

ADDITIONAL NOTES ON THE ERIOCAULACEAE. XXIV

Harold N. Moldenke

So much additional information and so many additional specimens have become available to me, and so many errata have accumulated since this series of notes was initiated that it seems desirable to interrupt the continuation of the alphabetic sequence by recording the additions and corrections applying to groups and taxa thus far covered.

ERIOCAULACEAE Lindl.

Additional & emended bibliography: Pluk., Alm. Bot. 3: 366, pl. 221, fig. 7. 1696; K. Comm., Fl. Malab. 67. 1696; Pluk., Alm. Bot. Mant. 98. 1700; Rheede, Hort. Malab. 12: 129, pl. 68. 1703; Petiv., Class. & Topic. Cat. 344. 1706; H. Herm., Mus. Zeyl., ed. 1, 7--8 & 20 (1717) and ed. 2, 17. 1726; J. Burm., Thes. Zeyl. 108 & 109. 1737; Amm., Stirp. Rar. [Herb.] 396, pl. 21. 1739; L., Fl. Zeyl., ed. 1, 20--21 (1747) and ed. 2, 20--21. 1748; L., Sp. Pl., ed. 1, pr. 1, 1: 87 (1753) and 2: [1203] (1753) and ed. 2, 1: 128--129. 1762; Crantz, Inst. Rei Herb. 1: 360. 1766; Burm. f., Fl. Ind. 30, pl. 9, fig. 1. 1768; Pluk., Alm. Bot., pl. 409, fig. 5. 1769; J. Hill, Herb. Brit. 1: pl. 66 [some copies]. 1769; Hope, Phil. Trans. Roy. Soc. Lond. 59: 241--245, pl. 12. 1770; Pennant, Tour Scotl. & Voy. Hebrides 1: pl. 39. 1774; Lour., Fl. Cochinch., ed. 1, 60--61. 1790; Lam., Tabl. Encycl. [Ill.] 1: 212--214, pl. 50, fig. 1--4. 1791; Gaertn., Fruct. & Sem. Pl. 2: 14, pl. 83. 1791; Lour., Fl. Cochinch., ed. 2, 76--77. 1793; Rottb., Descr. Pl. Surin. pl. 1 & 2. 1798; J. E. Sm. in Sowerby, Engl. Bot. 11: pl. 733. 1800; J. E. Sm., Fl. Brit. 3: 1009--1010. 1804; J. E. Sm., Compend. Fl. Brit., ed. 1, 132, 140, & 191. 1816; Pursh, Fl. Am. Sept. 1: 92. 1816; Thunb., Fl. Bras. 1: pl. 1. 1817; J. E. Sm., Compend. Fl. Brit., ed. 3, 132, 140, & 191. 1818; Poir. in Cuvier, Dict. Sci. Nat. 15: 187. 1819; Svensk. Vet. Akad. Handl. 1820: pl. 3 & 4. 1820; Curtis, Fl. Lond., ed. 2, 4: pl. 52. 1821; Hook., Fl. Scot. 1: 256, 270, & [294] (1821) and 2: 179 & [300]. 1821; Poir. in Cuvier, Dict. Sci. Nat. 24: 239--241. 1822; J. E. Sm., Compend. Fl. Brit., ed. 5, 145, 155, & 209. 1828; J. E. Sm., Engl. Fl. 4: 56--57, 139--140, 355, & 356. 1828; J. E. Sm., Compend. Engl. Fl., ed. 1, 165, 176--177, 203, & 213. 1829; P. F. J. Turpin in Cuvier, Dict. Sci. Nat. [63]: Planch. Bot. Monocot. 2, pl. [41]. 1829; Hook., Brit. Fl., ed. 1, 404--405, 470, & 479 (1830) and ed. 2, 402, 468, & 479. 1831; Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 2: 219--238, pl. 11--19. 1832; Beck, Bot., ed. 1, 369--370 & 467. 1833; Hook., Brit. Fl., ed. 3, 408, 488, & 499. 1835; Mart., Nov. Act. Acad. Leopold.-carol. Nat. Cur. 17 (1): 1--72, pl. 1. 1835; Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 3: 545--560, pl. 20--27. 1835; Mackay, Fl. Hibern. 1: ~~xxxi~~,

[xxxvii], & 288--289 (1836) and 2: 263 & 270. 1836; J. E. Sm., *Compend. Engl. Fl.*, ed. 2, 178, 190, 219, & 228. 1836; Delessert, *Icon. Pl.* 3: pl. 95--98. 1837; Hook., *Brit. Fl.*, ed. 4, 346, 436, & 447. 1838; Bong., *Mém. Acad. Imp. Sci. St. Pétersb.*, sér. 6, 5: pl. 28--35. 1839; M. E. Jacks., *Pict. Fl.* fig. 1387. 1840; Hook., *Brit. Fl.*, ed. 5, xxxi, xxxii, 353--354, & 456. 1842; Hook., *Lond. Journ. Bot.* 1: pl. 13. 1842; Baxt., *Brit. Bot.*, ed. 2, 6: pl. 465. 1843; Schnitzl., *Iconogr.* 1: pl. 46. 1845; Deakin, *Florigr. Brit.* 3: fig. 1457. 1847; Beck, *Bot.*, ed. 2, pr. 1, 370 & 475. 1848; Hook. & Arn. in Hook., *Brit. Fl.*, ed. 6, 445--446 & 595. 1850; Griff., *Icon. Pl. Asiat.* pl. 160. 1851; Hook. & Arn. in Hook., *Brit. Fl.*, ed. 7, 458 & 606. 1855; Beck, *Bot.*, ed. 2, pr. 2, 370 & 475. 1856; B. Clarke, *Trans. Linn. Soc. Lond. Bot.* 22: 402, 405, & 410, pl. 68, fig. 11--15. 1859; Hook. & Arn. in Hook., *Brit. Fl.*, ed. 8, 459, 617, & 634. 1860; Johnson & Sowerby, *Brit. Wild Fls.* fig. 1303. 1860; T. Moore, *Field Bot. Comp.* pl. 24. 1862; Körn. in Mart., *Fl. Bras.* 3 (1): [271]--508, pl. 38--63. 1863; Benth., *Handb. Brit. Fl.* fig. 1066. 1865; Le Maout & Decne., *Trait. Gén. Bot.* 597--598. 1868; Beck, *Bot.*, ed. 2, pr. 3, 370 & 475. 1868; Syme, *Engl. Bot.* 10: pl. 1546. 1870; Pratt, *Flow. Pl. Grasses Sedges & Ferns Gr. Brit.*, ed. 3, 5: pl. 228. 1873; Hook. in Le Maout, Decne., & Hook., *Gen. Syst. Bot.* 871--873. 1873; Iinouma, *Somoku Dzusetsu*, ed. 2, 17: pl. 49 & 50. 1874; Hogg & Johnson, *Wild Fls. Gr. Brit.* 11: pl. 894. 1880; Wawra, *Itin. Princ. S. Coburg.* 2: 96, pl. 12. 1888; Baillon, *Hist. Pl.* 12: [397]--402. 1894; *Useful Pl. Jap.* 3: pl. 966. 1895; Rendle, *Cat. Afr. Pl. Welw.* 2 (1): 95--102. 1899; Collett, *Fl. Siml.* 550. 1902; Wettst., *Veg. Südbas.* pl. 56 & 57. 1904; Banks & Soland., *Bot. Cook's Voy.* 3: pl. 317. 1905; F. M. Bailey, *Weeds & Poison. Pl. Queensl.* 207. 1906; *Alv. Silv., Fl. Serr. Min.* 33--34, pl. 10 & 11. 1908; Beauverd, *Bull. Herb. Boiss.*, sér. 2, 8: 283--299, fig. 9--12. 1908; Hochr., *Ann. Conserv. & Jard. Bot. Genève.* 11/12: 51. 1908; Engl. & Drude, *Veget. Erde* 9 (2): 263--265. 1908; H. Lecomte, *Journ. de Bot.* 21: 86--94, [101]--109, & [129]--136, fig. 1--3. 1908; Beauverd, *Bull. Herb. Boiss.*, sér. 2, 8: 986--988, fig. 1 H & J. 1909; Praeger, *Tour. Fl. W. Ireland* pl. 6. 1909; Karst. & Schenck, *Veg.-Bild.* 8: pl. 31. 1910; Mak., *Bot. Mag. Tokyo* 24: 166. 1910; Praeger, *Journ. Roy. Hort. Soc. Lond.* 36: 302, fig. 107. 1910; Koord., *Exkursionsfl. Java* 1: 271--275. 1911; Wettst., *Handb. Syst. Bot.*, ed. 2, 814. 1911; W. Stone, *Ann. Rep. N. J. State Mus.* 1910: [Pl. South. N. J.] 323--325 & 817, pl. 28, fig. 1 & 2, & pl. 64, fig. 2. 1912; Mak., *Somoku Dzusetsu [Iconogr. Pl. Nippon]* 17: pl. 48--50. 1912; H. Lecomte, *Fl. Gén. Indo-Chine* 7: [1]--18. 1912; F. M. Bailey, *Compreh. Cat. Queensl. Pl.* 584, 586, & 859, fig. 564--566. 1913; Hayata, *Icon. Pl. Formos.* 3: 197. 1913; Horwood, *Pl. Life Brit. Isles* 3: 340. 1915; Marloth, *Fl. S. Afr.* 4: 66. 1915; R. E. Fr., *Wiss. Ergebn. Schwed. Rhod.-Kong.-Exped.* 1911-12 Bot. 1: 218, pl. 16. 1916; Ewart & Cookson in Ewart & Davies, *Fl. N. Terr.* 67 & 366, pl. 6. 1917; Fitch & Sm., *Ill. Brit. Fl.*, rev. ed. 4, iss. 2,

fig. 1082. 1919; Hayata, Icon. Fl. Formos. 10: 49--56 & 272, fig. 27--31. 1921; Stapf, Ind. Lond. 3: 90--91. 1930; Sasaki, Cat. Govt. Herb. 118--119 & 532. 1930; Mayebar, Fl. Austr.-higo 77. 1931; Sprague, Kew Bull. Misc. Inf. 1933: 385. 1933; Van Steenis, Trop. Natuur 25: 2 & 107. 1936; Robyns & Louis, Verhandl. Konink. Acad. Wetensch. Belg. 4 (3): 61. 1942; Backer, Noodfl. Java 10a: fam. 214: 1. 1949; Markgraf, Veröffentl. Geobot. Forschungsinst. Rübel Zürich 25: 143--146. 1952; Heslop-Harrison, Biol. Abstr. 27: 984. 1953; Faegri, Biol. Abstr. 27: 1272. 1953; Anon., Trav. Lab. Bot. Brux. 16: 32. 1955; Anon., Assoc. Etud. Fl. Afr. Trop. Index 1954: 34. 1955; J. T. Koster, Blumea Suppl. 4: 272. 1958; Hoogland, Blumea Suppl. 4: 221. 1958; Van Royen, Nova Guinea, new ser., 10: 35 (1959) and 10: 236 & 467. 1960; Van Royen, Blumea 10: [126]--135, fig. 1. 1960; D. N. F. Kiehl, Blumea 10: 657. 1960; Van Royen, Blumea 11: [224]--225, fig. 1. 1961; Per-ring & Walters, Atlas Brit. Fl. 311, map A.582/1. 1962; Davis & Cullen, Ident. Flow. Pl. Fam. 67 & 103. 1965; Brunel, Morency, & Venne, Ann. Assoc. Canad. Franc. Adv. Sci. 32, Bot. 6: 54. 1966; K. Larsen, Dansk Bot. Ark. 23: 378--381 & 397. 1966; F. Rose, Irish Naturl. Journ. 15: 361. 1967; Sculthorpe, Biol. Aquat. Pl. 23, 389--391, 393, 394, & 578. 1967; Cave, Madrofia 19: 134. 1967; Boivin & Cayouette, Nat. Canad. 94: 524. 1967; Ornduff, Reg. Veg. 50: 39 & 120. 1967; Dandy, Ind. Gen. Vasc. Pl. 38, 48, & 96. 1967; Anon., Ind. Bibliog. Bot. Trop. 4: 48 & 108. 1967; Stafleu, Tax. Lit. 13, 137, & 144. 1967; Brummitt & Ferguson, Reg. Veg. 53: 114. 1968; Ornduff, Reg. Veg. 55: 13, 113, & 118. 1968; Van der Schijff, Kirkia 7: 118. 1968; Aristeguieta, Act. Bot. Venez. 3: 25, 35, & 36. 1968; J. A. Steyerl., Act. Bot. Venez. 3: 96. 1968; Moldenke, Phytologia 18: 342, 344--396, 422--451, & 506. 1969; Singer, Taxon 18: 309. 1969; Brummitt & Ferguson, Reg. Veg. 61: 107. 1969; Ornduff, Reg. Veg. 59: 32 & 116. 1969; Rogerson, Rickett, & Becker, Bull. Torr. Bot. Club 96: 387 & 509. 1969; F. C. Seymour, Fl. N. Engl. 171. 1969; A. L. Moldenke, Phytologia 18: 501. 1969.

BLASTOCAULON Ruhl.

Additional bibliography: Walp., Ann. 1: 890. 1849; Hieron. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 2 (4): 22. 1888; Moldenke, Phytologia 18: 165, 242--243, & 504. 1969; Moldenke, Biol. Abstr. 50: 2584. 1969.

BLASTOCAULON ALBIDUM (Gardn.) Ruhl.

Additional bibliography: Walp., Ann. 1: 890. 1849; Moldenke, Phytologia 18: 74. 1969.

BLASTOCAULON RUPESTRE (Gardn.) Ruhl.

Additional bibliography: Walp., Ann. 1: 890. 1849; Moldenke, Phytologia 18: 165. 1969.

CARPTOTEPALA Moldenke

Additional bibliography: Moldenke, Phytologia 17: 374--376

(1968) and 17: 507. 1969; Moldenke, Biol. Abstr. 50: 2584. 1969.

COMANTHERA L. B. Sm.

Additional bibliography: Moldenke, Phytologia 17: 450 (1968) and 17: 502. 1969; Moldenke, Biol. Abstr. 50: 2584. 1969.

COMANTHERA KEGELIANA (Körn.) Moldenke

Additional bibliography: Moldenke, Phytologia 17: 376—377. 1968.

Robertson & Austin collected this plant in white sand areas, flowering and fruiting in June. Material has been misidentified and distributed in herbaria as Syngonanthus gracilis (Körn.) Ruhl.

Additional citations: GUYANA: Robertson & Austin 268 (N).

ERIOCAULON Gron.

Emended synonymy: Cespa Hill, Herb. Brit. 1: pl. 66 [some copies]. 1769. Eriocaulon Auct. (in part) apud Stapf, Ind. Lond. 3: 90, in syn. 1930.

Additional & emended bibliography: Petiv., Mus. 796. 1695; Pluk., Alm. Bot. 3: 366, pl. 21, fig. 7. 1696; K. Comm., Fl. Malab. 67. 1696; Rheede, Hort. Malab. 12: 129, pl. 68. 1703; Petiv., Class. & Topic. Cat. 344. 1706; H. Herm., Mus. Zeyl., ed. 1, 7—8 & 20 (1717) and ed. 2, 17. 1726; J. Burm., Thes. Zeyl. 108 & 109. 1737; Amm., Stirp. Rar. [Herb.] 396, pl. 21. 1739; L., Fl. Zeyl., ed. 1, 20—21 (1747) and ed. 2, 20—21. 1748; L., Sp. Pl., ed. 1, pr. 1, 1: 87 (1753) and 2: [1203] (1753) and ed. 2, 1: 128—129. 1762; Crantz, Inst. Rei Herb. 1: 360. 1766; Burm. f., Fl. Ind. 30, pl. 9, fig. 1. 1768; Pluk., Alm. Bot. pl. 409, fig. 5. 1769; J. Hill, Herb. Brit. 1: pl. 66 [some copies]. 1769; Hope, Phil. Trans. Roy. Soc. Lond. 59: 241—245, pl. 12. 1770; Pennant, Tour Scotl. & Voy. Hebrides 1: pl. 39. 1774; Lour., Fl. Cochinch., ed. 1, 60—61. 1790; Lam., Tabl. Encycl. [Ill.] 1: 212—214, pl. 50, fig. 1—4. 1791; Gaetn., Fruct. & Sem. Pl. 2: 14, pl. 83. 1791; Lour., Fl. Cochinch., ed. 2, 76—77. 1793; Rottb., Descr. Pl. Surin. pl. 1 & 2. 1798; J. E. Sm. in Sowerby, Engl. Bot. 11: pl. 733. 1800; J. E. Sm., Pl. Brit. 3: 1009—1010. 1804; J. E. Sm. in Rees, Cycl. 13: Eriocaulon. 1809; J. E. Sm., Compend. Fl. Brit., ed. 1, 132, 140, & 191. 1816; Pursh, Fl. Am. Sept. 1: 92. 1816; Thunb., Fl. Bras. 1: pl. 1. 1817; J. E. Sm., Compend. Fl. Brit., ed. 3, 132, 140, & 191. 1818; Poir. in Cuvier, Dict. Sci. Nat. 15: 187. 1819; Svensk. Vet. Akad. Handl. 1820: pl. 3 & 4. 1820; Hook., Fl. Scot. 1: 256, 270, & [294] (1821) and 2: 179 & [300]. 1821; Curtis, Fl. Lond., ed. 2, 4: pl. 52. 1821; Poir. in Cuvier, Dict. Sci. Nat. 24: 239—241. 1822; J. E. Sm., Compend. Fl. Brit., ed. 5, 145, 155, & 209. 1828; J. E. Sm., Engl. Fl. 4: 56—57, 139—140, 355, & 356. 1828; J. E. Sm., Compend. Engl. Fl., ed. 1, 165, 176—177, 203, & 213. 1829; P. F. J. Turpin in Cuvier, Dict. Sci. Nat. [63]: Planch. Bot. Monocot. 2, pl. [41]. 1829; Hook., Brit.

