

ADDITIONAL NOTES ON THE ERIOCAULACEAE. LXXXI

Harold N. Moldenke

For a detailed explanation of the herbarium acronyms employed in this paper and in all other papers in this series in this journal, see my Fifth Summary 2: 795--801 (1971).

ERIOCAULACEAE Lindl.

Additional & emended bibliography: Stapf in Johnston, Liberia 2: 662. 1906; Koidz., Icon. Pl. Koisak. 1: 157, pl. 79. 1913; Matsum., Icon. Pl. Koisikav. 1: 158, pl. 79. 1913; Lecomte, Bull. Soc. Bot. Lyon. 38: 114. 1914; Ule, Engl. Bot. Jahrb. 52, Beibl. 115: 42--53. 1914; Fedde & Schust., Justs Bot. Jahresber. 41: 13. 1916; Koidz., Feddes Repert. Spec. Nov. 15: 174. 1918; Fedde & Schust., Justs Bot. Jahresber. 42: 12--13. 1920; Wangerin, Justs Bot. Jahresber. 42: 395. 1921; Haines, Bot. Bihar & Orissa, ed. 1, 6: 1066--1071. 1924; Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 1, 2: 324 & 326--328, fig. 292. 1931; Bond, Wild Fls. Ceyl. Hills xiii, 232--233, & 239, pl. 120. 1953; Haines, Bot. Bihar & Orissa, ed. 2, 3: 1114--1120. 1961; Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 57--67 & 540, fig. 336--339. 1968; Anon., Bibliog. Agricult. 35: 174 & 425. 1971; Fonseka & Vinasithamby, Prov. List Local Names Flow. Pl. Ceyl. 29, 49, & 70. 1971; Shosteck, Flow. & Pl. 208. 1974; Hocking, Excerpt. Bot. A.25: 378--380 (1975) and A.26: 29 & 89--90. 1975; Spellman, Dwyer, & Davidse, Rhodora 77: 124. 1975; Bouchard & Hay, Rhodora 78: 256. 1976; Hocking, Excerpt. Bot. A.25: 378--380 (1975), A.26: 29 & 89--90 (1975), and A.28: 170, 171, & 259. 1976; Cleens & De Ley, Bot. Rev. 42: 403. 1976; Kral, Rhodora 78: 444. 1976; Moldenke, Biol. Abstr. 61: 4884. 1976; Moldenke in Steyerl. & Brewer-Carías, Bol. Soc. Venez. Cienc. Nat. 132/133: 281--286, fig. 3 & 4. 1976; Monteiro-Scanavacca & Mazzoni, Bol. Bot. Univ. S. Paulo 4: [105]--111, fig. 1--16. 1976; Monteiro-Scanavacca, Mazzoni, & Giulietti, Bol. Bot. Univ. S. Paulo 4: [61]--72, fig. 1--14. 1976; Rogerson & Becker, Bull. Torrey Bot. Club 103: 192. 1976; Steyerl. & Brewer-Carías, Bol. Soc. Venez. Cienc. Nat. 132/133: 181--183, 197, 199, 200, 237, & 240. 1976; Batson, Gen. East. Pl. 40, 191, 195, & 201. 1977; "M. P. B." [Moldenke], Biol. Abstr. 63: 6594. 1977; Lelong, Sida 7: 127. 1977; Moldenke, Biol. Abstr. 63: 2452, 2461, 3041, & 6590 (1977) and 64: 686, 1838, 2433, 2445, 4787, 5384, & 6581. 1977; Moldenke, Phytologia 36: 468--497, 501--504, 506--508, 510, & 511 (1977), 37: 22--58, 68--97, 252--275, 420--423, 485--499, 504, 506, & 508--512 (1977), and 38: 23--50 & 118--134. 1977; H. N. & A. L. Moldenke, Cord. Greet. 1 & 4. 1977; Noblick, Annot. List Herb. Spec. M. Mitch. Assoc. 81 & 218. 1977; Periasamy, Proc. India Acad. Sci. 868: 11. 1977; Poole, Rhodora 79: 312. 1977; Poppeton, Shuey, & Sweet, Fla. Scient. 40: 372. 1977; Richardson,

Fla. Scient. 40: 302 & 303. 1977; Rogerson, Becker, & Prince, Bull. Torrey Bot. Club 104: 410. 1977; B. C. Stone, Henderson's Malay. Wild Fls. Append. 23. 1977; Stuckey & Roberts, Sida 7: 32. 1977; J. Taylor, Cat. Vasc. Aquat. Wetl. Pl. Okla. [Herb. SE. Okla. St. Univ. Publ. 1:] 24, 49, 54, & 59. 1977; Anon., Biol. Abstr. 65 (8): C.22. 1978; Anon., Roy. Bot. Gard. Kew. Lib. Curr. Aware. List 7: 29 (1978) and 8: 33. 1978; Curtin in Lapedes, McGraw-Hill Dict. Scient. Techn. Terms, ed. 2, 555. 1978; Eiten, Vegetatio 36: 174. 1978; Moldenke, Biol. Abstr. 65: 78, 3117, 3719, & 4341. 1978; Moldenke, Phytologia 38: 178—202, 506, 507, 509, & 511 (1978), 39: 161, 510, & 512 (1978), 40: 261, 316, 509, & 511 (1978), and 41: 10. 1978; Rogerson, Becker, & Prince, Bull. Torrey Bot. Club 105: 83—84 & 164. 1978; Satake, Journ. Jap. Bot. 53: 107—111, fig. 1 & 2. 1978; Scoggan, Fl. Canada 2: 459. 1978.

Curtin (1978) gives an interesting "definition" of this family of plants: "an order of monocotyledonous plants in the Subclass Commelinidae, having a perianth reduced or lacking, and having unisexual flowers aggregated on a long peduncle". He uses the Order name Eriocaulales.

BLASTOCAULON Ruhl.

Additional bibliography: Moldenke, Biol. Abstr. 64: 686. 1977; Moldenke, Phytologia 36: 469 & 501 (1977) and 37: 78 & 504. 1977; Moldenke, Biol. Abstr. 65: 78. 1978.

BLASTOCAULON ALBIDUM (G. Gardn.) Ruhl.

Additional bibliography: Moldenke, Phytologia 34: 391. 1976.

Additional citations: BRAZIL: Minas Gerais: Mexia 5779 (Au—26721).

BLASTOCAULON RUPESTRE (G. Gardn.) Ruhl.

Additional bibliography: Moldenke, Phytologia 34: 391 (1976) and 37: 78. 1977.

Additional citations: BRAZIL: Minas Gerais: Mexia 5780 (Au—26801).

CARPTOTEPALA Moldenke

Additional bibliography: Moldenke, Phytologia 36: 469 & 502. 1977; Moldenke, Biol. Abstr. 64: 686 (1977) and 65: 78. 1978.

COMANTHERA L. B. Sm.

Additional bibliography: Moldenke, Phytologia 36: 469 & 503 (1977) and 37: 493. 1977; Moldenke, Biol. Abstr. 64: 686 (1977) and 65: 78. 1978.

COMANTHERA KEGELIANA (Körn.) Moldenke

Additional bibliography: Moldenke, Phytologia 36: 469 (1977) and 37: 493. 1977; Moldenke, Biol. Abstr. 65: 78. 1978.

ERIOCAULON Gron.

