

New and existing combinations in Palaeotropical *Phlegmariurus* (Lycopodiaceae) and lectotypification of the type species *Phlegmariurus phlegmaria* (L.) T.Sen & U.Sen.

Ashley R. Field^{1,2}, Peter D. Bostock²

1 Australian Tropical Herbarium, James Cook University, Smithfield, Q 4878, Australia **2** Queensland Herbarium, Department of Science, Information Technology, Innovation and the Arts, Brisbane Botanic Gardens Mt Coot-tha, Toowong Q 4066, Australia

Corresponding author: Ashley R. Field (ashley.field@jcu.edu.au)

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Abstract

The genus *Phlegmariurus* Holub is recognised more widely than originally proposed and is circumscribed to include both Neotropic and Palaeotropic epiphytic and terrestrial species of Huperzioid Lycopodiaceae that have isotomous shoots, lack bulbils in their sporophyllous shoots and have spores with convex lateral margins and foveolate-fossulate sculpture restricted to their distal surfaces. New combinations with *Phlegmariurus* are proposed for 81 species and existing combinations identified for 33 species originating from the Palaeotropics. This installs a generic circumscription that is consistent between the Neotropics and Palaeotropics. A lectotype is designated for the type species of the genus, *Phlegmariurus phlegmaria* (L.) T.Sen & U.Sen.

Keywords

Lycopodiaceae, Huperzia, *Phlegmariurus*, *Lycopodium*, Lycopodiophyta

Introduction

The Lycopodiaceae is a globally distributed family of homosporous Lycopodiophytes in which the species exhibit shoot-forms associated with their habitat. Early classifications of this family usually included all of the species, irrespective of their shoot-form, together in the large and polymorphic genus *Lycopodium* L. One exception was the small and morphologically divergent Australian and New Zealand pygmy-clubmoss *Phylloglossum drummondii* Kunze which was historically placed in a genus of its own. Multiple genera and subfamilies corresponding with the different shoot-forms, gametophyte and spore types were recognised following multi-character systematic studies on the family (Bruce 1976, Holub 1964, Øllgaard 1975, 1979, 1987, 1989a, Wagner and Beitel 1992, Wilce 1972). Until recently, the most widely adopted of these classifications was the four-genus classification of Øllgaard (1987) which recognised *Lycopodium* L., *Lycopodiella* Holub, *Huperzia* Bernh. and *Phylloglossum* Kunze and was supported by a comprehensive nomenclatural index (Øllgaard 1989a).

Recent molecular phylogenetic investigations of the family and new morphological observations present a hypothesis that the relationship between *Phylloglossum drummondii* and *Huperzia* is equivocal and that the genus *Huperzia sensu* Øllgaard (1987) is paraphyletic or at best weakly supported (Christenhusz et al. 2011, Ji et al. 2008, Whittier 2006, Whittier and Braggins 1992, 2000, Whittier and Storchova 2007, Wikström and Kenrick 1997, Wikström and Kenrick 2000, 2001, Wikström et al. 1999, Yatsentyuk et al. 2001). A monophyletic *Huperzia* Bernh. is obtained if *Phylloglossum drummondii* is included within it *sensu* Christenhusz et al. (2011). This classification produces a *Huperzia sens. lat.* that is morphologically heterogeneous and is not supported by synapomorphies that can be readily identified in the field. It also does not reflect the ancient divergence times between the Huperzioid clades of Lycopodiaceae (Wikström and Kenrick 2001).

An alternative classification is to circumscribe *Huperzia* Bernh. narrowly *sensu* Wagner & Beitel (1992) to include only the wholly terrestrial species with erect shoots bearing gemmae in sporophyll axils and spores that are triangular in polar view with concave lateral margins, truncate corners and foveolate-fossulate sculpture on both proximal and distal surfaces and to recognise a sister genus, *Phlegmariurus* Holub, that is broadened to include all Palaeotropical and Neotropical species with erect or pendulous sporophyllous shoots that lack gemmae and that have spores with convex lateral margins and foveolate-fossulate sculpture restricted to their distal surface. This circumscription of *Phlegmariurus* includes a broad spectrum of both epiphytic and non-epiphytic species primarily from the tropical and subtropical regions globally. The necessary generic combinations with *Phlegmariurus* Holub were recently proposed for the Neotropical species (Øllgaard 2012a, b) but many necessary combinations do not exist among the Palaeotropical species. We propose these transfers so that *Phlegmariurus* Holub may be considered monophyletic.