Fl., ed. 1, 404—405, 470, & 479 (1830) and ed. 2, 402, 468, & 479. 1831; Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 1: 1—74 & 601—656, pl. 1—19 & 39 (1831) and 2: 219—238, pl. 11—19. 1832; Beck, Bot., ed. 1, 369—370 & 467. 1833; Hook., Brit. Fl., ed. 3, 408, 488, & 499. 1835; Mart., Nov. Act. Acad. Leopold.-carol. Nat. Cur. 17 (1): 1—72, pl. 1. 1835; Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 3: 545—560, pl. 20—27. 1835; Mackay, Fl. Hibern. 1: xxxii, [xxxvii], & 288—289 (1836) and 2: 263 & 270. 1836; J. E. Sm., Compend. Engl. Fl., ed. 2, 178, 190, 219, & 228. 1836; Delessert, Icon. Pl. 3: pl. 95—98. 1837; Lesson in Bougainville, Journ. Navig. Autour Globe 2: 348—351, pl. 46. 1837; Hook., Brit. Fl., ed. 4, 346, 436, & 447. 1838; Bong., Mém. Acad. Imp. Sci. St. Pétersb., sér. 6, 5: pl. 28a—35. 1839; M. E. Jacks., Pict. Fl. fig. 1387. 1840; Hook., Brit. Fl., ed. 5, xxxii, xxxiii, 353—354, & 456. 1842; Hook., Lond. Journ. Bot. 1: pl. 13. 1842; Baxt., Brit. Bot., ed. 2, 6: pl. 465. 1843; Schnitzl., Iconogr. 1: pl. 46. 1845; Deakin, Florigr. Brit. 3: fig. 1457. 1847; Beck, Bot., ed. 2, pr. 1, 370 & 475. 1848; Walp., Ann. 1: 890 & 891. 1849; Hook. & Arn. in Hook., Brit. Fl., ed. 6, 445—446 & 595. 1850; Griff., Icon. Pl. Asiat. pl. 160. 1851; Walp., Ann. 3: 663 (1852) and 3: 1014. 1853; Hook. & Arn. in Hook., Brit. Fl., ed. 7, 458 & 606. 1855; Beck, Bot., ed. 2, pr. 2, 370 & 475. 1856; B. Clarke, Trans. Linn. Soc. Lond. Bot. 22: 402, 405, & 410, pl. 68, fig. 11—15. 1859; Hook. & Arn. in Hook., Brit. Fl., ed. 8, 459, 617, & 634. 1860; Johnson & Sowerby, Brit. Wild Fls. fig. 1303. 1860; C. Müll. in Walp., Ann. 5: 922—947 & 954. 1860; A. W. Chapm., Fl. South. U. S., ed. 1, pr. 1, 503—504 & 609. 1860; C. Müll. in Walp., Ann. 6: 1170—1171. 1861; T. Moore, Field Bot. Comp. pl. 24. 1862; Körn. in Mart., Fl. Bras. 3 (1): [271]—508, pl. 38—63. 1863; Benth., Handb. Brit. Fl. fig. 1066. 1865; A. W. Chapm., Fl. South. U. S., ed. 1, pr. 2, 503—504 & 609. 1865; Le Maout & Decne., Trait. Gén. Bot. 597—598. 1868; Beck, Bot., ed. 2, pr. 3, 370 & 475. 1868; Syme, Engl. Bot. 10: pl. 1546. 1870; A. W. Chapm., Fl. South. U. S., ed. 1, pr. 3, 503—504 & 609. 1872; Pratt, Flow. Pl. Grasses Sedges & Ferns Gr. Brit., ed. 3, 5: pl. 228. 1873; Hook. in Le Maout, Decne., & Hook., Gen. Syst. Bot. 872—873. 1873; Iinouma, Somoku Dzusetsu, ed. 2, 17: pl. 49 & 50. 1874; Hogg & Johnson, Wild Fls. Gr. Brit. 11: pl. 894. 1880; A. W. Chapm., Fl. South. U. S., ed. 2, pr. 1, 503—504, 681, & 687 (1883), ed. 2, pr. 2, 503—504, 681, & 687 (1884), and ed. 2, pr. 3, 503—504, 681, & 687. 1887; Wawra, Itin. Princ. S. Coburg. 2: 96, pl. 12. 1888; A. W. Chapm., Fl. South. U. S., ed. 2, pr. 4, 503—504, 658, 681, 687, & 696 (1889) and ed. 2, pr. 5, 503—504, 711, & 718. 1892; Maxim., Dec. Pl. Asiat. 8: 7, 9, 21, & 22. 1893; Masee, Grevillea 22: 67. 1894; Baillon, Hist. Pl. 12: [397]—402. 1894; Useful Pl. Jap. 3: pl. 966. 1895; A. W. Chapm., Fl. South. U. S., ed. 3, 529—530, 648, & 652. 1897; Rendle, Cat. Afr. Pl. Welw. 2 (1): 95—102. 1899; N. E. Br. in Thiselt.-Dyer, Fl. Trop. Afr. 8: 245—257. 1901; G. P. Clinton, Rhodora 3: 79—82, fig. 1 & 2. 1901; G. P. Clinton, Journ. Myc. 8: 137. 1902; Collett, Fl. Siml. 550. 1902; Wettst., Veg. Süd-

bras. pl. 56 & 57. 1904; Banks & Soland., Bot. Cook's Voy. 3: pl. 317. 1905; F. M. Bailey, Weeds & Poison. Pl. Queensl. 207. 1906; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 158 & 501. 1906; Alv. Silv., Fl. Serr. Min. 33—34, pl. 10 & 11. 1908; Beauverd, Bull. Herb. Boiss., sér. 2, 8: 284—287, 293, 295, & 299, fig. 9 A & B. 1908; Hochr., Ann. Conserv. & Jard. Bot. Genève. 11/12: 51. 1908; Engl. & Drude, Veget. Erde 9 (2): 263—265. 1908; H. Lecomte, Journ. de Bot. 21: 86—94, [101]—109, & [129]—136, fig. 1—3. 1908; Praeger, Tour. Fl. W. Ireland pl. 6. 1909; Beauverd, Bull. Herb. Boiss., sér. 2, 8: 986—988, fig. 1. 1909; Karst. & Schenck, Veg.-Bild. 3: pl. 31. 1910; Mak., Bot. Mag. Tokyo 24: 166. 1910; Praeger, Journ. Roy. Hort. Soc. Lond. 36: 302, fig. 107. 1910; Wettst., Handb. Syst. Bot., ed. 2, 814. 1911; Hosseus, Beih. Bot. Centralbl. 28 (2): 372—373. 1911; W. Stone, Ann. Rep. N. J. State Mus. 1910: [Pl. South. N. J.] 323—325 & 817, pl. 28, fig. 1 & 2, & pl. 64, fig. 2. 1912; Mak., Somoku Dzusetsu [Iconogr. Pl. Nippon] 17: pl. 48—50. 1912; H. Lecomte, Fl. Gén. Indo-Chine 7: [1]—18. 1912; F. M. Bailey, Compreh. Cat. Queensl. Pl. 584, 586, & 859, fig. 564—566. 1913; Hayata, Icon. Pl. Formos. 3: 197. 1913; Nakai in Matsumura, Icon. Pl. Koisikav. 2: 35—47, pl. 102—108. 1914; H. N. Ridl., Journ. Fed. Malay States Mus. 6: 191—192. 1915; Horwood, Pl. Life Brit. Isles 3: 340. 1915; Marloth, Fl. S. Afr. 4: 66. 1915; Fyson, Fl. Nilg. & Puln. Hill-tops 1: 426—432, pl. 272—277. 1915; R. E. Fr., Wiss. Ergebn. Schwed. Rhod.-Kong.-Exped. 1911—12 Bot. 1: 218, pl. 16. 1916; Ewart & Cookson in Ewart & Davies, Fl. N. Terr. 67 & 366, pl. 6. 1917; Fitch. & Sm., Ill. Brit. Fl., rev. ed. 4, iss. 2, fig. 1082. 1919; Hayata, Icon. Pl. Formos. 10: 49—56 & 272, fig. 27—31. 1921; Fyson, Fl. Nil. & Puln. Hill-tops 3: 118—119, pl. 543. 1921; Stapf, Ind. Lond. 3: 90—91. 1930; Sasaki, Cat. Govt. Herb. 118—119 & 532. 1930; Mayebar, Fl. Austr.-higo 77. 1931; Sprague, Kew Bull. Misc. Inf. 1933: 385. 1933; Van Steenis, Trop. Natuur 25: 2 & 107. 1936; Sugawara, Pl. Saghal. 117. 1937; Sugawara, Illustr. Fl. Saghal. 2: 517, pl. 241. 1939; Karling, Torreya 41: 106. 1941; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 158 & 501. 1941; Robyns & Louis, Verhandl. Konink. Acad. Wetensch. Belg. 4 (3): 61. 1942; Backer, Noodfl. Java 10a: fam. 214: 1. 1949; Van Steenis, Bull. Jard. Bot. Buitenz., sér. 3, 18: 460—461. 1950; Markgraf, Veröffentl. Geobot. Forschungsinst. Rübel Zürich 25: 143—146. 1952; Heslop-Harrison, Biol. Abstr. 27: 984. 1953; Faegri, Biol. Abstr. 27: 1272. 1953; E. J. Salisb., Ind. Kew. Suppl. 11: 38, 88, 157, & 272. 1953; [Wiltshire], Rev. Appl. Myc. Ind. Fungi 1: 39, 50, & 393. 1954; Anon., Trav. Lab. Bot. Syst. Brux. 16: 32. 1955; Anon., Assoc. Etud. Fl. Afr. Trop. Index 1954: 34. 1955; E. Müll., Phytopath. Zeitschr. 23: 108—109. 1955; J. N. Mishra, Mycologia 48: 407 & 408. 1956; Viennot-Bourgin, Bull. Soc. Bot. France 104: 271 & 273—275, fig. 2 D & 3. 1957; Hoogland, Blumea Suppl. 4: 221. 1958; J. T. Koster, Blumea Suppl. 4: 272. 1958; Van Royen, Nova Guinea, new ser., 10: 35. 1959; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 158 & 501. 1959; Van Royen, Blumea 10: [126]—135, fig. 1. 1960; Van

Royen, Nova Guinea, new ser., 10: 236 & 467. 1960; D. N. F. Kiehl, Blumea 10: 657; Van Royen, Blumea 11: [224]—225, fig. 1. 1961; Clapham, Tutin, & Warburg, Fl. Brit. Isles, ed. 2, 962. 1962; Perring & Walters, Atlas Brit. Fl. 311, map A.582/1. 1962; Moldenke, Bol. Soc. Venez. Cienc. Nat. 23: 99—100. 1962; [Wiltshire], Rev. Appl. Myc. Ind. Fungi 2: 327, 329, 355, 356, 359, 404, 410, & Cum. Ind. 202. 1963; Griffith & Hyland, U. S. Dept. Agr. Pl. Inventory 166: 184 & 386. 1966; Brunel, Morency, & Venne, Ann. Assoc. Canad. Franc. Adv. Sci. 32, Bot. 6: 54. 1966; K. Larsen, Dansk Bot. Ark. 23: 378—381 & 397. 1966; Airy Shaw in J. C. Willis, Dict. Flow. Pl., ed. 7, 168, 223, 224, 349, 396, 417, 418, 620, 647, 758, 950, 1057, 1091, & 1092. 1966; Cave, Madrofia 19: 134. 1967; Boivin & Cayouette, Nat. Canad. 94: 524. 1967; Dandy, Ind. Gen. Vasc. Pl. 38, 48, & 96. 1967; F. Rose, Irish Naturl. Journ. 15: 361. 1967; Sculthorpe, Biol. Aquat. Pl. 23, 389—391, 393, 394, & 578. 1967; Stafleu, Tax. Lit. 13, 137, & 144. 1967; Ornduff, Reg. Veg. 50: 39 & 120 (1967) and 55: 13, 113, & 118. 1968; Astle, Kirkia 7: 93 & 95. 1968; W. C. Grimm, Recog. Flow. Wild Pl. 36—37. 1968; Backer & Bakh., Fl. Java 3: 25—26. 1968; Aristeguieta, Act. Bot. Venez. 3: 25. 1968; J. A. Steyerma., Act. Bot. Venez. 3: 96. 1968; Moldenke, Biol. Abstr. 50: 2584. 1969; Moldenke, Phytologia 18: 165—186, 243—280, 295—328, 342, 344—396, 422—451, 504, 506, & 507. 1969; F. C. Seymour, Fl. N. Engl. 171. 1969; Tatew. & Ishizuka, Sapp. Bull. Bot. Gard. Hokk. Univ. 2: 21, 22, 25, 30, 45, & 55. 1969; Ornduff, Reg. Veg. 59: 32 & 116. 1969; Brummitt & Ferguson, Reg. Veg. 61: 107. 1969; Rogerson, Rickett, & Becker, Bull. Torr. Bot. Club 96: 387. 1969; A. L. Moldenke, Phytologia 18: 501. 1969.

It should be noted that the generic name, Cespa Hill, goes back to J. Hill's "Herbarium Brittanicum" (1769), not to his "British Herbal" (1756) as is sometimes erroneously stated, and the name possibly occur only in one copy of this work!

Fyson (1915) gives the following interesting key to the species of Eriocaulon known to him from the Nilgiri and Pulney hilltops, with the nomenclature brought up-to-date:

1. Heads 13 mm. or more in diameter; scapes about 30 cm. tall.
 2. Leaves thick, smooth; heads thick.....E. robustum Steud.
 - 2a. Leaves hairy; heads flat; involucral bractlets black....
E. nilagirens Steud.
- 1a. Heads under 13 mm. in diameter; scapes 15 cm. tall or less.
 3. Scapes tufted.
 4. Scapes 10—15 cm. tall; involucral bractlets black; receptacle villous.
 5. Leaves flat, weak; heads gray...E. collinum Hook. f.
 - 5a. Leaves firm, narrow, canaliculate above; heads white.....E. christopheri Fyson.
 - 4a. Scapes 2.5—6.5 cm. tall; involucral bractlets brown.....E. thwaitesii Körn.
 - 3a. Scapes solitary.

6. Involucre black.....E. leucomelas Steud.

6a. Involucre white.....E. oliveri Fyson.

Mishra (1956) records the fungus, Ustilago jagdishwari Mishra, from the ovules of an unidentified species of this genus in Bihar, India.

ERIOCAULON ABYSSINICUM Hochst.

Additional bibliography: Walp., Ann. 1: 891. 1849; C. Müll. in Walp., Ann. 5: 926 & 933 (1860) and 6: 1170. 1861; Rendle, Cat. Afr. Pl. Welw. 2 (1): 97 & 98. 1899; Moldenke, Phytologia 17: 477. 1969; Moldenke, Biol. Abstr. 50: 2584. 1969.

The initial letter of the specific epithet of this species is uppercased by Walpers (1861). Rendle (1899) states that E. cil-iisepalum Rendle [now known as E. gilgianum Ruhl.] and E. wel-witschii Rendle are closely related to E. abyssinicum, as well as to an "E. sp.", based on Welwitsch 2451, which he describes as follows: "Perhaps a new species near E. abyssinicum, distinguished by its much broader triangular-subulate, fenestrate leaves. Flower-heads with whitish involucre and blackish discs; flowers trimerous but too young for more certain determination. Huilla. — In lofty short-grassed pastures flooded in the rainy season at Morro de Lopollo, growing with small Xyrideae and Cyperaceae but not plentiful. March and April 1860."

ERIOCAULON ACHITON Körn.

Additional & emended bibliography: C. Müll. in Walp., Ann. 5: 926 & 937 (1860) and 6: 1170. 1861; H. Lecomte, Journ. de Bot. 21: 93 & 108. 1908; Bourdu, Bull. Soc. Bot. France 104: 156. 1957; K. Larsen, Dansk. Bot. Ark. 23: 379—381 & 397, fig. 4—6. 1966; Ornduff, Reg. Veg. 55: 13 & 118. 1968; Moldenke, Phytologia 18: 167 & 428. 1969.

Illustrations: K. Larsen, Dansk. Bot. Ark. 23: 380, fig. 4—6. 1966.

Larsen (1966) says that "This species has a very restricted range. Originally described from Khasia Hills in India it has later on been found in Northern and Central Thailand and in Vietnam. The determination of the chromosome number was not easy. Flower buds of both strains were fixed. While the material of No. 6304 showed no usable meiotic metaphase, some good somatic divisions were observed and could be counted with great certainty at $2n = 30$ (Fig. 6). In No. 6071 meiotic metaphases were present but probably the fixation was not very successful, in any case the chromosomes showed some degree of stickiness. In some cases the number $n = 16$, in others $n = 15$ were counted. Figs. 4—5 show two such difficult spots as indicated by an arrow. The somatic chromosomes are small, rod-shaped and all of nearly the same size."

Material of this species has been misidentified and distributed in herbaria under the name E. sexangulare Auct.

Additional citations: PAKISTAN: East Bengal: W. Griffith

5576 (Mu—302, Mu—312). THAILAND: Hosseus 306a (Mu—407).

ERIOCAULON AFRICANUM Hochst.

Additional bibliography: Walp., Ann. 1: 891. 1849; C. Müll. in Walp., Ann. 5: 926 & 940 (1860) and 6: 1170. 1861; Marloth, Fl. S. Afr. 4: 66. 1915; Stapf, Ind. Lond. 3: 90. 1930; Moldenke, Phytologia 18: 167 & 279. 1969.

Illustrations: Marloth, Fl. S. Afr. 4: 66. 1915.

The initial letter of the specific epithet of this species is uppercased by Walpers (1861).

ERIOCAULON AFZELIANUM Wikstr.