Additional & emended bibliography: Stapf in Johnston, Liberia 2:

662. 1906; Fedde & Schust., Justs Bot. Jahresber. 41: 13. 1916; Koidz., Feddes Repert. Spec. Nov. 15: 174. 1918; Fedde & Schust., Justs Bot. Jahresber. 42: 12—13. 1920; Haines, Bot. Bihar & Orissa, ed. 1, 6: 1066—1071. 1924; Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 1, 2: 324 & 326—327. 1931; Bond, Wild Fls. Ceyl. Hills xiii, 232—233, & 239, pl. 120. 1953; R. C. Foster, Contrib. Gray Herb. 184: 39. 1958; Haines, Bot. Bihar & Orissa, ed. 2, 3: 1114—1120. 1961; Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 57—64, fig. 336—338. 1968; Fonseka & Vinasithamby, Prov. List Local Names Flow. Pl. Ceyl. 29, 49, & 70. 1971; Shosteck, Flow. & Pl. 208. 1974; Spellman, Dwyer, & Davidse, Rhodora 77: 124. 1975; Hocking, Excerpt. Bot. A.25: 378 & 479 (1975) and A.28: 170. 1976; Bouchard & Hay, Rhodora 78: 256. 1976; Mold. in Steyerl. & Brewer-Carías, Bol. Soc. Venez. Cienc. Nat. 132/133: 281. 1976; Monteiro-Scanavacca, Mazzoni, & Giuliatti, Bol. Bot. Univ. S. Paulo 4: 65 & 66. 1976; Batson, Gen. East. Pl. 40 & 191. 1977; Lelong, Sida 7: 127. 1977; Moldenke, Biol. Abstr. 63: 2461 (1977) and 64: 686. 1977; Moldenke, Phytologia 36: 469—493 & 504 (1977), 37: 24, 26, 30, 31, 45, 50, 55, 58, 69, 76, 77, 79, 80, 87—89, 257, 263, 264, 271, 272, 422, 423, 485—489, 496, & 506 (1977) and 38: 23, 26, 39, 40, 46, 47, 118, 120, 126, 129, 131, & 132. 1977; Noblick, Annot. List Herb. Spec. M. Mitch. Assoc. 81 & 218. 1977; Poppeton, Shuey, & Sweet, Fla. Scient. 40: 372. 1977; Richardson, Fla. Scient. 40: 302. 1977; Stuckey & Roberts, Sida 7: 32. 1977; Periasamy, Proc. Indian Acad. Sci. 868: 11. 1977; B. C. Stone, Henderson's Malay. Wild Fls. Append. 23. 1977; J. Taylor, Cat. Vasc. Aquat. Wetl. Pl. Okla. [Herb. SE. Okla. St. Univ. Publ. 1:] 24, 49, 54, & 59. 1977; Craig, Proc. Fla. State Hortic. Soc. 90: 110. 1978; Moldenke, Biol. Abstr. 65: 78. 1978; Moldenke, Phytologia 38: 180, 190—192, 203, & 506. 1978; Satake, Journ. Jap. Bot. 53: 110. 1978; Scoggan, Fl. Canada 2: 459. 1978.

The W. V. Brown s.n. [June 18, 1941] and Taylor & Taylor 5215, distributed as Eriocaulon sp., actually are Lachnocaulon beyrichianum Sporleder, while Cardona Puig 2864 is a species of Iyris.

ERIOCAULON ABYSSINICUM Hochst.

Additional & emended bibliography: Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 1, 2: 326. 1931; Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 58, 61, & 63, fig. 338/19. 1968; Moldenke, Phytologia 34: 392. 1976.

Additional illustrations: Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 61, fig. 338/19. 1968.

Meikle (1968) characterizes this species as "Small and inconspicuous; scapes few, 1 1/2 — 3 1/2 in. high; leaves narrowly subulate; capitula greyish-fuscous, subglobose, 2—3 mm. diam.", citing Hepper 1126 and Lely P.786 from Northern Nigeria, listing it also from Ethiopia, Kenya, Uganda, Tanzania, Rhodesia, and South Africa, flowering in October.

ERIOCAULON ACHITON Körn.

Additional & emended bibliography: Haines, Bot. Bihar & Orissa, ed. 1, 6: 1067 & 1070—1071 (1924) and ed. 2, 3: 1115 & 1119. 1961; Moldenke, Phytologia 36: 470. 1977; Moldenke, Biol. Abstr. 65: 78. 1978.

ERIOCAULON ADAMESII Meikle

Additional & emended bibliography: Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 58, 61, & 64, fig. 338/26. 1968; Moldenke, Phytologia 29: 87. 1974.

Emended illustrations: Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 61, fig. 338/26. 1968.

Meikle (1968) characterizes this species as a "Slender annual; scapes erect, to about 4 in. high; leaves numerous, narrowly subulate; capitula globose, 2—3.5 mm. diam., greenish, without noticeable involucre bracts", citing Adames 91, 97, & s.n. [Herb. Deighton 4151], Deighton 5630, Dinklage 3009, Harvey 112, and Jordan 621, all from Sierra Leone, flowering in January and from September to November.

ERIOCAULON AFZELIANUM Wikstr.

Additional synonymy: Eriocaulon heterochiton Lecomte (in part) apud Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 62, in syn. 1968 [not E. heterochiton Körn., 1867, nor "sensu Lecomte", 1968, nor A. Chev., 1959].

Additional bibliography: Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 1, 2: 326 & 327. 1931; Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 58, 59, & 62—63, fig. 336/10. 1968; Moldenke, Phytologia 34: 392. 1976.

Illustrations: Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 59, fig. 336/10. 1968.

Meikle (1968) includes here as synonyms E. kouroussense Lecomte and E. heterochiton Lecomte, in part (not E. heterochiton Körn.). He characterizes the species as having "Scapes erect, few to numerous, peduncles shining, pale brown, capitula depressed-globose, to about 5 mm. diam., involucre bracts pale brownish". He cites the following collections: SÉNÉGAL: Berhaut 6633 & 6769, Raynal 6795. GUINEA: Chevalier 18810bis, Jacques-Félix 7327, Pobéguin 615, Schnell 7448. SIERRA LEONE: Adames 246, Afzelius s.n., Dawe 417, Jordan 163, Melville & Hooker 283. IVORY COAST: DeWilde 937. GHANA: Hall CC.905, Harris s.n., Morton GC.9823b, Vigne FH.4607. NIGERIA: Northern: Barter 1019, Hepper 1236. Southern: Stanfield 561. He lists the species also from Chad.

The "E. heterochiton sensu Lecomte" of Meikle (1968) is E. irregulare Meikle, while the E. heterochiton of Chevalier is E. plumale N. E. Br.

ERIOCAULON ALPINUM Van Royen

Additional bibliography: Moldenke, Phytologia 34: 393. 1976.

Recent collectors describe this plant as having leaves "mid- to dark-green, shiny or semi-glossy", the "flowers light-green" or the "corolla more or less colorless, anthers black", the roots white, forming small, flat, hard mats in Gleichenia vulcanica dominated subalpine recently fired bogs or forming hard compact cushions extending under water in hard cushion bogs surrounding tarns, the submerged leaves larger, darker, and more attenuate, at 3000—3300 meters altitude, flowering in April and May.

Additional citations: NEW GUINEA: Territory of New Guinea: Bar-ker LAE.66938 (Mu); Croft & Leleal LAE.65869 (Mu).

ERIOCAULON ANGUSTIFOLIUM Körn.

Additional bibliography: Moldenke, *Phytologia* 32: 464. 1975.

Recent collectors describe this plant as an aquatic herb in very slowly running water to 1 meter deep, the leaves submerged, and the flowers borne only about 3 cm. above the water level. They have found it in flower and fruit in September.

Additional citations: BRAZIL: Goiás: Haas, Haas, & Belém 227 [Herb. Brad. 49021] (N).

ERIOCAULON AQUATICUM (J. Hill) Druce

Additional bibliography: Moldenke, *Phytologia* 36: 471. 1977; Scoggan, *Fl. Canada* 2: 459. 1978.

ERIOCAULON ARGENTINUM Castell.

Additional bibliography: Moldenke, *Phytologia* 36: 471 & 480. 1977.

Additional citations: ARGENTINA: Corrientes: Krapovickas, Cris-tóbal, Arbo, Marufiak, Marufiak, & Irigoyen 17252 (Ld).

ERIOCAULON ATRATUM Körn.

Additional bibliography: Moldenke, *Phytologia* 36: 472. 1977.

Hepper refers to this plant as "shortly tufted" and encountered it "in wet flush with melastomaceous shrubs" at 6300 feet altitude.

Additional citations: SRI LANKA: Hepper 4428 (N); Sohmer & Sumithraarachchi 9863 (N).

ERIOCAULON ATRATUM var. **MAJOR** Thwaites

Additional bibliography: Moldenke, *Phytologia* 36: 472. 1977

Recent collectors describe this plant as an herb, 33 cm. tall, the flower-heads white or fuscous, and found it growing in montane or in secondary montane forests, at 1700—1735 meters altitude, flowering in February and December.

Additional citations: SRI LANKA: Bernardi 16091 (W—2876012); Waas 1138 (W—2769021).

ERIOCAULON BENTHAMII Kunth

Additional bibliography: Moldenke, *Phytologia* 36: 473. 1977.

Additional citations: MEXICO: Jalisco: R. McVaugh 20473 (Au—

263333). Michoacán: Barkley, Paxson, & Webster 2736 (Au--166193); Iltis, Koeppen, & Iltis 409 (Au--226948).

ERIOCAULON BIFISTULOSUM Van Heurck & Muell.-Arg.

Additional & emended bibliography: Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 1, 2: 326. 1931; Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 62. 1968; Moldenke, Phytologia 34: 395. 1976.

