTHRIX UMBRATILIS Moldenke, Phytologia 2: 379, nom. nud. (1947) and Fieldiana Bot. 28: 119--120. 1951.

Additional & emended bibliography: J. A. Steyerl., Act. Bot.

Venez. 1: 98 & 208. 1966; Moldenke, *Phytologia* 20: 262—263. 1970; Moldenke, *Fifth Summ.* 1: 124 & 154 (1971) and 2: 548 & 946. 1971.

LEIOTHRIX VIVIPARA (Bong.) Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 238. 1903.

Additional bibliography: Tomlinson in C. R. Metcalfe, *Anat. Monocot.* 3: [146], 174, & 189. 1969; Moldenke, *Phytologia* 20: 254, 258, & 263—265. 1970; Moldenke, *Biol. Abstr.* 52: 719. 1971; Hocking, *Excerpt. Bot. A.* 19: 43. 1971; Moldenke, *Fifth Summ.* 1: 154 & 487 (1971) and 2: 516, 547, 592, 633, & 946. 1971.

Irwin and his associates state that the inflorescences of this plant attain a length of 40 cm. and that it grows on campos in areas of campo, cerrado on outcrops, and wooded valleys. It has been collected at 1200 meters altitude, flowering and fruiting in March.

Additional citations: BRAZIL: Minas Gerais: Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 28299 (N, Z); Irwin, Reis dos Santos, & Fonsêca 23372 (N).

LEIOTHRIX VIVIPARA var. ANGUSTA Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 238. 1903.

Additional bibliography: Moldenke, *Phytologia* 20: 254 & 265—265. 1970; Moldenke, *Fifth Summ.* 1: 155 (1971) and 2: 509, 592, & 946. 1971.

Hatschbach found this plant in flower in September.

Additional citations: BRAZIL: Minas Gerais: Hatschbach 27489 (Pt).

LEIOTHRIX VIVIPARA var. LONGIPILOSA Moldenke, *Phytologia* 13: 218. 1966.

Additional bibliography: Moldenke, *Phytologia* 20: 265. 1970; Moldenke, *Biol. Abstr.* 52: 719. 1971; Moldenke, *Fifth Summ.* 1: 155 (1971) and 2: 946. 1971.

MESANTHEMUM Körn., *Linnaea* 27: 572—576. 1856.

Additional & emended bibliography: Pers., *Sp. Pl.* 1: 284. 1817; J. Hutchinson, *Fam. Flow. Pl.* 2: 67 & 239. 1934; Perrier de la Bâthie, *Cat. Pl. Madag in Acad. Malg.* 22. 1934; Perrier de la Bâthie, *Biogéogr. Pl. Madag.* 47. 1936; Jacques-Félix, *Bull. Soc. Bot. France* 94: [143]—151 & 461. 1947; Goossens, *Suid-Afr. Blom. Pl.* 225. 1953; Lind & Tallantire, *Some Com. Flow. Pl. Uganda*, ed. 1, 198. 1962; Gledhill, *Check List Flow. Pl. Sierra Leone* 31. 1962; Tomlinson in C. R. Metcalfe, *Anat. Monocot.* 3: 158, 161, 163, 173, 178, 179, 185—187, 189, & 191, fig. 37 F & G. 1969; Adam, *Bull. Inst. Fond. Afr. Noire A.* 32: 1003. 1970; Moldenke, *Phytologia* 20: 265—269 & 277—287 (1970) and 20: 509. 1971; Moldenke, *Fifth Summ.* 1: 210, 213, 215—219, 222, 225—227, 231, 238, 244, 246, 248, 252, & 262 (1971) and 2: 501, 502, 505, 509, 510, 518, 571, 572, 746, & 946. 1971; Moldenke, *Biol. Abstr.* 52: 95 & 719. 1971; Anon., *Biol. Abstr.* 52 (1): B.A.S.I.C. S.147 & S.175 (1971) and 52 (2): B.A.S.I.C. S. 50, S.80, & S.145. 1971; Cuf., *Bull. Jard.*

Bot. Belg. 41 (3): Suppl. 1507. 1971; Hocking, Excerpt. Bot. A. 19: 43. 1971; Lind & Tallantire, Some Com. Flow. Pl. Uganda, ed. 2, 198 & 243. 1971; Moldenke, Phytologia 23: 434 & 509. 1972.

Jacques-Félix (1947) gives the following key [slightly modified by me] to the species of this genus known to him:

1. Plantes annuelles, n'atteignant guère que 20 cm.; pédoncules grêles, de moins de 0,5 mm. de diamètre, bractées de l'involucre plus courtes que les fleurs; fleurs (au moins les ♀) dépourvues de sépales.
 2. Fleurs jaunes, bractées de l'involucre entières, brunes à marge hyaline, poils mous blanchâtres épars; bractées florales longuement plumeuses.....1. M. auratum.
 - 2a. Fleurs blanches; bractées de l'involucre lacérées au sommet, claires, quelques poils raides à la base de la rangée externe, glabres ailleurs; pas de bractées florales.....2. M. albidum.
- 1a. Plantes vivaces, au moins par le rhizome, généralement robustes, de plus de 20 cm. de haut, et à pédoncules de plus de 0 mm. 5 de diamètre; fleurs pourvues de sépales, ceux-ci parfois caducs.
 3. Bractées de la rangée interne nettement plus longues que les autres, lanceolées, dépassant nettement les fleurs.
 4. Herbe à rhizome vivace mais à feuilles rares, linéaires; pédoncule grêle, de 0 mm. 5 à 1 mm.; involucre à 2—3 rangées de bractées scarieuses, diversement pileuses ou glabrescentes; bractée florale glabre.....3. M. prescottianum.
 - 4a. Herbe cespiteuse à feuilles linéaires lancéolées, pédoncule robuste, involucre à 5 rangées de bractées veloutées; bractée florale velue.....4. M. bennae.
- 3a. Bractées de la rangée interne sensiblement de même niveau que les fleurs.
 5. Bractées de l'involucre, blanches à la base et noires au sommet, les externes linéaires-ovales, obtuses, les internes aiguës, denticulées; fleurs sessiles.....5. M. roseni.
- 5a. Bractées de l'involucre unicolores.
 6. Bractées molles, velues, aiguës; corolle ♂ nettement lobée au sommet; feuilles lancéolées, velues au moins lorsqu'elles sont jeunes.....6. M. jaegerii.
- 6a. Bractées plus ou moins scarieuses, glabres ou à poils apprimés.
 7. Feuilles étroitement linéaires, glabres ou à peine pubérolentes, bractées externes obtuses.....7. M. radicans.
- 7a. Feuilles linéaires lancéolées ou linéaires mais velues.
 8. Feuilles linéaires lancéolées, glabrescentes.
 9. Feuilles petites (1 x 10 cm.); sépales blanchâtres; fleurs ♀ pedicellées.....8. M. erici-rosenii.
 - 9a. Feuilles ± grandes (3 x 25 cm.); bractées externes de l'involucre ovales; sépales noirs; fleurs ♀ subsessiles.....9. M. rutenbergianum.
 - 8a. Feuilles linéaires; jeunes feuilles et gaines velues; bractées externes de l'involucre triangulaires.

10. Sépales blanchâtres.....10a. M. pubescens f. alba.
 10a. Sépales noirs.....10b. M. pubescens f. nigra.

MESANTHEMUM AFRICANUM Moldenke, *Phytologia* 3: 113--114. 1949.

Additional bibliography: Moldenke, *Phytologia* 20: 268. 1970; Moldenke, *Biol. Abstr.* 52: 719. 1971; Hocking, *Excerpt. Bot. A.* 19: 43. 1971; Moldenke, *Fifth Summ.* 1: 248 & 252 (1971) and 2: 946. 1971.

MESANTHEMUM ALBIDUM H. Lecomte, *Bull. Soc. Bot. France* 55: 601--602, fig. 2. 1908.

Additional bibliography: Jacques-Félix, *Bull. Soc. Bot. France* 94: 144 & 149. 1947; Tomlinson in C. R. Metcalfe, *Anat. Monocot.* 3: 173 & 189. 1969; Moldenke, *Phytologia* 20: 269. 1970; Moldenke, *Fifth Summ.* 1: 215 & 217 (1971) and 2: 946. 1971.

MESANTHEMUM AURATUM H. Lecomte, *Bull. Soc. Bot. France* 55: 599--602, fig. 1. 1908.

Additional bibliography: Jacques-Félix, *Bull. Soc. Bot. France* 94: [143], 144, & 149. 1947; Tomlinson in C. R. Metcalfe, *Anat. Monocot.* 3: 173, 186, 187, & 189. 1969; Moldenke, *Phytologia* 20: 269. 1970; Moldenke, *Fifth Summ.* 1: 217 (1971) and 2: 946. 1971.

MESANTHEMUM BENNAE Jacques-Félix, *Bull. Soc. Bot. France* 94: 144--146. 1947.

Additional & emended bibliography: Jacques-Félix, *Bull. Soc. Bot. France* 94: 144--146, 149, & 461. 1947; Moldenke, *Phytologia* 20: 269. 1970; Moldenke, *Fifth Summ.* 1: 217 (1971) and 2: 946. 1971.

Illustrations: Jacques-Félix, *Bull. Soc. Bot. France* 94: 145. 1947.

MESANTHEMUM ERICI-ROSENII T. Fries in R. E. Fries, *Wiss. Ergebn. Schwed. Rhod.-Kong.-Exped.* 1911-12 *Bot.* 1 (2): 215--219, pl. 16. 1916.

Additional synonymy: Mesanthemum erici rosenii T. Fries ex Jacques-Félix, *Bull. Soc. Bot. France* 94: 149. 1947.

Additional bibliography: Jacques-Félix, *Bull. Soc. Bot. France* 94: 144, 148, & 149. 1947; Moldenke, *Phytologia* 20: 277, 283, & 284. 1970; Moldenke, *Biol. Abstr.* 52: 95 & 719. 1971; Moldenke, *Fifth Summ.* 1: 218, 231, & 246 (1971) and 2: 571 & 946. 1971; Hocking, *Excerpt. Bot. A.* 19: 43. 1971.

MESANTHEMUM JAEGERII Jacques-Félix, *Bull. Soc. Bot. France* 94: 146--147. 1947.

Additional & emended bibliography: Jacques-Félix, *Bull. Soc. Bot. France* 94: 144, 146--147, 149, & 461. 1947; Moldenke, *Phytologia* 20: 277. 1970; Moldenke, *Fifth Summ.* 1: 218 (1971) and 2: 571 & 946. 1971.

Illustrations: Jacques-Félix, *Bull. Soc. Bot. France* 94: 147.

1947.

MESANTHEMUM PRESCOTTIANUM (Bong.) Körn. in Mart., Fl. Bras. 3 (1): 472. 1863.

Additional bibliography: Jacques-Félix, Bull. Soc. Bot. France 94: 144--145 & 149. 1947; Gledhill, Check List Flow. Pl. Sierra Leone 31. 1962; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 189. 1969; Moldenke, Phytologia 20: 277--278 & 284. 1970; Moldenke, Fifth Summ. 1: 217--219 (1971) and 2: 509, 571, 572, & 946. 1971.

MESANTHEMUM PUBESCENS (Lam.) Körn., Linnaea 27: 575. 1856.

Additional synonymy: Mesanthemum pubescens f. alba Jacques-Félix, Bull. Soc. Bot. France 94: 144 & 149. 1947. Mesanthemum pubescens f. nigra Jacques-Félix, Bull. Soc. Bot. France 94: 144 & 149. 1947.