Additional synonymy: Eriocaulon alzeliamm Wik-tz. apud Viennot-Bourgin, Bull. Soc. Bot. France 104: 273, sphalm. 1957.

Additional bibliography: C. Müll. in Walp., Ann. 5: 926 & 945 (1860) and 6: 1170. 1861; Viennot-Bourgin, Bull. Soc. Bot. France 104: 275. 1957; [Wiltshire], Rev. Appl. Myc. Ind. Fungi 2: 404, 410, & Cum. Ind. 202. 1963; Moldenke, Phytologia 18: 167. 1969.

Viennot-Bourgin (1957) describes the fungus, Tolyposporella eriocaulonis Viennot-Bourgin, from this species of pipewort in French Guinea, and compares it with Tolyposporium eriocauli Clint. and Ustilago eriocauli Clint., both of which are known to attack other species of pipewort elsewhere. Wiltshire (1963) changes the name of the fungus to Tolyposporella eriocauli Viennot-Bourgin.

Additional & emended citations: SÉNÉGAL: J. G. Adam 15947 (Mu), 16968 (Rf), 18477 (Ac). NIGERIA: Northern: C. Barter 1019 (Mu—298).

ERIOCAULON ALATUM H. Lecomte

Additional & emended bibliography: H. Lecomte, Journ. de Bot. 21: 102, 104--105, 132, 133, & 136, fig. 1 & 2. 1908; H. Lecomte, Fl. Gén. Indo-Chine 7: 3 & 17--18, fig. 2. 1912; Stapf, Ind. Lond. 3: 90. 1930; Moldenke, Phytologia 17: 478 (1969) and 18: 303. 1969.

Additional & emended illustrations: H. Lecomte, Journ. de Bot. 21: 105 & 132, fig. 1 & 2. 1908; H. Lecomte, Fl. Gén. Indo-Chine 7: 18, fig. 2. 1912.

Recent collectors have found this plant growing on high plateaus, flowering and fruiting in January and August.

The Loher 1602, cited below, is a mixture with something in the Cyperaceae. The Loher 6987 specimen in the Munich herbarium was originally numbered "6897" on its label, but this number was apparently later changed to "6987", which, presumably, is correct.

Material of this species has been misidentified and distributed in herbaria as E. truncatum Hamilt.

Additional citations: WESTERN PACIFIC ISLANDS: PHILIPPINE ISLANDS: Luzon: Loher 1602, in part (Mu—379, W—389001); M. Ramos s.n. [Herb. Philip. Bur. Sci. 1831] (W—626710). Island unde-

terminated: Loher 6987 (Mu--406). INDONESIA: GREATER SUNDA ISLANDS: Sumatra: H. H. Bartlett 7456 (W--1552242).

ERIOCAULON ALPESTRE Hook. f. & Thoms.

Additional synonymy: Eriocaulon limosum Sieb. & Zucc., in herb. [not E. limosum Engl. & Ruhl., 1899]. Cephalaria caespitosa Bürger, in herb.

Additional bibliography: Mak., Bot. Mag. Tokyo 8: 506--507. 1894; Komarov, Fl. Mansh. 1: 419. 1901; C. W. Wright, Journ. Linn. Soc. Lond. Bot. 36: 198. 1903; H. Lecomte, Journ. de Bot. 21: 89 & 92. 1908; H. Lecomte, Fl. Gén. Indo-Chine 7: 2 & 10. 1912; Hayata, Icon. Pl. Formos. 10: 52, 56, & 272. 1921; Sasaki, Cat. Govt. Herb. 118. 1930; Van Royen, Blumea 10: [126]--129. 1960; D. N. F. Kiehl, Blumea 10: 657. 1960; Moldenke, Phytologia 18: 167, 246, 249, 274, 440, & 442. 1969.

This binomial, Eriocaulon alpestre, was validly published first by Körnicke in Miq., Ann. Mus. Bot. Lugd. 3: 163 (1867), but again, as though for the first time, by Hooker in his Fl. Brit. Ind. 6: 578 (1893), in each case with the same accreditation to "Hook. f. & Thoms." Both the cheironymous names, E. limosum Sieb. & Zucc. and Cephalaria caespitosa Bürger, were apparently based on the Bürger s.n. specimen deposited in the herbarium of the Botanische Staatssammlung at Munich, a specimen which Ross suggests may be E. miquelianum Maxim., but with which identification I do not at all concur.

A "pl. 6D" is sometimes cited for this species, but is not so recorded by Stapf (1930).

Additional citations: INDIA: Khasi States: Hooker & Thomson s.n. [Mont. Khasia, 5--6000 ped.] (Mu--178). Sikkim: J. D. Hooker s.n. [Sikkim, 8--12,000 ped.] (Mu--179). WESTERN PACIFIC ISLANDS: JAPAN: Island undetermined: Bürger s.n. [In Japonia] (Mu--212).

ERIOCAULON ALPESTRE var. AMPULLARIUM Van Royen

Bibliography: Van Royen, Blumea 10: [126]--129, fig. 1A. 1960; D. N. F. Kiehl, Blumea 10: 657. 1960.

Illustrations: Van Royen, Blumea 10: 129, fig. 1A. 1960.

The type of this variety is Santos 31727, collected on the island of Luzon in the Philippines.

ERIOCAULON ALPINUM Van Royen

Additional bibliography: Van Royen, Blumea 10: 128 & 130. 1960; Moldenke, Phytologia 18: 77. 1969.

ERIOCAULON ALTOGIBBOSUM Ruhl.

Additional & emended bibliography: Ruhl. in Pilg., Engl. Bot. Jahrb. 30: 146. 1901; Moldenke, Phytologia 17: 478--479. 1969.

The Ruhland paper (1901) cited in the bibliography above is often erroneously cited as "1902", but was actually issued on July 2, 1901 -- the "1902" is merely the volume title-page date.

ERIOCAULON AMBOENSE Schinz

Additional bibliography: Moldenke, *Phytologia* 18: 77, 97, 180, & 245. 1969.

Friedrich-Holzhammer (1967) cites Giess & Leippert 7608, Merxmüller & Giess 2079b & 2134, and Schinz 859 from Southwest Africa. The last-mentioned collection is actually the type collection of the species. I have seen Giess & Leippert 7608 and regard it as E. heudelotii N. E. Br.

Additional & emended citations: RHODESIA: Hornby H.2388 [Govt. Herb. Salisbury 13417] (F--photo, N--photo, Rh, Rh, Sg--photo, Z--photo); H. Wild 1162 [Govt. Herb. Salisbury 15100] (N, Rh). SOUTHWEST AFRICA: Baum 111 (Ac); Merxmüller 2079b (Mu), 2134 (Mu, Mu, Mu).

ERIOCAULON AMPHIBIUM Rendle

This taxon has been reduced to synonymy under E. pictum Fritsch, which see.

ERIOCAULON ANDONGENSE Welw.

Additional & emended bibliography: Rendle, *Cat. Afr. Pl. Welw.* 2 (1): 100. 1899; Moldenke, *Phytologia* 17: 479. 1969.

Rendle (1899) says of this species: "Near E. transvaalicum N. E. Br., but distinguished by its lighter flower-heads, glabrous bracts and perianth-leaves, broader sepals of female flower, etc." He bases it on three collections of Welwitsch: (1) no. 2442, growing gregariously in spongy places on the higher rocks of Pedra de Cazamba in the province of Pungo Andongo, in the beginning of May, 1857; (2) no. 2443, rather plentiful in spongy rocky places by springs on the huge rocks toward the south of the province of Fonte de Salgado, Pungo Andongo, in the middle of April, 1857; and (3) no. 2443b, in wet places by the cataract of Condo (de Estefania), Pungo Andongo, not yet in flower in March, 1857. These localities are apparently in what is now called the province of Loanda.

Volk notes of this plant "In trockened Chamaegigas-Wanner häufig, gesellig." It has been collected in flower and fruit in April and May.

Additional citations: ANGOLA: Loanda: Welwitsch 2443 (Mu--cotype). SOUTHWEST AFRICA: Volk 3004 (Mu).

ERIOCAULON ANGUSTIFOLIUM Körn.

Additional bibliography: C. Müll. in Walp., *Ann.* 5: 931 (1860) and 6: 1170. 1861; Moldenke, *Phytologia* 18: 167. 1969.

ERIOCAULON ANGUSTISEPALUM H. Hess

Additional & emended bibliography: H. Hess, *Bericht. Schweiz. Bot. Gesell.* 65: 160, fig. 7 & 8, & 169--174, pl. 9, fig. 2, 6, & 7. 1955; Moldenke, *Phytologia* 17: 479--480 (1969) and 18: 86, 110, & 321. 1969.

ERIOCAULON ANNAMENSE H. Lecomte

Additional bibliography: H. Lecomte, Fl. Gén. Indo-Chine 7: 2 & 5—6. 1912; Moldenke, Phytologia 18: 167. 1969.

ERIOCAULON ANNUUM Milne-Redhead

Additional bibliography: Moldenke, Phytologia 17: 480. 1969.

Robinson describes this plant as an erect annual, growing in the "dambo" at an altitude of 1350 meters.

Additional citations: ZAMBIA: E. A. Robinson 3506 (Mu).

ERIOCAULON ANTUNESII Engl. & Ruhl.

Additional bibliography: Moldenke, Phytologia 18: 77. 1969.

Mr. R. D. Meikle has examined the Malaisse 4489 & 6005 collections which I sent to the Royal Botanic Gardens at Kew for determination. According to a letter from E. Milne-Redhead, dated June 12, 1969, "he is of the opinion that the two Eriocaulons are conspecific, and that both are Eriocaulon antunesii Engl. & Ruhl. Unfortunately we do not have the type of this species at Kew, and cannot be quite certain of the identification, though everything in the description agrees with your plants. Mr. Meikle also notes that Eriocaulon stoloniferum Welw. ex Rendle is most probably synonymous with E. antunesii. Both species were described from Angolan (Huilla) material, and it is evident that the respective authors were unaware of each other's activities at the time when the species were described."

Actually, I have compared these Malaisse collections with an isotype of E. antunesii in my personal herbarium and find them to be very different. They are being treated in these Notes under E. malaissei and E. malaissei f. viviparum Moldenke, which see.

Emended citations: VOLTAIC REPUBLIC: Winkony 3 (Ac).

ERIOCAULON AQUATILE Körn.

Additional bibliography: C. Müll. in Walp., Ann. 5: 931 (1860) and 6: 1170. 1861; Moldenke, Phytologia 17: 480. 1969.

The type of this species was collected by Carl Friedrich Philipp von Martius at Serra de São Antonio, Minas Gerais, Brazil, in August, 1818, and is deposited at Munich. The species has been collected in anthesis and fruit in June and August.

Additional citations: BRAZIL: Minas Gerais: Martius s.n. [Serra de S. Antonio; Macbride photos 18684] (Mu—180—type). State undetermined: J. E. Pohl s.n. [in Brasilia] (Mu—181).

ERIOCAULON ARECHAVALETAE Herter

Additional bibliography: Moldenke, Phytologia 18: 167—168, 259, 276, & 277. 1969.

ERIOCAULON ARENICOLA Britton & Small

Additional bibliography: Moldenke, Phytologia 17: 480—481. 1969.

Additional citations: ISLA DE PINOS: Carabia 1152 (Cr.)

ERIOCAULON ARISTATUM H. Hess

Synonymy: Eriocaulon welwitschii var. pygmaeum Rendle, Cat. Afr. Pl. Welw. 2: 97. 1899. Eriocaulon welwitschii pygmaeum Rendle apud Stapf, Ind. Lond. 3: 91. 1930.

Additional bibliography: Rendle, Cat. Afr. Pl. Welw. 2: 97—98. 1899; Ruhl. in Engl., Pflanzenreich 13 (4-30): 99. 1903; Stapf, Ind. Lond. 3: 91. 1930; Moldenke, Phytologia 17: 481 (1969) and 18: 98. 1969.

Additional illustrations: Ruhl. in Engl., Pflanzenreich 13 (4-30): 99, fig. 13 D. 1903.

The type of E. welwitschii var. pygmaeum was collected by Friedrich Martin Josef Welwitsch (no. 2444) in damp sandy fields which in the previous year had been planted with Sorghum and Penicillaria, near Lopollo, Huila, Angola, in April or May, 1860. In some previous publications I regarded this variety as identical with typical E. welwitschii Rendle, from which it was said by Rendle (1899) to differ only in being "A dwarf congested form with almost glabrous receptacle." He also described it as having "Flower-heads subfuscous within, whitish outside", and the plant itself "widely caespitose". Friedrich-Holzhammer (1967) cites Dinter 7220 and Volk 1806 from Southwest Africa.

Additional citations: ANGOLA: Huila: Welwitsch 2444 (Mu, N). SOUTHWEST AFRICA: Dinter 7220 [Grosfontein, 25.4.1934] (Mu), 7220 [Vley bei Naruchas, Mitte Mai 1934] (Mu, Z); Volk 1806 (Mu, Mu).

ERIOCAULON ATRATUM Körn.

Additional bibliography: C. Müll. in Walp., Ann. 5: 926 & 932—933 (1860) and 6: 1170. 1861; Moldenke, Phytologia 18: 168, 172, & 445. 1969.

ERIOCAULON ATRATUM var. MAJOR Thwaites

Additional & emended synonymy: Eriocaulon philippo-coburgi Szyszyl. ex Wawra, Itin. Princ. S. Coburg. 2: 96, pl. 12. 1888. Eriocaulon robustum var. caulescens (Hook. f. & Thoms.) Fyson, Journ. Indian Bot. 3: 310, pl. 30. 1921. Eriocaulon philippo-coburgii Szyszyl. apud Stapf, Ind. Lond. 3: 91. 1930.

Additional & emended bibliography: Wawra, Itin. Princ. S. Coburg. 2: 96, pl. 12. 1888; Fyson, Journ. Indian Bot. 2: 310 & 312, pl. 30. 1921; Stapf, Ind. Lond. 3: 90 & 91. 1930; Moldenke, Phytologia 18: 168 & 445. 1969.

Illustrations: Wawra, Itin. Princ. S. Coburg. 2: pl. 12. 1888; Fyson, Journ. Indian Bot. 2: pl. 30. 1921.

Fyson (1921) under E. robustum says: "Var. b. caulescens. Hook. f. and Thoms. F. B. I. vi, 572, No. 5; Ruhl. as E. atratum var. major No. 74. Stem 3—10 in. branched, the lower parts covered with leaf-bases. Leaves narrowed above the broad base, and then 1/4 in. wide or less by 3—6 in. Scapes 6—25 in. Involucre black. Plate 30. Ceylon: Horton Plain. Adam's

Peak. There is no real difference except in the stem and its branching from E. robustum. A piece of the Ceylon plant is indistinguishable from a not very robust Nilgiri one. I have therefore no hesitation in uniting this as a variety to E. robustum, though Hooker founded a new species for it, and Ruhland followed Thwaites in calling it var. major of E. atratum. The fresh flower heads have the scent of a Chrysanthemum."

ERIOCAULON ATROIDES Satake

Additional bibliography: Satake in Nakai, Icon. Pl. As. Orient. 2: 173--176 & 192, pl. 65. 1938; Moldenke, Phytologia 18: 78. 1969.

Additional citations: WESTERN PACIFIC ISLANDS: JAPAN: Honshu: Furuse s.n. [5 Oct. 1955] (Ac).

ERIOCAULON ATRUM Nakai

Additional & emended bibliography: Satake in Nakai, Icon. Pl. As. Orient. 2: 175. 1938; Satake, Bull. Tokyo Sci. Mus. 4: [Rev. Jap. Erioc.] 49, 52, 53, 57, & 60--61, pl. 12, fig. 24. 1940; Koyama, Journ. Jap. Bot. 31: 6. 1956; Moldenke, Phytologia 18: 168, 181, 255, 312, 323, 441, & 449. 1969; Tatew. & Ishizuka, Sapp. Bull. Bot. Gard. Hokk. Univ. 2: 21, 22, & 30. 1969.

Tatewaki & Ishizuka (1969) report this species as growing in the Eriophorum gracile association, in the Phragmites communis and Carex limosa association, and with Carex middendorffii in Japan.

The Furuse 19850, distributed as E. atrum, is actually E. robustius (Maxim.) Mak.

ERIOCAULON AUSTRALASICUM (F. Muell.) Körn.

Emended synonymy: Eriocaulon australasicum Körn. ex C. Müll. in Walp., Ann. 5: 931. 1860.

Additional bibliography: C. Müll. in Walp., Ann. 5: 926 & 934 (1860) and 6: 1170. 1861; Hieron. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 2 (4): 25. 1888; Moldenke, Phytologia 18: 168. 1969.

The initial letter of the specific epithet of this taxon is uppercased by Müller (1861).

ERIOCAULON AUSTRALE R. Br.

Additional bibliography: Spreng. in L., Syst. Veg., ed. 16, 3: 776. 1826; C. Müll. in Walp., Ann. 5: 927 & 946 (1860) and 6: 1170. 1861; Hieron. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 2 (4): 25. 1888; C. H. Wright, Journ. Linn. Soc. Lond. Bot. 36: 198. 1903; H. Lecomte, Journ. de Bot. 21: 89, 91, & 94. 1908; H. Lecomte, Fl. Gén. Indo-Chine 7: 2 & 8. 1912; Van Royen, Nova Guinea, new ser., 10: 236. 1960; Moldenke, Phytologia 18: 168. 1969.

This species seems to be extremely close to, if not conspecific with, E. willdenovianum Moldenke. Van Royen (1960) cites Van

Royen 4871 & 4872 from New Guinea.

Additional citations: AUSTRALIAN REGION: AUSTRALIA: Queensland: Meebold 8021 (Mu).

ERIOCAULON BATAVORUM Van Royen

Bibliography: Van Royen, Blumea 10: 128. 1960.