Species exhibiting the characteristic features of *Phlegmariurus* were identified from the examination of 121 type specimens (including images) for species previously com-

bined with *Lycopodium* L., *Huperzia* Holub and *Urostachys* Herter and from characters described in these species protologues. Species level relationships within Palaeotropical *Phlegmariurus* are poorly understood and their circumscriptions require a thorough molecular and morphological review. It is apparent that there are more species names than there are species, and following a review of type materials we propose a number of new synonyms for species we have studied closely. Molecular evidence suggests that form homoplasy is common, especially among tropical rainforest epiphytes (Wikström et al. 1999). This suggests that morphologically similar species may not always be closely related. We have taken a more conservative approach to synonymisation for the *P. phlegmaria* (L.) T.Sen & U.Sen species complex as we consider this to be complex that is rich in species rather than being a remarkably heterogeneous species.

Lectotypification of *Phlegmariurus phlegmaria* (L.) T.Sen & U.Sen

Epiphytic Lycopodiaceae were first discovered by European botanists in the East Indies in the late 1600s. Several species were described and illustrated in:

- Breyne (1678) *Exoticarum Plantarum Centuria Prima* (tab. 92 *n.v.*)
- Rheede et al. (1703) *Hortus Indicus Malabaricus* XII (p. 27, tab. 14!)
- Rumph (1741) *Herbarium Amboinense* (VI p. 91, tab. 41, fig. 1!)
- Dillen (1741) *Historia Muscorum* (p. 450 tab. 61 fig 5, A, B & C.!)
- Dillen (1741) *Historia Muscorum* (p. 450 tab. 61 fig 5, D & E.!)
- Linné (1743) *Flora Zeylanica* number 386 (P. Hermann herb. vol. 4. p. 5!)

Linné described *Lycopodium phlegmaria* in *Species Plantarum* in 1753 and cited Dillen (1741 p. 450 tab. 61 fig 5), Linné (1743 p. 183 no. 386 & P. Hermann specimen vol. 4 p. 5), Breyne (1678 tab. 92), and Rheede et al. (1703p. 27, tab. 14) in his protologue. Based on the limited material available, Linné obviously regarded all of these illustrations, and the P. Hermann specimen, as belonging to the same species. His brief description could be applied to almost any heterophyllous epiphytic species in the genus *Phlegmariurus*. Subsequently, the figures and P. Hermann specimen cited by Linné have been recognised as representing multiple species. In accordance with ICBN (2006) Div. 2, Chapt. 2, Sect. 2 Art. 9.9 a lectotype may be selected to restrict the type of the taxon *L. phlegmaria* L. to one species (McNeill et al. 2006).

Øllgaard (1989) indicated that Dillen tab. 61 fig. 5 A, B & C was eligible for selection as lectotype but did not designate it. The illustrations of Dillen tab. 61 fig. 5 ABCDE are based on two separate illustrations reproduced from earlier publications. Dillen tab. 61 fig. 5. A, B & C is reproduced from Rheede et al. (1703 XII p. 27, tab. 14) but Dillen tab. 61 fig. 5. D & E is reproduced from Breyne (1678 tab. 92). In 1810, Willdenow described *L. mirabilis* (Willd.) Holub for Dillen tab. 61 fig. 5 D & E (i.e. the Breyne illustration) but retained the reference to Dillen tab. 61 fig. 5 A, B & C (i.e. the Rheede et al. illustration) for *L. phlegmaria* L. even though the epithet

phlegmaria was introduced by Breyne (1678). In 1832, *Lycopodium phyllanthum* Hook. & Arn. was described from new material (Pacific origin) which is in our opinion conspecific with the *P. Hermann* specimen (Indo-Asian origin). In the interest of conserving nomenclatural stability we believe that Dillen fig. 5, A, B & C. (1741) is the most suitable lectotype because it exhibits characters present in the diagnosis (in accordance with ICBN 2006 Div. 2, Chap. 2, Sect. 2, Art. 9.12.) and most closely accords with *L. phlegmaria* as it is regarded today (in accordance with ICBN 2006 Div. 2, Chapt. 2, Sect. 2 Art. 9 Recommendation 9.A.5.y) (McNeill et al. 2006).