Additional bibliography: Pers., Sp. Pl. 1: 284. 1817; Jacques-Félix, Bull. Soc. Bot. France 94: 144 & 148--149. 1947; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 161, 173, & 189. 1969; Moldenke, Phytologia 20: 278--280, 283, & 286. 1970; Moldenke, Fifth Summ. 1: 262 (1971) and 2: 505, 509, 571, & 946. 1971.

Illustrations: Jacques-Félix, Bull. Soc. Bot. France 94: 148. 1947.

Jacques-Félix (1947) proposes f. alba for the typical form of this species, citing the type, Commerson s.n., and "avec doute" Baron 458, both from Madagascar, with the sepals said to be whitish. He proposes f. nigra, with black sepals, for Decary 17200 and Perrier de la Bâthie 2245 from Manankozo, Madagascar. In my dissection I have found the staminate sepals in general to be yellowish and the pistillate sepals fuscous in the same floral heads. I therefore think that his forms are hardly tenable and hereby reduce them to synonymy. If they were to be accepted they would have to be written in the neuter form.

MESANTHEMUM RADICANS (Benth.) Körn., Linnaea 27: 573. 1856.

Additional bibliography: Jacques-Félix, Bull. Soc. Bot. France 94: 144 & 146--149. 1947; Lind & Tallantire, Some Com. Flow. Pl. Uganda, ed. 1, 198. 1962; Gledhill, Check List Flow. Pl. Sierra Leone 31. 1962; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 161, 173, 178, 179, 185--187, 189, & 191, fig. 37 F & G. 1969; Moldenke, Phytologia 20: 277, 280--285, & 287. 1970; Adam, Bull. Inst. Fond. Afr. Noire A.32: 1003. 1970; Moldenke, Fifth Summ. 1: 210, 215--219, 222, 225--227, 231, 238, 244, & 246 (1971) and 2: 501, 502, 510, 571, 572, & 946. 1971; Lind & Tallantire, Some Com. Flow. Pl. Uganda, ed. 2, 198 & 243. 1971.

Additional illustrations: Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 178, fig. 37 F & G. 1969.

Lind & Tallantire (1962) describe this plant as an herb, the leaves narrowly lanceolate, up to 40 cm. long and all basal, and the flowers whitish, in a flattened head up to 1--2 cm. across, on a peduncle (stalk) up to 60 cm. long, inhabiting swamp edges

and wet grasslands in Uganda. Fosberg describes the flower-heads as white and asserts that the species is common in dense grassland on wet black humic sandy soil. He found it growing at about 1 m. altitude in Ivory Coast.

Additional citations: IVORY COAST: F. R. Fosberg 40427 (W--2580419a).

MESANTHEMUM REDUCTUM H. Hess, Bericht. Schweiz. Bot. Gesell. 65: 183--185, fig. 1--3. 1955.

Additional bibliography: Moldenke, Phytologia 20: 284--285. 1970; Moldenke, Fifth Summ. 1: 244 (1971) and 2: 946. 1971.

MESANTHEMUM ROSENI Pax in Engl., Bot. Jahrb. 39: 609. 1907.

Additional bibliography: Jacques-Félix, Bull. Soc. Bot. France 94: 144, 146, & 149. 1947; Moldenke, Phytologia 20: 283 & 285. 1970; Cuf., Bull. Jard. Bot. Belg. 41 (3): Suppl. 1507. 1971; Moldenke, Fifth Summ. 1: 213 (1971) and 2: 946. 1971; Moldenke, Phytologia 23: 434. 1972.

MESANTHEMUM RUBRUM Moldenke, Résumé Suppl. 4: 6, nom. nud. (June 5, 1962) and Phytologia 8: 390--391. December 10, 1962.

Additional bibliography: Moldenke, Phytologia 20: 285. 1970; Moldenke, Fifth Summ. 1: 217 (1971) and 2: 946. 1971.

MESANTHEMUM RUTENBERGIANUM Körn., Abh. Naturwiss. Ver. Bremen 7: 34. 1880.

Additional bibliography: Jacques-Félix, Bull. Soc. Bot. France 94: [143], 144, 146, 148, & 149. 1947; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 161, 173, 185, 186, & 189. 1969; Moldenke, Phytologia 20: 280 & 283--287. 1970; Moldenke, Biol. Abstr. 52: 95. 1971; Moldenke, Fifth Summ. 1: 262 (1971) and 2: 571, 572, & 946. 1971.

Additional illustrations: Jacques-Félix, Bull. Soc. Bot. France 94: 148. 1947.

PAEPALANTHUS Mart., Nov. Act. Physico-med. Acad. Caes. Leopold.-Carol. Nat. Cur. 17 (1): 13, pl. 1, fig. 1, & pl. 2, fig. 1. 1835.

Additional synonymy: Xeractis Körn., in herb.

Additional & emended bibliography: J. F. Gmel. in L., Syst. Nat., ed. 13, 2: 206 & 867. 1791; Mart., Nov. Act. Physico-med. Acad. Caes. Leopold.-Carol. Nat. Cur. 17 (1): 10, 12--15, 23, 42, 57, & 60, pl. 1, fig. 1, & pl. 2, fig. 1. 1835; Pers., Sp. Pl. 1: 283 & 284. 1817; Mart., Flora 24, Beibl. 2: 35, 36, 58, 60, & 61. 1841; Körn. in Mart., Fl. Bras. 3 (1): 276--285, 288, 290--302, 305--471, 484, 491, 495, 499--500, 502--508, & 559--562, pl. 39--60. 1863; Böck., Flora 56: 90--92. 1873; Arech., Anal. Mus. Montevid. 4 (1): 23--24. 1902; Beauverd, Bull. Herb. Boiss., sér. 2, 8: 287--299, fig. 10 A--C & 11 A--D. 1908; J. Hutchinson, Fam. Flow. Pl. 2: 66, 67, & 240. 1934; J. F. Macbr., Field Mus. Publ. Bot. 13 (363): 489--494 & i. 1936; Moldenke in Gleason & Killip,

Brittonia 3: 157—159. 1939; Moldenke, Bull. Torr. Bot. Club 68: 67—70. 1940; Rambo, An. Bot. Herb. Barb. Rodr. 1: 128. 1949; Goossens, Suid-Afrik. Blom Pl. 224. 1953; Moldenke in J. A. Steyererm., Fieldiana Bot. 28: 824—825. 1957; A. Robyns, Excerpt. Bot. A.1: 215. 1959; Gledhill, Check List Flow. Pl. Sierra Leone 31. 1962; Tomlinson, Journ. Linn. Soc. Lond. Bot. 59: 169—172, fig. 18—30. 1964; Eden, McGill Univ. Savanna Res. Ser. 1: 135—137. 1964; J. A. Steyererm., Act. Bot. Venez. 1: 10, 22, 41, 47, 68, 69, 72, 73, 75, 83, 87, 89, 94, & 222—223. 1966; Rendle, Classif. Flow. Pl., ed. 2, 1: 274. 1967; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: [146]—151, 158—170, 173—179, & 184—191, fig. 30, 31, 34, 35 G, 36 I & J, & 37 C—E, I, & J. 1969; Oberwinkler, Pterid. & Sperm. Venez. 27 & 52. 1970; Angely, Fl. Anal. Fitogeogr. Est. S. Paulo 2: xxxiii. 1970; Hocking, Excerpt. Bot. A.16: 39. 1970; Soukup, Raymondiana 3: 32 & 74. 1970; Reitz, Sellowia 22: 104. 1970; Moldenke, Phytologia 20: 7, 10, 11, 14, 18, 25, 27, 36, 39, 50, 287—308, 340, 346, 349—368, & 414—425 (1970), 20: 504—510 (1971), and 21: 509. 1971; Moldenke, Biol. Abstr. 52: 95, 714, 719, 1918, & 5935. 1971; Anon., Biol. Abstr. 51 (24): B. A.S.I.C. S.147 & S.175 (1971), 52 (4): B.A.S.I.C. S.35, S.77, & S. 165 (1971), and 52 (11): B.A.S.I.C. S.88. 1971; Moldenke, Excerpt. Bot. A.18: 445 & 446. 1971; Hocking, Excerpt. Bot. A.19: 43. 1971; Moldenke, Fifth Summ. 1: 72, 82, 88, 91, 97, 99, 103, 112, 118, 119, 124—126, 130, 132, 134, 136, 142, 143, 157—168, 180, 183, 187, 192, 217—219, 226, 227, 231, 238, 239, 262, 280, 366, 375, 377, 395, 414, 438, 477—487 (1971) and 2: 492—497, 499—518, 546, 547, 577—593, 604, 635, 636, 642, 738—744, 746, 774, 776—778, 788, 791, 946—959, 966—968, 972, & 973. 1971; Moldenke, Phytologia 23: 181, 211, 417, 418, 434, & 509 (1972) and 24: 19, 344, 482, 498—499, & 510. 1972; Moldenke, Biol. Abstr. 53: 5252 (1972) and 54: 1189 & 1725. 1972; Anon., Biol. Abstr. 53 (10): B.A.S.I.C. S.178 (1972) and 54 (3): B.A.S.I.C. S.184 & S.189. 1972; Moldenke, Phytologia 24: 343 & 344 (1972) and 25: 73 & 95. 1972.

Limnoxeranthemum Salzm. and Limnoxeranthemum Salzm. ex Steud., previously regarded by me as synonyms of Paepalanthus, belong instead in the synonymy of Syngonanthus Ruhl., since the only species placed in Limnoxeranthemum are actually species of Syngonanthus.

Rendle (1967) describes Paepalanthus as a genus of "230 spp., mostly trop. S. Am." Actually 583 species, varieties, and forms are at present recognized in the genus.

The Bull. Torrey Bot. Club 68: 67—70 references previously cited by me as "1941" were actually issued on December 31, 1940, in spite of the fact that "1941" is the title-page date of the issue.

PAEPALANTHUS ACANTHOLIMON Ruhl. in Engl., Pflanzenreich 13 (4-30): 163—164. 1903.

Additional bibliography: Moldenke, Phytologia 20: 297—298. 1970; Moldenke, Biol. Abstr. 52: 95. 1971; Moldenke, Fifth Summ. 1: 157 (1971) and 2: 946. 1971.

PAEPALANTHUS ACANTHOPHYLLUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 186. 1903.

Additional bibliography: Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 190. 1969; Moldenke, Phytologia 20: 298--299. 1970; Moldenke, Fifth Summ. 1: 157 (1971) and 2: 947. 1971.

Irwin and his associates describe this plant as erect, simple or few-branched, to 1.75 m. tall, the flower-heads white and "strictly erect", and found it growing on campos in an area of gallery forest and adjacent wet campo (brejo) and "locally common" in wet places on rocky slopes at 1200--1250 meters altitude, flowering and fruiting in March, June, and October. They also encountered it in cerrado on the upper slopes and summit of hills. Harley found it growing in wet grassland by a small stream, while Hatschach encountered it on rocky campos, flowering and fruiting in July.

Anderson and his associates describe *P. acanthophyllus* as "trailing or erect by leaning on shrubs, to 1 m. tall, heads white" and found it growing in an area of sandstone outcrops with shrubby vegetation, adjacent grassy slopes, and the valley of a small stream, mostly sandy soil, but with overlying black humus in many places, flowering in February.

Additional citations: BRAZIL: Goiás: Duarte 10668 [Herb. Brad. 48792] (Ld); Harley s.n. [24 March 1971] (Pt--9974); Hatschbach 29948 (Ld); Irwin, Grear, Souza, & Reis dos Santos 14300 (Ld, N); Irwin, Harley, & Smith 32704 (Ld); Irwin, Souza, & Reis dos Santos 9400 (Ld, N). Minas Gerais: Anderson, Stieber, & Kirkbride 35857 (Ld).