Nothing is known to me about this taxon as I have not been able to ascertain where, if ever, it has been described. The editors of the "Index Kewensis" inform me that it is not in the manuscript for the next supplement of this work.

ERIOCAULON BEAUVERDI Moldenke

Additional synonymy: Eriocaulon helichrysoides giganteum Beauverd apud Stapf, Ind. Lond. 3: 90. 1930.

Additional & emended bibliography: Beauverd, Bull. Herb. Boiss., sér. 2, 8: 283 & 285, fig. 9A (1908) and 8: 987--988, fig. 1 H & J. 1909; Stapf, Ind. Lond. 3: 90. 1930; Moldenke, Phytologia 17: 482--483. 1969.

Additional illustrations: Beauverd, Bull. Herb. Boiss., sér. 2, 8: 987, fig. 1 H & J. 1909.

This species has been collected in anthesis and fruit in July and August.

Additional citations: BRAZIL: São Paulo: F. C. Hoehne 367 [Butantan, 27/7/17] (Mu), 367 [Butantan, 27/8/17] (Mu).

ERIOCAULON BENTHAMII Kunth

Additional bibliography: C. Müll. in Walp., Ann. 5: 930 (1860) and 6: 1170. 1861; Moldenke, Phytologia 18: 169, 188, 249, & 264. 1969.

McGregor found this plant in flower and fruit in April. The Pringle 1734, distributed as E. benthamii, is actually the type collection of E. guadalajarensis Ruhl.

Additional citations: MEXICO: Jalisco: R. L. McGregor 16617 (N); R. McVaugh 20473 (N), 23493 (Mi). México: Hinton 4549 (Se--107926). Michoacán: R. McVaugh 22500 (Mi).

ERIOCAULON BIFISTULOSUM Van Heurck & Muell.-Arg.

Additional & emended bibliography: F. M. Bailey, Compreh. Cat. Queensl. Pl. 584. 1913; H. Hess, Bericht. Schweiz. Bot. Gesell. 65: 127, fig. 3, & 130--132, pl. 7, fig. 1--5. 1955; Berhaut, Fl. Sénégal, ed. 2, 312. 1967; Moldenke, Phytologia 18: 169, 173, 181, 243, 244, 280, 429, & 433. 1969.

Illustrations: H. Hess, Bericht. Schweiz. Bot. Gesell. 65: 127, fig. 3, & pl. 7, fig. 3--5. 1955.

This species has been collected in shallow more or less stagnant water, flowering and fruiting in June. The Dehn 901, cited below, is accompanied by a colored drawing on the same sheet.

The type of the species was collected by Charles Barter (no. 1021) at Nupe in Northern Nigeria, a collection which is also the type of E. limosum Engl. & Ruhl. [not E. limosum Sieb. & Zucc.,

which is E. alpestre Hook. f. & Thoms.]. Berhaut 6502, from Sénégal, is cited by Berhaut (1967) as E. setaceum L., but will probably prove to be E. bifistulosum instead. Hooker (1893) believed that E. bifistulosum occurs also in Australia, but Bailey (1913) regards the Australian material as E. setaceum, which seems more probable to me.

Additional & emended citations: SÉNÉGAL: J. G. Adam 17442 (Rf); Couey 1 (Ac). NIGERIA: Northern: C. Barter 1021 (Mu--299--isotype). ZAMBIA: E. A. Robinson 3759 (Mu). RHODESIA: Dehn 769 (Mu), 901 (Mu).

ERIOCAULON BILOBATUM Morcng

Additional bibliography: Moldenke, Phytologia 18: 169. 1969.

Additional citations: MEXICO: Jalisco: Pringle 3855 (Mu--370--isotype), 6299 (Mu--352).

ERIOCAULON BIPETALUM Good

Bibliography: R. Good, Geogr. Flow. Pl. 227 & 483. 1964.

I know nothing about this taxon except that it is mentioned by Good (1964) without authority and as a nomen nudum, "said to occur in the Madagascar region as well as on the two continents" of America and Africa. The only eriocaulaceous plant to which this comment could apply is Paepalanthus lamarckii Kunth.

ERIOCAULON BLUMEI Körn.

Additional bibliography: Moldenke, Phytologia 18: 169 & 275. 1969; Moldenke, Biol. Abstr. 50: 2584. 1969.

ERIOCAULON BONGENSE Engl. & Ruhl.

Additional bibliography: Moldenke, Phytologia 18: 79. 1969.

This species has been collected on damp ground, flowering and fruiting in July.

Additional & emended citations: SÉNÉGAL: Wikony 2 (Rf). ZAMBIA: E. A. Robinson 5552 (Mu).

ERIOCAULON BONI H. Lecomte

Additional & emended bibliography: H. Lecomte, Journ. de Bot. 21: 89, 94, & 108. 1908; H. Lecomte, Fl. Gén. Indo-Chine 7: 2 & 13. 1912; Moldenke, Phytologia 17: 484. 1969.

ERIOCAULON BRACHYPEPLON Körn.

Additional bibliography: C. Müll. in Walp., Ann. 5: 926 & 943 (1860) and 6: 1170. 1861; Moldenke, Phytologia 17: 484. 1969.

ERIOCAULON BREVIPEDUNCULATUM Merr.

Additional bibliography: Heine in Fedde, Repert. Spec. Nov. 54: 224. 1951; Van Royen, Blumea 10: 133 & 134. 1960; Moldenke, Phytologia 18: 169--170 & 262. 1969.

Brass found this plant growing "in close-packed mosses at edge of lake and on marshy slopes" and "common in close masses

on alpine seepage slopes", flowering and fruiting from May to July. The E. brevipedunculatum Suesseng. & Heine is a synonym of E. kinabaluense Van Royen. According to the studies of Van Royen (1960) the Indonesian specimens previously regarded by Merrill and by me as representing Merrill's E. brevipedunculatum actually deserve segregation as separate taxa. The Eyma 863 collection is now the type collection of E. celebicum Van Royen, while M. S. Clemens 10543 & 10611 and Clemens & Clemens 32336 & 51120 are E. kinabaluense Van Royen.

Additional citations: MELANESIA: NEW GUINEA: Papua: Brass 4365 (W--1943053), 4367 (W--1943054).

ERIOCAULON BREVIPEDUNCULATUM var. ANGUSTIFOLIUM Moldenke

This taxon has now been reduced to synonymy under E. tubiflorum Van Royen, which see.

ERIOCAULON BREVISCAPUM Körn.

Additional & emended bibliography: Körn., Linnaea 27: 676--677. 1856; C. Müll. in Walp., Ann. 5: 926 & 944 (1860) and 6: 1170. 1861; Moldenke, Phytologia 18: 170. 1969.

According to Körnicke's original description, this species is based on a collection made by Carl Alexander Anselm Hügel (no. 3862), probably in Bombay, India, and deposited in the Vienna and Zuccarini herbaria. The Hügel specimen cited below is probably an isotype, but is not numbered.

Additional citations: INDIA: State undetermined: Hügel s.n. [Ind. or.] (Mu--182).

ERIOCAULON BROMELIOIDEUM H. Lecomte

Additional bibliography: H. Lecomte, Fl. Gén. Indo-Chine 7: 3 & 17. 1912; Moldenke, Phytologia 18: 170. 1969.

ERIOCAULON BROMELIOIDEUM var. LATIFOLIUM H. Lecomte

Additional bibliography: H. Lecomte, Fl. Gén. Indo-Chine 7: 17. 1912; Moldenke, Phytologia 18: 170. 1969.

Lecomte (1912) describes this plant as having "Feuilles beaucoup plus longues, atteignant 8--10 cm."

ERIOCAULON BROWNIANUM Mart.

Additional synonymy: Eriocaulon bronianum Wall. ex Fyson, Fl. Nilg. & Puln. Hill-tops 1: 430, sphalm. 1915.

Additional bibliography: Mart. in Wall., Pl. Asiat. Rar. 3: 25--26 & 28, pl. 248. 1832; C. Müll. in Walp., Ann. 5: 926 & 943 (1860) and 6: 1170. 1861; H. Lecomte, Journ. de Bot. 21: 89 & 91. 1908; H. Lecomte, Fl. Gén. Indo-Chine 7: 2 & 11. 1912; Fyson, Fl. Nilg. & Puln. Hill-tops 1: 429 & 430. 1915; Stapf, Ind. Lond. 3: 90. 1930; C. E. C. Fischer in Gamble, Fl. Presid. Madras, ed. repr. 2, 8 [3]: 1122, 1127, & 1333. 1956; Backer & Bakh., Fl. Java 3: 25. 1968; Moldenke, Phytologia 18: 170--171, 275, 351--353, & 443. 1969.

Emended illustrations: Mart. in Wall., Pl. Asiat. Rar. 3: pl. 248 [in color]. 1832.

Backer & Bakhuizen van den Brink (1968) describe this species as follows: "Interfloral bracts in their upper halves or on their tops with numerous short white hairs; involucre bracts, especially in young heads, dorsally rather densely pubescent; peduncles 15--100 cm, densely pubescent especially at apex; heads depressed-globose, 10--15 mm across; interfloral bracts with a triangular, rather acute top; sepals 3, apically dark-coloured and densely white-pubescent; petals 3, villous, with a distinct, subapical gland; anthers 6, dark-coloured; style-arms 3. Leaves linear, rather acute, 10--80 cm by 6--20 mm, rather thick, on both surfaces clothed with rather short, white hairs. 0.15--1.00; I--XII; W. C., very local; 1600--2000; swamps; locally often very numerous. Conspicuous plant (E. blumei Koern.)."

Fischer (1956) cites an "Eriocaulon brownianum Mart., in part" as a synonym of E. nilagirens Steud. The Hosseus 41, distributed as E. brownianum, is actually E. nilagirens, while Meebold 9730 is E. robusto-brownianum Ruhl.

Additional citations: PAKISTAN: East Bengal: De Silva & Gomez s.n. [Wallich 6066] (Mu--183--isotype, Mu--322--isotype); W. Griffith 5574 (Mu--203). INDIA: Khasi States: Hooker & Thomson s.n. [Mont. Khasia, 3--5000 ped.] (Mu--184). Madhya Pradesh: Lal & party 33277 (Mu).

ERIOCAULON BRUNONIS Britten

Additional & emended bibliography: Benth. & F. Muell., Fl. Austral. 7: 193, 197, & 792. 1878; Moldenke, Phytologia 18: 171, 270, & 451. 1969.

ERIOCAULON BUCHANANII Ruhl.

Additional bibliography: Moldenke, Phytologia 18: 171, 245, & 393. 1969.

Recent collectors have found this plant growing in damp ground, bogs, and in the habitats called "vley" and "dambo", flowering and fruiting in July.

Additional citations: REPUBLIC OF GUINEA: Schnell 2154 (An, F--photo, Sg--photo, Z--photo). ZAMBIA: E. A. Robinson 3714 (Mu), 5541 (Mu), 5553 (Mu). SOUTHWEST AFRICA: Volk 2127 (Mu).

ERIOCAULON BUERGERIANUM Körn.

Additional synonymy: Cephalaria ensifolia Bürger, in herb.

Additional bibliography: Iinouma, Somoku Dzusetsu, ed. 2, 17: pl. 50. 1874; H. Lecomte, Journ. de Bot. 21: 89 & 92. 1908; Hayata, Icon. Pl. Formos. 10: 52 & 272, fig. 29. 1921; Sasaki, Cat. Govt. Herb. 118. 1930; Stapf, Ind. Lond. 3: 90. 1930; Moldenke, Phytologia 3: 337 (1950) and 18: 171, 354, & 440. 1969.

Additional illustrations: Iinouma, Somoku Dzusetsu, ed. 2, pl. 50. 1874.

According to Körnicke (1867) this species is based on a speci-

men collected "Prope Iwajagama m. Oct." and of it he also says "legerunt Siebold et Buerger". The cheironymous name, Cephalaria ensifolia, appears to be based on the Bürger s.n., from Japan, cited below, deposited in the Munich herbarium. It is possible that this specimen may be part of the type collection of Eriocaulon buergerianum.

Tsang reports this plant as "abundant in swamp, sandy soil, rice terrace", at an altitude of 1 meter above sea level. Other recent collectors report it as an erect herb "rare in rice terraces and retaining walls", describe the heads as "white", and have found the plant in flower in September, October, and December. Material has been misidentified and distributed in herbaria as E. cristatum Mart. On the other hand, the Suzuki s.n., distributed as E. buergerianum, is actually E. sexangulare L.

Additional citations: CHINA: Kwangtung: W. T. Tsang 20687 (W—1753776). Szechuan: C. L. Chow 4676 (W—1990439), 4678 (W—1990441); T. C. Lee 3521 (W—1990131). Yunnan: Maire 3928 (W—775746). WESTERN PACIFIC ISLANDS: JAPAN: Island undetermined: Bürger s.n. [in Japonia] (Mu—185).

ERIOCAULON CAPITULATUM Moldenke

Additional & emended bibliography: Moldenke, *Phytologia* 2: 132—134 (1948) and 17: 487. 1969.

The foliage of this plant is almost identical to that of E. paradoxum Moldenke.

ERIOCAULON CARSONI F. Muell.

Additional bibliography: Van Royen, *Blumea* 10: 128. 1960; Moldenke, *Phytologia* 18: 172. 1969.

This species has been collected in flower and fruit in October.

Citations: AUSTRALIAN REGION: AUSTRALIA: South Australia: M. Koch 467 (Mu—357, 2).

ERIOCAULON CAULIFERUM Mak.

Additional & emended bibliography: Mak., *Bot. Mag. Tokyo* 24: 165 & 166. 1910; Stapf, *Ind. Lond.* 3: 90. 1930; Moldenke, *Phytologia* 18: 81. 1969.

Additional illustrations: Mak., *Bot. Mag. Tokyo* 24: 166. 1910.

ERIOCAULON CELEBICUM Van Royen

Additional & emended bibliography: Van Royen, *Blumea* 10: 127—129, fig. 1B. 1960; D. N. F. Kiehl, *Blumea* 10: 657. 1960; Moldenke, *Phytologia* 17: 453 (1968) and 18: 81. 1969.

Illustrations: Van Royen, *Blumea* 10: 129, fig. 1B. 1960.

The type of this species was collected by Pierre Joseph Eyma (no. 863) on Celebes and was previously erroneously cited by me as E. brevipedunculatum Merr.

Citations: INDONESIA: GREATER SUNDA ISLANDS: Celebes: Eyma 863 (Ut—11517b—isotype).

ERIOCAULON CEYLANICUM Körn.

Additional bibliography: C. Müll. in Walp., Ann. 5: 926 & 943 (1860) and 6: 1170. 1861; H. Lecomte, Journ. de Bot. 21: 91. 1908; Moldenke, Phytologia 18: 168, 172, & 270. 1969.

The initial letter of the specific epithet of this taxon is uppercased by Müller (1861). The Hosseus specimen cited below bears a printed label inscribed "Reise nach Siam", but the handwritten locality name and number indicate that the collection was actually made in Ceylon, not in Thailand.

Additional citations: CEYLON: Hosseus 40 (Mu-401).

ERIOCAULON CHINOROSSICUM Komarov

Additional bibliography: Steinberg in Komarov & Schischkin, Fl. U. S. S. R. 3: 497--498, pl. 27, fig. 2 a--c (1935) and Engl. transl., 3: 394. 1964; Moldenke, Phytologia 18: 81. 1969.

Illustrations: Steinberg in Komarov & Schischkin, Fl. U. S. S. R. 3: pl. 27, fig. 2 a--c. 1935.

It is of interest to note that the English translation of the Fl. U. S. S. R. (1964) gives the title of the work in which this taxon was originally described and published as "Bull. Jard. Bot. Pierre Le Grand", while the Index Kewensis uses its original title as "Bull. Jard. Bot. Pétersb." The species was described from the coast of Vostok Bay, the type being HFR 2373, deposited in the herbarium at Leningrad.

ERIOCAULON CHRISTOPHERI Fyson

Additional bibliography: Fyson, Fl. Nilg. & Puln. Hill-tops 1: 428 & 431 (1915) and 2: pl. 275. 1915; Stapf, Ind. Lond. 3: 90. 1930; Moldenke, Phytologia 17: 487--488 (1969) and 18: 361. 1969.

Illustrations: Fyson, Fl. Nilg. & Puln. Hill-tops 2: pl. 275. 1915.

Fyson (1915) describes this plant as follows: "I 45. Stems tufted: scapes several 4 to 7 inches, stout: sheaths 1 inch, with bifid mouth. Leaves 1 to 1 1/4 inches, firm about nine-nerved, thick and channelled above. Heads 1/8 to 1/6 inch. Lowest bracts brown, glabrous; inner black, acuminate. Receptacle villous. Floral bracts fringed with thick white hairs. Male flowers:-- Sepals united into a spathe split in front, fringed with thick white hairs. Corolla tube slender; lobes unequal very long, with small glands, and fringed with long white hairs. Anthers black. Female flowers:-- Sepal black, boat-shaped, with scattered hairs along the margin and keel. Petals white, oblanceolate, with long hairs and small glands. t. 275. In damp ground. Nilgiri: at Pykara, flowering May. Fyson 2718. Perhaps Schmidt left hand plant on sheet marked E. trilobum from Kaity, etc., in cover of E. collinum at Kew. Not known elsewhere. The male petals are unusually long and the hair fringing them and on the female petal are also long."

ERIOCAULON CILIIPETALUM H. Hess

Additional bibliography: Moldenke, *Phytologia* 17: 488 (1969) and 18: 449. 1969.

ERIOCAULON CINEREUM R. Br.