Taxonomy

- Phlegmariurus afromontanus* (Pic.Serm.) A.R.Field & Bostock comb. nov.** Basionym: *Huperzia afromontana* Pic.Serm., *Webbia* 27:394. 1972. Type: Burundi. *J.Lewalle* 3468 (holo: FI! [FI3002]). IPNI ID: urn:lsid:ipni.org:names:77125024-1
- P. aloifolius* (Hook. & Grev.) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium aloifolium* Hook. & Grev., *Icon. Filic.* 2:233. 1831. Synonym: *Huperzia aloifolia* (Hook. & Grev.) Trevis., *Atti Soc. Ital. Sci. Nat.* 17: 248. 1874. Type: India. *N.Wallich* 129 (holo: K). IPNI ID: urn:lsid:ipni.org:names:77125026-1
- P. balansae* (Herter) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium balansae* Herter, *Bot. Jahrb. Syst.* 43: Beibl. 98:51. 1909. Synonym: *Huperzia balansae* (Herter) Holub, *Geobot. Phytotax.* 20(1): 71. 1985. Type: New Caledonia *M.Balansa* 688 (syn: P! [P523007, P523008, P523009]); New Caledonia. *Pom-péry s.n.* (syn: P! [P523010]). IPNI ID: urn:lsid:ipni.org:names:77125028-1
- P. bampsianus* (Pic.Serm.) A.R.Field & Bostock comb. nov.** Basionym: *Huperzia bampsiana* Pic.Serm., *Bull. Jard. Bot. Natl. Belg.* 55(1-2): 193. 1985. Type: Rwanda. *J.P.Bamps* 2964 (holo: LG; iso: P! [P462093], FI! [FI3007]). IPNI ID: urn:lsid:ipni.org:names:77125029-1
- P. banayanicus* (Herter) A.R.Field & Bostock comb. nov.** Basionym: *Urostachys banayanicus* Herter, *Bot. Arch.* 3:17. 1923. Synonym: *Huperzia banayanica* (Herter) Holub, *Geobot. Phytotax.* 20(1): 71. 1985. Type: Philippines. *H.M.Curran* 8003 (syn: P! [P5239029]); Philippines. *E.B.Copeland* 1450 (syn: P! [P523926]); Philippines. *A.D.Elmer* 9498 (syn: P! [P523019]); Philippines. *F.W.Foxworthy* 2449 (syn: P! [P523018]). IPNI ID: urn:lsid:ipni.org:names:77125031-1
- P. bolanicus* (Rosenst.) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium bolanicum* Rosenst., *Repert. Spec. Nov. Regni Veg.* 12:181 1913. Synonym: *Huperzia bolanica* (Rosenst.) Holub, *Geobot. Phytotax.* 20(1): 71. 1985. Type: Papua New Guinea. *C.Keysser* B32. Heterotypic synonyms: *Urostachys kaysseri* Herter ex Nessel, *Revista Sudamer. Bot.* 6:156. 1940; *Huperzia kaysseri* (Herter ex Nessel) Holub *Folia Geobot. Phytotax.* 20(1): 74. 1985. Type: New Guinea. *C.Keysser s.n.* (holo: B [B112944]). IPNI ID: urn:lsid:ipni.org:names:77125033-1
- P. brachystachys* (Baker) A.R.Field & Bostock comb. nov.** Basionym: *L. dacrydioides* Baker. var. *brachystachys* Baker, *Handb. Fern-Allies* 18. 1887. Synonym: *Huperzia*

brachystachys (Baker) Pic.Serm., Webbia 23: 162. 1968. Type: Cameroon. *G.Mann* 2041 (holo: K!). IPNI ID: urn:lsid:ipni.org:names:77125034-1

***P. brassii* (Copel.) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium brassii* Copel., J. Arnold Arbor. 10:174 1929. Synonym: *Huperzia brassii* (Copel.) Holub, Geobot. Phytotax. 20(1): 71. 1985. Type: Papua New Guinea. *L.J.Brass* 1521 (holo: UC! [UC377989], iso: BRI! [AQ521250]). IPNI ID: urn:lsid:ipni.org:names:77125036-1

***P. cancellatus* (Spring) Ching, Acta Bot. Yunn. 4:122. 1982.** Basionym: *Lycopodium cancellatum* Spring, Mém. Acad. Roy. Sci. Belg. 24: 27. 1849. Type: Bhutan. *W.Griffith* 162 (holo: K).