PAEPALANTHUS ACCRESCENS Alv. Silv., Fl. Mart. 1: 96--98, pl. 62 & 63 [a]. 1928.

Additional bibliography: Moldenke, Phytologia 20: 299. 1970; Moldenke, Fifth Summ. 1: 157 (1971) and 2: 947. 1971.

PAEPALANTHUS ACCRESCENS var. *GLABRESCENS* Alv. Silv., Fl. Mont. 1: 98. 1928.

Additional bibliography: Moldenke, Phytologia 20: 299. 1970; Moldenke, Fifth Summ. 1: 157 (1971) and 2: 947. 1971.

PAEPALANTHUS ACTINOCEPHALOIDES Alv. Silv., Fl. Mont. 1: 135--136, pl. 84. 1928.

Additional bibliography: Moldenke, Phytologia 20: 299--300. 1970; Moldenke, Fifth Summ. 1: 157 (1971) and 2: 947. 1971.

PAEPALANTHUS ACULEATUS Alv. Silv., Fl. Serr. Min. 65, pl. 24. 1908.

Additional bibliography: Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: [146]. 1969; Moldenke, Phytologia 20: 300. 1970; Moldenke, Fifth Summ. 1: 157 (1971) and 2: 947. 1971.

PAEPALANTHUS ACUMINATUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 217. 1903.

Additional bibliography: Tomlinson in C. R. Metcalfe, *Anat. Monocot.* 3: 175, 184, 187, & 191. 1969; Moldenke, *Phytologia* 20: 300--301. 1970; Moldenke, *Fifth Summ.* 1: 157 (1971) and 2: 947. 1971.

PAEPALANTHUS ACUMINATUS var. *LONGIPILUSUS* Moldenke, *Phytologia* 3: 314. 1950.

Additional bibliography: Tomlinson in C. R. Metcalfe, *Anat. Monocot.* 3: 191. 1969; Moldenke, *Phytologia* 20: 301. 1970; Moldenke, *Fifth Summ.* 1: 157 (1971) and 2: 947. 1971.

PAEPALANTHUS ACUTALIS Alv. Silv., *Fl. Mont.* 1: 258--259, pl. 170 [bis]. 1928.

Additional bibliography: Moldenke, *Phytologia* 20: 301. 1970; Moldenke, *Fifth Summ.* 1: 157 (1971) and 2: 947. 1971.

PAEPALANTHUS ACUTIPILUS Alv. Silv., *Fl. Mont.* 1: 173--175, pl. 112. 1928.

Additional bibliography: Moldenke, *Phytologia* 20: 301--302. 1970; Moldenke, *Fifth Summ.* 1: 157 (1971) and 2: 947. 1971.

Irwin and his associates describe this plant as having ascending stems, to 30 cm. long, and light-gray flower-heads, and found it growing beneath overhanging rocks on steep iron-rich rocky slopes, at 1800--2000 meters altitude, flowering and fruiting in January.

Additional citations: BRAZIL: Minas Gerais: Irwin, Harley, & Onishi 30224 (Z).

PAEPALANTHUS AEQUALIS (Vell.) J. F. Macbr., *Field Mus. Publ. Bot.* 11: 43. 1931.

Emended synonymy: *Paepalanthus blepharocnemis* var. ♂ Körn. in *Mart., Fl. Bras.* 3 (1): 376--377 & 499, pl. 48, fig. 3. 1863.

Additional & emended bibliography: Körn. in *Mart., Fl. Bras.* 3 (1): 276, 281, 376--377, 499, & 507, pl. 48, fig. 3. 1863; Tomlinson in C. R. Metcalfe, *Anat. Monocot.* 3: 174 & 189. 1969; Moldenke, *Phytologia* 20: 302--304 & 421. 1970; Moldenke, *Fifth Summ.* 1: 157 & 477 (1971) and 2: 578 & 947. 1971.

This species is said by Ruhland (1903) to be closely related to *P. mendoncianus* Ruhl., especially in its short sheaths, but differs in its non-glabrous leaves and in the shape and color of its involucre bracts.

PAEPALANTHUS AEREUS Alv. Silv., *Fl. Mont.* 1: 161--162, pl. 102. 1928.

Additional bibliography: Moldenke, *Phytologia* 20: 304. 1970; Moldenke, *Fifth Summ.* 1: 157 (1971) and 2: 577, 587, & 947. 1971.

PAEPALANTHUS ALBESCENS Alv. Silv., *Fl. Mont.* 1: 229--230, pl. 152. 1928.

Additional bibliography: Moldenke, *Phytologia* 20: 304. 1970; Moldenke, *Fifth Summ.* 1: 157 (1971) and 2: 947. 1971.

PAEPALANTHUS ALBICEPS Alv. Silv., Fl. Mont. 1: 172—173, pl. 111. 1928.

Additional bibliography: Moldenke, Phytologia 20: 301 & 304—305. 1970; Moldenke, Fifth Summ. 1: 157 (1971) and 2: 947. 1971.

PAEPALANTHUS ALBO-TOMENTOSUS Herzog ex Lützelburg, Estud. Bot. Nordest. 3: 148, hyponym (1923) and in Fedde, Repert. Spec. Nov. 20: 83. 1924.

Additional bibliography: Moldenke, Phytologia 20: 305. 1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 577 & 947. 1971.

PAEPALANTHUS ALBO-VAGINATUS Alv. Silv., Fl. Mont. 1: 233—234, pl. 155. 1928.

Additional bibliography: Moldenke, Phytologia 20: 349. 1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 947. 1971.

Additional citations: BRAZIL: Paraná: Hatschbach 22145 (N), 24712 (Ft).

PAEPALANTHUS ALBO-VILLOSUS Alv. Silv., Fl. Mont. 1: 33—34, pl. 15. 1928.

Additional bibliography: Moldenke, Phytologia 20: 306 & 360. 1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 577, 593, & 947. 1971.

PAEPALANTHUS ALLEMANII C. Diogo, Bol. Mus. Nac. Rio Jan. 1: [27]—28. 1923.

Additional bibliography: Moldenke, Phytologia 20: 306—307. 1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 947. 1971.

PAEPALANTHUS ALPINUS Körn. in Mart., Fl. Bras. 3 (1): 409—410. 1863.

Additional bibliography: Moldenke, Phytologia 20: 349 & 353. 1970; Moldenke, Fifth Summ. 1: 118 & 477 (1971) and 2: 947 & 972. 1971.

PAEPALANTHUS ALSINOIDES C. Wright ex Sauv., Anal. Acad. Ci. Habana 8: 49—40. 1871.

Additional bibliography: Moldenke, Phytologia 20: 349—350. 1970; Moldenke, Biol. Abstr. 52: 95. 1971; Moldenke, Fifth Summ. 1: 97 & 477 (1971) and 2: 947. 1971.

PAEPALANTHUS ALSINOIDES var. *MINIMUS* Jennings, Ann. Carnegie Mus. 11: 89, pl. 17, fig. E—H. 1917.

Additional bibliography: Moldenke, Phytologia 20: 349—350. 1970; Moldenke, Fifth Summ. 1: 97 & 99 (1971) and 2: 947. 1971.

PAEPALANTHUS AMOENUS (Bong.) Körn. in Mart., Fl. Bras. 3 (1): 316. 1863.

Additional bibliography: Moldenke, Phytologia 20: 350—352. 1970; Moldenke, Fifth Summ. 1: 158 & 477 (1971) and 2: 493, 505, 577, 585, 947, & 972. 1971; Moldenke, Biol. Abstr. 53: 5252. 1972;

Anon., Biol. Abstr. 53 (10): B.A.S.I.C. S.178. 1972.

Irwin and his associates describe this plant as an erect herb, 1--2 m. tall, the stem simple, the flower-heads white or gray, grayish, light-gray, very light-gray, or gray-brown, and found the plant "occasional" in wet sand of cerrado, on campos or on wet slopes of campos in areas of campos and cerrado, at altitudes of 950--1200 meters, flowering in March.

The Mello Barreto 2491 [Herb. Jard. Bot. Bello Horiz. 4053], previously cited by me (1952) as P. amoenus, is actually the type collection now of f. prolifer Moldenke. Material of P. amoenus has also been misidentified and distributed in some herbaria as P. acanthophyllus Ruhl.

Additional citations: BRAZIL: Distrito Federal: Irwin, Grear, Souza, & Reis dos Santos 13925 (N, Rf), 15375 (Ac, N); Irwin, Souza, & Reis dos Santos 11580 (N, Rf), 11670 (Ac, N). Goiás: Irwin, Grear, Souza, & Reis dos Santos 12358 (Ac, N), 13588 (Ac, N); Irwin, Harley, & Smith 32034 (Ld); Irwin, Reis dos Santos, Souza, & Foneſca 25649 (N); Irwin, Souza, Grear, & Reis dos Santos 17860 (Ld, N).

PAEPALANTHUS AMOENUS var. CURRALENSIS Alv. Silv., Fl. Mont. 1: 401. 1928.

Additional bibliography: Moldenke, Phytologia 20: 352. 1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 947. 1971.

PAEPALANTHUS AMOENUS f. PROLIFER Moldenke, Phytologia 21: 417. 1971.

Bibliography: Moldenke, Phytologia 4: 134 (1952) and 21: 417. 1971; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 947. 1971; Moldenke, Biol. Abstr. 53: 5252. 1972; Anon., Biol. Abstr. 53 (10): B.A.S.I.C. S.178. 1972.

The type specimen of this form was erroneously cited by me in 1952 as typical P. amoenus (Bong.) Körn.

Citations: BRAZIL: Minas Gerais: Mello Barreto 2491 [Herb. Jard. Bot. Bello Horiz. 4053] (N--type).

PAEPALANTHUS ANDICOLA Körn. in Mart., Fl. Bras. 3 (1): 408. 1863.

Additional bibliography: Moldenke, Phytologia 20: 352--353. 1970; Moldenke, Fifth Summ. 1: 118, 124, 136, & 478 (1971) and 2: 947 & 972. 1971; Moldenke, Phytologia 23: 417. 1972.

Additional & emended citations: COLOMBIA: Cundinamarca: García-Barriga 18034 (N, N, W--2569355a).

PAEPALANTHUS ANDICOLA var. VILLOSUS Moldenke, Phytologia 2: 416. 1948.

Additional bibliography: Moldenke, Phytologia 20: 353. 1970; Moldenke, Fifth Summ. 1: 118 (1971) and 2: 947. 1971; Moldenke, Phytologia 23: 417. 1972.

López-Palacios collected this plant at 2320 meters altitude and describes it as "planta arrositada; hojas lineal lanceoladas,

subcoriáceas; envés velutinoso en las hojas tiernas, pilosas en las adultas; haz glabrescente, marge ciliado. Flores inmaduras unas, otras demasiado pasadas."

Additional citations: VENEZUELA: Táchira: López-Palacios 2575 (2).

PAEPALANTHUS APACARENSIS Moldenke, Mem. N. Y. Bot. Gard. 9: 408. 1957.

Additional bibliography: Moldenke, Phytologia 20: 353. 1970; Moldenke, Fifth Summ. 1: 124 (1971) and 2: 947. 1971.

PAEPALANTHUS APPLANATUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 169--170, fig. 2 D. 1903.

Additional bibliography: Moldenke, Phytologia 20: 353--354. 1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 947. 1971.

