

ADDITIONAL NOTES ON THE ERIOCAULACEAE. XXVI

Harold N. Moldenke

ERIOCAULON SEPTANGULARE With.

Additional bibliography: Wardlaw, *Morphogen.* 48 & 49, fig. F. 1968; Moldenke, *Phytologia* 19: 70, 86, 87, 89, 90, & 105--109. 1969; G. W. Prescott, *How to Know Aquat. Pl.* 133, 134, & 164, fig. 146. 1969.

Additional illustrations: Wardlaw, *Morphogen.* 48, fig. F. 1968.

The Eriocaulon pellucidum Michx., E. pumilum Raf., E. noveboracens Pluk., and E. septangulare var. natans Hexamer & Meier previously regarded by me as synonyms of E. septangulare With. are now excluded from this synonymy and are placed in that of E. pellucidum Michx. On the other hand, the E. decangulare Lightf., previously regarded by me as a synonym of E. pellucidum, belongs in the synonymy of E. septangulare With., sens. strict., instead, being based on Scottish plants.

The Praeger (1910) reference in the bibliography of E. septangulare is sometimes cited as page "301", but should be 302; the Curtis (1821) reference is sometimes quoted as "1819--1821", but the plate in question seems to have appeared in 1821; the Johnson & Sowerby (1860) reference is sometimes quoted as "1858--1860", but the figure involved here seems to have appeared first in 1860.

The situation relative to the generic name, Cespa, and the binomial, Cespa aquatica, is summarized as follows by Druce (1909): "Note on Eriocaulon septangulare....The above plant, sometimes called the pipewort, is one of our most singular species, the only British representative of a somewhat large genus spread widely over the globe. Our British plant is only known to occur on the west coast of Ireland (where it was first found in 1801), from Cork to Donegal, and on the island of Skye, whence it was recorded in the *Philosophical Transactions*, lix, p. 241, being found by James Robertson in 1768; but Sir W. Hooker, in the '*Flora Scotica*', l., 270, says it was first found by Sir John Macpherson in 1764. Mr. Clarke, in his '*First Records*', gives the date of the publication of the discovery as 1770; the date of the publication of the name as given above is by Withering in the first edition of the '*Botanical Arrangement*' of 1776. In some recent investigations into the works and life of Sir John Hill, a somewhat notorious doctor and botanist of the eighteenth century, I have come across an interesting fact. In my copy -- which contains the autograph of the botanist Bishop (Goodenough) of Carlisle -- of Hill's '*Herbarium Britannicum*', fol. l., 1769, there is a figure with dissections, of Eriocaulon septangulare, which is labelled '*CESPA*, Tab. 66, Pa. 91', at top, and below the figure the name '*Cespa aquatica*, Water Turffwort'.

"A curious point is that there is no description of the plant

on the page 91 to which the plate refers, nor is the name in the index. Doubtless Hill intended to describe it, but this work, as the many misprints show, was rushed through at great speed, his literary output at that time being most voluminous. But the fact remains that the plate, properly labelled, with adequate dissections, makes it a valid publication according to the 'Vienna Actes', but as Eriocaulon, L., is an older generic name than Cespa (so named, doubtless from its tufted growth), Hill's generic name is invalid. The trivial name aquatica is, however, available for citation, and as it is the earliest known, it would appear that our pipewort should be called Eriocaulon aquaticum (Hill)." In the Harvard University botanical library copy of this work, plate 66 depicts only Eryngium maritimum, the sea-holly, and page 96, cited by some authors, also has on it only descriptions of other taxa.

The species has been collected at altitudes up to 100 meters. Vernacular names recorded for it are "jointed pipewort", "pipewort", and "water turffwort". White (1968) reports it as "abundant locally in sphagnum bog" in County Mayo, Ireland. It has been found in fossil form in Ireland, too. However, the fossil described under this name by Penhallow (1899) from Taylor Brickyard, in the Don Valley of Ontario, Canada, Pleistocene formation, is certainly E. pellucidum. Zinderenbakker (1953) states that the pollen was described by Erdtman in 1943. Clapham, Tutin, & Warburg (1962) report its chromosomes as $2n = 64$. Hare (1950) describes the gross morphology and anatomy of the rhizome, adventitious roots, leaves, inflorescences, and flowers. Details of seed structure, embryology, and germination are also given by him, and the plant's adaptations to its aquatic environment are discussed, especially its adaptation to wave action and upthrust from water. Mackay (1836) says of this species "Lakes in Cunnemara, where it was first observed by Doctor Wade, abundant. Fl. Aug."

Markgraf (1952) tells us that the flora of Ireland includes several elements common to North America and northern Europe, including Najas flexilis, Lobelia dortmanna, Eriocaulon septangulare, and two species of Spiranthes. These are supposed by him to be relicts from the Miocene when the species in question might have lived north of the Atlantic, later migrating southwards to both the east (Ireland) and west (North America). This concept rejects the Wegener theory of floating continents.

Good (1964) reminds us that Eriocaulon septangulare was included in the six species of Matthew's oceanic northern element found on the west side of Great Britain and otherwise only in North America -- the other five being Juncus dudleyi, J. tenuis, Sisyrinchium bermudianum, Spiranthes gemmipara, and S. romanzoffiana. However, Löve & Löve (1958) show that the Eriocaulon and Sisyrinchium species are NOT identical on the two sides of the Atlantic. Spiranthes gemmipara is also no longer listed in floras of the northeastern North American region. Melchior (1964)

also reminds us that the so-called E. septangulare plants of North America have only half the chromosome count of those in Europe.

Kunth (1841) maintains that E. leucomelas Steud. is [closely] related to E. septangulare, but that the latter species has "foliis latioribus et scapis longioribus".

The Hooker collection cited below is inscribed "very rare". The Martens collection bears an inscription "E. (non septangulare auct.) sp. nov. a McKay Flora Hibernica descripta". The P. B. Webb 20 has a printed "exsiccatae" label giving as synonym "E. decangulare Hull, Brit. Fl. p. 29 (1799) non L. Sp. Pl." In some quarters such names on printed exsiccatae labels are regarded as valid publication. The D. Turner [1801] collection, cited below, is represented by two sheets in the herbarium of the Botanischer Garten und Museum at Berlin -- one is labeled "E. decangulare Huds." and the other as "E. septemangulare".

It should be pointed out that practically all of the collections cited by me in these notes as E. pellucidum were originally identified and distributed in herbaria as E. septangulare. Also, W. C. Coker s.n. [4/3/1910] & s.n. [June 27, 1931] and Tharp s.n. [Bellville, 5/4/40], distributed as E. septangulare, are actually E. compressum Lam.; F. A. Barkley 13543, W. M. Canby s.n. [Pine barrens, Aug. 1861], and W. R. Taylor T.1073 are E. decangulare L.; E. L. Little Jr. s.n. [Jul. 14, 1929] is E. kornickianum Van Heurck & Muell.-Arg.; R. F. Thorne 1581, 4370, & 5022 and W. Wolf s.n. [Summerdale, July 30, '26] are E. lineare Small; Widgren s.n. is E. modestum Kunth; R. C. Alexander s.n. [Redbank, 3 Sept. '69], E. H. Day s.n. [17.7.82], Martindale s.n. [Camden, Sep. 1877], and Radford 44454 are E. parkeri B. L. Robinson; Herb. Link s.n. is E. sollyanum Royle; Lundell & Lundell 11152 and Olds s.n. [Montgomery, 3.20.94] are Lachnocaulon anceps (Walt.) Morong; McCarthy s.n. [Wilmington, June 1892] is Lachnocaulon minus (Chapm.) Small; and Adrien 3308 is a species of Lobelia. In the McGill University herbarium there is actually a specimen of Nuphar advena (Ait.) Ait. f. labelled as Eriocaulon septangulare, doubtless through a crossing of labels in the mounting process.

Additional citations: ISLE OF SKYE: Balfour s.n. [1838] (B), s.n. (S); Boott s.n. (Ms--15482); W. Brand s.n. [Sept. 8, 1835] (M), s.n. [1836] (Mu); Christy s.n. [1829] (Ms--15483); Collector undetermined s.n. [Aug. 1857] (C); F. C. Crawford s.n. [16 August 1898] (Go), s.n. [8th Aug. 1907] (Go); E. Durand s.n. (Ms--15486); O. G. E. Erdtman s.n. [July 1964] (S); Farquharson s.n. [Aug. 11th, 1852] (Go); Gardner s.n. [August 1845] (Go); Graham s.n. [1830] (Ms--15843); Herb. Braun s.n. (B); Herb. Schwägrichen s.n. (Mu--319); Hooker s.n. (B, Ms--15483, S, T); Lawson s.n. [Skye] (Mm--7955); Muirhead 231.5 (Go); Stables s.n. [Sept. 1835]