Additional illustrations: Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 60, fig. 337/9. 1968.

Hutchinson & Dalziel (1931) characterize this species as "An almost submerged aquatic in swamps" and cite Barter 1021, Caille s.n. [Herb. Chevalier 14958], Chevalier 22251, and Lane-Poole 431 from French Guinea, Sierra Leone, Ivory Coast, Northern Nigeria, Sudan, and Rhodesia, flowering in March, August, September, and November. Meikle (1968) adopts E. setaceum L. as the proper name for the species; in fact, he regards E. limosum Engl. & Ruhl., E. bifistulosum Van Heurck & Muell.-Arg., and E. melanocephalum Kunth as synonyms of E. setaceum L., characterizing the species as a "Floating aquatic; stems elongate, clothed with numerous filiform leaves; scapes generally numerous; capitula blackish, small, seldom exceeding 4 mm. diam." He cites the following African collections: SÉNÉGAL: Berhaut 6502. MALI: Davey 22, Monod s.n. GUINEA BISSAU: Esp. Santo 2195. GUINEA: Adames 374, Jacques-Félix 7361, Schnell 7056. SIERRA LEONE: Adames 94, Deighton 2794, Jordan 815, Marmo 226. LIBERIA: Adames 566. GHANA: Hall CC.431. NIGERIA: Northern: Barter 1021, Hepper 1030, Latilo & Daramola FHI.28884, Lawlor & Hall 441. He lists it as flowering from August to December and in February.

ERIOCAULON BONGENSE Engl. & Ruhl.

Additional & emended bibliography: Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 1, 2: 325--327. 1931; Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 58, 61, & 63, fig. 338/18. 1968; Moldenke, Phytologia 29: 94 (1974) and 31: 397. 1975.

Emended illustrations: Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 61, fig. 338/18. 1968.

Meikle (1968) says of this species: "Plants robust, sometimes 1 ft. high; leaves rather few; capitula depressed-globose or sometimes subconical when fully mature, 5--8 mm. diam.; involucre bracts stramineous, flowers and floral bracts shining silvery-grey". He cites the following collections: SÉNÉGAL: Berhaut 6662, Dawe 23. GHANA: Adams & Akpabla 4155, 4398, Hall CC.905a, Morton GC.6272. NIGERIA: Northern: Barter 1019a, Dalziel 239, Meikle 1015. Southern: Daramola FHI.438, Stanfield 55, 132, 133. He lists it also from the Sudan and Central African Empire.

ERIOCAULOM BREVISCAPUM Körn.

Additional bibliography: Haines, Bot. Bihar & Orissa, ed. 1, 1068 (1924) and ed. 2, 3: 1116. 1961; Moldenke, Phytologia 36: 473. 1977.

ERIOCAULON BROWNIANUM Mart.

Additional & emended bibliography: Bond, Wild Fls. Ceyl. Hills xiii, 232, 233, & 239, pl. 120. 1953; Moldenke, Phytologia 36: 473—474, 485, & 493. 1977.

Emended illustrations: Bond, Wild Fls. Ceyl. Hills 233, pl. 120. 1953.

ERIOCAULON BROWNIANUM var. **LATIFOLIUM** Moldenke

Additional bibliography: Moldenke, Phytologia 36: 473—474. 1977.

Additional citations: SRI LANKA: Hepper 4418 (Ac).

ERIOCAULON CHRISTOPHERI Fyson

Additional bibliography: Fedde & Schust., Justs Bot. Jahresber. 42: 12. 1920; Moldenke, Phytologia 24: 349. 1972.

ERIOCAULON CINEREUM R. Br.

Additional & emended bibliography: Haines, Bot. Bihar & Orissa, ed. 1, 6: 1066 & 1068 (1924) and ed. 2, 3: 1114 & 1116. 1961; Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 58, 60, & 63, fig. 337/21. 1968; Hepper in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 540. 1972; Moldenke, Biol. Abstr. 64: 686. 1977; Moldenke, Phytologia 36: 474 & 492 (1977), 37: 422 & 423 (1977), and 38: 46 & 47. 1977.

Emended illustrations: Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 60, fig. 337/21. 1968.

In regard to the Nelson 1173, cited below, the collector describes it as having "leaves basal, stems fine, to 3 1/2 inches high, inflorescence whitish, common in mud in low-lying swamp in creek-bed". It was in flower and fruit in June. Miss Sheila S. Hooper, at Kew, writes in a letter to me dated July 11, 1977: "The heads are smaller than in the type of E. ciliiflorum but the floral structure agrees." In regards to Dunlop 3388, previously cited as E. schultzii Benth., the collector notes that it was growing as an "annual in organic sludge in rock hole in sandstone conglomerate. It was found in flower and fruit in February and Miss Hooper says of it: "NOT completely matched. It can not be E. schultzii because the anthers are yellow not black and the flowers and seeds are much smaller. It looks rather like E. monoscapum but the anthers are black there too. A specimen which someone has labelled cf. sieboldianum seems close".

Meikle (1968) describes E. cinereum as having "Scapes slender, usually less than 4 in. high; leaves numerous, setaceous; capitula small, about 2.4—3 mm. diam., brownish or fuscous", re-

cording it from "Chad, Tanzania, tropical Asia, China, Japan and Australia" and citing the following collections: SENEGAL: Heudelot 677. MALI: DeWailly 5002, 5006a, Jaeger 5581. GUINEA: Macclaud 03.9.105, Pitot s.n. SIERRA LEONE: Jordan 943. GHANA: Hall CC. 742, CC.885, Hinds 5005. He regards as synonyms E. sieboldianum Sieb. & Zucc. and E. heudelotii N. E. Br.

Wirawan reports E. cinereum common along margins of villus and refers to the heads as white.

Additional citations: LOUISIANA: Vermilion Par.: R. H. Blanchet s.n. [14 October 1970] (Ld). SRI LANKA: Moldenke, Moldenke, & Albert 28320 (Ld); Wirawan 1018 (N). AUSTRALIA: Northern Territory: C. Dunlop 3388 (Z); D. J. Nelson 1173 [Herb. North. Terr. 11305] (Z).

ERIOCAULON COLLINUM Hook. f.

Additional & emended bibliography: Haines, Bot. Bihar & Orissa, ed. 1, 6: 1066 & 1069 (1924) and ed. 2, 3: 1114 & 1117. 1961; Hocking, Excerpt. Bot. A.25: 379. 1975; Moldenke, Phytologia 36: 475 & 492. 1977.

Additional citations: SRI LANKA: Sohmer & Sumithraarachchi 10029 (N).

ERIOCAULON COMPRESSUM Lam.

Additional bibliography: Moldenke, Phytologia 36: 475 (1977) and 37: 271 & 272. 1977; Poppeton, Shuey, & Sweet, Fl. Scient. 40: 372. 1977.

Lakela and her associates assert that in the Tampa Bay area of Florida this species grows in "wet soil and shallow waters [of] swamps", flowering in summer. They call it the "lesser pipewort".

The R. McVaugh 8456, W. P. Rhodes s.n. [August 1925], and Turner 68, distributed as E. compressum, actually are E. decangulare f. parviceps Moldenke.

Additional citations: SOUTH CAROLINA: Berkeley Co.: Ahles, Radford, Ornduff, & Baker 56515 (Ld). Jasper Co.: Ahles, Radford, & Ornduff 56507 (Au—218439). FLORIDA: Jackson Co.: Hood 1551 (Au—26757). Martin Co.: Correll & Popenoe 48037 (Ld). Walton Co.: R. Kral 19844 (Au—245598); Taylor & Taylor 5255a (Ld). LOUISIANA: Saint Tammany Par.: R. Kral 16508 (Ld). TEXAS: Hardin Co.: G. E. Watson s.n. [March 15, 1971] (Ld).

ERIOCAULON COMPRESSUM var. **HARPERI** Moldenke

Additional bibliography: Moldenke, Phytologia 32: 470. 1975.

Recent collectors have encountered this plant "in grassy openings adjacent to streams with Acer, Cyrilla, Taxodium, and Nyssa biflora", as well as in pine barrens.

The Blake 10665, previously cited by me as E. compressum var. harperi, may actually represent E. decangulare f. parviceps Moldenke.

Additional citations: FLORIDA: Bay Co.: R. Kral 19800 (Au—245582). Escambia Co.: R. Kral 19880 (Au—245553, Ld). Walton Co.: R. Kral 19808 (Au—245550, Ld). ALABAMA: Baldwin Co.: Crockett 438 (Ld). Mobile Co.: R. Kral 26526 (Au—245572). MISSISSIPPI: George Co.: R. Kral 19854 (Au—245584). Jackson Co.: Demaree 28664 (Au—26758). LOUISIANA: Saint Tammany Par.: Thieret 19753 (Ld).