PAEPALANTHUS ARBORESCENS Alv. Silv., Fl. Mont. 1: 205--206, pl. 135. 1928.

Additional bibliography: Moldenke, Phytologia 20: 354. 1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 577 & 947. 1971.

PAEPALANTHUS ARCHERI Moldenke, Bull. Torrey Bot. Club 68: 67. 1940.

Additional & emended bibliography: Moldenke, Bull. Torrey Bot. Club 68: 67. 1940; Moldenke, Phytologia 20: 354--355. 1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 577 & 947. 1971.

The Eitens found this plant growing in fine sandy soil in fields with outcropping itacolomite quartzite slabs, at 1150 m. altitude, flowering in November.

The original description of the species was actually published on December 31, 1940 -- not "1941" as previously stated by me in an earlier installment of these notes, in spite of the fact that "1941" appears on the title-page of the issue.

Additional citations: BRAZIL: Minas Gerais: Eiten & Eiten 6852 (2).

PAEPALANTHUS ARENICOLA Alv. Silv., Fl. Mont. 1: 144--145, pl. 90. 1928.

Additional bibliography: Moldenke, Phytologia 20: 355. 1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 947. 1971.

Additional citations: BRAZIL: Goiás: Irwin, Reis dos Santos, Souza, & Fonsêca 24936 (N).

PAEPALANTHUS ARETIOIDES Ruhl. in Engl., Pflanzenreich 13 (4-30): 164. 1903.

Additional bibliography: Moldenke, Phytologia 20: 355--356. 1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 947. 1971.

PAEPALANTHUS ARGENTEUS (Bong.) Körn. in Mart., Fl. Bras. 3 (1): 343. 1863.

Additional bibliography: Moldenke, Phytologia 20: 356--357.

1970; Moldenke, Fifth Summ. 1: 158 & 478 (1971) and 2: 577 & 947. 1971.

Hatschbach encountered this plant at 1100 meters altitude, in flower and fruit in September, growing on sandy campos and in sandy soil near rivers.

Additional citations: BRAZIL: Minas Gerais: Hatschbach 27254 (Rf), 27403 (Ft); Irwin, Reis dos Santos, Souza, & Fonsêca 22781 (N).

PAEPALANTHUS ARGILLICOLA Alv. Silv., Fl. Mont. 1: 108--110, pl. 67. 1928.

Additional bibliography: Moldenke, Phytologia 20: 357. 1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 947. 1971; Moldenke, Phytologia 24: 19. 1972.

PAEPALANTHUS ARGILLICOLA var. PILOSUS Moldenke, Phytologia 24: 19. 1972.

Bibliography: Moldenke, Phytologia 24: 19. 1972.

Citations: BRAZIL: Guanabara: Strang & Castellanos 26305 [Herb. Brad. 49649] (Z—type).

PAEPALANTHUS ARGYROLINON Körn. in Mart., Fl. Bras. 3 (1): 374. 1863.

Additional bibliography: Moldenke, Phytologia 20: 357--358. 1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 577 & 947. 1971.

PAEPALANTHUS ARGYROPUS Alv. Silv., Fl. Serr. Min. 36. 1908.

Additional bibliography: Moldenke, Phytologia 20: 358--359 & 366. 1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 947. 1971.

Irwin and his associates describe the flower-heads of this plant as very light-gray and found the plant growing on campos in areas of cerrado, gallery forest, and campo, at 1050 meters altitude, flowering and fruiting in March. Hatschbach found it on wet campos and in wet sandy soil near rivers, at 1100 meters altitude, flowering and fruiting in August and September.

Additional citations: BRAZIL: Minas Gerais: Hatschbach 27034 (Rf), 27335 (Ft), 29992 (Ld); Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 28083 (N, Rf); Irwin, Reis dos Santos, Souza, & Fonsêca 22020 (N), 22549 (N).

PAEPALANTHUS ARGYROPUS var. BREVIFOLIUS Alv. Silv., Fl. Mont. 1: 22. 1928.

Additional bibliography: Moldenke, Phytologia 20: 359. 1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 577 & 947. 1971.

PAEPALANTHUS ARGYROPUS var. PUBESCENS Alv. Silv., Fl. Mont. 1: 22. 1928.

Additional bibliography: Moldenke, Phytologia 20: 359 & 366. 1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 947. 1971.

PAEPALANTHUS ARISTATUS Moldenke, Phytologia 7: 122--123. 1960.

Additional bibliography: Moldenke, *Phytologia* 20: 359. 1970; Moldenke, *Fifth Summ.* 1: 124 (1971) and 2: 635 & 947. 1971.

PAEPALANTHUS ARMERIA Mart. ex Körn. in Mart., *Fl. Bras.* 3 (1): 377--378. 1863.

Additional bibliography: Moldenke, *Phytologia* 20: 359--360. 1970; Moldenke, *Fifth Summ.* 1: 158 & 478 (1971) and 2: 577 & 947. 1971.

Irwin & Soderstrom state that this plant is common on wet sandy periodically flooded creekbanks at 700--1000 meters altitude, and found it flowering and fruiting in August.

Additional citations: BRAZIL: Distrito Federal: Irwin & Soderstrom 5825 (N, Rf).

PAEPALANTHUS ASCENDENS Alv. Silv., *Fl. Mont.* 1: 237--238, pl. 158. 1928.

Additional bibliography: Moldenke, *Phytologia* 20: 360--361. 1970; Moldenke, *Fifth Summ.* 1: 158 (1971) and 2: 947. 1971.

PAEPALANTHUS ASPER Alv. Silv., *Fl. Serr. Min.* 64. 1908.

Additional bibliography: Moldenke, *Phytologia* 20: 361. 1970; Moldenke, *Fifth Summ.* 1: 158 (1971) and 2: 947. 1971.

PAEPALANTHUS ATER Alv. Silv., *Fl. Mont.* 1: 247--249, pl. 165. 1928.

Additional bibliography: Moldenke, *Phytologia* 20: 361--362. 1970; Moldenke, *Fifth Summ.* 1: 158 (1971) and 2: 947. 1971.

Anderson and his associates found this plant growing in "mats on rock" on a mountain summit in an area of shrubby vegetation mostly to 1 meter tall or less, with mossy groundcover in organic soil overlying sandy soil on sandstone rocks, at 2250 meters altitude, flowering in February.

Additional citations: BRAZIL: Minas Gerais: Anderson, Stieber, & Kirkbride 35763 (Ld).

PAEPALANTHUS ATROVAGINATUS Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 156--157. 1903.

Additional bibliography: Moldenke, *Phytologia* 20: 362. 1970; Moldenke, *Fifth Summ.* 1: 158 (1971) and 2: 583 & 947. 1971.

PAEPALANTHUS AUREUS Alv. Silv., *Fl. Serr. Min.* 66, pl. 25. 1908.

Additional bibliography: Moldenke, *Phytologia* 20: 362--363. 1970; Moldenke, *Fifth Summ.* 1: 158 (1971) and 2: 577, 578, & 947. 1971.

PAEPALANTHUS AUYANTEPUIENSIS Moldenke, *Act. Biol. Venez.* 2: 47--48. 1957.

Additional bibliography: Moldenke, *Phytologia* 20: 363. 1970; Moldenke, *Fifth Summ.* 1: 124 (1971) and 2: 947. 1971.

PAEPALANTHUS BABYLONIENSIS Alv. Silv., *Fl. Mont.* 1: 188--189, pl. 121. 1928.

Additional bibliography: Moldenke, *Phytologia* 20: 363--364. 1970; Moldenke, *Fifth Summ.* 1: 158 (1971) and 2: 578 & 948. 1971.

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

Additional bibliography: Moldenke, *Phytologia* 20: 364. 1970; Moldenke, *Fifth Summ.* 1: 158 & 478 (1971) and 2: 494 & 948. 1971.

PAEPALANTHUS BALANSAE Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 151--152. 1903.

Additional bibliography: Moldenke, *Phytologia* 20: 365. 1970; Moldenke, *Fifth Summ.* 1: 187 (1971) and 2: 590 & 948. 1971.

PAEPALANTHUS BALANSAE var. *DENSIFLORUS* Moldenke, *Phytologia* 8: 162. 1962.

Additional bibliography: Moldenke, *Phytologia* 20: 365. 1970; Moldenke, *Fifth Summ.* 1: 158 (1971) and 2: 948. 1971.

PAEPALANTHUS BARAUNENSIS Alv. Silv., *Fl. Mont.* 1: 112--113, pl. 70. 1928.

Additional bibliography: Moldenke, *Phytologia* 20: 365--366. 1970; Moldenke, *Fifth Summ.* 1: 158 (1971) and 2: 948. 1971.

Irwin and his associates refer to this plant as having inflorescences to 40 cm. tall and the flower-heads white when fresh. They found it growing on campos in a region of campo, cerrado on outcrops, and a wooded valley, at 1200 meters altitude, flowering and fruiting in March.

Citations: BRAZIL: Minas Gerais: Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 28209 (N, Z).

PAEPALANTHUS BARBIGER Alv. Silv., *Fl. Serr. Min.* 47, pl. 16. 1908.

Additional bibliography: Moldenke, *Phytologia* 20: 366. 1970; Moldenke, *Fifth Summ.* 1: 158 (1971) and 2: 578 & 948. 1971.

The Eitens found this plant growing in flat grassy meadows on thin soil derived from itacolomite quartzite, in fine light-gray sand with some humus, and on hillsides with small stones and gravel, at 1200 meters altitude, flowering in November, the flowers described as white. Anderson and his associates describe it as an herb with white flower-heads growing in wet sand in an area of rocky sandstone cerrado and open rocky hillsides with white sandy soil, sloping down to grassy brejo, a creek, and adjacent gallery forest, and in brejo in an area of cerrado and nearly open campo sloping down through brejo to gallery forest, at 1220 meters altitude, flowering in February.

Additional citations: BRAZIL: Minas Gerais: Anderson, Stieber, & Kirkbride 35299 (Ac), 35420 (Id); Eiten & Eiten 6793 (Ws), 6894 (Rf); Hatschbach, Smith, & Ayensu 28712 (Rf).

PAEPALANTHUS BARBULATUS Herzog ex Lützelburg, *Estud. Bot. Nordest.*

3: 148, hyponym (1923) and in Fedde, *Repert. Spec. Nov.* 20: 83--84. 1924.

Additional bibliography: Moldenke, *Phytologia* 20: 366--367.

1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 948. 1971.

PAEPALANTHUS BARKLEYI Moldenke, Phytologia 3: 114—115. 1949.

Additional bibliography: Moldenke, Phytologia 20: 367. 1970; Moldenke, Fifth Summ. 1: 118 (1971) and 2: 948. 1971.

PAEPALANTHUS BARREIRENSIS Alv. Silv., Fl. Mont. 1: 260—261, pl. 172 [bis]. 1928.

Additional bibliography: Moldenke, Phytologia 20: 367—368. 1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 948. 1971.

PAEPALANTHUS BATATALENSIS Alv. Silv., Fl. Mont. 1: 77—79, pl. 45. 1928.

Additional bibliography: Moldenke, Phytologia 20: 368. 1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 948. 1971.

PAEPALANTHUS BATOCEPHALUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 212. 1903.

Additional bibliography: Moldenke, Phytologia 20: 368. 1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 948. 1971.

PAEPALANTHUS BELLUS Moldenke, Résumé Suppl. 4: 5, nom. nud. (June 5, 1962) and Phytologia 8: 391. December 10, 1962.

Additional bibliography: Moldenke, Phytologia 20: 414. 1970; Moldenke, Biol. Abstr. 52: 5935. 1971; Hocking, Excerpt. Bot. A. 19: 43. 1971; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 578 & 948. 1971.