(M), s.n. [9.1836] (M); D. Turner s.n. [1801] (B, B); Tyacke s.n. [1828] (M); Walker-Arnott s.n. [1837] (M); I. Ward s.n. [Ecosse] (Br); H. C. Watson s.n. (Ut—302); Winterbottom 20 (S). EIRE: Galway Co.: Armitage s.n. [Galway, Aug. 1872] (Mm—7955); A. W. Bennett s.n. [Cunnemara, 8/9/1883] (Mu—326); Colgan 3200 (B, B, Mu—355), s.n. [August 13, 1897] (B, Go); Collector undetermined s.n. [Galway, Aug. 1868] (Mi); Groves & Groves s.n. [Galway, 8. VIII.1892] (S); Herb. Braun s.n. [Galway] (B); Herb. Inst. Bot. Univ. Brux. s.n. [Lake of Reccess, 9.VIII.04] (Br); Herb. Shuttleworth s.n. [Cunnemara, 1836] (Mu), s.n. [Cunnemara] (M); J. Kelly s.n. [Roundstone, Sept. 1888] (S); N. J. Kelly s.n. (B); Leitch H.16 (Go); C. A. M. Lindman s.n. [22.8.1911] (S, S); Linton s.n. [12.VIII.85] (B); Nilsson & Degelius s.n. [West Galway, 1/8/1939] (S); Scouler s.n. [Cunnemara] (S, S); S. A. Stewart s.n. [29/7/1867] (B). Kerry Co.: Hultén s.n. [July 21, 1949] (S); D. A. Webb s.n. [Caragh Lake, 28/7/1951] (S). Mayo Co.: Hultén s.n. [July 15, 1949] (S). County undetermined: J. H. Balfour s.n. [Aug. 1838] (M, Ut—423); J. Ball s.n. [Sept. 1837] (C); Bentham 12 (S), s.n. [Hibernia] (Ut—301); Druce 2526 (S); Farre s.n. [7.1837] (S); J. D. Hooker 1149 (S); P. Martens s.n. (Br); Morren s.n. (Br); Nilsson & Degelius s.n. [Roundtree, 1/8/1933] (Go, S, S); D. Oliver 1149 (S); C. Skottsberg s.n. [16/8/1958] (Go); Tidestrom 11236 (Mi); P. B. Webb 20 (B, Br, Br, Go, S); W. Wilson s.n. [August 1823] (Ws). LOCALITY OF COLLECTION UNDETERMINED: Arnott s.n. [Scotia et Hibernia] (B), s.n. (Ms—15843); Herb. Bot. Soc. London 1149 (M); Herb. Swartz s.n. (S); W. J. Hooker s.n. [England] (Ws).

ERIOCAULON SESSILE Meikle

Bibliography: Meikle, Kew Bull. 1954: 275. 1954; Anon., Trav. Lab. Bot. Syst. Brux. 16: 32. 1955; Anon., Assoc. Etud. Fl. Afr. Trop. Index 1954: 34. 1955; Moldenke, Résumé 136 & 483. 1959; G. Taylor, Ind. Kew. Suppl. 12: 55. 1959.

The species is known thus far only from French Guinea.

ERIOCAULON SETACEUM L.

Synonymy: Tsjeru-kotsjiletti-pullu Rheede apud K. Comm., Fl. Malab. 67. 1696. Tsjéru Cotsiiletti-pullu Rheede, Hort. Malab. 12: pl. 68. 1703. Randalia malabarica, capillaceo folio Petiv., Gazoph. 1: pl. 33, fig. 10. 1706. Penda H. Herm., Mus. Zeyl., ed. 1, 8. 1717. Gramen junceum, foliis capillaceis sericeis, capitulis minus rotundis J. Burm., Thes. Zeyl. 109. 1737. Gramen junceum, chamaemeli capitulis albis aphyllis, minus J. Burm., Thes. Zeyl. 109. 1737. Statice minima indiae orientalis, capillaceis foliis capitulis argenteis Amm., Stirp. Rar. [Herb.] 396, pl. 21. 1739. Eriocaulon culmo sexangulari, foliis setaceis L.,

Fl. Zeyl., ed. 1, 20--21. 1747. Tsceru-kotsyelleti-pullu Rheede apud L., Fl. Zeyl., ed. 1, 21, in syn. 1747. Tsieru-kotsijelleti-pullu Rheede apud L., Sp. Pl., ed. 1, pr. 1, 1: 87, in syn. 1753. Eriocavlon setaceum Crantz, Inst. Rei Herb. 1: 360. 1766. Tsieru-kotsi jelleti pullu Rheede apud Crantz, Inst. Rei Herb. 1: 360, in syn. 1766. Eriocavlon setaceum L. apud Reich. in L., Syst. Pl. 1: 244. 1779. Tsieru-kotsi-telleti pullu Rheede apud Mart. in Wall., Pl. Asiat. Rar. 3: 29, in syn. 1832. Eriocaulon capillus-naiadis Hook. f., Fl. Brit. Ind. 6: 572 & 769. 1893. Eriocaulon setaceum Wall. apud Hook. f., Fl. Brit. Ind. 6: 572, in syn. 1893 [not E. setaceum Auct. ex Backer & Bakh., 1968, nor Auct. ex Ruhl., 1903, nor Benth., 1893, nor Heyne, 1832, nor Hook. f., 1959, nor Kunth, 1860, nor Lour., 1790, nor Rottl., 1960, nor Steen., 1960, nor Wight, 1832, nor Willd., 1959]. Eriocaulon capillus najadis Hook. f. apud Ruhl. in Engl., Pflanzenreich 13: (4-30): 89 & 285. 1903. Eriocaulon capillus-naidis Hook. f. apud Fyson, Journ. Indian Bot. 2: 193, in syn. 1921. Eriocaulon setaceum f. setaceum Haines, Bot. Bihar & Orissa 1067. 1924. Eriocaulon setaceum f. capillus-naiadis Haines, Bot. Bihar & Orissa 1067. 1924. Eriocaulon setaceum Crantz ex Moldenke, Résumé 292, in syn. 1959. Eriocaulon setaceum f. capillis-naiadis Haines ex Moldenke, Résumé Suppl. 17: 11, in syn. 1968. Eriocaulon myriophyllum Wall., in herb.

Bibliography: K. Comm., Fl. Malab. 67. 1696; Rheede, Hort. Malab. 12: 129, pl. 68. 1703; Petiv., Class. & Topic. Cat. 344. 1706; Petiv., Gazoph. 1: pl. 33, fig. 10. 1706; H. Herm., Mus. Zeyl., ed. 1, 8. 1717; J. Burm., Thes. Zeyl. 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 ed. 2, 1: 129. 1762; Crantz, Inst. Rei Herb. 1: 360. 1766; 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, 127. 1784; Palau y Verdera, Part. Práct. Bot. 1: 531--532. 1784; Jacq., Ind. Pl. 63. 1785; Lippert, Pflanzensyst. 1: 187. 1786; Lour., Fl. Cochinch., ed. 1, 60--61. 1790; Gaertn., Fruct. & Sem. Pl. 2: pl. 83. 1791; Lam., Tabl. Encycl. Méth. 1: 213. 1791; Lour., Fl. Cochinch., ed. 2, 77. 1793; Willd. in L., Sp. Pl., ed. 4, 1: 486. 1797; Pers. in L., Syst. Veg., ed. 15, 132. 1797; J. A. Murr. in L., Syst. Veg., ed. 15 nov., 106. 1798; Jolyclerc, Syst. Sex. Vég., ed. 1, pr. 1, 92 (1798) and pr. 2, 92. 1803; Mouton-Fontenille in L., Syst. Pl. 1: 148. 1804; Jolyclerc, Syst. Sex. Vég., ed. 2, 1: 101. 1810; Roem. & Schult. in L., Syst. Veg., ed. 15 nov., 2: 863. 1817; Spreng. in L., Syst. Veg., ed. 16, 3: 776. 1826; Mart. in Wall, Pl. Asiat. Rar. 3: 29. 1832; Wall., Numer. List 207. 1832; Kunth, Enum. Pl. 3: 549 & 550. 1841; Lindl., Veg. Kingd., ed. 1, 122 & 818 (1846) and ed. 2, 122 & 818. 1847; W. Griff., Icon. Pl. Asiat. pl. 160. 1851; W. Griff., Notul. 3: 114--122, pl. 159. 1851; F. Muell.,