Additional & emended synonymy: Eriocaulon quinquangulare var. ♂ C. Müll. in Walp., *Ann.* 5: 940. 1860. Eriocaulon sieboldianum Steud. ex Mak., *Bot. Mag. Tokyo* 8: 506, in syn. 1894. Eriocaulon stühlmannii N. E. Br. apud H. Lecomte, *Fl. Gén. Indo-Chine* 7: 14, in syn. 1912. Eriocaulon sexangulare (L.) Auct., in herb. Eriocaulon 5-angulare König, in herb. [not E. 5-angulare L., 1959]. Eriocaulon 5-angulare var. pusillum Körn., in herb. Eriocaulon 5-angulare var. erythropodum Miq., in herb.

Additional & emended bibliography: Hook. & Arn., *Bot. Beech. Voy.* 219. 1841; C. Müll. in Walp., *Ann.* 5: 926, 933—935, & 940 (1860) and 6: 1170 & 1171. 1861; Collett, *Fl. Siml.* 550. 1902; Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 11, 13, 21, 22, 104, 111—114, 116, 117, & 285, fig. 15 A—G. 1903; H. Lecomte, *Journ. de Bot.* 21: 88, 89, & 93. 1908; Mak., *Somoku Dzusetsu* [Iconogr. Pl. Nipp.] 17: pl. 48. 1912; H. Lecomte, *Fl. Gén. Indo-Chine* 7: 2 & 13—14. 1912; Fedsh., *Rastit. Turk.* 811. 1915; Hayata, *Icon. Pl. Formos.* 10: 49 & 272, fig. 27. 1921; Sasaki, *Cat. Govt. Herb.* 118 & 119. 1930; Stapf, *Ind. Lond.* 3: 91. 1930; K. Larsen, *Dansk Bot. Ark.* 23: 378. 1966; Backer & Bakh., *Fl. Java* 3: 25—26. 1968; Moldenke, *Phytologia* 18: 169, 172—173, 180, 243, 244, 249, 274, 299—300, 303, 309, 350, 362, 372, 429, 433, 438, 439, & 441. 1969.

Additional & emended illustrations: Collett, *Fl. Siml.* 550. 1902; Ruhl. in Engl., *Pflanzenreich* 13 (4-30): 112, fig. 15 A—G. 1903; Mak., *Somoku Dzusetsu* [Iconogr. Pl. Nipp.] 17: pl. 48. 1912.

Backer & Bakhuizen van den Brink (1968) give a partial description of this taxon: "Large leaves less than 2 mm wide in their middle part, 1.5—8 cm long, rather acute. Heads ovoid-globose, 3—4 mm across; involucre bracts oblong, rather obtuse; interfloral bracts narrowly oblong, rather acute; ♂: sepals more or less connate into a unilaterally cleft sheath, pale, with a darker coloured upper half, glabrous; petals very minute; ♀: sepals 2—3, linear-filiform; petals none." They note that the species has been found in flower in Java from January to July, but probably blooms all year, in "swampy localities, especially flooded rice-fields". Hohenacker notes that the plant blooms in the rainy season in India.

The Herb. Schreber specimen, cited below, bears a handwritten memorandum by Schultes, dated August 24, 1862, stating that this specimen cannot be E. sexangulare L., that the E. sexangulare Auct. is probably E. minimum Lam., in part, and that E. sexangulare L. is probably E. wallichianum Mart.

The Hooker & Thomson s.n. [Silhet, Alt. 0] and T. Thomson s.n. [Plan. Ganget. Sup.], also cited below, are both mixtures with E.

truncatum Hamilt. The Loher 12947 specimen has a label which was originally inscribed "14820", but this number was later stricken out by someone and "12947" was substituted.

Material of E. cinereum has been misidentified and distributed in herbaria under the names E. hexangulare L., E. quinquangulare L., and E. setaceum L. On the other hand, the Chang & En 2926 and Cheng 3042, distributed as E. cinereum, are actually E. truncatum Hamilt.

Additional citations: CALIFORNIA: Stanislaus Co.: Markos s.n. [Modesto, 9-18-47] (Se--188680). PAKISTAN: East Bengal: W. Griffith 5565 (Mu--307), 5579 (Mu--300); Herb. Schreber s.n. [Sampur, Bengal] (Mu--241); Herb. Zuccarini s.n. [Bengal] (Mu--246); Hooker & Thomson s.n. [Chittagong, 0--1000 ped.] (Mu--249), s.n. [Silhet, alt. 0] (Mu--247); Wallich 6073a (Mu--244). NEPAL: Poelt s.n. [27.10.1962] (Mu). INDIA: Kerala: Hohenacker 131b (Mu--252), 131bb (Mu--251). Madras: König s.n. [Tranguebar] (Mu--242, Mu--243). Mysore: G. Thomson s.n. [Maison & Carnatic] (Mu--254). State undetermined: Collector undesignated s.n. [Madhya, 17.5.56] (Mu); Hügel s.n. [India orientalis] (Mu--245); T. Thomson s.n. [Plan. Ganget. Sup.] (Mu--248). WESTERN PACIFIC ISLANDS: JAPAN: Honshu: C. Hashimoto 1624 (Se--199280); Itô & Koyama 826 (Se--159515); Maximowicz s.n. [Yokohama, 1862] (Mu--348). Island undetermined: Bürger s.n. [In Japonia] (Mu--255). PHILIPPINE ISLANDS: Luzon: Loher 1605 (Mu--377), 12947 (Mu--416); E. D. Merrill 293 (Mu--400). INDONESIA: GREATER SUNDA ISLANDS: Java: Kollmann s.n. [Java] (Mu--250); Reinwardt s.n. [Java] (Mu--250).

ERIOCAULON CIPOENSE Alv. Silv.

Additional bibliography: Alv. Silv., Fl. Serr. Min. pl. 10. 1908; Stapf, Ind. Lond. 3: 90. 1930; Moldenke, Phytologia 18: 173. 1969.

Additional illustrations: Alv. Silv., Fl. Serr. Min. pl. 10. 1908.

ERIOCAULON COERULEUM Van Royen

Additional & emended bibliography: Van Royen, Blumea 10: 128--130, fig. 1C. 1960; D. N. F. Kiehl, Blumea 10: 657. 1960; Moldenke, Phytologia 18: 82. 1969.

Illustrations: Van Royen, Blumea 10: 129, fig. 1C. 1960.

The type of this species was collected by Cornelis Gijsberg Gerrit Jan van Steenis (no. 10320) on the island of Celebes. The species is apparently known only from the type collection.

ERIOCAULON COLLETTII Hook. f.

Additional & emended bibliography: H. Lecomte, Journ. de Bot. 21: 89 & 92. 1908; Fyson, Journ. Indian Bot. 2: 196--197 & 261, pl. 3. 1921; Moldenke, Phytologia 18: 173. 1969.

Kingdon-Ward found this plant growing at 6000 feet altitude,

flowering in September.

Additional citations: INDIA: Manipur: Kingdon-Ward 18096 (N).

ERIOCAULON COLLINUM Hook. f.

Additional synonymy: Eriocaulon collinum H. R. F., in herb.

Additional bibliography: Fyson, Fl. Nilg. & Puln. Hill-tops 1: 428, 430, & 431 (1915) and 2: pl. 274. 1915; Stapf, Ind. Lond. 3: 90. 1930; C. E. C. Fischer in Gamble, Fl. Presid. Madras, ed. repr. 2, 8 [3]: 1125, 1128, & 1333. 1956; Moldenke, Phytologia 18: 173, 264, 272--274, & 361. 1969.

Illustrations: Fyson, Fl. Nilg. & Puln. Hill-tops 2: pl. 274. 1915.

Mooney found this plant growing in swampy grassland by the side of a large stream at 3100 feet altitude, flowering and fruiting in October.

Fyson (1915) describes E. collinum as follows: "Thwaites enum. 44. C. P. 1000!; F. B. I. vi 584, I 41; common small Grey-head. Stems tufted. Leaves 1 1/2 to 2 1/2 by 1/8 inch, flat weak, obtuse. Scapes many, 3 to 8 inches, twisted when dry; sheaths 1 1/4 inches; mouth oblique, not very acute. Involucral bracts all black, or the lowest and outermost in bud brown. Floral bracts numerous. Male flowers very small, 1.5 mm: -- Sepals 1.2 mm, united into a spathe easily split into parts of different width, fringed with short white hairs. Corolla tube funnel-shaped, very slender below; lobes unequal, one petal longer and narrower, fringed with long thick hairs. Female flowers: -- Sepals boat-shaped, with white hairs above most of the back and keel. Petals long, lanceolate, fringed with thick hairs to the base but not hairy. Receptacle villous. t. 274. In damp places, common. Nilgiris: on the plateau, Pykara, Kotagiri, etc. Fyson 5461, 1086, 2084, 2695, 2720, 2920, 2993, 2995. Bourne prob. 3129. Gen. Dist. South India and Ceylon at Newera Elia. The female petals and the long white hairs of the male are visible on the surface of the flower-head."

Additional citations: INDIA: Orissa: H. F. Mooney 4148 (N). CEYLON: Hosseus 39 (Mu--398).

ERIOCAULON COMPRESSUM Lam.

Emended synonymy: Eriocaulon decangulare Walt., Fl. Carol. 83. 1788 [not E. decangulare Hill, 1799, nor Hope, 1770, nor Huds., 1959, nor Hull, 1841, nor L., 1753, nor Lightf., 1777, nor Michx., 1959, nor Willd., 1841].

Additional & emended bibliography: C. Müll. in Walp., Ann. 5: 925 & 928--929. 1860; A. W. Chappm., Fl. South. U. S., ed. 1, pr. 1, 503 (1860), ed. 1, pr. 2, 503 (1865), ed. 1, pr. 3, 503 (1872), ed. 2, pr. 1, 503 (1883), ed. 2, pr. 2, 503 (1884), ed. 2, pr. 3, 503 (1887), ed. 2, pr. 4, 503 (1889), ed. 2, pr. 5, 503 (1892), and ed. 3, 530. 1897; W. Stone, Ann. Rep. N. J. State Mus. 1910: [Pl. South. N. J.] 323--325, pl. 64, fig. 2. 1912; Stapf, Ind. Lond. 3: 90. 1930; Cave, Madrofia 19: 134. 1967; W. C. Grimm, Recog. Flow. Wild Pl. 36. 1968; Ornduff, Reg. Veg. 59: 32 & 116.

1969; Rogerson, Rickett, & Becker, Bull. Torr. Bot. Club 96: 387.
1969; Moldenke, Phytologia 18: 173--174, 267, 268, 300--301, &
379--381. 1969.

Emended illustrations: Britton & Br., Ill. Fl., ed. 1, 1: 372,
fig. 900. 1896; W. Stone, Ann. Rep. N. J. State Mus. 1910: [Pl.
South. N. J.] pl. 64, fig. 2. 1912; Britton & Br., Ill. Fl., ed.
2, 1: 454, fig. 1142. 1913.

Cave (1967) reports the chromosome number for this species as
 $n = 20$, based on I. L. Wiggins 19220 from Levy County, Florida.

The Collector undesignated 210, Curtiss s.n. [Jacksonville, A-
pril 1877], and Meebold 28097, distributed as E. compressum, are
actually E. decangulare L., while A. Ruth s.n. [March 1893] is
Syngonanthus flavidulus (Michx.) Ruhl.

Additional citations: NEW JERSEY: Ocean Co.: A. B. Rich s.n.
[Tom's River, May 30, '87] (N). DELAWARE: Sussex Co.: G. R.
Proctor 1868 (Se--113482). NORTH CAROLINA: Brunswick Co.: C. R.
Bell 11552 (N); A. E. Radford 43810 (Se--213412). Onslow Co.:
Radford & Stewart 1213 (N). SOUTH CAROLINA: Darlington Co.: W.
C. Coker s.n. [June 27, 1931] (N). GEORGIA: Wayne Co.: A. Ruth
s.n. [Jesup, June 1893] (Se--196011). FLORIDA: Duval Co.: Cur-
tiss 3017 (Mu--365).

ERIOCAULON COMPTONII Rendle

Additional & emended bibliography: Rendle, Journ. Linn. Soc.
Lond. Bot. 45: 259--260. 1921; Guillaum., Fl. Analyt. & Synopt.
Nouv.-Caléd. 49--50. 1948; Moldenke, Phytologia 17: 493 (1969)
and 18: 270, 326, 327, & 367. 1969.

Rendle (1921) notes for this plant "Near E. neocaledonica
Schlechter, but apparently a larger plant with smaller heads,
and differing in the form of the floral bracts and sepals. The
leaves and peduncles are covered with diatoms and the threads of
a Cladophora, giving the appearance of hairiness." The type of
the species is Compton 368, collected on the "Plaine des Lacs,
submerged in streams and marshes, serpentine, 800 ft., Feb."

Guillaumin (1948) keys this species from the other species of
New Caledonia known to him as follows:

1. Plants robust; leaves 20--35 cm. long; heads globose; scape
6-ribbed, 20--30 cm. long.....E. pancheri H. Lecomte.
- 1a. Plants very dwarf; leaves 13 cm. or longer.
2. Heads globose.
3. Scares plainly ribbed.
4. Scares 6-ribbed, 14--16 cm. long; leaves 5--13 cm.
long; pistillate sepals obtuse...E. comptonii Rendle.
- 4a. Scares 5-ribbed, 8--20 cm. long; leaves 3--7 cm. long;
pistillate sepals acute.....E. scariosum J. Sm.
- 3a. Scares almost cylindric, 5--8 cm. long; leaves 3--7 cm.
long.....E. neo-caledonicum Schlecht.
- 2a. Heads turbinate, very small; scape 7-ribbed, 80--100 cm.
long.....E. longipedunculatum H. Lecomte.

ERIOCAULON CONICUM (Fyson) C. E. C. Fischer

Additional bibliography: C. E. C. Fischer in Gamble, Fl. Presid. Madras, ed. repr. 2, 8 [3]: 1125--1127 & 1333. 1956; Moldenke, Phytologia 17: 493--494 (1969) and 18: 106, 360, & 362. 1969.

ERIOCAULON CONIFERUM Herzog

Additional bibliography: Moldenke, Phytologia 17: 494. 1969.

The original description of this species states that of the two cotypes on which it is based, Luetzelburg 455 was collected in Bahia and Luetzelburg 1796 was collected at Rio Preto in Goiás. The printed labels on the Munich specimens bear out this statement in both cases. The statement in Phytologia 17: 494 (1969), therefore, that 455 is from Goiás is incorrect. It occurred because of the unfortunate fact that Macbride's type photograph 18685 is labeled as being a photograph of number 455, whereas it is actually a photograph of number 1796 (as can be verified by careful examination of the portion of the collector's label visible in the photograph). Number 455 consists of plants which are very conspicuously viviparous on virtually all of the inflorescence heads. It was found growing in damp places on a campo and the collector notes "E. Glaziovii Ruhl. affine". Number 1796, on the other hand, was collected under two meters of water (!) in the rainy season; a sketch on the sheet illustrates this remarkable habitat condition.

Additional citations: BRAZIL: Bahia: Luetzelburg 455 (Mu--cotype, Z--cotype). Goiás: Luetzelburg 1796 (Mu--cotype).

ERIOCAULON CRASSISCAPUM Bong.

Additional bibliography: C. Müll. in Walp., Ann. 5: 930 (1860) and 6: 1170. 1861; Stapf, Ind. Lond. 3: 90. 1930; Angely, Fl. Anal. Paran., ed. 1, 199. 1965; Moldenke, Phytologia 18: 174. 1969.

Additional citations: BRAZIL: Minas Gerais: Luschnath 40 [Martius 890] (Mu--330). State undetermined: J. E. Pohl s.n. [in Brasilia] (Mu--188).

ERIOCAULON CRISTATUM Mart.

Synonymy: Eriocaulon quinquangulare Heyne ex Wall., Numer. List 208 ["207"], in syn. 1832 [not E. quinquangulare Bojer, 1964, nor L., 1743, nor Mart., 1854, nor Wall., 1858, nor Wight, 1832, nor Willd., 1959]. Eriocaulon cristatum Heyne ex Moldenke, Résumé 287, in syn. 1959 [not E. cristatum Mart. ex Körn., 1856].

Additional & emended bibliography: Wall., Numer. List 208 ["207"]. 1832; C. Müll. in Walp., Ann. 5: 926 & 932 (1860) and 6: 1170. 1861; C. H. Wright, Journ. Linn. Soc. Lond. Bot. 36: 199. 1903; Moldenke, Phytologia 18: 174, 264, 270, 313, 348, 429, 433, & 439. 1969.

The Wallich 6070, cited by me in a previous installment of these notes, should be cited with the qualifying phrase "in part",

since part of the same collection number is the type collection of E. miserum Körn. It should also be noted that Wallich's entry (1832) is merely "6070. Eriocaulon cristatum Mart. Silhet Hk. WG & Ts."

Additional citations: PAKISTAN: East Bengal: W. Griffith 5568 (Mu--306). NEPAL: Wallich 6070, in part (Mu--189, Mu--323.) INDIA: Khasi States: Hooker & Thomson s.n. [Mont. Khasia, 4--5000 ped.] (Mu--190); Native collectors s.n. (Mu--309).

ERIOCAULON CRISTATUM var. BREVICALYX C. H. Wright

Synonymy: Eriocaulon cristatum Benth. apud C. H. Wright, Journ. Linn. Soc. Lond. Bot. 36: 199, in syn. 1903 [not E. cristatum Heyne, 1959, nor Mart., 1832].

Bibliography: Benth., Fl. Hongk. 382. 1861; C. H. Wright, Journ. Linn. Soc. Lond. Bot. 36: 199. 1903.

The original description of this taxon by Wright (1903) is merely "♀ petala sepalis duplo longiora". He bases the taxon on Forbes 465, Hance 795, and Sampson s.n. [near Aberdeen], all from Hongkong, deposited in the British Museum and Kew herbaria.

ERIOCAULON CUSPIDATUM Dalz.

Additional bibliography: C. Müll. in Walp., Ann. 5: 927 & 946 (1860) and 6: 1170. 1861; Dalz. & Gibs., Bomb. Fl. 280. 1861; C. E. C. Fischer in Gamble, Fl. Presid. Madras, ed. repr. 2, 8 [3]: 1120, 1126, & 1333. 1956; Moldenke, Phytologia 18: 174. 1969.