ERIOCAULON DALZELLII Körn.

Additional & emended bibliography: Haines, Bot. Bihar & Orissa, ed. 1, 6: 1066—1068 (1924) and ed. 2, 3: 1114—1116. 1961; Hocking, Excerpt. Bot. A.25: 379. 1975; Moldenke, Phytologia 36: 474 & 476. 1977.

ERIOCAULON DECANGULARE L.

Additional bibliography: Lelong, Sida 7: 127. 1977; Moldenke, Phytologia 36: 476 & 490. 1977; Richardson, Fla. Scient. 40: 302. 1977; J. Taylor, Cat. Vasc. Aquat. Wetl. Pl. Okla. [Herb. SE. Okla. St. Univ. Publ. 1:] 24. 1977; Scoggan, Fl. Canada 2: 459. 1978.

Lelong (1977) found this species "infrequent" along pond margins. Other recent collectors have found it growing in "borrow-pits in chalky rock", by ponds, and "common in moist sandy soil and seasonally wet depressions". The label on Lundell & Lundell 11902, in the Austin herbarium, states "perennial herb, corolla yellow, anthers orange", undoubtedly due to some error in transcription from fieldbook notes.

The N. C. Henderson 63-1136, distributed as typical E. decangulare, seems better placed as var. latifolium Chapm., while Lundell & Lundell 12954 is var. minor Moldenke, and Blake 7989 & 10665, Cory 49945, Gould & Leinweber 6532, C. L. Lundell 11793, Lundell & Lundell 11527, Shacklette 7150, J. Taylor 22110, Tharp, Gimbrede, & Yang 51-1449, and Tharp, Turner, & Johnston 54922 are f. parviceps Moldenke.

Additional citations: NEW JERSEY: County undetermined: Knieskern s.n. (Mi). NORTH CAROLINA: Brunswick Co.: Godfrey 48396 (Ld). Carteret Co.: Helms & Helms 1188 (Au—272136, Ld). Columbus Co.: W. V. Brown s.n. [August 13, 1941] (Au—217136). Craven Co.: W. V. Brown 2338 (Au—26752). SOUTH CAROLINA: Berkeley Co.: Ahles & Haesloop 26429 (Ld). Darlington Co.: Radford & Stewart 397 (Au—26754). Hampton Co.: Bell 3891 (Au—179631). GEORGIA: Glynn Co.: W. V. Brown s.n. [June 22, 1940] (Au—211573). Blackbeard Island: Duncan 20365 (Au—164915, Mi). FLORIDA: Escambia Co.: M. Morgan P.1 (Au—20352, Au—232212). Hernando Co.: Howard 12953 (Au—26760). Hillsborough Co.: Lakela 24288 (Ld); Ray, Lakela, & Patman 10062 (Ld—68000). Martin Co.: Correll & Popenoe 48038 (Ld). Orange Co.: Howard 12953 (Mi). Taylor Co.: Lazor 3748 (Ld). ALABAMA: Pike Co.: Leland 21 (Au—26745). MISSISSIPPI: Harrison Co.: Demaree 29766 (Au—26755, Au—26756), 32447a (Au—26746). Jackson Co.: Demaree 32202 (Au—26747); A. S. Seymour 16 (Au—26743),

91831 (Au--180362). Pearl River Co.: R. Kral 17331 (Au--245564). LOUISIANA: Vernon Par.: R. Kral 20651 (Au--245570). TEXAS: Angelina Co.: R. S. Mitchell 4007 (Ld). Bastrop Co.: Duval 174 (Au--291120). Hardin Co.: Lundell & Lundell 11482 (Ld--288861), 11902 (Ld, Ld).

ERIOCAULON DECANGULARE var. LATIFOLIUM Chapm.

Additional bibliography: Moldenke, *Phytologia* 29: 103, 107, & 109. 1974.

Recent collectors have found this plant growing in roadside ditches.

Additional citations: FLORIDA: Wakulla Co.: N. C. Henderson 63-1136 (Au--229896).

ERIOCAULON DECANGULARE var. MINOR Moldenke

Additional bibliography: Moldenke, *Phytologia* 29: 107 & 109. 1974.

Recent collectors have found this plant growing in moist places in bogs, "abundant in peatbogs surrounded by hardwood and tupelo woodland with Sisyrinchium, Sarracenia, Carex, and Xyris", "occasional in marsh areas with scattered trees and hillside seepage from springs", "in peatbogs associated with Sarracenia, Iris, and Myrica", in marshes and bogs, and "scattered but frequent in muck with Sphagnum and Sarracenia". The flowers are described as "white" on Crutchfield 2640 and Nixon & Chambless 1848. The plant has been collected in anthesis and fruit in May. The heads are rather stiff and hard on Kral 17208, much more like those of f. parviceps Moldenke.

The Lundell & Lundell 12954, cited below, was previously cited by me as typical E. decangulare before the present taxon was recognized.

Additional & emended citations: LOUISIANA: Beauregard Par.: R. Kral 17208 (Au--245568). Vernon Par.: R. Kral 17223 (Au--245567). TEXAS: Freestone Co.: Lundell & Lundell 12954 (Ld, Ld). Hardin Co.: D. S. Correll 32965 (Ld). Jasper Co.: Nixon & Chambless 1848 (Ld). Leon Co.: Crutchfield 2640 (Ld). Robertson Co.: Massey 911 (Ld); McCaleb 92 (Au--26775); Rowell 8071 (Au--26772); Waddle 298 (Au--194568).

ERIOCAULON DECANGULARE f. PARVICEPS Moldenke

Additional bibliography: Moldenke, *Phytologia* 36: 476. 1977.

Recent collectors have encountered this plant along the marshy edges of brooks in pinelands, "in severely cutover longleaf pine 'crayfish flats' with much myrtle and sweetgum shrubbery", at the edges of swamps in pinelands, in wet pinelands, in clumps on savannas, in savanna-evergreen shrub bogs", "abundant in sandy soil along brooks in cutover longleaf pine woods", "abundant in ditches bordering Muhlenbergia-Arundinaria grass savannas with some Clethra and Cyrilla", "frequent in Sarracenia bogs", "in Sphagnum bogs in forests on hillsides", "common in marshy areas", in bogs and "adjacent areas in Antlers Sand formation [Oklahoma]", roadside pools, pine-palmetto swamps, and "abundant in saturated soil, muck, or standing water of bogs in sun or shade with Myrica, Xyris, Rhexia, and Sarracenia". It has been found flowering and fruit-

ing from May to October. The heads are described as "white", "whitish" or "bright-white". The vernacular name, "pipewort", is recorded. The Shacklette 7150, collected "in sandy muck soil and dense shade of swamp forest", has flower-heads which have pressed flat, much like those of E. compressum Lam.

Material of this taxon has been distributed in many herbaria as E. compressum Lam., E. compressum var. harperi Moldenke, E. decangulare L., E. texense Körn., and Lachnocaulon anceps "(Walt.) Moray". Of the collections cited below Blake 10665 was previously incorrectly cited by me as E. compressum var. harperi Moldenke, Tharp, Turner, & Johnston 54954 as E. texense Körn., and Cory 49945, Gould & Leinweber 6532, Lundell 11793, Lundell & Lundell 11527, Tharp, Gimbrede, & Yang 51-1449, and Tharp, Turner, & Johnston 54922 as typical E. decangulare L. Taylor & Taylor 24563 is a mixture with grasses and other vegetation.