Fragm. 1: 94. 1859; C. Müll. in Walp., Ann. 5: 925 & 931 (1860) and 6: 1171. 1861; Körn. in Mart., Fl. Bras. 3 (1): 476. 1863; Thwait. & Hook. f., Enum. Pl. Zeyl. 341. 1864; Le Maout & Decne., Trait. Gén. Bot. 598. 1868; Hook. in Le Maout, Decne., & Hook., Gen. Syst. Bot. 598. 1873; Benth., Fl. Austral. 7: 190—192 & 792. 1878; Hieron. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 2 (4): 26 & 27. 1888; Hook. f., Fl. Brit. Ind. 6: 572 & 769. 1893; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 879. 1893; Baillon, Hist. Pl. 12: 400. 1894; Hook. f. in Trimen, Handb. Fl. Ceylon 5: [1]—3 & 412. 1900; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 158. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 18, 64, 89, 90, & 287, fig. 9. 1903; Prain, Beng. Fl., ed. 1, 1127. 1903; C. H. Wright, Journ. Linn. Soc. Lond. Bot. 36: 200. 1903; H. Lecomte, Journ. de Bot. 21: 89 & 90. 1908; H. Lecomte, Fl. Gén. Indo-Chine 7: 2 & 5. 1912; F. M. Bailey, Compreh. Cat. Queensl. Pl. 584 & 586, fig. 564. 1913; Fyson, Journ. Indian Bot. 2: 193, pl. 1. 1921; Haines, Bot. Bihar & Orissa 1066—1067. 1924; Stapf, Ind. Lond. 3: 91. 1930; C. E. C. Fischer in Gamble, Fl. Presid. Madras, ed. 1, 9: 1606 & 1618. 1931; Van Steenis, Trop. Natuur 25: 107. 1936; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 158. 1941; Castell. in Descole, Gen. & Sp. Pl. Argent. 3: 76, 77, & [103]. 1945; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 879. 1946; Moldenke, Known Geogr. Distrib. Erioc. 23, 24, 26, 28, 33, & 40. 1946; Backer, Noodfl. Java 10a: fam. 214: 1. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 125, 127, 129, 130, 136, 153, & 206. 1949; Moldenke, Phytologia 3: 397. 1950; Razi, Journ. Mysore Univ. 11 (1): 16. 1950; H. Hess, Bericht. Schweiz. Bot. Gesell. 65: 129, pl. 7, fig. 5. 1955; C. E. C. Fischer in Gamble, Fl. Presid. Madras, ed. 2, 8 [3]: 1120, 1126, & 1333. 1956; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 158. 1959; Moldenke, Résumé 159, 162, 165—167, 176, 209, 286, 292, & 483. 1959; Moldenke, Résumé Suppl. 1: 11 (1959) and 2: 9. 1960; Van Royen, Blumea 10: 132 & 133. 1960; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 879. 1960; D. N. F. Kiehl, Blumea 10: 657. 1960; Moldenke, Résumé Suppl. 3: 26 (1962) and 6: 8. 1963; Prain, Beng. Fl., ed. 2, 2: 848. 1963; Bhattacharyya, Bull. Bot. Surv. India 5: 42, 59, & 62 (1963) and 6: 196 & 208. 1964; Koyama in Kitamura, Murata, & Koyama, Col. Illustr. Herb. Pl. Japan 3: 178. 1964; Thanikaimoni, Pollen & Spores 7: 186. 1965; J. S. Beard, Descrip. Cat. W. Austral. Pl. 9. 1965; Berhaut, Fl. Sénégal, ed. 2, 312. 1967; Moldenke, Résumé Suppl. 15: 8 & 14 (1967) and 17: 11. 1968; Moldenke, Phytologia 18: 102, 169, 173, 243, 244, 280, 429, & 433 (1969) and 19: 20, 26, 38, 39, 70, & 98. 1969.

Illustrations: Rheede, Hort. Malab. 12: pl. 68. 1703; Petiv., Gazoph. 1: pl. 33, fig. 10. 1706; Gaertn., Fruct. & Sem. Pl. 2: pl. 83. 1791; W. Griff., Notul. 3: pl. 159. 1851; W. Griff., Icon. Pl. Asiat. pl. 160. 1851; Ruhl. in Engl., Pflanzenreich 13 (4-30): 90, fig. 9. 1903; F. M. Bailey, Compreh. Cat. Queensl. Pl. 586, fig. 564. 1913; Fyson, Journ. Indian Bot. 2: pl. 1. 1921; H. Hess, Bericht. Schweiz. Bot. Gesell. 65: pl. 7, fig. 5. 1955.

It should be noted here that the E. setaceum credited to "Auth."

or to "Auth. ex Ruhl.", to Hooker, and to Kunth are all synonyms of E. intermedium Körn.; the homonyms credited to "Auct. ex Backer & Bakh." and to Van Steenis are E. equisetoides Van Royen, the one credited to Bentham is E. bifistulosum Van Heurck & Muell.-Arg., the one accredited to Heyne is E. sexangulare L., that credited to Loureiro is Fimbristylis setacea Benth. in the Cyperaceae, those credited to Rottler and to Willdenow are E. cinereum R. Br., while E. setaceum Wight is a synonym of E. quinquangulare L. Hooker (1893) refers to "E. setaceum Wall., no. 6077" as a synonym of what he called E. capillus-naiadis, but Wallich (1832) in the reference referred to distinctly credits the binomial to Linnaeus and was not proposing a new homonym. Eriocaulon myriophyllum Wall. is apparently based on Gomez 10, collected in Tenasserim, Burma. Fischer (1931, 1956) regards E. intermedium Körn. as a synonym of E. setaceum, and so do Hooker (1893), Thwaites & Hooker (1864), and Thanikaimoni (1965). On the other hand, Hooker (1900) keeps E. capillus-naiadis as a distinct species and Haines (1924) regards it as a distinct form. Hooker (1913) regarded Australian material as E. bifistulosum Van Heurck & Muell.-Arg., but it seems far more probable that this Australian material is E. setaceum, as claimed by Bailey (1913).

Crantz gives no authority for the binomial used in his 1766 work, but cites Rheede's polynomial so that there is no doubt that he is referring to the same plant as did Linnaeus. It is worth noting that Crantz spells the generic name with a "v" on page 360 of his work, but with a "u" in volume 2, page [557], where no species are listed. The initial letter of the specific epithet is uppercased by Kunth (1841), his usual practice. He records the species from Tavoy, Ceylon, and Cochinchina. Under E. melanocephalum Kunth he notes "E. setaceo proximum; differt forma bractearum flores stipantium, sepalis interioribus femineis glabris et glanduliferis". The initial letter of Hooker's specific epithet is also sometimes uppercased.

Fyson (1921) records the plant as from "Assam: Khasia hills: Burma: Ceylon", and notes that "In some the female petals are ciliate and with distinct gland well inside the margin; in others they are glabrous with apical gland and distinct midrib". Lindley (1846) states that boiled in oil this plant is said to be a popular remedy for the itch in the "East Indies". Prain (1903) calls it "A submerged aquatic herb", and records it from north, central, and east Bengal. Collectors have found it mostly in swampy areas, at altitudes to 6000 feet, flowering and fruiting from August to November. Bhattacharyya (1963) found it "in Orissa, Mysore, West Coast; rare in Mirzanpur on the Upper Gangetic Plain where it is entangled with Spirogyra" and "rare in shaded pools by waterfalls, with Spirogyra". In his 1964 work he says "Uttar Pradesh; rare in stagnant pools associated with Spirogyra" and that it "grows in close vicinity with Blyxa auberti & Microcarpaea mucosa". Common names recorded are "borstenförmige Kugelbinse" (German) and "jon-

cinelle setacée" (French).

Lecomte (1912) distinguishes E. setaceum from the very similar E. intermedium Körn. as follows:

"Capitules glabres.....E. intermedium

Capitules blancs, velus.....E. setaceum"

Material has been misidentified and distributed in herbaria as E. intermedium Körn. On the other hand, the Wight 2369, distributed as E. setaceum, is in part E. intermedium Körn. and in part E. gracile Mart., while Herb. Wight 16 is E. quinquangulare L. The Berhaut 6502 cited by Berhaut (1967) is probably E. bifistulosum Van Heurck & Muell.-Arg. instead. The Herb. Griffith 5569 and Herb. Helfer 5569, cited below, were both distributed under the label of "Herbarium of the late East India Company No. 5569" in some herbaria.

Additional citations: PAKISTAN: East Bengal: Herb. Griffith 5569, in part (C, Mu--305). INDIA: Bombay: Santapau 11887 (Xa). Khasi States: Hooker & Thomson s.n. [hab. Mont. Khasia 6000 ped.] (Br, Mu--240, Ut--315). Mysore: Janaki Ammal 330 (Mi); Z. A. Khan s.n. [Agumbe, Sept. 1941] (Bn--3188); Meebold 9904 (B). BURMA: Tenasserim: Gomez 10 (Br); Herb. Griffith 5569, in part (C); T. Philippi 16 (B). ANDAMAN ISLANDS: Island undetermined: Herb. Griffith 5569, in part (C); Herb. Helfer 5569 (Mu--304). CEYLON: Thunberg s.n. [Zeilona] (Mu--239); Thwaites 791 (Br, Go). INDOCHINA: Cochinchina: Clemens & Clemens 4214 (N). THAILAND: Larsen, Smitinand, & Warncke 1666 (Ac, Rf); Sørensen, Larsen, & Hansen 2253 (Z), 6211 (Cp). AUSTRALIAN REGION: AUSTRALIA: Western Australia: Bradshaw & Allen s.n. [Woodhouse, 1891] (Mu--371).

ERIOCAULON SETICUSPE Ohwi

Synonymy: Eriocaulon echinulatum var. seticuspe Ohwi ex Moldenke, Résumé Suppl. 1: 17, in syn. 1959. Eriocaulon echinulatum var. seticuspe (Ohwi) Ohwi ex Koyama in Kitamura, Murata, & Koyama, Col. Illustr. Herb. Pl. Japan 3: 179. 1964.

Bibliography: Ohwi, Bull. Nat. Sci. Mus. Tokyo, new ser., 1 (1) [34]: 3. 1954; Koyama, Philip. Journ. Sci. 84: 369. 1955; Moldenke, Résumé 173 & 483. 1959; Moldenke, Résumé Suppl. 1: 17. 1959; Koyama in Kitamura, Murata, & Koyama, Col. Illustr. Herb. Pl. Japan 3: 179 & 429, fig. 121 (2). 1964; Moldenke, Résumé Suppl. 12: 9. 1965; G. Taylor, Ind. Kew. Suppl. 13: 52. 1966; Moldenke, Phytologia 18: 59. 1968.

Illustrations: Koyama in Kitamura, Murata, & Koyama, Col. Illustr. Herb. Pl. Japan 3: 179, fig. 121 (2). 1964.

Koyama (1955) points out that this species is obviously very closely related to E. echinulatum Mart.