PAEPALANTHUS BENEDICTI Alv. Silv., Fl. Mont. 1: 238—240, pl. 159. 1928.

Additional bibliography: Moldenke, Phytologia 20: 414. 1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 948. 1971.

PAEPALANTHUS BIFIDUS (Schrad.) Kunth, Enum. Pl. 3: 512. 1841.

Emended synonymy: Eriocaulon pygmaeum Mart., Flora 24, Beibl. 2: 60. 1841 [not E. pygmaeum Dalz., 1851, nor Körn., 1863, nor So-land., 1809]. Eriocaulon (Paepalanthus) pygmaeum Mart. ex Moldenke, Phytologia 20: 414, in syn. 1970.

Additional bibliography: Vittien & Heyn in Pulle, Fl. Surin. 1 [Meded. Konink. Ver. Ind. Inst. 30, Afd. Handelms. 11]: 216—217. 1938; Moldenke, Phytologia 20: 413—419. 1970; Moldenke, Fifth Summ. 1: 103, 118, 124, 130, 132, 134, 142, 158, & 478 (1971) and 2: 492, 494, 496, 500, 509, 516, 518, 578, 582, 589, 590, & 948. 1971.

Irwin and his associates describe this plant as having inflorescences that attain a height of 15 cm., the flower-heads white, and found it forming extensive patches in brown sand of cerrado interspersed with extensive outcrops, at 1175 meters altitude. Davis describes it as a "small forb" with cream-colored flower-heads, growing in open white sand. Prance and his associates encountered it in disturbed caatinga.

Additional citations: GUYANA: D. H. Davis 12 (N). BRAZIL: Amazonas: Prance, Coêlho, Maas, & Pinheiro 11658 (Rf). Minas Gerais: Hatschbach, Smith, & Ayensu 28886 (Rf); Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 27648 (N, Rf).

PAEPALANTHUS BIFRONS Alv. Silv., Fl. Mont. 1: 206—207, pl. 136. 1928.

Additional bibliography: Moldenke, Phytologia 20: 419—420. 1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 948. 1971.

Anderson and his associates encountered what appears to be this species in cerrado in an area of cerrado on rocky hilltops with prominent sandstone outcrops and recently burned campo limpo on lower gentler slopes with sandy soil, and gallery forest along a stream at the base of the hill. They describe the plant as an herb, 1 m. tall, branching into an inflorescence at about 0.7 m. from the base, with the flower-heads white.

Citations: BRAZIL: Minas Gerais: Anderson, Stieber, & Kirkbride 36250 (Z).

PAEPALANTHUS BIFRONS var. FUSCIOR Alv. Silv., Fl. Mont. 1: 207—208. 1928.

Additional bibliography: Moldenke, Phytologia 20: 420. 1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 578 & 948. 1971.

PAEPALANTHUS BLEPHAROPHORUS (Bong.) Kunth, Enum. Pl. 3: 499. 1841.

Additional bibliography: Moldenke, Phytologia 20: 420—421. 1970; Moldenke, Fifth Summ. 1: 158 & 478 (1971) and 2: 494, 578, & 948. 1971.

PAEPALANTHUS BOMBACINUS Alv. Silv., Fl. Mont. 1: 82—83, pl. 49. 1928.

Additional bibliography: Moldenke, Phytologia 20: 421—422. 1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 948. 1971.

Anderson and his associates collected this plant on a campo, at 1125 meters altitude, in an area of cerrado on rocky hilltops with prominent sandstone outcrops and recently burned campo limpo on lower gentler slopes with sandy soil, and gallery forest at the base of the hill along a stream, flowering in February.

Additional citations: BRAZIL: Minas Gerais: Anderson, Stieber, & Kirkbride 36232 (Z).

PAEPALANTHUS BONGARDI Kunth, Enum. Pl. 3: 519. 1841.

Additional bibliography: Moldenke, Phytologia 20: 422—424. 1970; Hocking, Excerpt. Bot. A.19: 43. 1971; Moldenke, Fifth Summ. 1: 158 & 478 (1971) and 2: 499, 510, 578, 589, & 948. 1971.

PAEPALANTHUS BRACHYPHYLLUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 175. 1903.

Additional bibliography: Moldenke, Phytologia 20: 423 & 424. 1970; Moldenke, Fifth Summ. 1: 158 (1971) and 2: 948. 1971.

It should be noted here that Prain (1908) erroneously cites

the page of the original publication of this binomial as "75" instead of 175.

PAEPALANTHUS BRACHYPUS (Bong.) Kunth, Enum. Pl. 3: 516. 1841.

Additional bibliography: Herzog in Fedde, Repert. Spec. Nov. 20: 87. 1924; Moldenke, Phytologia 20: 424--425. 1970; Moldenke, Biol. Abstr. 52: 5935. 1971; Hocking, Excerpt. Bot. A.19: 43. 1971; Moldenke, Fifth Summ. 1: 159 & 478 (1971) and 2: 495, 578, & 948. 1971.

Herzog (1924) avers that his *P. ruhlandii* (now known as *P. herzogii* Moldenke) is closely related to *P. brachypus*, differing in its fewer, short, and almost glabrous leaves.

Anderson and his associates describe *P. brachypus* as growing in clumps from a thick base, the flower-heads white, and found it growing in sandy meadows in an area of rocky sandstone cerrado and open rocky hillsides with white sandy soil, sloping down to grassy brejo, a creek, and adjacent gallery forest, at 1220 m. altitude, flowering in February.

Additional citations: BRAZIL: Minas Gerais: Anderson, Stieber, & Kirkbride 35418a (Id); Hatschbach, Smith, & Ayensu 28972 (Rf); Irwin, Reis dos Santos, Souza, & Fonsêca 21953 (N, Z); A. Lutz 1546 (Ja); Maguire, Maguire, & Murça Pires 44773 (M); Kello Barreto 9381 [Herb. Jard. Bot. Bello Horiz. 25382] (N); L. Riedel 1182 (B--isotype, Er--isotype, N--photo of isotype, S--isotype, Ut--349--isotype, Z--photo of isotype). MOUNTED ILLUSTRATIONS: Ruhl. in Engl., Pflanzenreich 13 (4-30): fig. 25 (B); drawings & notes by Körnicke (B).

PAEPALANTHUS BRADEI Moldenke, Phytologia 7: 119--120. 1960.

Bibliography: Moldenke, Phytologia 7: 119--120. 1960; Moldenke, Résumé Suppl. 2: 5 & 15. 1960; Moldenke, Biol. Abstr. 35: 2177. 1960; Hocking, Excerpt. Bot. A.4: 593. 1962; G. Taylor, Ind. Kew. Suppl. 13: 98. 1966; Moldenke, Fifth Summ. 1: 159 (1971) and 2: 948. 1971.

Citations: BRAZIL: Rio de Janeiro: Santos Lima & Brade 14198 [Herb. Jard. Bot. Rio Jan. 25419] (B--type, Z--isotype).

PAEPALANTHUS BRASILIENSIS (Mart.) Mart. ex Walp., Ann. Bot. Syst. 1: 890. 1849.

Synonymy: Eriocaulon (Paepalanthus) brasiliense Mart., Flora 24, Beibl. 2: 36. 1841. Paepalanthus (Eriocaulon) brasiliensis Mart. ex Walp., Ann. Bot. Syst. 1: 890. 1849. Eriocaulon brasiliense Mart. ex Steud., Syn. Pl. Glum. 2: [Cyp.] 274 & 333. 1855. Paepalanthus brasiliensis Mart. ex Körn. in Mart., Fl. Bras. 3 (1): 324--325, pl. 44. 1863. Dupatya brasiliensis (Mart.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Paepalanthus brasiliensis Walp. apud Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 401. 1894. Dupatya brasiliensis Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902. Eriocaulon brasiliensis Steud. apud Ruhl. in

Engl., Pflanzenreich 13 (4-30): 192, in syn. 1903. Eriocaulon brasiliense Steud. apud Ruhl. in Engl., Pflanzenreich 13 (4-30): 285, in syn. 1903.

Bibliography: Mart., Flora 24, Beibl. 2: 36. 1841; Walp., Ann. Bot. Syst. 1: 890. 1849; Steud., Syn. Fl. Glum. 2: [Cyp.] 274, 333, & index. 1855; Körn. in Mart., Fl. Bras. 3 (1): 324-325, 499, & 506, pl. 44. 1863; Kuntze, Rev. Gen. Fl. 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, 192, [283], 285, & 289. 1903; Alv. Silv., Fl. Mont. 1: 402. 1928; Stapf, Ind. Lond. 4: 518. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Known Geogr. Distrib. Erioc. 10, 29, 33, & 45. 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; Mendes Magalhães, Anais V Reun. Anual Soc. Bot. Bras. 276-277. 1956; Moldenke, Résumé 95, 279, 286, & 485. 1959; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Rennó, Levant. Herb. Inst. Agron. 69. 1960; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 877 (1960) and 2: 401. 1960; Moldenke, Fifth Summ. 1: 159 & 478 (1971) and 2: 495, 517, 578, 593, & 948. 1971.

Illustrations: Körn. in Mart., Fl. Bras. 3 (1): pl. 44. 1863.

The type of this species was collected by Carl Friedrich Philipp von Martius on campos at Arraial d'Água, Minas Gerais, Brazil, and is deposited in the herbarium of the Botanisches Staatssammlung at Munich where it was photographed by Macbride as his type photograph number 18695. Ruhland (1903) cites only this original collection, but Silveira (1928) cites A. Silveira 679 from Chapado do Couto, Minas Gerais, collected in 1918.

The original description by Martius is (1841): "Eriocaulon (Paepalanthus) brasiliense Mart. glabrescens; caulibus simplicibus (ultrapedalibus), foliis obtusis planiusculis radicalibus rosulatis caule multo brevioribus e latiore basi lanceolatis; caulinis densis appressis minoribus, pedunculis umbellatis pilosis; vaginis glabriusculis. In campis ad Água Suja in Minas novis, Junio. Oreas. Affine praecipue E. rigido et polyantho; ab illo diversum foliis tenuioribus latioribus, caulinis obtusioribus, tomento inter folia brevioribus albo nec testaceo, ab hoc foliis radicalibus multo brevioribus, angustioribus: - ad E. ciliato quoque foliis obtusioribus, brevioribus facile distinguitur."

The species has been collected in anthesis in June.

Citations: BRAZIL: Minas Gerais: Martius s.n. [Arraial d'Água Suja; Macbride photos 18695] (N—photo of type, W—photo of type); Mendes Magalhães 2075 [Herb. Jard. Bot. Belo Horiz. 42250] (N).

PAEPALANTHUS BREVICALIS Alv. Silv., Fl. Mont. 1: 28-29, pl. 12. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 28-29 & 402, pl. 12. 1928; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind.

Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 10 & 45. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Moldenke, Résumé 95 & 485. 1959; Moldenke, Fifth Summ. 1: 159 (1971) and 2: 948. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 12. 1928.

The type of this species was collected by Álvaro Adolpho da Silveira (no. 705) in sandy fields in the Serra da Moeda, Minas Gerais, Brazil, in August of 1926, and is deposited in the Silveira herbarium. On page 402 of his work Silveira (1928) cites this same herbarium number as having been collected in 1908. It is not clear to me if this is an error or is meant to be a correction of the date given on page 29, or even if there is a second collection involved here. The species has not otherwise been collected as far as I am aware.

PAEPALANTHUS BRITTONI Moldenke, Known Geogr. Distrib. Erioc. 51, nom. nud. (February 9, 1946) and Phytologia 2: 140. July 8, 1946.