The initial letter of the specific epithet of this taxon is uppercased by Dalzell & Gibson (1861).

The Stocks, Law &c. s.n. specimen cited below from the Munich herbarium bears a curious notation "Unacum Sagittaria triandra Roxb.", probably indicating an original mixture of material of both species on the same sheet, later separated.

Additional citations: INDIA: Kerala: Stocks, Law &c. s.n. [Malabar, Concan &c.] (Mu--191, Mu--266).

ERIOCAULON DALZELLII Körn.

Additional bibliography: C. Müll. in Walp., Ann. 5: 925 & 931--932 (1860) and 6: 1170 & 1171. 1861; Dalz. & Gibs., Bomb. Fl. 280 & 316. 1861; Moldenke, Phytologia 18: 174, 258, 259, & 360. 1969.

The initial letter of the specific epithet of this taxon is uppercased by Dalzell & Gibson (1861).

Additional citations: INDIA: Kerala: Stocks, Law &c. s.n. [Malabar, Concan &c.] (Mu--192).

ERIOCAULON DAMAZIANUM Beauverd

Synonymy: Eriocaulon damazianum P. Beauv. apud Stapf, Ind. Lond. 3: 90, sphalm. 1930.

Additional & emended bibliography: Beauverd, Bull. Herb. Boiss., sér. 2, 8: 986--988, fig. 1 A--G. 1909; Stapf, Ind. Lond. 3: 90. 1930; Moldenke, Phytologia 17: 498. 1969.

Illustrations: Beauverd, Bull. Herb. Boiss., sér. 2, 8: 987, fig. 1 A—G. 1909.

ERIOCAULON DECANGULARE L.

Emended synonymy: Eriocaulon decangulare L. apud Reich. in L., Syst. Pl. 1: 244. 1779. Eriocaulon decangulare Michx. ex Beck, Bot., ed. 1, 370. 1833 [not E. decangulare Hill, 1799, nor Hope, 1770, nor Huds., 1959, nor Hull, 1841, nor Lightf., 1777, nor Walt., 1788, nor Willd., 1841].

Additional bibliography: L., Sp. Pl., 1: 87 (1753) and ed. 2, 1: 129. 1762; Hope, Phil. Trans. Roy. Soc. Lond. 59: pl. 12. 1770; J. A. Murr. in L., Syst. Veg., ed. 12, 109. 1774; Reich. in L., Syst. Pl. 1: 244. 1779; J. A. Murr. in L., Syst. Veg., ed. 13, 1: 109 (1783) and ed. 14, 128. 1784; Palau y Verdera, Part. Práct. Bot. 1: 532. 1784; Jacq., Ind. Pl. 63. 1785; Lippert, Pflanzensyst. 1: 187—188. 1786; Pers. in L., Syst. Veg., ed. 15, 132. 1797; J. A. Murr. in L., Syst. Veg., ed. 15 nov., 106—107. 1798; Jolyclerc, Syst. Sex. Vég., ed. 1, pr. 1, 92. 1798; J. E. Sm. in Sowerby, Engl. Bot. 11: pl. 733. 1800; Jolyclerc, Syst. Sex. Vég., ed. 1, pr. 2, 92. 1803; Mouton-Fontenille in L., Syst. Pl. 1: 148. 1804; J. E. Sm., Fl. Brit. 3: 1010. 1804; J. E. Sm. in Rees, Cycl. 13: Eriocaulon. 1809; Jolyclerc, Syst. Sex. Vég., ed. 2, 1: 101. 1810; Hook., Fl. Scot. 1: 270. 1821; Spreng. in L., Syst. Veg., ed. 16, 3: 775. 1826; J. E. Sm., Engl. Fl. 4: 140. 1828; Lodd., Bot. Cab. 14: pl. 1310. 1828; Curtis, Bot. Mag. 59: pl. 3126. 1832; Beck, Bot., ed. 1, 370. 1833; Kunth, Enum. Pl. 3: 540, 543—544, 563, & 580. 1841; A. Wood, Class-book, ed. 2, pr. 1, 564 (1847), ed. 2, pr. 2, 564 (1848), and ed. 10, pr. 1, 564. 1848; A. Gray, Man. Bot., ed. 1, 515. 1848; Beck, Bot., ed. 2, pr. 1, 370. 1848; A. Wood, Class-book, ed. 10, pr. 2, 564 (1849), ed. 10, pr. 3, 564 (1850), ed. 17, 564 (1851), ed. 23, 564 (1851), ed. 29, 564 (1853), ed. 35, 564 (1854), ed. 41, pr. 1, 564 (1855), and ed. 41, pr. 2, 564. 1856; A. Gray, Man. Bot., ed. 2, pr. 1, 489. 1856; Knieskern, Ann. Rep. N. J. Geol. Surv. 33. 1856; Beck, Bot., ed. 2, pr. 2, 370. 1856; A. Gray, Man. Bot., ed. 2, pr. 2, 489 (1858) and pr. 3, 489. 1859; A. W. Chapm., Fl. South. U. S., ed. 1, pr. 1, 503. 1860; C. Müll. in Walp., Ann. 5: 925 & 929 (1860) and 6: 1170. 1861; A. Wood, Class-book, [ed. 42], pr. 1, 729. 1861; A. Gray, Man. Bot., ed. 3, 489 (1862) and ed. 4, pr. 1, 489. 1863; A. Wood, Class-book, [ed. 42], pr. 2, 729. 1863; A. Gray, Man. Bot., ed. 4, pr. 2, 489. 1864; A. W. Chapm., Fl. South. U. S., ed. 1, pr. 2, 503. 1865; A. Wood, Class-book, [ed. 42], pr. 3, 729 (1865), and pr. 4, 729. 1867; A. Gray, Man. Bot., ed. 5, pr. 1, 549 (1867) and pr. 2, 549. 1868; A. Wood, Class-book, [ed. 42], pr. 5, 729. 1868; Beck, Bot., ed. 2, pr. 3, 370. 1868; A. Gray, Field For. & Gard. Bot., ed. 1, pr. 1, 352 (1868) and pr. 2, 352. 1869; A. Wood, Class-book, [ed. 42], pr. 6, 729 (1869) and pr. 7, 729. 1870; A. Wood, Am. Bot. & Flor., ed. 1, pr. 1, 355. 1870; A. Gray, Man. Bot., ed. 4, pr. 3, 489. 1870; A. Wood, Am. Bot. & Flor., ed. 1, pr. 2, 355 (1871) and pr. 3, 355. 1872; A. W. Chapm., Fl. South. U. S., ed. 1, pr.

3, 503. 1872; A. Wood, Class-book, [ed. 42], pr. 8, 729. 1872; A. Wood, Am. Bot. & Flor., ed. 1, pr. 4, 355 (1873) and pr. 5, 355. 1874; O. R. Willis, Cat. Pl. N. J. 67. 1874; A. Wood, Am. Bot. & Flor., ed. 1, pr. 6, 355. 1875; A. Wood, Class-book, [ed. 42], pr. 9, 729. 1876; A. Gray, Man. Bot., ed. 5, pr. 8, 549 (1878) and pr. "8" [=9], 549. 1880; A. Gray, Field For. & Gard. Bot., ed. 1, pr. 3, 352. 1880; A. Wood, Class-book, [ed. 42], pr. 10, 729. 1881; A. W. Chapm., Fl. South. U. S., ed. 2, pr. 1, 503 (1883), ed. 2, pr. 2, 503 (1884), ed. 2, pr. 3, 503 (1887), and ed. 2, pr. 4, 503. 1889; S. Wats. & Coult. in A. Gray, Man. Bot., ed. 6, pr. 1, 567 (1889) and pr. 2, 567. 1890; A. W. Chapm., Fl. South. U. S., ed. 2, pr. 5, 503 (1892) and ed. 3, 530. 1897; Keller & S. Br., Handb. Fl. Philad. 92. 1905; G. T. Stevens, Ill. Guide Flow. Pl. 114 & 115, pl. 9, fig. 5. 1910; W. Stone, Ann. Rep. N. J. State Mus. 1910: [Pl. South. N. J.] 323 & 325, pl. 28, fig. 2. 1912; N. Taylor, Guide Wild Fls. 7 & 323. 1928; Stapf, Ind. Lond. 3: 90. 1930; W. C. Grimm, Recog. Flow. Wild Pl. 36 & 37. 1968; Moldenke, Phytologia 18: 175, 187, 188, & 379--381. 1969; Rogerson, Rickett, & Becker, Bull. Torr. Bot. Club 96: 387. 1969.

Additional & emended illustrations: Lodd., Bot. Cab. 14: pl. 1310 [in color]. 1828; Curtis, Bot. Mag. 59: pl. 3126 [in color]. 1832; Britton & Br., Ill. Fl., ed. 1, 1: 372, fig. 901. 1896; G. T. Stevens, Ill. Guide Flow. Pl. 115, pl. 9, fig. 5. 1910; W. Stone, Ann. Rep. N. J. State Mus. 1910: [Pl. South. N. J.] pl. 28, fig. 2. 1912; Britton & Br., Ill. Fl., ed. 2, 1: 455, fig. 1143. 1913; W. C. Grimm, Recog. Flow. Wild Pl. 37. 1968.

The Stone (1912) work cited in the bibliography of this species is often cited as "1911", but actually was not published until January 26, 1912.

Grimm (1968) informs us that he has seen this plant with a flower stalk "1 to 3 feet tall which is 10 or 12-angled". Wood (1847) records the additional vernacular name "tall pipewort" for this plant. McDaniel found the plant common in low bogs and forming "large clumps 1 meter wide, scattered" on flats in Mississippi, while Webster & Wilbur found it in "savanna areas of longleaf pine and loblolly" there. These same collectors, in Texas, found it to be "common in low moist areas of woods of longleaf pine and some hardwoods, with open grassy areas". The Correll collection shows remarkably small flowering heads.

The Meebold 28095 collection, cited below, is a mixture with a species of *Xyris*. Material of *E. decangulare* has been misidentified and distributed in herbaria under the names *E. gnaphaloides* Michx. and *E. lineare* Small. On the other hand, the Herb. Zuccarini s.n. [Texas], distributed as *E. decangulare*, is actually *E. decangulare* var. *minor* Moldenke, while Herb. Schreber s.n. and R. G. Mills 43-90 are *E. pellucidum* Michx.

Additional citations: NEW JERSEY: Atlantic Co.: Pretz 2098 [10866] (Mu). Ocean Co.: E. S. Burgess s.n. [Manchester] (N); Curtiss s.n. [Manchester, Sept. 24, '75] (N); Lighthipe s.n.

[9-1-1880] (Mu). PENNSYLVANIA: Northampton Co.: Moser s.n. [Bethlehem] (Mu). County undetermined: Muhlenberg 1181 (Mu--331). DELAWARE: Sussex Co.: G. R. Proctor 2882 (Se--113481). MARYLAND: Prince Georges Co.: F. G. Meyer 9236 (Se--223258). VIRGINIA: County undetermined: Collector undesignated 310 (Mu--186). NORTH CAROLINA: Alexander Co.: Radford & Stewart 1657 (N). Carteret Co.: Blomquist 15262 (N). Columbus Co.: C. R. Bell 12710 (N); A. A. Heller 14112 (Se--88005). Cumberland Co.: C. Knox s.n. [July 19, 1942] (Se--202570). Dare Co.: P. O. Schallert s.n. [July 12, '41] (Se--112620). SOUTH CAROLINA: Berkeley Co.: Ahles & Haesloop 30671 (Se--199081). Darlington Co.: Radford & Stewart 397 (N). Kershaw Co.: A. E. Radford 44243 (Se--212807). GEORGIA: Douglas Co.: Cronquist 5425 (Mi). FLORIDA: Duval Co.: Curtiss 3016 (Mu--364), s.n. [Jacksonville, April 1877] (N). Escambia Co.: Meebold 28096 (Mu), 28097 (Mu); M. Morgan P.1 (Se--98844). Hernando Co.: R. A. Howard 12953 (Se--163441). Marion Co.: Meebold 28095, in part (Mu, Mu). Palm Beach Co.: Meebold 28094 (Mu). Seminole Co.: P. O. Schallert 3961 (Mu). MISSISSIPPI: Covington Co.: Webster & Wilbur 3373 (N). Forrest Co.: S. McDaniel 3305 (N). Harrison Co.: S. McDaniel 3356 (N). TEXAS: Jasper Co.: Correll & Correll 12516 (N). Tyler Co.: Webster & Wilbur 3199 (N). LOCALITY OF COLLECTION UNDETERMINED: Bischoff s.n. [Ex Amer. boreali 1823] (Mu--193); Bosc s.n. (Mu--320); Herb. Zuccarini s.n. [Amerika septr.] (Mu--195).

ERIOCAULON DECANGULARE var. LATIFOLIUM Chapm.

Additional bibliography: Moldenke, *Phytologia* 18: 84. 1969.

McDaniel describes this plant as "common" in low bogs, flowering and fruiting in August.

Additional citations: MISSISSIPPI: Harrison Co.: S. McDaniel 3358 (N).

ERIOCAULON DECANGULARE var. MINOR Moldenke

Additional bibliography: Moldenke, *Phytologia* 18: 175. 1969.

Additional citations: TEXAS: County undetermined: Herb. Zuccarini s.n. [Texas] (Mu--194).

ERIOCAULON DECENFLORUM Maxim.

Additional & emended bibliography: Maxim., *Dec. Pl. Asiat.* 8: 7. 1893; Komarov, *Fl. Mansh.* 1: 418. 1901; Durand & Jacks., *Ind. Kew. Suppl.* 1, pr. 1, 158 (1902) and 501. 1906; Stapf, *Ind. Lond.* 3: 90. 1930; Komarov & Alis., *Opred. Rast. Dal'nevost. Kr.* 1: 340. 1931; Steinberg in Komarov & Schischkin, *Fl. U. S. S. R.* 3: 496, pl. 27, fig. 1 a--d (1935) and *Engl. transl.*, 393. 1964; Moldenke, *Phytologia* 18: 84 & 353--356. 1969; Tatew. & Ishizuka, *Sapp. Bull. Bot. Gard. Hokk. Univ.* 2: 21, 22, & 30. 1969.

The original Maximowicz reference (1893) in the bibliography of this taxon is sometimes cited as "1892" and was erroneously

cited to Bull. Acad. Sci. St.-Petersb. by Durand & Jackson (1902).

Tatewaki & Ishizuka (1969) report that this species grows in the Eriophorum gracile association, as well as in the association of that species with Phragmites communis and Carex limosa and in association with C. middendorffii in Japan.

ERIOCAULON DECENFLORUM f. COREANUM (H. Lecomte) Nakai

Additional synonymy: Eriocaulon decemflorum coreanum Nakai apud Stapf, Ind. Lond. 3: 90. 1930.

Additional & emended bibliography: Nakai in Matsumura, Icon. Pl. Koisikav. 2: 47, pl. 108. 1914; Stapf, Ind. Lond. 3: 90. 1930; Moldenke, Phytologia 18: 84. 1969.

Illustrations: Nakai in Matsumura, Icon. Pl. Koisikav. 2: pl. 108. 1914.

ERIOCAULON DECIPIENS N. E. Br.

Additional bibliography: Moldenke, Phytologia 18: 48. 1968.

Robinson found this plant growing in bogs, flowering and fruiting in June.

Additional citations: ZAMBIA: E. A. Robinson 3744 (Mu, Z).

ERIOCAULON DEIGHTONII Meikle

Additional bibliography: Winner, Biol. Abstr. 49: 11782. 1968; Moldenke, Phytologia 18: 84. 1969.

ERIOCAULON DEPAUPERATUM Merr.

Additional bibliography: Van Royen, Blumea 10: 127. 1960; Moldenke, Phytologia 18: 49—50. 1968.

ERIOCAULON DEPRESSUM R. Br.

Additional bibliography: J. E. Sm. in Rees, Cycl. 13: Eriocaulon. 1809; Spreng. in L., Syst. Veg., ed. 16, 3: 776. 1826; C. Müll. in Walp., Ann. 5: 925 & 927 (1860) and 6: 1170. 1861; Moldenke, Phytologia 18: 175 & 179. 1969.

ERIOCAULON DESLANDESII Alv. Silv.

Additional bibliography: Angely, Fl. Anal. Paran., ed. 1, 199. 1965; Moldenke, Phytologia 18: 50—51. 1968.

ERIOCAULON DIAGUISSENSE Bourdu

Additional & emended bibliography: Bourdu, Bull. Soc. Bot. France 104: 156—158, fig. A—F. 1957; Moldenke, Phytologia 18: 51. 1968.

Illustrations: Bourdu, Bull. Soc. Bot. France 104: 157, fig. A—F. 1957.