Additional & emended citations: MARYLAND: Prince Georges Co.: Blake 7989 (Ca--841791, Ld), 10665 (Du--167971, Gg--163954, Gg--207025, I, Ld, Mg, Or--22061, Pl--65180, Pl--172502, S); A. Chase 3824 (Mi, Mi). NORTH CAROLINA: Alexander Co.: Radford & Stewart 1657 (Au--26753). Jones Co.: W. V. Brown s.n. [June 20, 1940] (Au--217128). New Hanover Co.: Williamson s.n. [Wilmington, 1892] (Ld). Pender Co.: H. F. L. Rock 631 (Au--26751). GEORGIA: Emanuel Co.: Shacklette 7150 (Mi). Jeff Davis Co.: Shacklette 6919 (Mi), 7121 (Mi). Wilcox Co.: W. P. Rhodes s.n. [August 1925] (Au--188369). LOUISIANA: Allen Par.: R. Kral 20970 (Au--245565). Vernon Par.: R. McVaugh 8456 (Au--26744). OKLAHOMA: Pushmataha Co.: J. Taylor 22110 (Ld), 22410 (N); Taylor & Taylor 24563 in part (N). TEXAS: Anderson Co.: Marsh 250 (Au--26723), 271 (Au--23722); Tharp & Graham 57-6 (Au--32802). Freestone Co.: Lundell & Lundell 12954 (Ld, Ld). Hardin Co.: Lundell & Lundell 11527 (Ld--288850, Ld), 11902 (Ld); Tharp 50-116 (Au--26736); Tharp, Gimbrede, & Yang 51-1449 (Au--25002, Ms--11031); Tharp & Tyson s.n. [6/27/52] (Au--26782); Tharp, Turner, & Johnston 54922 (Au--26728, St). Jasper Co.: C. L. Lundell 11793 (Ld); Turner 68 (Au--229753). Robertson Co.: Massey 372 (Ld); Webster & Rowell 1903 (Au--26777). San Augustine Co.: Gould & Leinweber 6532 (Au--26730, Ca--978707). Tyler Co.: D. S. Correll 35842 (Ld); Correll & Correll 36026 (Ld); Cory 49945 in part (Au--26727, Ca--754800); Tharp, Turner, & Houston 54954 (Au--26729, St); Webster & Wilbur 3199 (Au--194272).

ERIOCAULON DEIGHTONII Meikle

Additional & emended bibliography: Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 59, 62, & 63, fig. 336/15. 1968; Moldenke, Phytologia 32: 489. 1976.

Emended illustrations: Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 59, fig. 336/15. 1968.

Meikle (1968) describes this species as having "Scapes very m-

merous; leaves numerous, narrow, subulate; capitula subglobose, about 4 mm. diam.; involucral bracts inconspicuous", citing the following collections: GUINEA: Chillou 726; Pitot s.n. SIERRA LEONE: Adames 245, 881; Deighton 2795; Jordan 533, 574. They have found it in flower in September and October.

ERIOCAULON DIAGUISSENSE Bourdu

This taxon has now been reduced to synonymy under E. sessile Meikle, which see.

ERIOCAULON DIANAE Fyson

Additional bibliography: Moldenke, *Phytologia* 32: 489—490 (1976) and 34: 392 & 399. 1976.

Recent collectors describe this plant as having the "heads flat, grayish" and being a "light-green plant". They have encountered it at 400 meters altitude in disturbed evergreen forests on moist impervious hardpan, inhabiting open wet places along roadsides.

Additional citations: THAILAND: Beusekom & Smitinand 2129 (Ac).

ERIOCAULON ECHINULATUM Mart.

Additional bibliography: Moldenke, *Phytologia* 36: 478 & 481. 1977.

Recent collectors describe this plant as being light-green, the heads pale yellowish-brown, and found it to be "common on moist impervious hardpan", at 400 meters altitude, growing in association with E. smitinandi Moldenke

Additional citations: THAILAND: Beusekom & Smitinand 2143 (Ac).

ERIOCAULON EDWARDII Fyson

Additional & emended bibliography: Haines, *Bot. Bihar & Orissa*, ed. 1, 6: 1067, 1070, & 1071 (1924) and ed. 2, 3: 1115, 1118, & 1119. 1961: Moldenke, *Phytologia* 29: 195. 1974.

ERIOCAULON EDWARDII var. **CLARKEI** Haines

Additional & emended bibliography: Haines, *Bot. Bihar & Orissa*, ed. 1, 6: 1071 (1924) and ed. 2, 3: 1119—1120. 1961; Moldenke, *Phytologia* 24: 358. 1972.

ERIOCAULON EHRENBURGIANUM Klotzsch

Additional bibliography: Moldenke, *Phytologia* 36: 478 & 483. 1977.

Additional citations: MEXICO: Chiapas: Breedlove 9240 (Ld).

ERIOCAULON ELEGANTULUM Engl.

Additional & emended bibliography: Meikle in *Hutchins. & Dalz., Fl. W. Trop. Afr.*, ed. 2, 3: 58, 59, & 63, fig. 336/14. 1968; Moldenke, *Phytologia* 29: 195—196 & 235. 1974.

Emended illustrations: Meikle in *Hutchins. & Dalz., Fl. W. Trop. Afr.*, ed. 2, 3: 59, fig. 336/14. 1968.

Meikle (1968) characterizes this species as having "Scapes generally numerous, erect; capitula quite globose, about 4 mm. diam.,

white-papillose, without any visible involucre bracts", citing Hall 3729 and Morton GC.6250b from Ghana and Onochie s.n. from Southern Nigeria. He lists the species also from Sudan, Tanzania, Mozambique, and Rhodesia, flowering in July, August, and December.

ERIOCAULON FLUVIATILE Trimen

Additional bibliography: Haines, Bot. Bihar & Orissa, ed. 1, 6: 1068 (1924) and ed. 2, 3: 1116. 1961; Moldenke, Phytologia 32: 492 (1976), 33: 14 (1976), and 34: 263. 1976.

ERIOCAULON FULIGINOSUM C. Wright

Additional bibliography: Spellman, Dwyer, & Davidse, Rhodora 77: 124. 1975; Moldenke, Phytologia 36: 478. 1977.

ERIOCAULON FULVUM N. E. Br.

Additional & emended bibliography: Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 1, 2: 326. 1931; Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 61--63, fig. 338/20. 1968; Moldenke, Phytologia 32: 493. 1976.

Emended illustrations: Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 61, fig. 338/20. 1968.

Meikle (1968) characterizes this species as having "Scapes usually numerous, rather rigidly erect, to about 5 in. high; leaves few, often conspicuously short; capitula subglobose, 2.5--4 mm. diam." He cites the following collections: SENEGAL: Berhaut 1175. MALI: Raynal 5202 bis; Roberty 13305. GUINEA: Roberty 16336a. GHANA: Hall CC.454, 747; Morton GC.6248. NIGERIA: Northern: Barter s.n.; Hepper 940, 985, 1060, 1236a, 1237. Southern: Stanfield 36, 54, 143, 144. He comments that it is "Closely akin to E. maculatum Schinz (S. Africa) and E. strictum Milne-Redhead (Tanzania)".

ERIOCAULON GRISEUM Körn.

Additional & emended bibliography: Haines, Bot. Bihar & Orissa, ed. 1, 6: 1071 (1924) and ed. 2, 3: 1120. 1961; Moldenke, Phytologia 29: 198. 1974.

ERIOCAULON HEUDELII N. E. Br.

Additional bibliography: Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 1, 2: 326. 1931; Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 63. 1968; Hepper in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 540. 1972; Moldenke, Phytologia 29: 199. 1974.

Hutchinson & Dalziel (1931) cite Chevalier 33988 & 34011 and Heudelot 677 from Sénégal, flowering in November. Meikle (1968) reduces the species to synonymy under a wide-ranging E. cinereum R. Br.

ERIOCAULON HIRSUTULUM Moldenke

This taxon is now regarded as a synonym of Mesanthemum albidum H. Lecomte, which see.

ERIOCAULON HUMBOLDTII Kunth

Additional bibliography: Moldenke, *Phytologia* 36: 479—480 (1977) and 37: 88 & 89. 1977.

Recent collectors refer to this species as "locally common" in moist sandy soil of savannas (campo) and in "rocky igneous soil forming small clumps in recently burned areas", at 5500 feet altitude, flowering in November, and refer to the inflorescences as "cream"-color or "grayish-white".

Material of this species has been misidentified and distributed in some herbaria as Paepalanthus sp.

Additional citations: COLOMBIA: Vichada: Davidse & Llanos 5228 (N). VENEZUELA: Guiana: Irwin 715 (Au—173753). BRAZIL: Amapa: Murça Pires & Cavalcante 52037 (Au—250278). Roraima: Coradin & Cordeiro 987 (N).

ERIOCAULON INFIRMUM Steud.

Additional bibliography: Moldenke, *Phytologia* 36: 480. 1977.

Recent collectors describe this plant as having pale-green leaves and "bluish" inflorescences and have found it growing commonly in moist open places along roadsides in evergreen forests at 1200 m. altitude.

Additional citations: THAILAND: Beusekom & Charoenpol 1682 (Ac).

ERIOCAULON INFIRMUM var. **PUBERULENTUM** (Moldenke) Van Royen

Additional bibliography: Moldenke, *Phytologia* 34: 266, 267, 401—402, & 494. 1976.