Synonymy: Dupatya montana Britton, Bull. Torrey Bot. Club 44: 33. 1917. Paepalanthus montanus (Britton) Moldenke, Revist. Sudam. Bot. 4: 17. 1937 [not P. montanus Alv. Silv., 1928]. Paepalanthus brittonii Moldenke ex Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 191. 1969.

Bibliography: N. L. Britton, Bull. Torrey Bot. Club 44: 33. 1917; A. W. Hill, Ind. Kew. Suppl. 6: 72. 1926; Moldenke, Revist. Sudam. Bot. 4: 17. 1937; Moldenke, N. Am. Fl. 19: 43. 1937; Moldenke, Phytologia 1: 333—334 (1939) and 2: 140. 1946; Moldenke, Known Geogr. Distrib. Erioc. 5, 45, & 51. 1946; Moldenke, Alph. List Cit. 1: 75 & 185. 1946; Hill & Salisb., Ind. Kew. Suppl. 10: 158. 1947; Moldenke, Phytologia 2: 140. 1948; Moldenke, Alph. List Cit. 2: 569 & 649 (1948), 3: 929 (1949), and 4: 1191 & 1257. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 44 & 208. 1949; Moldenke, Phytologia 4: 136 (1952) and 4: 200. 1953; E. J. Salisb., Ind. Kew. Suppl. 11: 175. 1953; Alain, Revist. Soc. Cub. Bot. 13: 38. 1956; Conde, Hist. Bot. Cub. 221. 1958; Moldenke, Résumé 52, 326, & 485. 1959; Moldenke, Résumé Suppl. 18: 9. 1969; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 184, 186—188, & 191. 1969; Moldenke, Fifth Summ. 1: 97 & 483 (1971) and 2: 578, 586, & 948. 1971.

The type of this species was collected by John Adolf Shafer (no. 4473) on compact red iron ore along the trail from Río Yamanguéy to Camp Toa, at an altitude of 400 meters, Oriente, Cuba, and is deposited in the Britton Herbarium at the New York Botanical Garden. The species is obviously closely related to P. pungens Griseb.

Marie-Victorin & Clément found this plant growing in association with Anaethropia victorinii. Ekman 2341 is a mixture with P. pungens Griseb. and P. pungens var. brevifolius Moldenke.

The two isotypes of P. brittonii cited by me in Phytologia 1: 334 (1939) as deposited in the Britton Herbarium are now in the

herbaria of Cornell University and of the Museo de Historia Natural at Montevideo, respectively.

The Paepalanthus montanus Alv. Silv., referred to in the synonymy above, is a valid Brazilian species.

Additional citations: CUBA: Oriente: Acuffa & López Figueiras 5881 (Z); Ekman 2341, in part (S), 3522 (S), 3835 (S); R. A. Howard 5960 (Ca--913754); León & Marie-Victorin 20149 (Um--9318); Marie-Victorin & Clément 21834 (Um--25325, Um--25366, Um--25367); Marie-Victorin, Clément, & Alain 21834 (Vi).

PAEPALANTHUS BROMELIOIDES Alv. Silv., Fl. Serr. Min. 55, pl. 18. 1908.

Bibliography: Alv. Silv., Fl. Serr. Min. 55, pl. 18. 1908; Alv. Silv., Fl. Mont. 1: 225--227 & 402, pl. 149. 1928; Stapf, Ind. Lond. 4: 518. 1930; A. W. Hill, Ind. Kew. Suppl. 8: 169. 1933; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 10 & 45. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Moldenke, Phytologia 4: 136. 1952; Mendes Magalhães, Anais V Reun. Anual Soc. Bot. Bras. 234 & 266--267. 1956; Moldenke, Résumé 95 & 485. 1959; Rennó, Levant. Herb. Inst. Agron. 69. 1960; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: [146]. 1969; Moldenke, Fifth Summ. 1: 159 (1971) and 2: 948. 1971.

Illustrations: Alv. Silv., Fl. Serr. Min. pl. 18. 1908; Alv. Silv., Fl. Mont. 1: pl. 149. 1928.

The type of this species was collected by Álvaro Adolpho da Silveira (no. 361) in dry sandy fields in the Serra do Cipó, Minas Gerais, Brazil, and is deposited in the Silveira herbarium. Silveira (1908) notes that "Haec species inter illas quae habent caulem brevem est maxima". It is, however, certainly closely related to P. corymbosus (Bong.) Kunth and P. lanceolatus Körn. Recent collectors describe the plant as an acaulescent herb growing in clumps or large tufts, caespitose, the inflorescences to 25 cm. tall, and the flower-heads light gray-brown, light-gray, "light-gray around the edges, white in the center", or white, and have found it growing on steep rocky slopes, in crevices on steep iron-rich rocky slopes, on campos in areas of cerrado, sedge meadows (brejo), sandstone outcrops, and gallery forest, on campos in areas of forest along streams, adjacent rocky and grassy hillsides, and grassy campo on top of hills, in sandy soil with sandstone, and "common on rocky knolls with very fine sand which is light-gray because of a small humus content", at altitudes of 120 to 2000 meters, flowering from November to February and April to September, fruiting in November.

Material has been misidentified and distributed in herbaria as P. lanceolatus Körn. The Irwin, Maxwell, & Wasshausen 20031, cited below, is a mixture with P. plumipes Alv. Silv.

Additional citations: BRAZIL: Minas Gerais: Anderson, Stieber, & Kirkbride 36092 (Id); Archer 3674 (N, W--1705661); Eiten & Eiten 6784 (Rf); Hatschbach, Smith, & Ayensu 28714 (Rf); Heringer

6097 (N); Irwin, Harley, & Onishi 29030 (Ld), 30225 (Ac); Irwin, Maxwell, & Wasshausen 19619 (N, Rf), 20031, in part (N); Macedo 2975 (N, S); Maguire, Maguire, & Murça Pires 44680 (N, N), 44709 (N); Mello Barreto 1040 [Herb. Brad. 44473; Herb. Jard. Bot. Rio Jan. 28459] (B), 2478 (N), 2479 [Herb. Jard. Bot. Belo Horiz. 7889; Herb. U. S. Nat. Arb. 236398] (W--2109984), 2482 (N); Murça Pires & Black 2794 (Be--63250), 2906 (Be--63461); A. Silveira 361 (B--isotype); L. B. Smith 6835 (Z); Tryon & Tryon 6823 (Z); J. Vidal II.6105 (Ca--1169483).

PAEPALANTHUS BRUNNESCENS Ruhl. in Engl., Pflanzenreich 13 (4-30): 136. 1903.

Synonymy: Paepalanthus brunescens Ruhl. ex RENNÓ, Levant. Herb. Inst. Agron. 69, sphalm. 1960.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 125, 136, & 289. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Alv. Silv., Fl. Mont. 1: 106. 1928; Moldenke, Known Geogr. Distrib. Erioc. 10 & 45. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Moldenke, Résumé 95 & 485. 1959; RENNÓ, Levant. Herb. Inst. Agron. 69. 1960; Moldenke, Résumé Suppl. 3: 34. 1962; Moldenke, Fifth Summ. 1: 159 (1971) and 2: 578 & 948. 1971.

This species is based on Glaziou 19984 from Biribiry, Minas Gerais, Brazil, collected in flower in March and deposited in the herbarium of the Botanisches Museum at Berlin, where it was photographed by Macbride as his type photograph number 10575. Ruhland (1903) says "Species praesertim bractearum involucrentium colore et consistentia insignis, habitu P. plantagineo Koern. similis, caespitose crescens". Hatschbach found it "das anfratuosidades, dos paredões rochosos", flowering and fruiting in August.

Citations: BRAZIL: Minas Gerais: Glaziou 19984 [Macbride photos 10575] (B--type, N--photo of type, N--photo of type, W--photo of type, Z--isotype); Hatschbach 30079 (Ld); Lutz & Lutz 26 [Herb. Lutz 1642] (Z); Mendes Magalhães 535 [Herb. Jard. Not. Belo. Horiz. 34383] (N).

PAEPALANTHUS BRUNNEUS Moldenke, Phytologia 2: 379, nom. nud. (1947) and in Maguire, Bull. Torrey Bot. Club 75: 195--196. 1948.

Bibliography: Moldenke, Phytologia 2: 379. 1947; Moldenke in Maguire, Bull. Torrey Bot. Club 75: 195--196. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 66 & 208. 1949; Moldenke, Alph. List Cit. 3: 701. 1949; E. J. Salisb., Ind. Kew. Suppl. 11: 175. 1953; Moldenke, Résumé 75 & 485. 1959; Moldenke, Résumé Suppl. 4: 5. 1962; Moldenke, Phytologia 20: 297 & 346. 1970; Moldenke, Fifth Summ. 1: 124 & 130 (1971) and 2: 948. 1971.

This species is based on Maguire & Fanshawe 23020, said to have been "locally common", chiefly on white sand in secondary scrub forest at Amatuk Portage, Potaro River Gorge, Guyana, collected on April 27, 1944, deposited in the Britton Herbarium at the New York Botanical Garden, and described by the collectors as an erect

annual, to 10 cm. tall. Whitton says of it "a rarer plant than [no.] 13 [P. fasciculatus (Rottb.) Kunth] and probably of moister places; herb with basal rosettes of bright green leaves; fruiting heads of one specimen taken have seeds germinating", and found it growing in wet sandy ground in the open. Cowan & Soderstrom refer to it as a "frequent herb in boggy patches atop rocks in constant mist from falls", with dark-gray flower-heads, at an altitude of 700 feet, flowering in March. The species resembles Eriocaulon caesium Griseb. in general habit.

Citations: VENEZUELA: Bolívar: J. A. Steyermark 90718 (Z). GUYANA: Cowan & Soderstrom 2153 (Fg); Maguire & Fanshawe 23020 (N-type); Whitton 68 (K).

PAEPALANTHUS BRYOIDES (Riedel) Kunth, Enum. Pl. 3: 520. 1841.

Synonymy: Eriocaulon bryoides Riedel ex Bong., Ess. Monog. Erioc. 24. 1831. Eriocaulon bryoides Riedel & Bong. ex Steud., Nom. Bot., ed. 2, 1: 585. 1840. Eriocaulon bryoides Bong. ex D. Dietr., Syn. Pl. 5: 261. 1852. Paepalanthus bryoides Kunth ex Körn. in Mart., Fl. Bras. 3 (1): 277 & 351. 1863. Dupatya bryodes (Bong.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Eriocaulon bryodes Bong. ex Kuntze, Rev. Gen. Pl. 2: 745, in syn. 1891. Dupatya bryodes Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902. Dupatya bryoides Kuntze apud Ruhl. in Engl., Pflanzenreich 13 (4-30): 159, in syn. 1903. Syngonanthus brioides (Bong.) Kunth ex Rennó, Levant. Herb. Inst. Agron. 71. 1960.