Bourdu (1957) says "Cette description s'applique à des échantillons en parfait état mais dont la floraison est légèrement avancée....Les pétales libres des fleurs ♀ et le nombre réduit des étamines (3) sont des caractères qui, associés, correspondent normalement, dans la famille des Eriocaulacées, au genre Paepalanthus. Il nous a paru cependant logique de considérer cette petite

plante comme un Eriocaulon pour des deux raisons principales suivantes: 1. La colonne creuse ('petalorum tubus') qui, dans les fleurs mâles porte les pétales et les étamines est ici bien développée comme c'est le cas exclusivement chez les Eriocaulon. 2. La présence de petites glandes noires au sommet interne des pétales est un caractère des deux genres: Eriocaulon et Mesanthemum. On peut donc considérer la réduction du nombre des étamines comme un caractère secondaire. Ce ne serait pas un cas isolé dans le genre Eriocaulon: les E. griseum Koern. du Brésil, E. achiton Koern. et E. minutum Hook. de l'Inde (Malabar et Bengale) ont des fleurs mâles très comparables à celles de l'espèce décrite ici. Ces dernières espèces possèdent une tige et les pédoncules des capitules sont nets et plus ou moins allongés. L'absence de pédoncule est rare dans la famille des Eriocaulacées. On n'observe ce caractère que chez les Paepalanthus guyanensis Klotzsch. (Guyane anglaise), P. scleranthus Ruhl. (Brésil) et P. leucocephalus Ruhl. (Brésil). Dans toutes ces espèces du genre Paepalanthus le capitule et les feuilles sous-jacentes sont portés à l'extrémité d'une tige plus ou moins longue et ramifiée. Dans le P. sessiliflorus le capitule est également sessile et, de plus, la tige est nulle. L'aspect général de cette dernière espèce est donc très voisin de celui de l'espèce décrite ici, le Paepalanthus est toutefois nettement plus petit. Ne possédant aucune description des fleurs de Paepalanthus sessiliflorus (dont les deux synonymes sont: Eriocaulon sessiliflorum et Dupatya sessiliflorum) il est bien difficile de pousser la comparaison plus avant. L'espèce décrit n'a été rencontrée qu'en un point très précis de la Guinée française: à mi-pente du versant NE du petit plateau de Diaguissa qui limite vers le Sud de col de Dalaba (1.200--1.300 m). Cette espèce se développe sur une fine couche de terre (1 à 10 cm. d'épaisseur) qui borde les dalles latéritiques. Cette zone est temporairement très humide et on y trouve en association ouverte: Eriocaulon remotum H. Lecomte, Eriocaulon plumale N. E. Br., Eragrostis diplachnoides Steud., Utricularia tribracteata, Belmontia Chevalieri H. des Abbayes et R. Schnell, etc..."

ERIOCAULON DIANAE Fyson

Additional bibliography: C. E. C. Fischer in Gamble, Fl. Presid. Madras, ed. repr. 2, 8 [3]: 1124--1125, 1128, & 1333. 1956; Moldenke, Phytologia 18: 85, 432, 434, & 435. 1969.

This species has been found growing in savanna woods, at altitudes of 100 to 3000 feet, flowering and fruiting in October. Hosseus states that it has gray-blue flowers and is abundant in damp places in Thailand.

Additional citations: THAILAND: Hosseus 117 (Mu-403).

ERIOCAULON DIANAE var. LONGIBRACTEATUM Fyson

Additional bibliography: C. E. C. Fischer in Gamble, Fl.

Presid. Madras, ed. repr. 2, 8 [3]: 1128 & 1333. 1956; Moldenke, *Phytologia* 18: 52--54 & 435. 1968.

Hosseus found this plant in damp places in savanna woods, at 100 meters altitude, where he says that it forms rosettes and is "abundant", with gray-blue inflorescences, flowering and fruiting in October. The Stocks, Law &c. collection cited below was originally distributed as E. xeranthemum Mart., but bears a notation by Schultes, in his own handwriting: "Eriocaulon Rouxianum Stdl. ? E. minimum Lam.? Certe non est E. xeranthemum Mart." Material has also been misidentified and distributed in herbaria as E. truncatum Hamilt. On the other hand, the Santapau 19702, distributed as E. diana var. longibracteatum, is actually E. sollyanum Royle.

Additional citations: INDIA: Kerala: Stocks, Law &c. s.n. [Malabar, Concan &c.] (Mu--263). State undetermined: Helfer 373 [India orientalis] (Mu--373). THAILAND: Hosseus 102 (Mu--402).

ERIOCAULON DIANAE var. RICHARDIANUM Fyson

Additional bibliography: C. E. C. Fischer in Gamble, Fl. Presid. Madras, ed. repr. 2, 8 [3]: 1125, 1128, & 1333. 1956; Moldenke, *Phytologia* 18: 54. 1968.

ERIOCAULON DICLINE Maxim.

Additional & emended bibliography: Maxim., Dec. Pl. Asiat. 8: 21. 1893; Mak., Bot. Mag. Tokyo 8: 506. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 158 (1902) and 501. 1906; Moldenke, *Phytologia* 18: 85. 1969.

The original Maximowicz publication of this taxon (1893) is erroneously cited to Bull. Acad. Sci. St.-Petersb. by Durand & Jackson (1902) and by me (1968). This part of Maximowicz's work was apparently only published separately.

ERIOCAULON DICTYOPHYLLUM Körn.

Additional bibliography: C. Müll. in Walp., Ann. 5: 930 (1860) and 6: 1170. 1861; Angely, Fl. Anal. Paran., ed. 1, 199. 1965; Moldenke, *Phytologia* 18: 175. 1969.

The type of Paepalanthus dictyophyllum was collected by Carl Friedrich Philipp von Martius near the town of Salgado, Minas Gerais, Brazil, in August, 1818, and is deposited in the herbarium of the Staatssammlung in Munich, where it was photographed by Macbride as his type photograph number 18686. This collection is also a cotype collection of Eriocaulon dictyophyllum Körn.

Additional & emended citations: BRAZIL: Minas Gerais: Martius s.n. [prope vicum Salgado, Aug. 1818; Macbride photos 18686] (Mu--197--cotype), s.n. [Prope Salgado] (Mu--196--cotype). Santa Catarina: Smith & Reitz 9187 (Rf); Ule 1382, in part (Ac). State undetermined: J. E. Pohl s.n. [in Brasilia] (Mu--198).

ERIOCAULON DREGEI Hochst.

Additional bibliography: Walp., Ann. 1: 891. 1849; C. Müll. in Walp., Ann. 5: 926 & 944 (1860) and 6: 1170. 1861; Moldenke, Phytologia 18: 175--176 & 277. 1969.

Ward found this plant growing with other hygrophilous vegetation in moist soil of a small hillside "vlei", at an altitude of 50 feet, flowering and fruiting in September.

Additional citations: SOUTH AFRICA: Natal: C. J. Ward 3490 (Mu).

ERIOCAULON DUTHIEI Hook. f.

Additional bibliography: H. Lecomte, Journ. de Bot. 21: 89 & 93. 1908; H. Lecomte, Fl. Gén. Indo-Chine 7: 3 & 15--16. 1912; Moldenke, Phytologia 18: 176. 1969.

ERIOCAULON EBERHARDTII H. Lecomte

Additional bibliography: H. Lecomte, Fl. Gén. Indo-Chine 7: 2 & 4. 1912; Moldenke, Phytologia 18: 176. 1969.

ERIOCAULON ECHINACEUM Van Royen

Additional & emended bibliography: Van Royen, Blumea 10: 128, 129, & 131--132, fig. 1D. 1960; D. N. F. Kiehl, Blumea 10: 657. 1960; Moldenke, Phytologia 18: 85. 1969.

Illustrations: Van Royen, Blumea 10: 129, fig. 1D. 1960.

This species is said to be based on Nurkas 241, collected on the island of Celebes, and is apparently known thus far only from the type collection.

ERIOCAULON ECHINULATUM Mart.

Additional bibliography: C. Müll. in Walp., Ann. 5: 926 & 935 (1860) and 6: 1170. 1861; Hieron. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 2 (4): 25. 1888; C. H. Wright, Journ. Linn. Soc. Lond. Bot. 36: 199. 1903; H. Lecomte, Journ. de Bot. 21: 89 & 93. 1908; H. Lecomte, Fl. Gén. Indo-Chine 7: 3 & 14--15. 1912; Moldenke, Phytologia 18: 176. 1969.

ERIOCAULON EHRENBERGIANUM Klotzsch

Additional bibliography: C. Müll. in Walp., Ann. 5: 930 (1860) and 6: 1170. 1861; Moldenke, Phytologia 18: 176--177, 303, 304, & 325. 1969.

Recent collectors have found this species growing in loamy soil in the water of small ponds, flowering and fruiting in February, April, and August. McVaugh describes the flower-heads as "white" and found the plant growing in open pine-oak woodlands with seepage areas on hillsides and in cleared and grazed areas in pine-oak woods, "locally abundant with Utricularia and other aquatics".

There appears to be some question about the correct number for the Schaffner collection cited below. The original label accompanying it is inscribed "436", but this number was later crossed out by pen, with no new one substituted. Lacking any further information, I am continuing to use the original number.

Additional citations: MEXICO: Federal District: J. G. Schaffner 436 (Mu--363). Hidalgo: Pringle 8989, in part [Canales Station] (Mu--388, Mu--399, Mu). Jalisco: R. McVaugh 23493 (Ip). México: La Llave s.n. [Toluca, Sept. 1830] (Mu--386). Michoacán: Barkley, Paxson, & Webster 2736 (W--2367450); R. McVaugh 22500 (Ip).

ERIOCAULON ELEGANTULUM Engl.

Additional bibliography: Moldenke, *Phytologia* 18: 62. 1968.

Holst found this species growing in meadows, flowering and fruiting in June.

Additional citations: TANGANYIKA: Holst 3181 (Mu--346).

ERIOCAULON ELENORAE Fyson

Additional bibliography: C. E. C. Fischer in Gamble, Fl. Presid. Madras, ed. repr. 2, 8 [3]: 1123, 1127, & 1333. 1956; Moldenke, *Phytologia* 18: 86 & 278. 1969.

Material of this species has been misidentified and distributed in herbaria as E. sexangulare L.

Additional citations: INDIA: Kerala: Stocks, Law & c. s.n. [Malabar, Concan & c.] (Mu--253).

ERIOCAULON ELICHRYSOIDES Bong.

Additional bibliography: Bong., *Mém. Acad. Imp. Sci. St.-Petersb.*, sér. 6, 3: pl. 27. 1835; C. Müll. in Walp., *Ann.* 5: 930 (1860) and 6: 1170. 1861; Beauverd, *Bull. Herb. Boiss.*, sér. 2, 8: 283, fig. 9A (1908) and 987 & 988. 1909; Stapf, *Ind. Lond.* 3: 90. 1930; Moldenke, *Phytologia* 18: 177, 253, & 277. 1969.

Illustrations: Bong., *Mém. Acad. Imp. Sci. St.-Petersb.*, sér. 6, 3: pl. 27. 1835; Beauverd, *Bull. Herb. Boiss.*, sér. 2, 8: 987. 1909.

The initial letter of the specific epithet of this taxon is uppcased by Müller (1861).

ERIOCAULON ENSIFORME C. E. C. Fischer

Additional & emended bibliography: C. E. C. Fischer in Gamble, Fl. Presid. Madras, ed. 1, 9: 1607 & 1618 (1931) and ed. repr. 2, 8 [3]: 1120--1121, 1126, & 1333. 1956; Moldenke, *Phytologia* 18: 87. 1969.

ERIOCAULON EPAPILLOSUM Ruhl.

Additional bibliography: Moldenke, *Phytologia* 18: 87--88 & 94. 1969.

ERIOCAULON EQUISETOIDES Van Royen

Synonymy: Eriocaulon setaceum Steen. apud Van Royen, *Blumea* 10: 132, in syn. 1960 [not E. setaceum Auct. ex Ruhl., 1903, nor Benth., 1893, nor Crantz, 1893, nor Heyne, 1832, nor Kunth, 1860, nor L., 1753, nor Lour., 1790, nor Rottl., 1960, nor Wall., 1893, nor Wight, 1832, nor Willd., 1959]. Eriocaulon setaceum Auct. ex Back-

er & Bakh., Fl. Java 3: 25, in syn. 1968.

Additional & emended bibliography: Van Steenis, Trop. Natuur 25: 107. 1936; Backer, Noodfl. Java 10a: fam. 214: 1. 1949; Van Royen, Blumea 10: 128, 129, & 132--133, fig. 1E. 1960; D. N. F. Kiehl, Blumea 10: 657. 1960; Backer & Bakh., Fl. Java 2: 25. 1968; Moldenke, Phytologia 18: 88. 1969.

Illustrations: Van Royen, Blumea 10: 129, fig. 1E. 1960.

The type of this species is Van Steenis 7542 from Java, but Van Royen avers that possibly Teysmann s.n. from Banka and Van Vreeden s.n. from Sumatra may represent the same species.

Backer & Bakhuizen van den Brink (1968) describe this species as follows: "Leaves partly rather closely set on a submerged, erect stem, partly rosulate on the top of the stem, floating, 4--6 cm. long, very narrow, 1-nerved, glabrous. Heads umbellate on the top of the stem, each borne on a glabrous, 4--15 cm long peduncle, greyish green; bracts glabrous, outer ones suborbicular, inner ones obovate; receptacle villous; ♂: sepals almost entirely connate into a sheath; petals 3, minute; ♀: sepals 3, obovate, vaulted, apically pubescent; petals 3, lanceolate-spatulate. Stem pale, with wide air-channels, basally with vertical rows of roots. Delicate. 0.05--0.20; Indramayu (W.); below 50; flooded rice-fields (E. setaceum Auct., non L.)".

ERIOCAULON EURYPEPLON Körn.

Additional bibliography: C. Müll. in Walp., Ann. 5: 927 & 946 (1860) and 6: 1170. 1861; Moldenke, Phytologia 18: 177. 1969.

Additional citations: INDIA: State undetermined: Hügel s.n. [Ind. or.] (Mu--200).

ERIOCAULON FABERI Ruhl.

Additional bibliography: C. H. Wright, Journ. Linn. Soc. Lond. Bot. 36: 199. 1903; Moldenke, Phytologia 18: 88. 1969.

ERIOCAULON FENESTRATUM Bojer

Synonymy: Eriocaulon fenestralis Bojer, in herb.

Additional bibliography: C. Müll. in Walp., Ann. 5: 926 & 944 (1860) and 6: 1171. 1861; Massee, Grevillea 22: 67. 1894; G. P. Clinton, Journ. Myc. 8: 137. 1902; Moldenke, Phytologia 18: 88--89, 378, & 433. 1969.

Müller (1861) spells the surname of this binomial's author "Boier", but correctly in his 1860 reference. Massee (1894) describes a smut fungus, Cintractia eriocauli Massee, from this species in Madagascar. Clinton (1902) corrected the name of the fungus to Ustilago eriocauli (Massee) Clint. in spite of the fact that he had himself published an Ustilago eriocauli Clint. in 1901, claiming that the two fungi are conspecific.

Additional citations: MADAGASCAR: Bojer s.n. [prov. Emirna] (Mu--202--isotype), s.n. [in insula Madagascar] (Mu--201).

ERIOCAULON FISTULOSUM R. Br.

Additional bibliography: J. E. Sm. in Rees, Cycl. 13: Eriocaulon. 1809; C. Müll. in Walp., Ann. 5: 925 & 927 (1860) and 6: 1171. 1861; Banks & Soland., Bot. Cook's Voy. 3: pl. 317. 1905; Stapf, Ind. Lond. 3: 90. 1930; Moldenke, Phytologia 18: 177 & 368. 1969.

Illustrations: Banks & Soland., Bot. Cook's Voy. 3: pl. 317. 1905.

The binomial, Eriocaulon fistulosum R. Br., is usually cited to R. Br., Prodr. Fl. Nov. Holl. (1810). However, it was first validly published, and credited to Brown, by J. E. Smith in Rees, Cycl. (December, 1809), where the description is given as follows: "E. fistulosum. Brown MSS. — Stalks aggregate, cylindrical, striated. Leaves smooth, twice as long as the sheaths. Head hemispherical. Inner calyx-scales obovate, pointed. — Native of New Holland. — Stalks a span high. Leaves about half as long, or more, taper-pointed, smooth, rather turgid. Heads small, brownish."

The E. fistulosum Nees (1959) is a synonym of E. parkeri B. L. Robinson.

ERIOCAULON FLUVIATILE Trimen

Additional bibliography: H. Lecomte, Journ. de Bot. 21: 89 & 90. 1908; H. Lecomte, Fl. Gén. Indo-Chine 7: 2 & 6—7. 1912; Moldenke, Phytologia 18: 177. 1969.

Lecomte (1908) reduces E. tonkinense Ruhl. to synonymy under E. fluviatile.

ERIOCAULON FRIESIORUM Bullock

Additional bibliography: Moldenke, Phytologia 18: 91. 1969.

Emended citations: KENYA: Hedberg 1602 (Ac).

ERIOCAULON FULIGINOSUM C. Wright

Additional & emended bibliography: Moldenke, Known Geogr. Distrib. Erioc. 4, 35, & 39—41. 1946; Moldenke, Phytologia 18: 92. 1969.

ERIOCAULON GAMBLEI C. E. C. Fischer

Additional & emended bibliography: C. E. C. Fischer in Gamble, Fl. Presid. Madras, ed. 1, 9: 1617—1618 & 1620 (1931) and ed. repr. 2, 8 [3]: 1126, 1128, & 1333. 1956; Moldenke, Phytologia 18: 93. 1969.

ERIOCAULON GIBBOSUM Körn.

Additional & emended bibliography: C. Müll. in Walp., Ann. 5: 930 (1860) and 6: 1171. 1861; Körn. in Mart., Fl. Bras. 3 (1): 489—490 & 500, pl. 62, fig. 1. 1863; Ruhl. in Pilg., Engl. Bot. Jahrb. 30: 146—147. 1901; Wettst., Handb. Syst. Bot., ed. 2, 814. 1911; Stapf, Ind. Lond. 3: 90. 1930; Moldenke, Phytologia 18: 177 & 342. 1969.

Additional & emended illustrations: Körn. in Mart., Fl. Bras.

3 (1): pl. 62, fig. 1. 1863; Wettst., Handb. Syst. Bot., ed. 2, 814. 1911.

The Ruhland (1901) work cited in the bibliography above is often erroneously cited as "1902", but was actually issued on July 2, 1901. The "1902" is merely the volume title-page date.

Körnigke's var. brevifolium is regarded by me as the typical form of this species because it is the one first described by him and is the one illustrated by him without any varietal designation. It is based on G. Gardner 5275 from Minas Gerais, Brazil, and Lund s.n. [ad rivulos prope Uberava, Julio], also from Minas Gerais. It is described as "foliis brevibus 7--9-nerviis, 3--7 lin. longis, medio usque 1 lin. latis".