Citations: WESTERN PACIFIC ISLANDS: JAPAN: Kyushu: Togasi 1415 (B, Ca--113864, G, N, S, Se--186602, Z), s.n. [Kawaminami-mura, Sept. 1, 1956] (Ac).

ERIOCAULON SEXANGULARE L.

Synonymy: Gramen junceum Ind. Orient. majus, capite rotundo, ex spiculis paleaceis, summo caule glomerato. Shaneecoree, Mala-barorum Pluk., Alm. Bot. Mant. 98. 1700. Kokmatha H. Herm., Mus. Zeyl., ed. 1, 7. 1717. Eriocaulon culmo sexangulari, foliis ensiformibus L., Fl. Zeyl., ed. 1, 20. 1747. Eriocavlon sexangulare Crantz, Inst. Rei Herb. 1: 360. 1766. Eriocavlon sexangulare L. apud Reich. in L., Syst. Pl. 1: 243. 1779. Eriocaulon quadrangulare Lour., Fl. Cochinch., ed. 1, 60--61. 1790. Eriocaulon wallichianum Mart. in Wall., Plant. Asiat. Rar. 3: 26, pl. 249. 1832. Gramen junceum Indiae Orientalis Pluk. apud Mart. in Wall., Plant. Asiat. Rar. 3: 28, in syn. 1832. Eriocaulon hexangulare L. ex Wall., Numer. List 207. 1832 [not E. hexangulare Kunth, 1893, nor Wall., 1937]. Eriocaulon setaceum Heyne ex Wall., Numer. List 207, in syn. 1832 [not E. setaceum Auct. ex Backer & Bakh., 1968, nor Auct. ex Ruhl., 1903, nor Benth., 1893, nor Crantz, 1766, nor L., 1753, nor Lour., 1790, nor Rottl., 1960, nor Wall., 1893, nor Wight, 1832]. Eriocaulon nitidum Blume ex Wall., Numer. List 207, in syn. 1832 [not E. nitidum Bong., 1831, nor Buch.-Ham., 1832]. Eriocaulon hexangulare Royle, Illustr. Bot. Himal. 409. 1840. Eriocaulon consanguineum Kunth, Enum. Pl. 3: 566. 1841. Eriocaulon cantoniensis Hook. & Arn., Bot. Beech. Voy. 219. 1841. Eriocaulon wallichianum Wight ex Kunth, Enum. Pl. 3: 566, in syn. 1841. Eriocaulon wallichianum f. gracilis Kunth, Enum. Pl. 3: 564. 1841. Eriocaulon sinicum Miq., Journ. Bot. Néerland. 1: 87. 1861. Eriocaulon wallichianum Schnitzl. apud C. Müll. in Walp., Ann. 6: 1171. 1861. Eriocaulon quidrangulare Lour. apud Hook. f., Fl. Brit. Ind. 6: 580, in syn. sphalm. 1893. Eriocaulon wallichianum Thw. ex Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 880. 1893. Eriocaulon cantoniense Hook. & Arn. apud Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 877. 1893. Eriocaulon sexangulare var. vulgaris Mak., Bot. Mag. Tokyo 8: 507. 1894. Eriocaulon sexangulare Ruhl. ex C. H. Wright, Journ. Linn. Soc. Lond. Bot. 36: 202, in syn. 1903. Eriocaulon longifolium Körn. ex C. H. Wright, Journ. Linn. Soc. Lond. Bot. 36: 201, in syn. 1903 [not E. longifolium Nees, 1841, nor "Nees ex Kunth", 1964, nor Raf., 1840]. Eriocaulon miyagianum Koidz., Bot. Mag. Tokyo 28: 171. 1914. Eriocaulon petrosepalum Hayata, Icon. Pl. Formos. 10: 55. 1921. Eriocaulon petropetalum Hayata, Icon. Pl. Formos. 10: 272. 1921. Eriocaulon sexangulare Miq. apud Hayata, Icon. Pl. Formos. 10: 272. 1921. Eriocaulon sexangulare var. vulgaris Körn. apud Hayata, Icon. Pl. Formos. 10: 272. 1921. Eriocaulon pterosepalum Hayata, Icon. Pl. Formos. 10: 54, fig. 30. 1921 [not E. pterosepalum Herzog, 1931]. Eriocaulon alpestre Sasaki, Cat. Govt. Herb. 118, in syn. sphalm. 1930. Eriocaulon alpestre Sasaki, Bull. Tokyo Sci. Mus. 4: [Rev.

Jap. Erioc.] 9, in syn. 1940 [not E. alpestre Hook. f. & Thoms., 1867, nor Ruhl., 1940]. Eriocaulon wallichianum var. tenellum Wight ex Moldenke, Known Geogr. Distrib. Erioc. 24 & 42, nom. nud. 1946. Eriocaulon wallichianum Heyne ex Moldenke, Known Geogr. Distrib. Erioc. 42, in syn. 1946. Eriocaulon petrospermum Hayata ex Moldenke, Known Geogr. Distrib. Erioc. 25 & 38, nom. nud. 1946. Eriocaulon pterospermum Hayata ex Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 133 & 206, nom. nud. 1949. Eriocaulon wallichiana Razi, Journ. Mysore Univ. 11 (1): 6, sphalm. 1950. Eriocaulon quadriangulare Lour. ex Moldenke, Phytologia 3: 397, in syn. 1950. Eriocaulon truncatum Harms ex Moldenke, Résumé 293, in syn. 1959 [not E. truncatum Buch.-Ham., 1893, nor "Buch.-Ham. ex Mart.", 1968, nor "Ham. ex Mart.", 1939, nor Mart., 1959, nor Wall., 1946]. Eriocaulon wallichianum var. angustifolium Meyen ex Moldenke, Résumé Suppl. 1: 18, in syn. 1959. Eriocaulon christophora Chandra ex Moldenke, Résumé Suppl. 11: 6, in syn. 1964. Eriocaulon sexangulare L. ex Moldenke, Résumé Suppl. 11: 6, in syn. 1964.

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ful Pl. Jap. 3: pl. 966. 1895; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 1283. 1895; Hook. f. in Trimen, Handb. Fl. Ceylon 5: 2, 5, & 412. 1900; Ruhl. in Engl., Pflanzenreich 13 (4-30): 13, 21, 41, 103, 106, 110, 111, 116, 285, 287, & 288. 1903; C. H. Wright, Journ. Linn. Soc. Lond. Bot. 36: 201-202. 1903; H. Lecomte, Journ. de Bot. 21: 86, 87, 89, 94, 102, 104, 105, & 131. 1908; Hochr., Ann. Conserv. & Jard. Bot. Genève. 11/12: 51. 1908; H. Lecomte, Fl. Gén. Indo-Chine 7: 3 & 15. 1912; H. Lecomte, Not. Syst. 2: 215 & 393. 1913; Koidz., Bot. Mag. Tokyo 28: 171. 1914; H. Hallier, Beih. Bot. Centralbl. 34: 45. 1916; Fyson, Journ. Indian Bot. 2: 318, pl. 39 & 40. 1921; Prain, Ind. Kew. Suppl. 5, pr. 1, 97. 1921; Hayata, Icon. Pl. Formos. 10: 54-55 & 272, fig. 30. 1921; E. M. Merr., Bibl. Enum. Born. Pl. 110. 1921; Mak. & Nemoto, Fl. Jap., ed. 1, 1306 & 1307. 1925; S. Sasaki, List Pl. Formos. 99. 1928; A. W. Hill, Ind. Kew. Suppl. 7: 89. 1929; Stapf, Ind. Lond. 3: 90 & 91. 1930; S. Sasaki, Cat. Govern. Herb. 118. 1930; Mak. & Nemoto, Fl. Jap., ed. 2, 1512 & 1514. 1931; C. E. C. Fischer in Gamble, Fl. Presid. Madras 9: 1607 & 1618. 1931; Tu, Chinese Bot. Dict., abrdg. ed., 1347. 1933; Hand.-Mazz., Symb. Sin. 7: 1246. 1936; Nemoto, Suppl. Fl. Jap. 1039. 1936; Masamune, Short Fl. Formos. 263. 1936; Masamune, Trans. Nat. Hist. Soc. Formos. 28: 300. 1938; Honda, Nom. Pl. Jap. 462. 1939; Satake, Bull. Tokyo Sci. Mus. 4: [Rev. Jap. Erioc.] 9-10, pl. 1, fig. 1. 1940; Satake in Nakai & Honda, Nov. Fl. Jap. 6: 6, 7, 11, 12, 18-20, 78, & 87, fig. 1N, 2F, 5D, & 7. 1940; Erlandsson, Arkiv Bot. 30B (2): 2-4, fig. 1e. 1942; Castell. in Descole, Gen. & Sp. Pl. Argent. 3: 77 & [103]. 1945; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 877-880 (1946) and 2: 1283. 1946; Moldenke, Known Geogr. Distrib. Erioc. 22-26, 33, 37-40, & 42. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 123, 125, 127, 129, 130, 132, 133, 135, 136, 138-142, 145, 205, & 206. 1949; Moldenke, Phytologia 3: 341 & 397-398. 1950; M. R. Henderson, Malay. Wild Fls. 212, fig. 127. 1954; H. Hess, Bericht. Schweiz. Bot. Gesell. 65: 174 & 175. 1955; Moldenke in Humbert, Fl. Madag. 36: 21-24, fig. 3 (1). 1955; Koyama, Journ. Jap. Bot. 31: 12 & 233-235. 1956; C. E. C. Fischer in Gamble, Fl. Presid. Madras, ed. 2, 8 [3]: 1120, 1126, & 1333. 1956; Moldenke, Résumé 156, 157, 159, 162, 165-167, 170, 172, 174, 176, 178, 180, 181, 184, 186, 192, 286-288, 290-294, 482, & 483. 1959; Van Royen, Nov. Guin., new ser., 10: 24, 25, & 44. 1959; Moldenke, Résumé Suppl. 1: 11 & 18. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 877-880 (1960) and 2: 1283. 1960; Prain, Ind. Kew. Suppl. 5, pr. 2, 97. 1960; Moldenke, Résumé Suppl. 3: 17, 18, 22-24, & 28 (1962), 5: 6 (1962), and 11: 6. 1964; Thanikaimoni, Pollen & Spores 7: 186. 1965; K. Larsen, Dansk Bot. Ark. 23: 378, 380, 381, & 397, fig. 15. 1966; Moldenke, Résumé Suppl. 17: 10 & 11. 1968; Ornduff, Reg. Veg. 55: 13 & 118. 1968; Moldenke, Phytologia 17: 10, 11, 383, 386, 387, 395, 454, 459, 461, & 488 (1968), 18: 53 (1968), 18: 81, 82, 106, 169, 172, 173, 180, 187, 243, 244, 274, 303, 309, 328, 352, 362, 379, 388, 425, 433, 434, 438, & 441 (1969), and 19: 12, 23, 25, 26, 38, & 44-46. 1969.