Bibliography: Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 624 & 625, pl. 10 [sup.]. 1831; Bong., Ess. Monog. Erioc. 24 & 52-53, pl. 10 [sup.]. 1831; Steud., Nom. Bot., ed. 2, 1: 585. 1840; Kunth, Enum. Pl. 3: 520, 572, 573, 612, & 624. 1841; D. Dietr., Syn. Pl. 5: 261. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 276 & 333. 1855; Körn. in Mart., Fl. Bras. 3 (1): 277, 351-352, 507, & 508. 1863; 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): 152, 158-159, 162, [283], 285, & 289. 1903; Alv. Silv., Fl. Mont. 1: 402. 1928; Stapf, Ind. Lond. 3: 90. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Known Geogr. Distrib. Erioc. 10, 29, 33, & 45. 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; Moldenke, Alph. List Cit. 3: 855. 1949; Moldenke, Phytologia 4: 136-137. 1952; Mendes Magalhães, Anais V Reun. Anual Soc. Bot. Bras. 276-277. 1956; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 95, 279, 286, 323, & 485. 1959; Rennó, Levant. Herb. Inst. Agron. 69 & 71. 1960; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 877 (1960) and 2: 401. 1960; Moldenke, Résumé Suppl. 3: 35 (1962), 17: 9 (1968), and 18: 9. 1969; Moldenke, Phytologia 20: 340 & 357. 1970; Moldenke, Fifth Summ. 1: 159 & 478 (1971) and 2: 495, 578, 635, & 948. 1971.

Illustrations: Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6,

1: pl. 10 [sup.]. 1831; Bong., Ess. Monog. Erioc. pl. 10 [sup.]. 1831.

This species is based on L. Riedel 1416, collected in shady places in the Serra da Lapa, Minas Gerais, Brazil, flowering in November, and deposited in the Leningrad herbarium. Bongard's original (1831) description reads "exiguum; cauliculis confertis ramosis dense foliosis; foliis linearibus acuminatis pilosiusculis; pedunculis terminalibus fasciculatis pubescentibus; vaginis bifidis. Tab. X. E. bryoides Riedel MS. Habitat in rupibus, locis Serra da Lapa. Floret Novembri. ☉." Ruhland (1903) cites Glaziou 19987 & 19989, L. Riedel 1416, and Schwacke 8486, all from Minas Gerais and deposited in the Berlin herbarium; Silveira (1928) cites A. Silveira 234 from Diamantina, Minas Gerais, collected in 1908.

Kunth (1841) comments "Conf. cum P. congesto, perpusillo et fasciculato" [these taxa are now known as P. fasciculatus (Rottb.) Kunth, P. perpusillus Kunth, and P. bifidus (Schrad.) Kunth respectively]. Actually, P. bryoides is in habit most confusingly similar to Blastocaulon rupestre (G. Gardn.) Ruhl. and the Schwacke 8485 & 8486 collections have each been cited under both of these taxa! Possibly material of both taxa was accidentally placed in each of these consecutive numbers in the distribution by Schwacke. Ruhland notes (1903) "Ramificatione speciebus generis Blastocauli Ruhl. similis".

Bongard's illustration of Paepalanthus bryoides is often cited as plate 10, "fig. 1", and, in fact, is so referred to in the text of at least the reprint of his work. However, plate 10 (in at least the reprint) consists of an upper and a lower series of drawings. Only the upper set, labeled fig. 1--7, depicts P. bryoides. The lower set, labeled fig. 1--6, depicts Philodice cuyabensis (Bong.) Körn. I am therefore referring to the former as "pl. 10 [sup.]" and the latter as "pl. 10 [inf.]".

It is worth noting here that Bongard (1831) credits the binomial, Eriocaulon bryoides, to Riedel on page 24 of his reprint work, but gives no authority for it on pages 52--53 and on pl. 10 [sup.]; Kunth (1841) credits it to Riedel in his Enum. Pl. 3: 612, in syn.; Steudel (1855) credits it to Bongard on page 276 of his work, but to Riedel on page 333; Ruhland (1903) accredits it to Bongard.

Collectors have found Paepalanthus bryoides growing on campos, at altitudes of 900--1300 meters, flowering in September and from November to March. Irwin and his associates found it "forming mats beneath overhanging rocks in ravine with steep rocky walls", "in sandy cerrado and thickets with sandy pockets in outcrops", and "in shade of overhanging rocks on gallery margin" in an area of "cerrado on outcrops, brejo, and gallery forest". Anderson and his associates describe it as "forming a mess-like mat on sandstone shelves beneath protecting overhang" in an area of steep

rocky hillsides below sandstone cliffs, a stream at the base of the hills, and recently burned cerrado between the hills, and "forming a mat in dry sandy soil under an overhang" in a valley with very steep rocky sandstone sides sloping down to gallery forest, with sedge meadow (brejo) in places just above the forest.

The flower-heads are described as white or light gray-brown by collectors in the field. Brade 13604 gives evidence of the leaves and inflorescences having been tufted toward the ends of very long slender leafless stems, while Irwin and his associates state definitely that the stems ascend to a height of 20 cm.

Material has been misidentified and distributed in some herbaria under the names Blastocaulon rupestre (G. Gardn.) Ruhl. and Syngonanthus rupestris (Gardn.) Ruhl. On the other hand, the Williams & Assis 5798 & 6636, distributed as Paepalanthus bryoides, are both P. argillicola Alv. Silv.

Additional citations: BRAZIL: Minas Gerais: Anderson, Stieber, & Kirkbride 35232 (Ld), 35643 (Ac); Brade 13604 [Herb. Jard. Bot. Rio Jan. 25382] (B); Glaziou 19987 (Br, N, W--1112517), 19989 (Br, N); Hatschbach 27447 (Ft); Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 28578 (Ac, N); Irwin, Reis dos Santos, Souza, & Fonsêca 22303 (N, Z), 22694 (N, Rf); Mello Barreto 10129 [Herb. Jard. Bot. Belo Horiz. 24419] (N); L. Riedel 1416 (B--isotype, Br--isotype, N--photo of isotype, S--isotype, Ut--350--isotype, Z--photo of isotype); Schwacke 8485 [Herb. Jard. Bot. Belo Horiz. 26667], in part (N). Santa Catarina: Smith & Klein 13760 (W--2451595); Smith & Reitz 9881 (Ac). MOUNTED ILLUSTRATIONS: drawings & notes by Körnigke (B).

PAEPALANTHUS BULBOSUS Alv. Silv., Fl. Mont. 1: 184--186, pl. 119. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 184--186 & 403, pl. 119. 1928; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 10 & 45. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Moldenke, Résumé 95 & 485. 1959; Moldenke, Fifth Summ. 1: 159 (1971) and 2: 948. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 119. 1928.

The type of this species was collected by Álvaro Adolpho da Silveira (no. 784) in sandy fields between Diamantina and Serro, in the Serra Geral, Minas Gerais, Brazil, in June of 1925, and is deposited in the Silveira herbarium. On page 403 of his work (1928) Silveira gives the year of collection of the type as "1926" -- whether this is meant to be a correction of the date given in the original description, or is merely an error, is not clear. He comments that "Species a P. hemigloboso Alv. Silv. bracteis involucrentibus dorso fere glabris, caule robustiore, foliis majoribus et aliis characteribus distinctissima". Thus far, P. bulbosus is known only from the original collection.

PAEPALANTHUS CABRALENSIS Alv. Silv., Fl. Mont. 1: 220—222, pl. 146. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 220—222 & 403, pl. 146. 1928; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 10 & 45. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Mendes Magalhães, Anais V Reun. Anual Soc. Bot. Bras. 293. 1956; Moldenke, Résumé 95 & 485. 1959; Moldenke, Fifth Summ. 1: 159 (1971) and 2: 948. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 146. 1928.

This species is based on A. Silveira 592, collected "In pratis siccis per tota Serra do Cabral", Minas Gerais, Brazil, and is deposited in the Silveira herbarium. Silveira (1928) comments that "A. P. stereophyllo Ruhl. proximus, sed foliis caulinis, pilis bractearum perigoniorumque, pedunculis minoribus etc. distincta". It seem to me that it is also very similar to P. denudatus Körn. and P. nudus Alv. Silv.

Citations: BRAZIL: Minas Gerais: Mendes Magalhães 48277 (Z).

PAEPALANTHUS CACHAMBUENSIS Alv. Silv., Fl. Mont. 1: 50—52, pl. 27. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 50—52 & 403, pl. 27. 1928; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 10 & 45. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Moldenke, Phytologia 4: 137. 1952; Moldenke, Résumé 96 & 485. 1959; Rennó, Levant. Herb. Inst. Agron. 69. 1960; Moldenke, Phytologia 20: 303. 1970; Moldenke, Fifth Summ. 1: 159 (1971) and 2: 948. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 27. 1928.

This species is based on A. Silveira 641 from dry fields in the Morro do Cachambú [Caxambú], Minas Gerais, Brazil, collected in November of 1916 and deposited in the Silveira herbarium. The species bears great habitual similarity to P. aequalis (Vell.) J. F. Macbr. Material has been misidentified and distributed in some herbaria under the name Eriocaulon paludosum Bong.

Additional citations: BRAZIL: Minas Gerais: Andrade 1225 [Emmerich 1186] (Bd—16652); P. Clausen 37 (P), s.n. (Br); Mello Barreto 2563 [Herb. Jard. Bot. Belo Horiz. 4052] (N), 2566 [Herb. Jard. Bot. Belo Horiz. 10697] (N), 5083 [Herb. Jard. Bot. Belo Horiz. 14217] (N); Williams & Assis 7489 (Ca—744426).

PAEPALANTHUS CACUMINIS Ruhl. in Engl., Pflanzenreich 13 (4-30): 205. 1903.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 201, 205, & 289. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Moldenke, Known Geogr. Distrib. Erioc. 10 & 45. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Moldenke, Résumé 96 & 485. 1959; Moldenke, Fifth Summ. 1: 159 (1971) and 2: 948. 1971.

The type of this species was collected by E. B. Sena in wet

sandy soil at the summit of the Serra da Cachoeira do Campo, at 1500 meters altitude, Minas Gerais, Brazil, flowering in April and deposited in the herbarium of the Botanisches Museum at Berlin, where it was photographed by Macbride as his type photograph number 10576. Ruhland (1903) comments that the "Species foliis pro ratione brevibus, longissime et persistenter ciliatis distincta". Thus far, as far as I know, this taxon is known only from the original collection.

Citations: BRAZIL: Minas Gerais: Sena s.n. [Herb. Schwacke 14405; Macbride photo 10576] (B--type, N--photo of type, N--photo of type, W--photo of type, Z--isotype).

PAEPALANTHUS CAESPITITIUS Mart. ex Körn. in Mart., Fl. Bras. 3 (1): 365. 1863.

Synonymy: Eriocaulon kummerianum Mart. ex Körn. in Mart., Fl. Bras. 3 (1): 365, in syn. 1863. Paepalanthus caespiticius Mart. ex Körn. in Mart., Fl. Bras. 3 (1): 507, sphalm. 1863. Dupatya caespititia (Mart.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya caespititia Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 365 & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 878 (1893) and 2: 401. 1894; Malme, Bih. Svensk. Vet. Akad. Handl. 27 (3): no. 11: 29. 1901; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 124, 132, [283], 284, & 286. 1903; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 145. 1941; Moldenke, Known Geogr. Distrib. Erioc. 10, 29, 36, & 45. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 878 (1946) and 2: 401. 1946; Moldenke, Alph. List Cit. 2: 413 (1948) and 3: 855. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Moldenke, Phytologia 4: 137. 1952; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 145. 1959; Moldenke, Résumé 96, 279, 289, & 485. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 878 (1960) and 2: 401. 1960; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 173, 174, & 189. 1969; Moldenke, Fifth Summ. 1: 159 & 478 (1971) and 2: 504, 578, & 948. 1971.

This species was based by Körnicke on two collections: (1) P. Clausen 166 and (2) Martius 1082, both from Cachoeira do Campo, Minas Gerais, Brazil, and deposited in the Berlin Herbarium, where the latter was photographed by Macbride as his type photograph number 10577. Martius 1082 is also the type collection of Eriocaulon kummerianum Mart., deposited in the herbarium of the Naturhistorisches Museum at Vienna. Ruhland (1903) cites only the two original cotype collections and comments that the "Species foliorum facie statim dignoscenda".