***P. carinatus* (Desv. ex Poir.) Ching, Acta Bot. Yunn. 4:120. 1982.** Basionym: *Lycopodium carinatum* Desv. ex Poir., Encycl. suppl. 3:555 1813. Synonyms: *Huperzia carinata* (Desv. ex Poir.) Trevis., Atti Soc. Ital. Sci. Nat. 17(2) 1874. Type: Sri Lanka. *Jussieu* 639 (holo: P!, iso: B!). Heterotypic synonyms: *Lycopodium acrostachyum* Hook. & Grev., Icon Filic. 2:t 181 (1831). Type: Singapore, *N.Wallich* 117 (holo: P!). *Lycopodium albescens* Bailey, Queensl. Dept. Agric. Brisbane Bot. Bull. 14:16. 1896; *Huperzia albescens* (F.M.Bailey) Holub, Geobot. Phytotax. 20(1): 70. 1985. Type: Australia ex New Guinea. *M.Sutter ex Capt. Michael s.n.* (holo: BRI! [AQ258306], iso: K) *Lycopodium laxum* C.Presl, Reliq. Haenk. 1:83. 1825; *Huperzia laxa* (C.Presl) Trevis., Atti Soc. Ital. Sci. Nat. 17: 247. 1874; *Phlegmariurus laxus* (C.Presl.) Satou, Hikobia 12(3):268. 1997. Type: Philippines. *Haenke s.n.* (iso: K). *Lycopodium pendulum* Roxb.; Calcutta J. Nat. Hist. 4. 472 (1844). Type: *C. Smith s.n.* from Amboina (lecto: BR *fide* Morton (1974) Contr. U.S. Natl. Herb. 38: 283-396.). *Lycopodium struthioloides* C.Presl, Reliq. Haenk. 1: 82. 1830; *Huperzia struthioloides* (C.Presl) Rothm., Feddes Repert. Spec. Nov. Regni Veg. 54: 61. 1944. Type: Philippines. *Haenke s.n.* (holo: PRC). *Lycopodium vanikorense* Copel., J. Arnold Arbor. 12:49. 1931; *Huperzia vanikorensis* (Copel.) Holub, Folia Geobot. Phytotax. 20:77. 1985. Type: Vanikoro [Vanuatu]. *S.F.Kajewski* 521 (holo: UC! [UC422661], iso: GH, K, MICH, MO! [MO22133], US).

***P. cavifolius* (C.Chr.) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium cavifolium* C.Chr., Dansk Bot. Ark. 7:190. 1932. Synonym: *Huperzia cavifolia* (C.Chr.) Tardieu, Adansonia sér. 2, 10: 18. 1970. Type: Madagascar. *H.Perrier* 8273 (holo: BM, iso: P! [P46639], K! [K351220]). *Urostachys smithianus* Nessel, Repert. Spec. Nov. Regni Veg. 36:185. 1934; *Huperzia smithiana* (Nessel) Holub, Geobot. Phytotax. 20(1): 76. 1985. Type: Mauritius: *s.c. s.n.* (syn: BONN-Nessel). IPNI ID: urn:lsid:ipni.org:names:77125038-1

***P. coralium* (Spring) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium coralium* Spring in Miquel, Pl. Jungh. 3: 273. 1854. Synonym: *Huperzia coralium* (Spring) Holub, Folia Geobot. Phytotax. 20(1): 71. 1985. Type: Java [Indonesia]. *Junghuhn* 291 (holo: LG, iso: P). IPNI ID: urn:lsid:ipni.org:names:77125040-1

***P. creber* (Alderw.) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium crebrum* Alderw., Bull. Jard. Bot. Buitenzorg ser. 2, 24:4. 1917. Synonym: *Huperzia crebra* (Alderw.) Holub, Geobot. Phytotax. 20(1) 71. 1985. Type: New

Guinea. *A.A.Pulle* 907 (syn: BM, BO, BONN, K, L, U). IPNI ID: urn:lsid:ipni.org:names:77125042-1