Illustrations: Mart. in Wall., Plant. Asiat. Rar. 3: pl. 249

[in color]. 1832; Schnitzl., Iconogr. 1: pl. 46. 1845; Useful Pl. Jap. 3: pl. 966 [in color]. 1895; Hayata, Icon. Pl. Formos. 10: 55, fig. 30. 1921; Fyson, Journ. Indian Bot. 2: pl. 39 & 40. 1921; Satake in Nakai & Honda, Nov. Fl. Jap. 6: 6, 7, 11, & 19, fig. 1N, 2F, 5D, & 7. 1940; Satake, Bull. Tokyo Sci. Mus. 4: [Rev. Jap. Erioc.] pl. 1, fig. 1. 1940; Erlandsson, Arkiv Bot. 30B (2): 2, fig. 1e. 1942; M. R. Henderson, Malay. Wild Fls. fig. 127. 1954; Moldenke in Humbert, Fl. Madag. 36: [23], fig. 3 (1). 1955; K. Larsen, Dansk Bot. Ark. 23: 380, fig. 15. 1966.

Acaulescent perennial herb; rhizome simple, sometimes 2- or many-branched, densely clothed beneath with filiform roots, arachnoid between the leaves at its apex; leaves membranous, very narrowly linear or grass-like, 7.5--30 cm. long, 4--20 mm. wide, much surpassing the sheaths, usually nigrescent, narrowed to a rather acute apex, subpellucid or pellucid, very lightly fenestrate, 3-nerved or many-nerved, glabrous; sheaths rather loose, membranous, 6.5--9 cm. long, deeply split at the apex, glabrous or lightly pilose, the blade acuminate; peduncles many, filiform, 30--45 cm. long, 5- or 6-angled and -sulcate, usually twice as long as the leaves, stiff, finally twisted; heads hemispheric or subcylindric-globose, about 8 mm. wide, hard, rounded at the apex and convex at the base, finally conic and truncate at the base, usually conspicuously white-powdery; involucre bractlets subrotund-obovate, pale stramineous-flavids, much shorter than the disk, convex, rounded at the base, shiny, pulverulent on the upper surface with very short rather thick white easily rubbed-off hairs, finally glabrate; receptacle glabrous; receptacular bractlets closely imbricate, broadly obovate or rhomboid-cuneate, pale-stramineous, acute and inflexed or cuspidate at the apex and there white-pulverulent on the outer surface; staminate florets: peripheral, pedicellate; sepals 3, connate to the apex, cuneate-obovate, flat, whitish, scarious-membranous, glabrous, truncate-rounded at the apex and there lightly and irregularly erose-dentate or emarginate-subbilobed, alate-margined, the wings narrow below; petals 3, included, pale-stramineous, forming an elongated tube that is flattened parallel to its axis, glabrous, with an irregularly 3-lobed limb, the lobes small, ovate-oblong, ciliate-barbate at the apex and there bearing a brown gland on the inner surface, the anterior lobe slightly larger; stamens 6, inserted at the top of the corolla-tube, the alternate ones longer, opposite the corolla-lobes and adnate to them; anthers didymous, elliptic, brown; pistil-rudiments in the center of the top of the corolla-tube, rather truncate, becoming brownish at the apex; pistillate florets: short-pedicellate; sepals 3, separate, pale brownish-stramineous, lateral, very broadly flattened-navicular, sublanceolate, convex beneath, membranous, hyaline, whitish, carinate-alate, obtuse at the apex, rather spongy, closing together in fruit, densely white-pilose toward the apex or glabrescent in age, the posterior one (the one away from the receptacular bractlet) shorter, the wing rounded and irregularly dentate above; petals 3, similar to the sepals and only very slightly shorter, hyaline, whitish, lanceolate, narrowed to the base, subulate-narrowed and ciliate at the

apex, non-glanduliferous, the anterior one (nearest the receptacular bractlet) slightly larger; ovary very short-stalked; style elongate; stigmas 3, simple; fruit very short-stalked, subdepressed-globose, hyaline, membranous, included by the persistent calyx, 3-seeded; seeds ovate-elliptic, acute at the end and where they are attached and rounded at the opposite end, or else finally rounded at both ends, bright brownish, hirtellous with 12--15 longitudinal lines of very minute subincrassate-truncate hyaline hair-like cellular outgrowths.

This very much misunderstood species occurs in Madagascar and Mauritius and from India and Ceylon through Burma, Indochina, and Malaya, northward to Hainan, Fukien, Kwangtung, and Formosa, and eastward to the Philippines, Pelew Islands, and Sabah. It has been collected at altitudes of 4 to 1200 meters, flowering and fruiting in January, April to August, October, and November, near water or in running water, swampy areas, ricefields, and rice-paddy margins. Vernacular names recorded for it are "aetch horac" (Madagascar), "fosi-kusa" and "kok moethe" (Philippines), "inunohige-modoki" and "oo-siratama-hosikusa" (Formosa), "ya hua ngawk" (Thailand), and "6winklichte Kugelbinse" (Germany). The initial letter of its specific epithet is uppercased by Kunth (1841), as are the initial letter of several of its synonyms by various authors.

Linnaeus (1747) places under his "Eriocaulon culmo sexangulari, foliis ensiformibus" the following synonyms:

Gramen junceum, chamaemeli capitulis aphyllis albis J. Burm., Thes. Zeyl. 108. 1737.

Gramen junceum indiae orientalis minus, capitulo rotundo ex paleaceis spiculis in cacumine caulis glomerato Pluk., Alm. Bot. Mant. 98. 1700.

These two names, however, seem better placed in the synonymy of E. quinquangulare L.

Fyson (1921) unites E. longifolium Nees with E. sexangulare and comments "On the western side of South India down to Ceylon, and throughout Burma and the Malay Peninsula. The plants of the Western peninsula are larger on the whole than those of the Eastern, which are frequently 2-merous. In the F. B. I. the latter is given as a variety and perhaps it should be so considered, but in every other respect the two forms are identical and it would always be necessary to dissect the heads to determine the point. The Mysore plants connect them. For this reason the separation of these forms as two distinct species, E. sexangulare L. & E. longifolium Nees, widely apart in different sections of the genus as is done by Ruhland seems particularly unhappy. Koernicke though he separated the American 2-merous species, placed these two together observing that the 2-merous flowers and acute not shortly acuminate floral bracts distinguish them." Erlandsson (1942) also regards the two as conspecific. Thwaites & Hooker (1864) regarded E. longifolium Nees as a synonym of what they called E. wallichianum Mart. and "E. thwaitesii Körn., in part"

as a synonym of E. sexangulare L. (the other part being E. truncatum Hamilt.). Satake (1940) regards E. miyagianum Koidz. as a valid species. Tu (1933) gives E. sieboldianum Steud. as a synonym of E. sexangulare, but this binomial certainly belongs in the synonymy of E. cinereum R. Br., as does also the E. tenue Hamilt. which Wallich (1832) lists as a synonym of his E. hexangulare.

It should be noted that the E. sexangulare L. described in detail by Kunth (1841) is for the most part actually E. cinereum R. Br., as are the E. setaceum Willd. and Leucocephala spathacea Roxb. which he lists as synonyms. The E. minimum Lam., which he also cites as a synonym, is probably distinct. He says of it "Lamarck hoc ducit cum ? Burm. t. 9. f. 4. et dubitat plantam suam eandem esse ac E. hexangulare Linn."

The E. nitidum Hamilt. and E. tenue Hamilt. which he also cites as synonyms (with the note "variat capitulis cinerascens, cinereo-nigricantibus") are also in the synonymy of E. cinereum R. Br. now.

Under the name, E. wallichianum, Kunth cites the species from Tavoy, China, and the Philippines, citing Meyen s.n., Philippi s.n., and Wallich 2364b ("forma gracilis") and 6068c ("juven."). His f. gracilis is described by him as "Folia 3-pollicaria, vix lineam lata; vaginae 3 -- 3 1/2-pollicares; pedunculi graciles, vix pedales; structura florum et seminum prorsus ut in forma communi".