Citations: BRAZIL: Minas Gerais: P. Clausen 166 (Br--cotype), s.n. [1840] (S); Martius 1082 [Macbride photo 10577] (B--cotype, N--photo of cotype, N--photo of cotype, S--cotype, W--photo of cotype). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B).

PAEPALANTHUS CALDENSIS Malme, Bih. Svensk. Vet. Akad. Handl. 27 (3), no. 11: 29--30, pl. 2, fig. 2. 1901.

Synonymy: Paepalanthus decipiens Ruhl. in Engl., Pflanzenreich 13 (4-30): 135. 1903. Paepalanthus ruhlandii Alv. Silv. ex Ruhl. in Engl., Pflanzenreich 13 (4-30): 159--160. 1903. Paepalanthus dusenii Ruhl. ex Moldenke, Known Geogr. Distrib. Erioc. 12 & 47, nom. nud. 1946. Paepalanthus caldense Malme ex Rambo, Sellowia 8: 283, sphalm. 1956. Paepalanthus tortilis var. albidus Ruhl. ex Moldenke, Fifth Summ. 2: 591, in syn. 1971.

Bibliography: Malme, Bih. Svensk. Vet. Akad. Handl. 27 (3), no. 11: 29--30, pl. 2, fig. 2. 1901; Ruhl. in Engl., Pflanzenreich 13 (4-30): 124, 135, 152, 159--160, 222, 289, & 291. 1903; Prain, Ind. Kew. Suppl. 3: 126. 1908; Alv. Silv., Fl. Mont. 1: 102, 118--120, 405, & 412, pl. 74. 1928; Stapf, Ind. Lond. 4: 518. 1930; A. W. Hill, Ind. Kew. Suppl. 9: 200. 1938; Worsdell, Ind. Lond. Suppl. 2: 183 & 184. 1941; Moldenke, Known Geogr. Distrib. Erioc. 10--12, 15, 46, 47, & 53. 1946; Moldenke, Phytologia 2: 374. 1947; Moldenke, Alph. List Cit. 2: 448 (1948), 3: 969 (1949), and 4: 1287. 1949; Rambo, An. Bot. Herb. Barb. Rodr. 1: 128. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82, 83, 87, 208, 209, & 211. 1949; Moldenke, Phytologia 3: 142 (1949), 4: 137 (1952), and 4: 200. 1953; Rambo, Sellowia 7: 248 & 283. 1956; Reitz, Sellowia 7: 124. 1956; Rambo, Sellowia 8: 283. 1956; Angely, Fl. Paran. 10: 5 & 14. 1957; Moldenke, Résumé 96, 97, 324, 328, 485, & 486. 1959; Reitz, Sellowia 11: 31 & 119. 1959; Moldenke, Résumé Suppl. 1: 6, 20, & 25. 1959; Angely, Fl. Paran. 16: 66 (1960) and 17: 24. 1961; Angely, Fl. Anal. Paran., ed. 1, 200. 1965; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 191. 1969; Reitz, Sellowia 22: 104. 1970; Moldenke, Fifth Summ. 1: 159 (1971) and 2: 581, 590, 591, & 948. 1971.

Illustrations: Malme, Bih. Svensk. Vet. Akad. Handl. 27 (3), no. 11: pl. 2, fig. 2. 1901.

This species was based by Malme on a series of specimens, all of which must be regarded as cotypes, all collected in Minas Gerais, Brazil, and all deposited in the herbarium of the Naturhistoriska Riksmuseum at Stockholm: Mosén 764, 765, 1054, 1055, & 4449, Regnell III.1268, and Widgren s.n. Paepalanthus ruhlandii was based on (1) "E. F. Sacupaly ex Alvaro Silveira in Herb. Comm. geol. e geogr. de Minas, n. 2941" from brooksides at Maria de Fé, Minas Gerais, collected in November of 1899 and (2) E. Ule 1620 from marshes on the campos of Serra do Oratorio, Santa Catarina, Brazil, collected in January of 1890, both deposited in the Berlin herbarium. Paepalanthus decipiens was based on Glaziou 7996 from Campos da Bocaina, near Cascatinha, São Paulo, Brazil, also deposited in the Berlin herbarium where it was photographed by Macbride as his type photograph number 10594. Paepalanthus dusenii appears to have been based on Dusén s.n. [21.10.1908] and Jönsson 123a in the Stockholm herbarium, both from Paraná, the latter photographed in the Berlin herbarium by Macbride as his type photo-

graph number 25165. Ruhland's P. tortilis var. albidus was based on Ule 1620 in the herbarium of the Botanisches Museum at Hamburg. It should be noted here that the later homonym, P. caldensis Alv. Silv., is a synonym of P. neocaldensis Moldenke.

Malme's original publication of this taxon is sometimes erroneously cited as "vol. 27 (3), no. 2" or "vol. 28 (11)".

Collectors have found this species growing in marshes and swamps, along brooks, and on boggy river margins, at altitudes of 700 to 1900 meters, flowering from October to January and in April, and fruiting in November. Vernacular names recorded for it are the inclusive "capim manso", "capipoetinga", "gravatá manso", and "sempreviva do campo". Ruhland cites for what he regarded as true P. caldensis only the cotypes, Mosén 764, 1054, 1055, & 4449, Regnell III.1269, and Widgren s.n., all from Minas Gerais, and comments "Species P. neglecto Koern. affinis esse dicitur; ex descriptione cl. Malmei P. decipienti Ruhl. proxima". For what he called P. ruhlandii he cites only the two cotypes and notes "Species habitu P. tortili Mart. subsimilis, sed vix affinis. Folia, pili, perigonia insignia. Specimina a cl. Silveira collecta Uleanis multo validiora." For what he calls P. decipiens he cites only the type collection and notes "Species habitu et pilis florum a praecedente [P. diplobeter Ruhl.] et sequente [P. freyreisii (Thunb.) Körn.] aliena". Silveira (1928), in his discussion of P. ruhlandii, cites only one collection: "Secus margines rivulorum prope Maria da Fé, Minas Geraes: Alvaro da Silveira, Nov. 1899; n. 235 in herbario Silveira", and comments "Species a cl. Ule, in locis paludosis, in S. Catharina, lecta. A P. tortili Mar. affinis, sed foliis, pilis et perigonio praecipue distincta". For P. decipiens he cites G. Edwall s.n. from the Serra da Mantiqueira, collected in 1922.

Additional citations: BRAZIL: Minas Gerais: Mosén 764 [30/10/1873] (N—photo of cotype, S—cotype, S—cotype, Z—photo of cotype), 765 [5/10/1873] (S—cotype), 1054 [1/12/1873] (Er—cotype, S—cotype, S—cotype), 1055 [20/11/1873] (S—cotype, S—cotype), 4449 [5/11/1875] (S—cotype, S—cotype); Regnell III.1268 [26/11/1864] (S), III.1268 [10/1/1874] (S—cotype, S—cotype, W—200763—cotype); A. Silveira 2941 (B); Ule 232, in part [Herb. Mus. Nac. Rio Jan. 29526] (N, N, S); Widgren s.n. [1845] (S—cotype). Paraná: Braga 1503 (W—2369355); Dombrowski 1899 [Kuniyoshi 1635] (Ac), 2039 [Kuniyoshi 1765] (Rf); Dombrowski & Saito 559/348 (Ac), 1032/849 (Ac); Dusén 2519 (S), 15620 (B, Br, S, W—1280827), s.n. [10.12.1903] (B), s.n. [21.10.1908] (B, S, S); Hatschbach 1555 (N), 2065 (N), 3192 (Z), 17744 (Ac), 22523 (N), 25342 (Ft), 27143 (Ac), 27660 (Ac), 28557 (Rf); Jönssen 123a [Macbride photos 25165] (B, N, N—photo, S, W—1470430, W—photo); Mattos 4748 (N); E. A. Moreira 74 [Herb. Inst. Hist. Nat. 6292] (W—2369339), 90 [Herb.

Inst. Hist. Nat. 6288] (W—2369341); E. Pereira 5182 (Bd—13346); Stellfeld 1064 (N); Tessmann 3071 (N), 3784 (N). Rio de Janeiro: Dusén s.n. [Rio de Janeiro, 1905] (S). Rio Grande do Norte: A. Lutz 1345 (Ja). Rio Grande do Sul: Bornmüller 758 (V); O. Camargo 62448 (S); Dutra s.n. [Martio 1936] (S); Emrich & Rambo 36784 (N); Rambo 30965 (N, N), 34684 (S), 49400 (Lm, N, S), 51541 (S). Santa Catarina: Pabst 6184 [E. Pereira 6357; Herb. Brad. 21961] (Lw); Reitz 1975 (N, S), 2695 (N), 3429 (S), C.1975 (S); Smith & Klein 7463 (N, Ok), 8203 (Ok), 10849 (Ok), 11001 (Ok), 13573 (Ac, N), 13979 (Ac); Smith & Reitz 8680 (Ok), 8979 (Ok), 9071 (Ok), 9882 (Ok), 14212 (Ac), 14322 (Ac); Smith, Reitz, & Klein 7682 (Ok); Ule 1620 (B, Hg, N—photo). São Paulo: Glaziou 7996 [Macbride photos 10594] (B, N—photo, N—photo, W—photo); Leite 3362 (N); Pabst 4837 (Bd—11044); Segadas-Vianna 2944 [Lev. Fitosociol. 510401-0102] (Ja), 3074 (Ja).

PAEPALANTHUS CALLOCEPHALUS Alv. Silv., Fl. Mont. 1: 29—31, pl. 13. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 29—32 & 403, pl. 13. 1928; A. W. Hill, Ind. Kew. Suppl. 9: 199. 1938; Worsdell, Ind. Lond. Suppl. 2: 183. 1941; Moldenke, Known Geogr. Distrib. Erioc. 10 & 46. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Moldenke, Résumé 96 & 485. 1959; Moldenke, Fifth Summ. 1: 159 (1971) and 2: 948. 1971.

The type and only known collection of this species in its typical form was made by Álvaro Adolpho da Silveira (no. 709) in sandy fields between Serro and Diamantina, in the Serra Geral, Minas Gerais, Brazil, in June of 1925 and is deposited in the Silveira herbarium. Silveira (1928) cites "Tabula XIII" for this taxon, but that plate actually depicts var. *villosus* Alv. Silv. He comments that the "Species indumento valde variabile praedita".

PAEPALANTHUS CALLOCEPHALUS var. *CILIATUS* Alv. Silv., Fl. Mont. 1: 31—32 [as "*ciliata*"]. 1928.

Synonymy: *Paepalanthus callocephalus* var. *ciliata* Alv. Silv., Fl. Mont. 1: 31. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 31—32 & 403. 1928; Moldenke, Known Geogr. Distrib. Erioc. 10 & 46. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 82 & 208. 1949; Moldenke, Résumé 96, 323, & 485—486. 1959; Moldenke, Fifth Summ. 1: 159 (1971) and 2: 579 & 948. 1971.

This variety is based on A. Silveira 749, collected in sandy places in the Serra do Chapadão near the Serra da Canastra, Minas Gerais, Brazil, in April of 1925, and is deposited in the Silveira herbarium. Silveira (1928), on page 403 of his work, cites the same collection number 749 as having been gathered at Chapada do Couto in 1918. Whether this is an error, or is intended as a correction of the data given with the original description, or the record of a second collection under the same number, is not clear.

[to be continued]