Additional citations: GREATER SUNDA ISLANDS: Sumatra: Bartlett 7457 (Mi, W—1552243).

ERIOCAULON INTRUSUM Meikle

Additional & emended bibliography: Hutchins. & Dalz., *Fl. W. Trop. Afr.*, ed. 1, 2: 324, 326, & 327. 1931; Meikle in Hutchins. & Dalz., *Fl. W. Trop. Afr.*, ed. 2, 3: 58, 60, & 62, fig. 337/2. 1968; Hepper in Hutchins. & Dalz., *Fl. W. Trop. Afr.*, ed. 2, 3: 540. 1972; Moldenke, *Phytologia* 32: 496. 1976.

Emended illustrations: Meikle in Hutchins. & Dalz., *Fl. W. Trop. Afr.*, ed. 2, 3: 60, fig. 337/2. 1968.

Meikle (1968) asserts that this taxon is the "E. lacteum of F. W. T. A., ed. 1, 2: 327, not of Rendle" and characterizes it as "Each plant generally with only one scape; peduncles up to 16 in. long; capitulum white-papillose with conspicuous pale brown, blunt involucral bracts". He cites only Lely 283 from Northern Nigeria, flowering in June.

ERIOCAULON INUNDATUM Moldenke

Additional & emended bibliography: Meikle in Hutchins. & Dalz., *Fl. W. Trop. Afr.*, ed. 2, 3: 59, 62, & 63, fig. 336/13. 1968; Moldenke, *Phytologia* 26: 459. 1973.

Emended illustrations: Meikle in Hutchins. & Dalz., *Fl. W. Trop. Afr.*, ed. 2, 3: 59, fig. 336/13. 1968.

Meikle (1968) characterizes this species as having "Scapes erect,

about 4 in. high; leaves acuminate; capitula globose, pale brown, about 4 mm. diam.", citing only Monod s.n. from Sénégal, flowering in October.

ERIOCAULON IRREGULARE Meikle

Additional synonymy: Eriocaulon heterochiton Lecomte (in part) apud Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 63, in syn. 1968 [not E. heterochiton A. Chev., 1959, nor Körn., 1867].

Additional & emended bibliography: Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 57, 60, & 62—64, fig. 337/23. 1968; Moldenke, Phytologia 32: 496. 1976.

Emended illustrations: Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 60, fig. 337/23. 1968.

Meikle (1968) characterizes this species as having "Scapes numerous, erect, less than 1 1/2 in. high; leaves narrowly subulate or setaceous; capitula generally less than 5 mm. diam. with whitish glossy involucre bracts". He cites the following collections: GUINEA: Adames 353; Chevalier 18488; Schnell 7379. SIERRA LEONE: Jaeger 184. The plant has been found flowering in September and October.

ERIOCAULON JAUENSE Moldenke

Synonymy: Eriocaulon jauaense Moldenke in Steyerm. & Brewer-Carías, Bol. Soc. Venez. Cienc. Nat. 132/133: 281. 1976.

Additional bibliography: Moldenke in Steyerm. & Brewer-Carías, Bol. Soc. Venez. Cienc. Nat. 132/133: 281. 1976; Moldenke, Phytologia 36: 480. 1977.

ERIOCAULON JORDANI (Moldenke) Meikle

Additional synonymy: Syngonanthus jordani Moldenke apud Meikle in Hutchinson & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 61, in syn. 1968.

Additional & emended bibliography: Meikle in Hutchinson & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 58, 61, & 63, fig. 338/17. 1968; Moldenke, Phytologia 32: 496—497. 1976.

Emended illustrations: Meikle in Hutchinson & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 61, fig. 338/17. 1968.

Meikle (1968) characterizes this species as having "Scapes numerous, about 6 in. high; capitula subglobose, 5—6 mm. diam., glossy, stramineous, conspicuously echinate with protruding bracts", citing only Jordan 721 & 1051 from Sierra Leone, flowering in December and January.

ERIOCAULON KÖRNICKIANUM Van Heurck & Muell.-Arg.

Additional synonymy: Eriocaulon kornickianum Van Heurck, in herb.

Additional bibliography: Moldenke, Phytologia 34: 273 & 402 (1976) and 36: 30. 1977; J. Taylor, Cat. Vasc. Aquat. Pl. Okla. [Herb. SE. Okla. St. Univ. Publ. 1:] 24. 1977.

Kral says that "this is the only Eriocaulon known from the Interior Highlands province, although more populations of it have

been found in Oklahoma, Texas (It is also reported from the lower Coastal Plain of Texas)." The Taylors have encountered it in bogs "and adjacent area in [the] Antlers Sand formation" in Oklahoma, flowering and fruiting in June and July.

Additional citations: ARKANSAS: Logan Co.: R. Kral 24579 (Au, Ld). OKLAHOMA: Pushmataha Co.: J. Taylor 22421 (N, Z); Taylor & Taylor 24554 (N).

ERIOCAULON LATIFOLIUM J. E. Sm.

Additional synonymy: Eriocaulon thunbergii Wikstr. ex Körn., Linnaea 27: 677--679. 1856. Eriocaulon vittifolium H. Lecomte, Bull. Soc. Bot. France 55: 645--646. 1909. Eriocaulon bonani Lecomte ex Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 1, 2: 326, in syn. 1931. Eriocaulon natans Afzel. ex Moldenke, Résumé Suppl. 1: 17, in syn. 1959 [not E. natans F. Muell., 1875]. Eriocaulon thunbergii Wikstr. ex Koern. apud Hepper in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 640, in syn. 1972.

Additional & emended bibliography: Stapf in Johnston, Liberia 2: 662. 1906; Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 1, 2: 326--327. 1931; Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 58, 59, & 62, fig. 336/4. 1968; Moldenke, Phytologia 34: 402. 1976.

Emended illustrations: Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 59, fig. 336/4. 1968.

Meikle (1968) cites as synonyms of this species E. rivulare G. Don, E. thunbergii Wikst., E. banani Lecomte, E. latifolium f. proliferum Moldenke, and Mesanthemum radicans Stapf [not (Benth.) Körn.] He characterizes the species as a "Robust aquatic perennial; capitula densely white-papillose, to 14 mm. diam.", citing the following collections: MALI: Chevalier 524, 803. GUINEA-BISSAU: Pereira 2999. GUINEA: Adames 416; Dalziel 8247; Des Abbayes 699; Langdale-Brown 2638. SIERRA LEONE: Adames 206; Afzelius s.n.; Capstick s.n. [Herb. Deighton 5301]; Deighton 1031; Jaeger 8096; Jordan 427. LIBERIA: Adames 808; Baldwin 10091, 10946; Whyte s.n. It has been collected in flower from October to May. Meikle also lists the species from Congo and Angola.

Hutchinson & Dalziel (1931) describe the species as "Tufted, in running water; flower-heads white, listing it from French Soudan, French Guinea, Sierra Leone, and Liberia, citing Chevalier 524, 803, 13121; Dalziel 8247; Dawe 407; Deighton 1031; Lane-Poole 182; Pobéguin s.n.; Thomas 7879; Whyte s.n. They list E. vittifolium Lecomte as a synonym.

ERIOCAULON LATIFOLIUM f. PROLIFERUM Moldenke

Additional bibliography: Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 62. 1968; Hepper in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 540. 1972; Moldenke, Phytologia 24: 470. 1972.

Meikle (1968) places this form in the synonymy of typical E. latifolium J. E. Sm.

ERIOCAULON LEPTOPHYLLUM Kunth

Additional bibliography: Moldenke, *Phytologia* 36: 480. 1977.

The vernacular names, "capim-manso", "capipoatinga", "gravatá-manso", and "sempre-viva-do-campo", are recorded for this species and it is said to flower from December to February.

ERIOCAULON LEUCOMELAS Steud.

Additional bibliography: Fedde & Schust., *Justs Bot. Jahresber.* 42: 12. 1920; Moldenke, *Phytologia* 32: 497 (1976) and 33: 18. 1976.

ERIOCAULON LINEARE Small

Additional bibliography: Moldenke, *Phytologia* 36: 481. 1977.

Additional citations: GEORGIA: Baker Co.: R. Kral 27079 (N).

FLORIDA: Bay Co.: R. Kral 15671 (Au--245604). Jackson Co.: Godfrey 62934 (Au--22974). Leon Co.: Godfrey 62886 (Ld); N. C. Henderson 63-1687 (Au--229869); Kral & Godfrey 15575 (Au--245609, Ld), 15585 (Au--245605). Wakulla Co.: R. Kral 23024 (Au--245623, Ld).