He gives a long and detailed description of his so-called E. sexangulare, taken from Martius and from the Meyen Philippine collection, noting "Specimen alterum chinense a cel. Philippi acceptum humilius, folia 2 -- 2 1/4 pollicaria, pedunculi 3 1/2 -- 5 1/4 poll. longi. Specimina (Kleiniana?) in herb. reg. Berol. sub nomine Kok Moethe suppetentia cum supra descripto Meyeniano plane congruunt, exceptis notis subsequentibus: calyx exterior (ut in Eriocaulo consanguineo) apice rotundatus et emarginato-subbilobus; sepala feminea exteriora lateralia superne ad alampilis brevissimis crassiusculis albis obsita, interiora (ut in Eriocaulo consanguineo) angustissime linearia, superne pilosa. Seminum structura prorsus eadem."

Under E. argenteum Mart. he says "Hinc E. quinquangulare, inde E. sexangulare affine atque ut videtur a nonnullis actoribus cum illis confusum, ratione doliorum ad scapos E. sexangulare propinquis, tomentosus capitulis E. quinquangulare; capitulorum magnitudine et scaporum firmitate utrumque, florum numero E. sexangulare separat." Under E. hamiltonianum Mart. he notes "E. sexangulare affine". In all these cases his concept of E. sexangulare is obviously the plant now known as E. cinereum R. Br.

It should be noted here that the type of E. wallichianum Mart. is W. Gomez 3 [Herb. Wallich 6068], of E. miyagianum Koidz. is T. Miyagi 364 in the herbarium of the University of Tokyo, and of E. sinicum Miq. is Krone s.n. in the herbarium of the University of

Utrecht; E. christophora Chandra is based on Chandra 49, E. longifolium Korn. is based on Thunberg s.n. from India, E. setaceum Heyne is based on Wallich 6073, E. truncatum Harms is based on Amano 6016 from Okinawa, and E. wallichianum var. angustifolium Meyen is based on Meyen s.n. from Cape Sing-moon, China.

The E. alpestre Hook. f. & Thoms., referred to in the synonymy above, is a valid species, while the homonym accredited to Ruhl-land belongs in the synonymy of E. robustius (Maxim.) Mak.; the E. hexangulare credited to Kunth and to Wallich are synonyms of E. cinereum R. Br.; E. longifolium Nees, as well as the variant accreditation, "Nees ex Kunth", belong in the synonymy of E. willdenovianum Moldenke, but the E. longifolium of Rafinesque is E. decangulare L.; E. nitidum Bong. is now known as Syngonanthus nitidus (Bong.) Ruhl., but E. nitidum Buch.-Ham. is E. cinereum R. Br.; E. setaceum L. is a valid species, with the homonyms accredited to Crantz and to Wallich as synonyms, while the homonym credited to "Auct. ex Backer & Bakh." is E. equisetoides Van Royen, that credited to "Auct. ex Ruhl." is E. intermedium Korn., that ascribed to Bentham is E. bifistulosum Van Heurck & Muell.-Arg., that credited to Loureiro is Fimbristylis setacea Benth. in the Cyperaceae, those credited to Rottler and to Willdenow are E. cinereum R. Br., and that accredited to Wight is E. quinquangulare L. The E. sexangulare Auct., as well as the homonym credited to "(L.) Auct." and to Martius, belong to E. cinereum R. Br., that of Burman is E. minimum Lam., that credited to Heyne is E. wightianum Mart., and those credited to Fyson and to Willdenow are E. willdenovianum Moldenke. The E. truncatum credited to "Buch.-Ham.", to "Ham. ex Mart.", to Martius, and to Wallich are all synonyms of E. truncatum Hamilt.

It should also be noted here that E. sexangulare var. longifolium Hook. f. belongs in the synonymy of E. willdenovianum Moldenke, while E. sexangulare var. α Korn., var. β Korn., and var. γ Korn. all appear to be E. cinereum R. Br. Müller (1860) apparently takes up these same Körnicke varieties (since he accredits them to Körnicke in his index on page 1171 of volume 2, 1861), distinguishing and typifying them as follows: "var. α -- foliis uninerviis": Hohenacker 131b & 133bb, König s.n., Rottler s.n., Thwaites 795, Wallich 6074 in part, and Wight 2366 in part; "var. β -- vulgaris, foliis trinerviis": E. sieboldiana Sieb. & Zucc., Cuming 670, Herb. Berol. s.n., Herb. Willdenow 2360, Macé s.n., Martius s.n., Siebold s.n., Wallich 6073a in part & 6073b in part, Wight 2366 in part, and Zollinger 92 & s.n.; "var. γ -- foliis latioribus, 5- rarius 6--7-nerviis (capitulis plerumque nigrescentibus pedunculis longioribus laxioribusque)": E. nitidum Hb. Hamilton and E. tenue Hb. Hamilton "(forma minor magis ad var. β spectans)" and Leucocephala spathacea Roxb. Fl. Ind. 3: 613, Hamilton s.n., Hornemann s.n., Martius s.n., Quartin-Dillon

s.n., and Wallich 6073a in part. Makino (1894) describes his "var. φ vulgaris" also as "foliis trinerviis".

If the Hermann 14, in the herbarium of the Botanische Staats-sammlung at Munich, from the Burman herbarium, is the actual type of Kockmotha zeylonensibus J. Burm., as it seems that it may well be, then that name will have to be removed from the synonymy of E. quinquangulare L. and placed in that of E. sexangulare L. The specimen is inscribed "Kockmotha zeylonensibus. Gramen junceum, Chamaemeli capitulis, aphyllis, albis. Herb."

The Erlandsson (1942) reference in the bibliography above is often cited as "1940", but the pages in question were actually not issued until February 25, 1942.

Wight 2858 and Falconer s.n. [Moulmain] are annotated "Eriocaulon sexangulare L. genuinum" by Schultes in the Munich herbarium. Of Ying 1525 Merrill says "This is exactly E. sinicum Miq. Krone! type Hb. Utrecht compared June 8, 1929". Schmid 81 in the Britton Herbarium at the New York Botanical Garden may represent a case of crossed labels with Schmid 81 cited by me in these notes under E. achiton Körn. Decary 10737 is anomalous in having very white heads, the bractlets not at all dark. H. Hallier 1172 is a mixture with E. truncatum Hamilt., while Hansen & Smitinand 12388b is a mixture with E. achiton Körn.

Dee found E. sexangulare "common along edge of rice fields" in Thailand, Bunnak found it "common in rice fields", Smitinand describes it as "common in swamps", a "common herb along edges of thickets in driedup swamps", and "close to ground in damp places in fields" in the same country, where Hansen & Smitinand aver that it is "common in wet localities". In Mauritius it was encountered "on marshy ground of the uplands", where Schlieben says it is "endemic". On Hainan island Tak found it to grow in small streams beside forests, and Lei says that it is "abundant on moist gentle slopes in sandy meadow soil". Walker & Tawada report it "submerged in pools; heads grayish-green, usually not submerged" on Iriomote island. Fosberg found it to be "locally common in grassy peat bog in broad ravine" on Ishigaki island. The flowering heads are usually described as white or dark-gray. Erlandsson (1942) and Larsen (1966) report the chromosome number as $2n = 36$.

Larsen (1966) refers to this as "A widely distributed species from Madagascar throughout tropical Asia to Polynesia". He continues: "The chromosome number was counted at $2n = 36$ in several good root tip metaphases; this corresponds well with the results of Erlandsson (1942). Also this author's drawings and his description of the chromosomes are in full agreement with the present findings on Thai material. The species is evidently a tetraploid with the basic number 9. The chromosomes are of the same type as those found in E. henryanum." Chung informs us that the plant is used in Chinese native medicine.

Merrill (1921) cites Gibbs 2596 from Sabah, while Satake (1940)

cites the following collections: FORMOSA: Faurie 176, Itô 84170, Kawakami & Sasaki s.n. [Nov. 1910], Odasima 13575, Suzuki 11765, Suzuki & Kohasigawa 4818. OKINAWAN ISLANDS: Iheyashima: Sakaguti s.n. [1924], Tamasiro s.n., Tawada s.n. Okinawa: Kanasiro 714, Miyagi 364, Sakaguti s.n. [1922]. SAKISHIMA ISLANDS: Iriomote: Doi 69, Itô 1465, Koidzumi s.n. [Jul. 1923], Sakaguti s.n. [1922]. Ishigaki: Kanasiro s.n. [Jul. 1911], Sakaguti s.n. [1922], Takamine 10 & 21. Hochreutiner (1908) cites Guillot 20 as E. longifolium Nees, but I have seen this collection number in the Paris herbarium and it is cited below as E. sexangulare L.

Material has been misidentified and distributed in herbaria under the names E. longifolium Nees, "E. longifolium var.", E. pachypetalum Hayata, E. petrosepalum Hayata, E. shikokianum Maxim., E. truncatum Hamilt., E. 5-angulare L., Xyris indica L., and Xyris sp.