***P. cryptomerinus* (Maxim.) Satou Hikobia 12 (3): 268. 1997.** Basionym: *Lycopodium cryptomerinum* Maxim., Bull. Acad. Sci. St.Petersb. 15: 231. 1870. Synonym: *Huperzia cryptomerina* (Maxim) R.D.Dixit, J. Bombay Nat. Hist. Soc. 77(3): 541. 1980 [1981]. Type: Japan. *Maximowicz s.n.*

***P. cunninghamioides* (Hayata) Ching, Acta Bot. Yunnan. 4(2): 120. 1982.** Basionym: *Lycopodium cunninghamioides* Hayata, Ic. pl. formos. 4: 131. 1914. Synonym: *Huperzia cunninghamioides* (Hayata) Holub, Geobot. Phytotax. 20(1): 72. 1985. Type: Taiwan. *T.Soma 1* (holo: TI).

***P. curiosus* (Herter) A.R.Field & Bostock comb. nov.** Basionym: *Urostachys curiosus* Herter, Notul. Syst. 15:355. 1958. Synonym: *Huperzia curiosa* (Herter) Tardieu, Adansonia sér. 2, 10: 18. 1970. Type: Madagascar. *H.Humbert 23478* (holo: P! [P46637]). IPNI ID: urn:lsid:ipni.org:names:77125044-1

***P. dacrydioides* (Baker) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium dacrydioides* Baker, Handb. fern-allies 17-18. 1887. Synonyms: *Huperzia dacrydioides* (Baker) Pic.Serm., Webbia 23: 162. 1968. 1968. Type: Natal. *J.Buchanan s.n.* (lecto: K! [K351207] designated by Pichi Sermolli 1986: 7). IPNI ID: urn:lsid:ipni.org:names:77125045-1

***P. dalhousieanus* (Spring) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium dalhousieanus* Spring, Mem. Acad. Roy. Belg. 24: 25. 1849 Synonym: *Huperzia dalhousieana* (Spring) Trevis., Atti Soc. Ital. Sci. Nat. 17(2) 1874. Type: Penang [Malaysia]. *Lady Dalhousie 36* (holo: K! [3960/59]). Heterotypic synonyms: Based on a morphological comparison of living and herbarium specimens from Indonesia, Malaysia, Papua New Guinea, Australia and Fiji we consider the following taxa to belong to the same widespread but extremely scarce species: *Lycopodium caudifolium* Alderw., Bull. Jard. Bot. Buitenzorg, ser. 2, 1:14. 1911; *Urostachys caudifolius* (Alderw.) Herter ex Nessel, Bärlappgewächse 185. 1939; *Huperzia caudifolia* (Alderw.) Holub, Folia Geobot. Phytotax. 20(1): 71. 1985. Type: Borneo [Malaysia]. *A.W.Niewenhuis 317* (holo: BO! [BO185337], iso: L). *Lycopodium clarae* Bailey, Queensl. Dept. Agric. Brisbane Bot. Bull. 7. 1893; *Urostachys clarae* (F.M.Bailey) Herter ex Nessel, Bärlappgewächse 185. 1939; *Huperzia clarae* (F.M.Bailey) Holub, Geobot. Phytotax. 20(1): 71. 1985. Type: Australia. *E.Cowley 29* (holo: BRI! [AQ24829]). *Lycopodium glaucum* Cesati, Ann. Acc. Sc. Fis. et. Mat. Napoli VII, 35 (1876); *Urostachys glaucus* (Cesati) Herter, Revista Sudamer. Bot. 8: 86 (1949); Type: Malaysia. *O.Beccari* (holo: FI! [FI11821]). *Lycopodium magnificum* Brownlie, Nova Hedwigia Beih., 55 (Pterid. Fl. Fiji) 22. 1977; *Huperzia magnifica* (Brownlie) Holub, Folia Geobot. Phytotax. 26(1): 92. 1991. Type: Fiji. *Fiji Dept. Agr. 18070* (holo: CHR! [CHR341159]). *Lycopodium ingens* Gepp ex Nessel, Bärlappgewächse 185 (1939) nom. nud.; Type: Sogori, New Guinea. *H.O.Forbes s.n.* (holo?: BM! [BM1038045]). IPNI ID: urn:lsid:ipni.org:names:77125047-1