ERIOCAULON LINEARIFOLIUM Körn.

Additional bibliography: Moldenke, *Phytologia* 36: 481. 1977.

Recent collectors have encountered this species in brejo (wet sedge meadows), flowering in July.

Additional citations: BRAZIL: Goiás: Hatschbach 40065 (Z). Mato Grosso: Hatschbach 24560 (Ld).

ERIOCAULON LIVIDUM F. Muell.

Additional bibliography: Moldenke, *Phytologia* 34: 402. 1976.

The Latz 3703, cited by me in 1976 as E. lividum, seems to me now better placed as E. schultzei Benth.

ERIOCAULON LONGICUSPE Hook. f.

Additional & emended bibliography: Thwaites & Hook. f., *Enum. Pl. Zeyl.*, imp. 1, 341 (1864) and imp. 2, 341. 1964; Hocking, *Excerpt. Bot. A.* 28: 170. 1976; Moldenke, *Phytologia* 36: 472 & 481. 1977.

ERIOCAULON LONGICUSPE var. **ZEYLANICUM** Moldenke

Additional bibliography: Hocking, *Excerpt. Bot. A.* 28: 170. 1976; Moldenke, *Phytologia* 32: 498 (1976), 33: 14 (1976), and 34: 263. 1976.

ERIOCAULON LONGIPEDUNCULATUM H. Lecomte

Additional bibliography: Fedde & Schust., *Justs Bot. Jahresber.* 41: 13. 1916; Moldenke, *Phytologia* 24: 473. 1972.

ERIOCAULON LUZULAEFOLIUM Mart.

Additional bibliography: Moldenke, *Phytologia* 36: 481. 1977.

Additional citations: THAILAND: Larsen & Larsen 34463 (N).

ERIOCAULON MACULATUM Schinz

Additional & emended bibliography: Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 63. 1968; Moldenke, Phytologia 26: 460. 1973.

Meikle (1968) avers that this species is closely allied to E. fulvum N. E. Br. and E. strictum Milne-Redhead.

ERIOCAULON MAGNUM Abbiatti

Additional bibliography: Moldenke, Phytologia 36: 482. 1977.

Additional citations: PARAGUAY: Krapovickas & Cristóbal 13454 (Ld--279793), 13474 (Ld--279710).

ERIOCAULON MANFEEENSE Meikle

Additional & emended bibliography: Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 58, 59, & 62, fig. 336/3. 1968; Moldenke, Phytologia 32: 499. 1976.

Emended illustrations: Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 59, fig. 336/3. 1968.

Meikle (1968) characterizes this species as "Each plant with several scapes; peduncles 1 ft. long, shining; capitula subglobose, densely white-papillose", citing from CAMEROONS: Migeod 276; Morton K.676; Richards 5245; Tamajong FHI.22107. It has been found in flower in November and March.

ERIOCAULON MEIKLEI Moldenke

Additional & emended bibliography: Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 58, 60, & 63, fig. 337/16. 1968; Moldenke, Phytologia 26: 460. 1973.

Emended illustrations: Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 60, fig. 337/16. 1968.

Meikle (1968) characterizes this species as having "Scapes usually numerous, less than 6 in high; leaves rather thick and opaque, acuminate; capitula hemispherical, pallid or fuscous, about 4--5 mm. diam., distinctly echinate with protruding bracts". He cites the following collections: SENÉGAL: Berhaut 6691, 6739, 6983. MALI: Chevalier 218; Monod s.n. GUINEA: Pitot s.n. NIGERIA: Northern: Hepper 1450; Meikle 1043. It has been collected in anthesis from November to February and in April.

ERIOCAULON MICROCEPHALUM H.B.K.

Additional bibliography: Moldenke, Phytologia 36: 479 & 482--483 (1977) and 37: 263 & 264. 1977.

Additional citations: MEXICO: Federal District: J. Rzedowski 20389 (Au--249511). México: J. Rzedowski 25963 (Ld), 25994 (Ld).

ERIOCAULON MIQUELIANUM var. **LUTCHUENSE** (Koidz.) T. Koyama

Additional bibliography: Fedde & Schust., Justs Bot. Jahresber. 42: 13. 1920; Moldenke, Phytologia 34: 404. 1976.

ERIOCAULON MISERUM Körn.

Additional bibliography: Haines, Bot. Bihar & Orissa, ed. 1, 6: 1068 (1924) and ed. 2, 3: 1116. 1961; Moldenke, Phytologia 36: 483. 1977.

ERIOCAULON MISSIONUM Castell.

Additional bibliography: Moldenke, Phytologia 32: 501. 1976.

Additional citations: ARGENTINA: Misiones: Ekman 1909 (Ld).

ERIOCAULON MODESTUM Kunth

Additional bibliography: Moldenke, Phytologia 36: 483—484. 1977.

Additional citations: BRAZIL: Goiás: Haas, Haas, & Belém 145 [Herb. Brad. 48648] (N).

ERIOCAULON MODESTUM var. **BREVIFOLIUM** Moldenke

Additional bibliography: Moldenke, Phytologia 36: 484. 1977.

Additional citations: BRAZIL: Goiás: Irwin, Harley, & Smith 32175 (Ld).

ERIOCAULON MONODII Moldenke

This taxon is now reduced to synonymy under E. transvaalicum var. hanningtonii (N. E. Br.) Meikle, which see.

ERIOCAULON MONTANUM Van Royen

Additional bibliography: Moldenke, Phytologia 34: 404—405. 1976.

Recent collectors describe this plant as a rosular herb, the leaves semiglobose, olive-green or "midgreen", the flower-heads light-green or "brown/purple" and have found it forming large cushions in wet spots on creekbanks, at 2660—3500 meters altitude, flowering in May.

Additional citations: NEW GUINEA: Papua: Croft & Hope LAE.65932 (Mu); Van Royen 10862 (W—2831161).

ERIOCAULON NANUM R. Br.

Additional bibliography: Moldenke, Phytologia 32: 502 (1976), 34: 268 (1976), and 36: 488. 1977.

ERIOCAULON NIGERICUM Meikle

Additional & emended bibliography: Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 59, 62, & 63, fig. 336/12. 1968; Moldenke, Phytologia 34: 405. 1976.

Emended illustrations: Meikle in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 3: 59, fig. 336/12. 1968.

Meikle (1968) characterizes this species as having "Scapes numerous, usually less than 4 in. high; leaves often rather blunt; capitula 4—5 mm. diam., involucre bracts conspicuous, pale, shining". He cites the following collections: SÉNÉGAL: Raynal 6879. SIERRA LEONE: Jordan 522. LIBERIA: Baldwin 9145, 9456, 10088, & 10336. NIGERIA: Southern: Hamblen 739; Jones FHI.20718; Keay FHL.22595,

25471; Stanfield 140, 189. It has been found in anthesis from August to November.

ERIOCAULON NILAGIRENSE Steud.

Additional bibliography: Hocking, Excerpt. Bot. A.25: 379. 1975; Moldenke, Phytologia 36: 473 & 485. 1977.

Sohmer & Sumithraarachchi refer to this plant as "common in wet areas along trails" and as occurring in "large clumps along seepage areas in forest patches", the flower-heads "white".

Additional citations: SRI LANKA: Sohmer & Sumithraarachchi 9801 (N), 9922 (N), 10141 (N).

ERIOCAULON NILAGIRENSE f. PARVIFOLIUM Moldenke

Additional bibliography: Hocking, Excerpt. Bot. A.25: 379. 1975; Moldenke, Phytologia 36: 485. 1977.

ERIOCAULON ODORATUM Dalz.

Additional bibliography: Moldenke, Phytologia 36: 486. 1977.

Recent collectors describe this as a light-green plant, slightly fragrant, to 16 cm. tall, the heads "gray-white", borne at different heights, and report it common on moist impervious hardpan or "rare among Drosera burmani, Striga, and grasses along deciduous forest canals", flowering and fruiting in May.

Additional citations: INDIA: Andhra Pradesh: V. S. Raju 652f (Ld). THAILAND: Beusekom & Smitinand 2144 (Ac).

ERIOCAULON OLIVERI Fyson

Additional bibliography: Fedde & Schust., Justs Bot. Jahresber. 42: 12. 1920; Moldenke, Phytologia 32: 503. 1976.

ERIOCAULON ORYZETORUM Mart.

Additional & emended bibliography: Haines, Bot. Bihar & Orissa, ed. 1, 6: 1067 & 1069—1070 (1924) and ed. 2, 3: 1115 & 1117—1118. 1961; Moldenke, Phytologia 36: 486. 1977.