On the other hand, the Griffith 5576, distributed as E. sexangulare, is actually E. achiton Körn.; C. B. Clarke 18851a is E. alpestre Hook. f. & Thoms.; Herb. Lingnan Univ. 16034, Kawakami 431, and Tak 535 are E. buergerianum Körn.; Bürger s.n. [In Japan], Griffith 5565 & 5579, Herb. Schreber s.n. [Selampur], Herb. Zuccarini s.n., Hohenacker 131b in part & 131bb, Hooker & Thomson s.n. [Chittagong, 0--1000 ped.], Hügel s.n. [India orientalis], Kollmann s.n. [Java], König s.n. [Tranguebar], Maximowicz s.n. [Yokohama, 1862], Poelt s.n. [27.10.1962], Polunin 381, Reinwardt s.n. [Java], Rottler 17, G. Thomson s.n. [Misor & Carnatic], and Wallich 6073a are E. cinereum R. Br.; Smitinand 3065a is E. dianae var. longibracteatum Fyson; S. K. Lau 4229 is E. huianum Ruhl.; Hosseus 102 is E. luzulaefolium Mart.; Elmer 6617 and E. D. Merrill 572 are E. merrillii Ruhl. (the latter being the type collection); Herb. Heyne 4 is E. nilagirense Steud.; Swamy s.n. [Bannerghatta, 25.11.62] is E. oliveri Fyson; Macrae 123 is E. quinquangulare L.; Hohenacker 131b (in part) and Stocks, Law & c. s.n. [Malabar, Concan & c.] are E. redactum Ruhl. (the latter being the type collection); Chang & En 2907 is E. robustius (Maxim.) Mak.; and Corner 37693 is the type collection of E. sexangulare f. viviparum Moldenke. Hohenacker 131bb, annotated by Miquel as "Eriocaulon affine sexangulare L." is, as stated above, E. cinereum R. Br.; Baum 111 is a mixture of E. amboense Schinz and E. heudelotii N. E. Br., while Hooker & Thomson s.n. [Silhet, Alt. O] and T. Thomson s.n. [Plan. Ganget. Sup.] are each a mixture of E. cinereum R. Br. and E. truncatum Hamilt.

Additional citations: MADAGASCAR: K. R. Afzelius s.n. [Tamatave, 26.7.1912] (S, S), s.n. [Moramanga, 12.10.1912] (S); Bernier 78 (P, P); Boivin s.n. [Ste. Marie] (P, P); Catat 2530 (P); Chapelier 80 (P), s.n. [Madagascar] (P); D'Alleizette 1162m (P); Decary 5721 (P), 6476 (P), 10029 (P), 10432 (P), 10737 (P); Geay

1865 (P), 7045 (P), 7046 (P), 7047 (P), 7165 (P), 7459 (P), 7460 (P), 7461 (P), 8050 (P), 9015 (P), 9030 (P), 9034 (P), 9035 (P), 9036 (P), 9037 (P), 9038 (P); Guillot 20 (P); Humbert 3404 (P); Lam & Meeuse 5572 (Le--939151-134, Vi); Loher s.n. [Tamatave, III.1911] (Mu--392); Perrier de la Bâthie 18238 (P, P); Perrottet 1820 (P); Petit-Thouars s.n. [Madag.] (P); Richard s.n. (P); Scott-Elliott 2271, in part (P); Viguiet & Humbert 312 (P), 558 (P). MASCARENE ISLANDS: Mauritius: Bouton s.n. [Ile Maurice, 1830] (P, P); Richard s.n. [Ile de France] (P); Schlieben 10780 (Mu). INDIA: Bombay: J. Fernandez 1799 (Xa); S. N. Ramaswamy 6 (Rf); Sedgwick & Bell 5046 (N, Xa). Kerala: Janaki Ammal 491 (Mi, Mi); Meebold 12572 (S). Madras: Kuriakose s.n. [5-1-33] (N); "P. F. F." 5042 (S). Mysore: Chandra 49 (Bn--3165); E. K. Janaki 329 (Mi). Travancore: E. W. Erlanson 5092 (Mi); R. Wight 2858 (Mu--337, S). State undetermined: Barth s.n. [1858] (Br); Herb. Wight 1 (Br); König s.n. [India orientalis] (Br); Thunberg s.n. [1770] (S). CEYLON: Goebel s.n. [1898/9] (Mu); Herb. Mus. Berol. s.n. (B); Hermann 14 (Mu--261); Thwaites 220 (B, Br). BURMA: Tenasserim: C. B. Clarke 22 (Cp); Falconer s.n. [Moulmain] (Mu); W. Gomez 3 [Wallich 6068] (Br, N--photo, Z--photo); Wallich 6068c (Mu--325). CHINA: Fukien: H. H. Chung 2711 (Ca--243824), 3747 (Ca--288597), 3825 (Ca--288510); Metcalf & Ging 5073 (Ca--322277); L. Y. Tai 11617 (Ca--325788), 11618 (Ca--325787). Kwangsi: W. T. Tsang 22592 (S). Kwangtung: Herb. Mus. Berol. s.n. [Cap Lynny-moon] (B); Meyen s.n. [Cap Sing-moon] (B, B, B); W. T. Tsang 21110 (S); Ying 1525 (Ca--359962). Province undetermined: Andersson s.n. [China] (S); Krone s.n. [China austr.] (Ut--303); Meyen s.n. [China] (Br). CHINESE COASTAL ISLANDS: Hainan: W. Y. Chun 5797 (Ca); How & Chun 70286 (B); C. I. Lei 58 (Ca--611518, Mi); F. A. McClure s.n. [Herb. Canton Chr. Coll. 9827] (Bi); Tak 424 [Herb. Lingnan Univ. 17173] (Ca--356796); Tso 58 (B). HONGKONG: Collector undetermined s.n. [Happy Valley, 1865] (Ca--2421); Fortune 120 (S), s.n. (Mu--213); E. Oldenburg s.n. (S); Schattmüller 384 (B); Taam 1547 (Ca--56887); Tsui 282 (Ca--612349, E--1260592, Mi, V--3846, V--9134, W--1754581). THAILAND: Bunnak 136 [Herb. Roy. Forest Dept. 11522] (Ss); Dee 162 [Herb. Roy. Forest Dept. 3530] (Z); Hansen & Smitinand 11895 (Cp, Rf), 12388 (Rf), 12388b (Cp), 12418 (Cp, Rf); K. Larsen 10035 (Lw); Larsen, Smitinand, & Warncke 1661 (Ac, Rf); Seidenfaden 2458 (Cp), 2704 (Cp); Smitinand 266 [Herb. Roy. Forest Dept. 6250] (Ss), 2917 [Herb. Roy. Forest Dept. 12623] (Gg), 5432 [Herb. Roy. Forest Dept. 22018] (Gg); Sørensen, Larsen, & Hansen 135 (S), 783 (Cp), 7929 (Cp); Vesterdal 13h (Cp). INDO-CHINA: Annam: Clemens & Clemens 3301 (Ca--339571, Mi, N, Ut--79a); Schmid 81 (N), 1415 (N); Souchère 1411 (Cb), 1412 (N), 1416 (N); Squires 235 (Ca--306009). Laos: Petélot 8974 (N). Tonkin: Peté-

lot 5250 (N), 8093 (N). MALAYA: Johore: M. Jensen s.n. [Oct. 1901] (Cp). Singapore: Andersson s.n. [28 Jan. 1853] (S); Möller s.n. [9.1897] (S); H. N. Ridley s.n. [Singapore, 1892] (W--516149). MALAYAN ISLANDS: Langkawi: Corner 37982 (S). Palau Redang: M. Jensen s.n. [Oct. 1901] (Cp). WESTERN PACIFIC ISLANDS: RYUKYU ISLAND ARCHIPELAGO: OKINAWAN ISLANDS: Okinawa: Amano 6012 (W--2036157), 6016 (N, W--2036159); Walker & Tawada 6743 (W--2093992). SAKISHIMA ISLANDS: Iriomote: Gressitt 550 (S, Ut--16909a); Kawagoe s.n. [July 28, 1919] (Kg), s.n. [Aug. 19, 1919] (W--2071386); Walker & Tawada 6700 (N, N). Ishigaki: F. R. Fosberg 37135 (N), 37830 (N). FORMOSA: Collector undetermined s.n. [May 6, 1937] (Kg); Kawagoe s.n. [Aug. 2, 1914] (Kg); Odashima s.n. [Tanaka & Shimada 13575] (D--752408, Go, Mu, N, N); Simada 432 (Ca--344950); Suzuki 23 [Jul. 15, 1935] (N, W--2062478, W--2062479), s.n. (Kg). PHILIPPINE ISLANDS: Island undetermined: Cuming 2328 (Mu--345). PALAU ISLANDS: Yap: Hosokawa 8820 (Bi), 8858 (Mi). INDONESIA: GREATER SUNDA ISLANDS: Borneo: H. Hallier 1172, in part (Ca--227870, Ca--265588). Sumatra: H. S. Yates 2486 (Ca--318476). CULTIVATED: Java: Slooten s.n. [Buitenzorg, 1937] (S). LOCALITY OF COLLECTION UNDETERMINED: Herb. Dahl 21 (S); Herb. Gasstrom s.n. (S); Herb. Osbeck 53 (S).

ERIOCAULON SEXANGULARE f. VIVIPARUM Moldenke

Bibliography: Moldenke, Résumé Suppl. 5: 6. 1962; Moldenke, Phytologia 8: 388. 1962; Hocking, Excerpt. Bot. A.6: 455. 1963; Moldenke, Biol. Abstr. 42: 1517. 1963.

Citations: MALAYA: Johore: Corner 37693 (S--type).