- P. delbrueckii* (Herter) A.R.Field & Bostock comb. nov.** Basionym: *Urostachys delbrueckii* Herter, Bot. Arch. 3:19. 1923. Synonyms: *Huperzia delbrueckii* (Herter) Holub, Geobot. Phytotax. 20(1): 72. 1985. Type: Philippines. *E.A.Mearns & W.J.Hutchinson* 4654 (holo: NY! [NY127344], iso: MICH! [MICH1191095], P! [P01220906, P01220907], US! [US134352]). IPNI ID: urn:lsid:ipni.org:names:77125049-1
- P. dielsii* (Herter) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium dielsii* Herter, Bot. Jahrb. Syst. 54:229. 1916. Synonym: *Huperzia dielsii* (Herter) Holub, Geobot. Phytotax. 20(1): 72. 1985. Type: New Guinea. *Ledermann 11318* (syn: B, BM); *R.Schlechter 19085* (syn: B! [B2112382] BONN-Nessel). IPNI ID: urn:lsid:ipni.org:names:77125051-1
- P. durus* (Pic.Serm.) A.R.Field & Bostock comb. nov.** Basionym: *Huperzia dura* Pic. Serm., Webbia 27: 392. 1973. Type: Kenya. *R.B.Faden* et al. 70/180 (holo: FI! [FI3008], iso: EA! [EA2516, EA2517], iso: K! [K351206]). IPNI ID: urn:lsid:ipni.org:names:77125052-1
- P. ellenbeckii* (Nessel) A.R.Field & Bostock comb. nov.** Basionym: *Urostachys ellenbeckii* Nessel, Repert. Spec. Nov. Regni Veg., 36:188, t. 175. 1934. Synonym: *Huperzia ellenbeckii* (Nessel) Pic.Serm., Webbia 23: 162. 1968. Type: Ethiopia. *Ellenbeck s.n.* (lecto: BONN-Nessel 544 p.p. designated by Pichi Sermolli 1968: 162). IPNI ID: urn:lsid:ipni.org:names:77125054-1
- P. elmeri* (Herter) A.R.Field & Bostock comb. nov.** Basionym: *Urostachys elmeri* Herter, Bot. Arch. 3:16. 1923. Synonym: *Huperzia elmeri* (Herter) Holub, Geobot. Phytotax. 20(1): 72. 1985. Type: Philippines. *A.D.Elmer 6411* (isosyn: P! [P01220901]); *J.Bermejos 372* (isosyn: P! [P01220903]); *H.M.Curran 3906* (isosyn: P! [P01220905]); *E.D.Merrill 5923* (isosyn: P! [P01220902]). IPNI ID: urn:lsid:ipni.org:names:77125056-1
- P. fargesii* (Herter) Ching, Acta Bot. Yunn. 4:125. 1982.** Basionym: *Lycopodium fargesii* Herter, Bot. Jahrb. Syst. 43: Beibl. 98: 48. 1909. Synonyms: *Huperzia fargesii* (Herter) Holub, Folia Geobot. Phytotax. 20(1): 72. 1985; *Urostachys fargesii* (Herter) Herter ex Nessel, Bärlappgewächse 137. 1939. Type: China. *P.G.Farges s.n.* (holo: P! [P01234387], iso: MO! [MO255690]).
- P. filiformis* (Sw.) W.H.Wagner, Contr. Univ. Michigan Herb. 20:242. 1995.** Basionym: *Lycopodium filiforme* Sw., J. Bot. (Schrader) 2: 114. 1800 [1801]; Synonyms: *Urostachys filiformis* (Sw.) Herter, Index. Lyc. 61. 1949; *Huperzia filiformis* (Sw.) Holub, Folia Geobot. Phytotax 20:72 (1985); Type: "Insulae Sandwich oceanici pacifici" [Tahiti] in Syn. Fil. 1806. Heterotypic synonyms: *Lycopodium setaceum* Lam., Encycl. (Lamarck) 3(2): 653. 1792. *Huperzia setacea* (Hamilt. ex D. Don) Trevis., Atti Soc. Ital. Sci. Nat. 17:248. 1874. Type: Réunion. *Commerson s.n.* (holo: P! [P46612], iso: P! [P583966]). *Lycopodium polytrichoides* Kaulf., Enum. Filic. 6. 1824; *Huperzia polytrichoides* (Kaulf.) Trevis., Atti Soc. Ital. Sci. Nat. 17(2) 1874. Type: Sandwich Islands [Hawaii], *Chamisso s.n.* (lecto: B designated by Nessel 1939: 30). *Lycopodium verticillatum* L.f., Suppl. pl. 448. 1782; *Huperzia ver-*