L. Riedel 2416, cited below, seems to be a mixture of the typical form of the species [represented by the Munich specimen] and var. longifolium Körn. [as cited by Körnigke], unless, of course, the longer leaves were once present on the Munich specimen, too, but have rotted off, or had rotted off before the plant was collected. It is possible that the variety is not a wellmarked one. The Weddell 2128 specimens cited by me previously are cotypes of var. longifolium Körn.

Emended citations: BRAZIL: Amapá: Murça Pires, Rodrigues, & Irvine 50900 (Rf). Goiás: L. Riedel 2416, in part (Mu--206). State undetermined: J. E. Pohl s.n. [Brasília] (Mu--205).

ERIOCAULON GIBBOSUM var. MATTOGROSSENSE Ruhl.

Additional & emended bibliography: Ruhl. in Pilg., Engl. Bot. Jahrb. 30: 146--147. 1901; Moldenke, Phytologia 18: 88, 93, & 94. 1969.

The Ruhland (1901) work cited in the bibliography above is often erroneously cited as "1902", but was actually issued on July 2, 1901. The "1902" is merely the volume title-page date.

ERIOCAULON GIBBOSUM f. VIVIPARUM Moldenke

Bibliography: Moldenke, Phytologia 18: 342. 1969.

This form differs from the typical form of the species in its viviparous flower-heads.

Citations: BRAZIL: Goiás: Luetzelburg 1440 (Mu--type).

ERIOCAULON GILGIANUM Ruhl.

Emended synonymy: Eriocaulon ciliisepalum Rendle, Cat. Afr. Pl. Welw. 2 (1): 98. 1899.

Additional & emended bibliography: Rendle, Cat. Afr. Pl. Welw. 2 (1): 98. 1899; Engl. & Drude, Veget. Erde 9 (2): 265. 1908; Stapf, Ind. Lond. 3: 90. 1930; H. Hess, Bericht. Schweiz. Bot. Gesell. 65: 158--160, fig. 4--6 & 12, 161--162, 169, & 270--271, pl. 8, fig. 11 & 12. 1955; Moldenke, Phytologia 18: 177. 1969.

Additional & emended illustrations: Ruhl. in Engl., Pflanzenreich 13 (4-30): 99, fig. 13A. 1903; Engl. & Drude, Veget. Erde 9 (2): 265. 1908.

Recent collectors have found this plant in flower and fruit in

June. The Endlich 733a collection cited below is a mixture with something in the Cyperaceae.

Rendle (1899) based his E. ciliisepalum on two collections made by Welwitsch: (1) no. 2445, in damp fields formerly planted with Zea mays, very plentiful but only met with in a very few places, near Lopollo, at 5000 feet elevation, Huila, Angola, in May, 1860, and (2) no. 2445a, on mucous-boggy slopes at Morro de Lopollo, below the old fortress, Huila, in the end of May, 1860. He says of it "Near E. abyssinicum Hochst. but distinguished by its hairy receptacle and the ciliate sepals of the female flower!"

ERIOCAULON GOMPHRENOIDES Kunth

Additional bibliography: C. Müll. in Walp., Ann. 5: 930 (1860) and 6: 1171. 1861; Moldenke, Phytologia 18: 87 & 99—100. 1969.

ERIOCAULON GRACILE Mart.

Additional & emended bibliography: C. Müll. in Walp., Ann. 5: 941 (1860) and 6: 1171. 1861; H. Lecomte, Journ. de Bot. 21: 89, 91, 109, & 131. 1908; H. Lecomte, Fl. Gén. Indo-Chine 7: 2 & 9. 1912; K. Larsen, Dansk Bot. Ark. 23: 379, 380, & 397, fig. 7-9. 1966; Ornduff, Reg. Veg. 55: 13 & 118. 1968; Moldenke, Phytologia 18: 178, 360, 432, & 434. 1969.

Illustrations: K. Larsen, Dansk Bot. Ark. 23: 380, fig. 7—9. 1966.

Larsen (1966) says that this species is "Distributed from N.E. India through Burma, N. Thailand to Laos, Cambodia, and Vietnam". He says, further, that "In this case very good meiotic metaphases were available in No. 5235 (Figs. 7—8) and the bivalents were well separated so there was no doubt about the number $n = 15$, furthermore, $2n = 30$ was counted in root tips of No. 6083 (Fig. 9). The chromosome morphology deviates rather a lot from that of E. achiton. In the first place there are great size differences among the chromosomes; secondly the largest chromosomes are nearly twice as long as in the preceding species [E. achiton]."

ERIOCAULON GRAPHITINUM F. Muell. & Tate

Additional synonymy: Eriocaulon graphitinum Ewart & Cookson apud Stapf, Ind. Lond. 3: 90. 1930.

Additional & emended bibliography: Ewart & Cookson in Ewart & Davies, Fl. N. Terr. 67 & 366, pl. 6. 1917; Stapf, Ind. Lond. 3: 90. 1930; Moldenke, Phytologia 18: 103. 1969.

Illustrations: Ewart & Cookson in Ewart & Davies, Fl. N. Terr. 366, pl. 6. 1917.

ERIOCAULON GREGATUM Körn.

Additional bibliography: C. Müll. in Walp., Ann. 5: 926 & 932 (1860) and 6: 1171. 1861; Moldenke, Phytologia 18: 103—104. 1969.

Additional citations: INDIA: Khasi States: Hooker & Thomson s.n. [Mont. Khasia, 4000 ped.] (Mu—199).

ERIOCAULON GRISEUM Körn.

Additional bibliography: C. Müll. in Walp., Ann. 5: 930 (1860) and 6: 1171. 1861; Körn. in Mart., Fl. Bras. 3 (1): 475, 479, & 500, pl. 60, fig. 3. 1863; Hieron. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 2 (4): 23 & 25, fig. 12 G & H. 1888; Stapf, Ind. Lond. 3: 90. 1930; Bourdu, Bull. Soc. Bot. France 104: 156. 1957; Moldenke, Phytologia 18: 104. 1969.

Additional & emended illustrations: Körn. in Mart., Fl. Bras. 3 (1): pl. 60, fig. 3. 1863; Hieron. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 2 (4): 23, fig. 12 G & H. 1888.

Additional citations: BRAZIL: Piahy: Martius s.n. [Mai 1819] (Mu—283—isotype).

ERIOCAULON GUADALAJARENSE Ruhl.

Additional bibliography: Moldenke, Phytologia 18: 104. 1969.

Material of this species has been misidentified and distributed in herbaria as E. benthami Kunth.

Additional citations: MEXICO: Jalisco: Pringle 1734 (Mu—367—isotype, Mu—368—isotype).

ERIOCAULON GUYANENSE Körn.

Emended synonymy: Eriocaulon guianense Körn. apud C. Müll. in Walp., Ann. 5: 927 & 947. 1860.

Additional bibliography: C. Müll. in Walp., Ann. 5: 927 & 947 (1860) and 6: 1171. 1861; Stapf, Ind. Lond. 3: 90. 1930; Moldenke, Phytologia 18: 104—105. 1969.

The initial letter of the specific epithet of this taxon is uppercased by Müller (1861). Goodland 302 is a mixture of this species with Philodice hoffmannseggii Mart. and Syngonanthus huberi Ruhl. Goodland found the plant growing in an open hog-wallow, in a marsh in grassland with scattered trees, the drainage impeded by a clay pen with a top of about 6 inches and a layer of 6 inches of light-gray sand, at an altitude of 350 feet, flowering and fruiting in August, the dominant plants of the association being Curatella, Byrsonima, Trachypogon, and Fimbri-stylis.

Additional & emended citations: GUYANA: Goodland 302, in part (Rf, W—2546172), 849 (Rf, W—2546174); Goodland & Persaud 616 (Ac, W—2546173). BRAZIL: Rio Branco: Ule 7667 (Ac).

ERIOCAULON HAMILTONIANUM Mart.

Additional bibliography: Mart., Nov. Act. Acad. Caes. Leopold.-carol. Nat. Cur. 17 (1): pl. 1. 1835; C. Müll. in Walp., Ann. 5: 926 & 945 (1860) and 6: 1171. 1861; Duthie, Fl. Upper Ganget. Plain 3: 318 & 320. 1929; Stapf, Ind. Lond. 3: 90. 1930; Moldenke, Phytologia 18: 178, 278, & 362. 1969.

Illustrations: Mart., Nov. Act. Acad. Caes. Leopold.-carol. Nat. Cur. 17 (1): pl. 1. 1835.

Material of this species has been misidentified and distributed in herbaria as E. subulatum N. E. Br. and E. zollingerianum

Körn.

Additional citations: INDIA: Assam: Herb. Kollmann s.n. [Gualpara] (Mu—208); Herb. Zuccarini s.n. [Gualpara] (Mu—207).

ERIOCAULON HANANOEGOENSE Masamune

Additional bibliography: Moldenke, *Phytologia* 18: 107—108 & 255. 1969.

ERIOCAULON HENRYANUM Ruhl.

Additional bibliography: C. H. Wright, *Journ. Linn. Soc. Lond. Bot.* 36: 199. 1903; H. Lecomte, *Journ. de Bot.* 21: 89 & 92. 1908; H. Lecomte, *Fl. Gén. Indo-Chine* 7: 2 & 13. 1912; Fyson, *Journ. Indian Bot.* 2: 310. 1921; Van Royen, *Blumea* 10: 135. 1960; K. Larsen, *Dansk Bot. Ark.* 23: 379—381 & 397, fig. 10. 1966; Ornduff, *Reg. Veg.* 55: 13 & 118. 1968; Moldenke, *Phytologia* 18: 109—110 & 396. 1969.

Illustrations: K. Larsen, *Dansk Bot. Ark.* 23: 380, fig. 10. 1966.

Schneider describes the flower-heads of this species as "greenish-white". Fyson (1921) refers to Henry 9443 (a specimen in the Calcutta herbarium) as perhaps a distinct species "but is obviously closely related to E. longicuspis". He notes that it "has smaller leaves more like those of E. odoratum and smaller heads. The involucre bracts are not reflexed."

Larsen (1966) says that E. henryanum is "A South Chinese species whose area ranges from Yunnan and Kwangtung to N. Thailand and N. Vietnam". He tells us that "The chromosome number was difficult to establish with certainty on account of the often densely packed metaphase plates. In one of the best, Fig. 10, 56 chromosomes could be distinguished, two of which perhaps have a SAT-constriction. The chromosomes, here, are again of another type than in those found in the two previous species [E. achiton & E. gracile], viz. short rod-shaped and nearly uniform. They are reminiscent of the type found in Luzula species. It should be added that some plates gave the numbers $2n = 57$ and 58 , but in no case was it justifiable to interpret 60 entities. I am inclined to regard the species as an octoploid with the basic number 7."

Additional citations: CHINA: Yunnan: Maire 3965 (W—1291750); J. F. Rock 5349 (Mu), 5459 (Mu); C. K. Schneider 1874 (W—776268), 2946 (W—776675).

ERIOCAULON HERZOGII Moldenke, nom. nov.

Synonymy: Eriocaulon pterosepalum Herzog in Fedde, *Repert. Spec. Nov.* 29: 204, pl. 120, fig. e—i. 1931 [not E. pterosepalum Hayata, *Icon. Pl. Formos.* 10: fig. 30. 1921].

Bibliography: Hayata, *Icon. Pl. Formos.* 10: 55, fig. 30. 1921; Herzog in Fedde, *Repert. Spec. Nov.* 29: 204, pl. 120. 1931; A. W. Hill, *Ind. Kew. Suppl.* 9: 105. 1938; Moldenke, *Known Geogr. Distrib. Erioc.* 8 & 39. 1946; Moldenke, *Known Geogr. Dis-*

trib. Verbenac., [ed. 2], 206. 1949; Moldenke, *Phytologia* 3: 341. 1950; Moldenke, *Résumé* 89 & 482. 1959; Moldenke, *Phytologia* 18: 425. 1969.

Illustrations: Herzog in Fedde, *Repert. Spec. Nov.* 29: pl. 120, fig. e--i. 1931.

This species is based on Luetzelburg 21052, from a wet campo "almost in water", at Teju, and on Luetzelburg 21053, from a wet campo at Milho, both in Pará, Brazil, although Herzog was himself not certain of the exact location of these two localities. The plants were found flowering and fruiting in September.

The nomenclatural situation involving this species is a curious one. Hayata (1921), on page 55 and in the volume index of his work, cited above, published an "Eriocaulon petrosepalum", with a detailed description, and this name is recorded in the "*Index Kewensis*" (1929) as effectively and validly published. However, on the fig. 30 which accompanies his description he very plainly identifies the plant as "Eriocaulon pterosepalum", and this spelling of the name has been adopted by Stapf in his "*Index Londinensis*" (1930) and by Sasaki in his "*Catalogue of the Government Herbarium*" (1930), apparently on the assumption that the orthography accompanying the printed description was an inadvertent error, copied by some secretary making up the volume index, and that the orthography accompanying the illustration is the one intended by the author. I concur in this interpretation (although in some previous publications I adopted the orthography accompanying the text) since the sepals of the plant in question are indeed "winged" and are not "stony". In this case, Herzog's name plainly is a later homonym and must be replaced. Hayata's two binomials belong in the synonymy of E. sexangulare L. and the Simada 432, distributed as E. pterosepalum, is actually E. sexangulare.

Citations: BRAZIL: Amazonas: Luetzelburg 21052 [Macbride photos 18690] (Ja--47705--cotype, Mu--cotype, N--photo of cotype, N--cotype, W--photo of cotype), 21053 (Ja--47704--cotype, Mu--cotype, N--cotype, Z--cotype), 21056 (Ja--47706, N).

xERIOCAULON HESSII Moldenke

Additional & emended bibliography: H. Hess, *Bericht. Schweiz. Bot. Gesell.* 65: 170 & 173--174, pl. 9, fig. 2. 1955; Moldenke, *Phytologia* 18: 110 & 321. 1969.

ERIOCAULON HETEROCHITON Körn.

Additional bibliography: Moldenke, *Phytologia* 18: 178, 245, & 393. 1969.

ERIOCAULON HETEROGYNUM F. Muell.

Additional bibliography: Van Royen, *Nova Guinea, new ser.*, 10: 236. 1960; Moldenke, *Phytologia* 18: 175 & 178--179. 1969.

Van Royen (1960) cites Van Royen 4873 & 4904 from New Guinea as representing this species, but I have not as yet seen these

collections.

ERIOCAULON HETEROLEPIS Steud.

Additional bibliography: C. Müll. in Walp., Ann. 5: 926 & 941 (1860) and 6: 1171. 1861; Dalz. & Gibs., Bomb. Fl. 316. 1861; Moldenke, Phytologia 18: 179 & 278. 1969.

The initial letter of the specific epithet of this species is uppercased by Dalzell & Gibson (1861). The Wallich 6072b, distributed as E. heterolepis, is actually E. sollyanum Royle.

ERIOCAULON HETEROLEPIS var. *NIGRICANS* Körn.

Additional bibliography: Backer & Bakh., Fl. Java 3: 25--26. 1968; Moldenke, Phytologia 18: 179. 1969.

Backer & Bakhuizen van den Brink (1968) describe this taxon as follows: "All leaves in a radical rosette. Terrestrials. Interfloral bracts in their upper halves or on their tops with numerous short white hairs. Involucral bracts, peduncles and leaves glabrous; heads less than 8 mm across. Leaves at best 10 cm long, often much less. Heads globose-oblate, 4--7 mm across, blackish grey; interfloral bracts very dark-coloured, with a triangular, rather acute top; apical hairs short but not very minute, involucral bracts of old heads often reflexed and more or less concealed by the flowers; ♂ sepals 3, vaulted, connate into a unilaterally cleft sheath with a rounded, dark-coloured, short-hairy top; petals 3 (1 of them much the largest), all with a gland below the top; anthers 6, dark-coloured; ♀: sepals 3, pubescent, 2 of them navicular with a strongly keeled-winged back, the 3rd much narrower and less strongly vaulted; petals 3, with a gland below the top; style 3-fid. [to this point the description is identical with that of E. sollyanum]. Outermost involucral bracts oblong, obtuse, apically very faintly toothed; receptacle sparingly hairy. Leaves 3--8 cm long. 0.07--0.18; III, VIII; W. E., here and there; 20--800; swampy places; rare, but locally numerous."

ERIOCAULON HETEROPEPLON Alv. Silv.

Additional & emended bibliography: Alv. Silv., Fl. Serr. Min. 34, pl. 11. 1908; Stapf, Ind. Lond. 3: 90. 1930; Moldenke, Phytologia 18: 179--180. 1969.

Additional illustrations: Alv. Silv., Fl. Serr. Min. pl. 11. 1908.

ERIOCAULON HEUDELOTII N. E. Br.

Additional bibliography: Moldenke, Phytologia 18: 180--181. 1969.

Material of this species has been misidentified and distributed in herbaria as E. amboense Schinz and E. sexangulare L. Recent collectors describe the plant as an erect tufted annual, to 5 cm. tall, the heads almost black, and found it growing in "dambo" habitat at 1350 meters altitude, flowering and fruiting in June. Giess & Leippert describe it as "abundant".



Moldenke, Harold N. 1969. "ADDITIONAL NOTES ON THE ERIOCAULACEAE-M PART 24." *Phytologia* 19, 5-46.

View This Item Online: <https://www.biodiversitylibrary.org/item/46981>

Permalink: <https://www.biodiversitylibrary.org/partpdf/176567>

Holding Institution

New York Botanical Garden, LuEsther T. Mertz Library

Sponsored by

The LuEsther T Mertz Library, the New York Botanical Garden

Copyright & Reuse

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: Phytologia

License: <http://creativecommons.org/licenses/by-nc-sa/3.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.