Recent collectors describe this plant as pale-green and have found it common in muddy places between short grass in dry dipterocarp forests and in wet grasslands, at 600—1000 m. altitude.

Additional citations: THAILAND: Beusekom & Smitinand 2517 (Ac); Larsen & Larsen 24135 (N), 34135 (N).

ERIOCAULON PANCHERI H. Lecomte

Additional bibliography: Fedde & Schust., Justs Bot. Jahresber. 42: 12. 1920; Moldenke, Phytologia 32: 504. 1976.

ERIOCAULON PARKERI B. L. Robinson

Additional bibliography: Moldenke, Phytologia 36: 486. 1977; Scoggan, Fl. Canada 2: 459. 1978.

Scoggan (1978) recognizes this taxon as a species (rather than as a mere variety of E. pellucidum and gives its distribution as "Tidal

(rarely fresh) mud and estuaries of Que. (Ottawa R. near Hull; Témiscamie R. e of L. Mistassini at ca. 51° N (type locality of E. rollandii); St. Lawrence R. estuary from L. St. Peter to Portneuf and Bellechasse counties) and along the coast from Maine to Va. [E. septangulare var. park. (Rob.) Boivin & Cayouette; incl. the dwarf extreme, E. rollandii Rousseau]. Maps: Raymond 1950b: fig. 38, p. 105; M. L. Fernald, *Rhodora* 42 (502): map 17, p. 378. 1940; Fassett 1928: fig. 3, pl. 11." It should be noted that his statement that the species may be found in fresh water applies only because he includes E. rollandii in its synonymy, a disposition which I do not accept.

Additional citations: MASSACHUSETTS: Bristol Co.: Blake 10776 (Ld). Plymouth Co.: Blake 10964 (Ld, Ld, Z), 10995 (Ld). MARYLAND: Kent Co.: Blake 9695 (Ld). Saint Marys Co.: Edwin 372 (Ld). VIRGINIA: Fairfax Co.: Blake 8921 (Ld), 11089 (Ld).

ERIOCAULON PELLUCIDUM Michx.

Additional bibliography: Shosteck, *Flow. & Pl.* 208. 1974; Bouchard & Hay, *Rhodora* 78: 256. 1976; Batson, *Gen. East. Pl.* 40. 1977; Moldenke, *Phytologia* 36: 486—488. 1977; Noblick, *Annot. List Herb. Spec. M. Mitch. Assoc.* 81. 1977; Periasamy, *Proc. Indian Acad. Sci.* 868: 11. 1977; Stuckey & Roberts, *Sida* 7: 32. 1977; Scoggan, *Fl. Canada* 2: 459. 1978; Moldenke, *Phytologia* 41: 428. 1979.

Additional illustrations: Batson, *Gen. East. Pl.* 40. 1977.

Bouchard & Hay (1976) list this species from Newfoundland. Periasamy (1977) reports the embryonic number of this species as 111. Stuckey & Roberts (1977) list it as one of the rare and endangered species of Ohio, discovered there first in 1913 and last recorded from Portage and Summit counties in 1915.

The form with very long peduncles, growing in deep water, is well illustrated by Rouleau 1229, while that with very short peduncles, growing in very shallow or in no water at all by Erlanson s.n. [17 Sept. 1929], cited below.

Scoggan (1978) calls this "white-buttons" or "duckgrass" and gives its distribution as "Shallow pools and streams and muddy or peaty shores from Ont. (N to near Graham, NW of Thunder Bay at 49°14' N; CAN) to Que. (N to Duncan L. near James Bay at 53°33' N, the Côte-Nord, and Gaspé Pen.), S Labrador (Hamilton R. basin), Nfld., N.B., P.E.I., and N.S., S to Ind., N Ohio, Va., and Del.; E Ireland and W Scotland. [E. articulatum (Huds.) Morong; E. pellucidum Michx.; E. decangulare and E. sexangulare of Canadian reports, not L.]. Maps: Hultén 1958: map 199, p. 207 (also citing a 1953 total-area map by Heslop-Harrison); Fernald 1929: map 40, p. 1505."

Noblick (1977) cites from Nantucket County, Massachusetts, the following collections in the Maria Mitchell Association herbarium: Collector undetermined s.n., G. B. Gardner s.n., Wyatt s.n.

Additional citations: QUÉBEC: Argenteuil Co.: Rolland-Germain s.n. [August 21, 1946] (Au—26768). Terrebonne Co.: Rouleau 1229 (Mi). Madore Island: Boivin 4395 (Au—26771). MAINE: Waldo Co.: Friesner

23054 (Au—26764). Washington Co.: Blake 4097 [Herb. Blake 5495] (Ld). NEW HAMPSHIRE: Merrimack Co.: W. V. Brown s.n. [September 2, 1940] (Au—211507). VERMONT: Chittenden Co.: Blake 2101 (Ld), 2572 [Herb. Blake 3694] (Ld). Franklin Co.: Blake 2776 [Herb. Blake 3910] (Ld), 3086 [Herb. Blake 4233] (Ld). MASSACHUSETTS: Middlesex Co.: Blake 4669 [Herb. Blake 6099] (Ld). Norfolk Co.: Blake 4366 [Herb. Blake 5776] (Ld), 4408 [Herb. Blake 5820] (Ld), 8824 (Ld), 10715 (Ld), 10944 (Ld). Plymouth Co.: Blake 4494 [Herb. Blake 5911] (Ld). NEW YORK: Essex Co.: Erlanson s.n. [17 Sept. 1929] (Mi). NEW JERSEY: Cumberland Co.: R. Kral 22590 (Au—245579, Ld). County undetermined: Knieskern s.n. (Mi). VIRGINIA: Augusta Co.: A. B. Massey 3090 [Herb. Va. Polyt. Inst. 21090] (Ld). NORTH CAROLINA: Washington Co.: Radford & Pence 45084 (Au—251933). WISCONSIN: Marquette Co.: Iltis, Bell, Melchert, Patman, & Witt 12548 (Au—299009).

ERIOCAULON PERPLEXUM Satake & Hara

Additional bibliography: Moldenke, *Phytologia* 29: 219. 1974; Satake, *Journ. Jap. Bot.* 49: 180. 1974.

ERIOCAULON PLUMALE N. E. Br.

Additional synonymy: Eriocaulon senegalense N. E. Br. in *Thiselt.-Dyer, Fl. Trop. Afr.* 8: 251. 1901.

Additional & emended bibliography: Ruhl. in *Engl., Pflanzenreich* 13 (4-30): 103, 106, 286, & 287. 1903; Hutchins. & Dalz., *Fl. W. Trop. Afr.*, ed. 1, 2: 326 & 327. 1931; Moldenke, *Known Geogr. Distrib. Erioc.* 20, 35, & 38—40. 1946; Moldenke, *Résumé* 133, 135, 136, 288, 292, 482, & 483. 1959; Meikle in Hutchins. & Dalz., *Fl. W. Trop. Afr.*, ed. 2, 3: 58, 60, & 62, fig. 337/6. 1968; Moldenke, *Phytologia* 19: 35, 88, & 104. 1969; Moldenke, *Fifth Summ.* 1: 210, 214, 216, & 218 (1971) and 2: 502, 511, 940, & 941. 1971; Moldenke, *Phytologia* 25: 73 (1972), 29: 219 & 225—226 (1974), and 41: 412 & 423. 1979.

Illustrations: Meikle in Hutchins. & Dalz., *Fl. W. Trop. Afr.*, ed. 2, 3: 60, fig. 337/6. 1968.

Meikle (1968) regards E. senegalense as a synonym of E. plumale and I see no reason to doubt this. He characterizes the typical form of E. plumale as "Each plant with numerous leaves and scapes; leaves narrow, linear-subulate; capitula subglobose, white, plumose; involucre bracts pale shining brown". He cites the following collections: SÉNÉGAL: Berhaut 1121, 1258. GUINEA: Heudelot 680. SIERRA LEONE: Deighton 1867; Jordan 632, 658, 944. IVORY COAST: Aké Assi 8294. It has been found in anthesis from October to December. Hutchinson & Dalziel (1931) reduce E. rufum Lecomte and E. heterochiton A. Chev. (not Körn.) to synonymy here, citing Chevalier 18419 (in part), Deighton 1867, Farmer 167a, Heudelot 148, 680, and Pobéguin 1312, 2205, 2276 from Sénégal, French Guinea, and Sierra Leone.

[To be continued]



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