ERIOCAULON SIAMENSE Moldenke

Bibliography: Moldenke, Phytologia 5: 83--84. 1954; Moldenke, Résumé 178 & 483. 1959; G. Taylor, Ind. Kew. Suppl. 12: 55. 1959; Moldenke, Phytologia 18: 360. 1969.

Smitinand describes this plant as an herb with "purple radical leaves, white flowers, common on rocky ground in open pine forests", at 1300 meters altitude, flowering in October. The Smitinand 416 [Herb. Roy. Forest Dept. 5113], distributed as E. siamense, is actually E. odoratum Dalz.

Citations: THAILAND: Native Collector 18 (S--type, Z--isotype); Smitinand 2050 [Herb. Roy. Forest Dept. 11528] (Z); Sørensen, Larsen, & Hansen 6162 (Cp).

ERIOCAULON SIGMOIDEUM C. Wright

Bibliography: Sauv., Anal. Acad. Ci. Habana 8: 48. 1871; Ruhl. in Engl., Pflanzenreich 13 (4-30): 32, 36, & 287. 1903; Prain, Ind. Kew. Suppl. 4, pr. 1, 82. 1913; Moldenke, N. Am. Fl. 19 (1): 19 & 29. 1937; Prain, Ind. Kew. Suppl. 4, pr. 2, 82. 1938; Moldenke, Phytologia 1: 327. 1939; León, Fl. Cuba 1: 280. 1946; Moldenke, Known Geogr. Distrib. Erioc. 4 & 40. 1946; Moldenke, Known

Geogr. Distrib. Verbenac., [ed. 2], 44 & 206. 1949; Moldenke, Résumé 52, 53, & 483. 1959.

The Britton, Britton, & Wilson 14948, distributed as E. sigmoideum, is actually E. sclerocephalum Ruhl.

Additional citations: CUBA: Pinar del Río: C. Wright 3737 (S-isotype). ISLA DE PINOS: Ekman 12106 (S); Killip 44567 (Z).

ERIOCAULON SIKOKIANUM Maxim.

Synonymy: Eriocaulon sikokianum Körn. ex Moldenke, Résumé 292, in syn. 1959 [not E. sikokianum Miyabe & Kudo, 1940]. Eriocaulon shikokianum Maxim. ex Moldenke, Résumé Suppl. 1: 18, in syn. 1959.

Bibliography: Mak., Bot. Mag. Tokyo 4: 174. 1890; Maxim., Diagn. Pl. Nov. Asiat. 8: 7 & 16--17. 1893; Mak., Bot. Mag. Tokyo 8: 506. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 158 & 501. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 12, 65, 92, & 287. 1903; Matsumura, Ind. Pl. Jap. 2 (1): 177. 1905; Mori, Enum. Pl. Corea 80. 1922; Mak. & Nemoto, Fl. Jap., ed. 1, 1307. 1925; Ruhl., Notizbl. Bot. Gart. Berlin 10: 1043. 1930; Mak. & Nemoto, Fl. Jap., ed. 2, 1515. 1931; Tu, Chinese Bot. Dict., abrdg. ed., 297. 1933; Nemoto, Suppl. Fl. Jap. 1040. 1936; Hand.-Mazz., Symb. Sin. 7: 1246. 1936; Honda, Nom. Pl. Jap. 463. 1939; Satake in Nakai & Honda, Nov. Fl. Jap. 6: 1, 6, 7, 13, 42, 49, 56, 80, & 87, fig. 1K, 2H, & 26. 1940; Satake, Bull. Tokyo Sci. Mus. 4: [Rev. Jap. Erioc.] 44--46. 1940; Mak., Illustr. Fl. Jap. 772 & E.26, fig. 2315. 1940; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 158 & 501. 1941; Moldenke, Known Geogr. Distrib. Erioc. 25 & 40. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 133, 134, & 206. 1949; Moldenke, Phytologia 3: 398. 1950; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 158 & 501. 1959; Moldenke, Résumé 171, 173, 292, & 483. 1959; Moldenke, Résumé Suppl. 1: 18 (1959) and 3: 18. 1962; Koyama in Kitamura, Murata, & Koyama, Col. Illustr. Herb. Pl. Japan 3: 180--182 & 430, fig. 123 (6). 1964; Moldenke, Résumé Suppl. 12: 8--10. 1965; Moldenke, Phytologia 18: 181, 182, 271, 311, 355, & 392. 1969.

Illustrations: Mak., Illustr. Fl. Jap. fig. 2315. 1940; Satake in Nakai & Honda, Nov. Fl. Jap. 6: 6, 7, & 56, fig. 1K, 2H, & 26. 1940; Koyama in Kitamura, Murata, & Koyama, Col. Illustr. Herb. Pl. Japan 3: 180, fig. 123 (6). 1964.

It is worth noting here that the original description by Maximowicz (1893) is variously cited by other authors, sometimes as "Dec. Pl. Asiat. 8, 16. 1892" or "Bull. Acad. Sc. Pétersb. 12". Durand & Jackson (1902) cite it to page "10" in error, but later correct this. A letter from the librarian at the Royal Botanic Gardens at Kew has brought me a photocopy of what purports to be Maximowicz's "Diagnoses plantarum novarum asiaticarum. VIII" and which the Kew librarian indicates is a reprint from "Bulletin de l'Académie Impériale des Sciences de St.-Pétersbourg. Tome XIII" published "21 Octobre / 2 Novembre 1892". According to Merrill & Walker, however, this portion of Maximowicz's series was never actually published in the Bulletin and was published only separately in 1893.

The E. sikokianum accredited to Miyabe & Kudo is a synonym of E. hondoense Satake, while E. sikokianum var. lutchuense Satake and E. sikokianum var. lutschuense (Koidz.) Satake are E. lutchuense Koidz.

Eriocaulon sikokianum has been found growing at altitudes of 1000 to 1200 meters, flowering and fruiting from August to December. Ohwi & Koyama found it growing "in swamp peat area of moor with Carex, Parnassia, Epipactis, and Iris" and note that it is "very near to E. miquelianum and differing from it only by shorter involucral scales and glabrous receptacle". Common names recorded for it are "oo-inunohige" and "siro-inunohige".

The Furuse s.n. [3 October 1952] and Togasi 722, distributed as E. sikokianum, are actually E. hondoense Satake, while Furuse s.n. [27 Sept. 1955] is E. miquelianum Körn., Kawagoe s.n. [Sept. 30, 1906] is E. nipponicum Maxim., Amano 6012 is E. sexangulare L., and Ichikawa 200846 is E. truncatum Hamilt.

Satake (1940) cites the following collections: KOREA: Faurie 1428; Nakai 6005. JAPAN: Honshu: Collector undetermined 17150; Hasimoto s.n. [Oct. 1930] & s.n. [Nov. 1932]; Itô s.n. [Oct. 1893]; Koidzumi 13404; Kotô 58813; Matusima 37352; Matuyama s.n. [Oct. 1936]; Nakamura 51289; Nikai 2962; Oda 2596; Sakaguti 13 & 15; Tamaki 36; Tuboi s.n. [Oct. 1931]; Turumati s.n. [Sept. 1931]; Ui 23; Yosino s.n. [Sept. 1915] & s.n. [Oct. 1915]. Kyushu: Collector undetermined 29997; Doi 59; Mayebara 3661 & H.360; Nabesima s.n. [Yunaso-mura]; Nakasima 42, 43, & 44; Sugino s.n. [Oct. 1927]; Tasiro 29998, s.n. [Jul. 1913], s.n. [Oct. 1918], & s.n. [1921]; Tiba s.n. [Oct. 1934]. Sikoku: Collector undetermined 32723; Nikai 2375; Ogata s.n. [Dec. 1923]; Oti 3.

Additional citations: WESTERN PACIFIC ISLANDS: JAPAN: Honshu: Murata 18989 (Ac); Ohwi & Koyama s.n. [17 October 1954] (Z); Omu-ma s.n. [Nikko, 16/8/84] (B). Kyushu: Ichikawa 200846-65 (Mg), 200846-115 (Mg).

ERIOCAULON SIKOKIANUM var. MATSUMURAE (Nakai) Satake

Synonymy: Eriocaulon matsumurae Nakai, Bot. Mag. Tokyo 24: 5. 1910.

Bibliography: Nakai, Bot. Mag. Tokyo 24: 5. 1910; Prain, Ind. Kew. Suppl. 4, pr. 1, 82. 1913; Mak. & Nemoto, Fl. Jap., ed. 1, 1305 (1925) and ed. 2, 1512. 1931; Nemoto, Suppl. Fl. Jap. 1039. 1936; Satake, Bot. Mag. Tokyo 51: 287 [Shib. Comm. Art. 17: 105]. 1937; Prain, Ind. Kew. Suppl. 4, pr. 2, 82. 1938; Honda, Nom. Pl. Jap. 462. 1939; Satake in Nakai & Honda, Nov. Fl. Jap. 6: 13, 41, 79, & 87. 1940; Satake, Bull. Tokyo Sci. Mus. 4: [Rev. Jap. Erioc.] 29--30, pl. 5, fig. 9. 1940; Moldenke, Known Geogr. Distrib. Erioc. 25 & 37. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 134 & 205. 1949; Moldenke, Résumé 173 & 481. 1959; Moldenke, Résumé Suppl. 3: 18. 1962; Koyama in Kitamura, Murata, & Koyama, Col. Illustr. Herb. Pl. Japan 3: 182, 429, & 430. 1964.



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