ticillata (L.f.) Rothm., Feddes Repert. Spec. Nov. Regni Veg. 54: 60. 1944. Type: Réunion. *P.Sonnerat per A.Thouin* (holo: SBT! [SBT12294]).

- P. flagellaceus* (Kuhn) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium flagellaceum* Kuhn, Forschungrs. Gazelle 4:15. 1889. Synonym: *Huperzia flagellacea* (Kuhn) Holub, Geobot. Phytotax. 20(1): 72. 1985. Type: New Guinea. *Nauman s.n.* (holo: B! [B112446], iso: BM). Note: Some authors have considered this taxon to share affinities with *P. varius* but we consider that it is closer to *P. brassii* (Copel.) A.R.Field & Bostock and the relationship between the two needs investigating. IPNI ID: urn:lsid:ipni.org:names:77125058-1
- P. foliosus* (Copel.) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium foliosum* Copel., Bernice P. Bishop Mus. Bull. 59:7, t.1. 1929. Synonym: *Huperzia foliosa* (Copel.) Holub, Geobot. Phytotax. 20(1): 72. 1985. Type: *H.E.Parks 20651* (holo: UC! [UC351029], iso: BISH! [BISH1000366]). IPNI ID: urn:lsid:ipni.org:names:77125060-1
- P. fordii* (Baker) Ching, Acta Bot. Yunn. 4:126. 1982.** Basionym: *Lycopodium fordii* Baker, Handb. Fern-Allies 17. 1887. Synonym: *Huperzia fordii* (Baker) R.D.Dixit Census Indian Pteridophytes 7. 1984. Type: China. *Ford 4* (holo: K).
- P. gagnepainianus* (Herter) A.R.Field & Bostock comb. nov.** Basionym: *Urostachys gagnepainianus* Herter, Revista Sudamer. Bot. 8:23. 1949. Synonym: *Huperzia gagnepainiana* (Herter) Tardieu, Adansonia sér. 2, 10: 18. 1970. Type: Madagascar. *H.Perrier 15405* (lecto: P! [P226738] designated by Tardieu (1971: 20). IPNI ID: urn:lsid:ipni.org:names:77125062-1
- P. giganteus* (Herter) A.R.Field & Bostock comb. nov.** Basionym: *Urostachys giganteus* Herter ex Nessel, Bärlappgewächse 124. 1939. Synonym: *Huperzia gigantea* (Herter) Holub, Geobot. Phytotax. 20(1): 73. 1985. Type: Philippines. *E.A.Mearns & Hutchinson 1277* (iso: ?); New Guinea. *MacGregor 3945* (iso: ?). IPNI ID: urn:lsid:ipni.org:names:77125064-1
- P. gnidioides* (L.f.) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium gnidioides* L.f., Suppl. pl. 448. 1782. Synonym: *Huperzia gnidioides* (L.f) Trevis., Atti Soc. Ital. Sci. Nat. 17:247. 1874. Type: Mauritius. *P.Sonnerat per A.Thouin s.n.* (holo: P). Heterotypic synonyms: *Urostachys helmii* Nessel, Repert. Spec. Nov. Regni Veg. 36:186. 1934; *Huperzia helmii* (Nessel) Holub, Geobot. Phytotax. 20(1): 73. 1985. Type: “Insel Greymouth 1885” (lecto: BONN-Nessel designated Øllgaard 1989: 92). IPNI ID: urn:lsid:ipni.org:names:77125065-1
- P. goebelii* (Nessel) A.R.Field & Bostock comb. nov.** Basionym: *Urostachys goebelii* Nessel, Repert. Spec. Nov. Regni Veg. 36:188, t.175. 1934. Synonym: *Huperzia goebelii* (Nessel) Holub, Geobot. Phytotax. 20(1): 73. 1985. Type: West-Sumatra [Indonesia] *Goebel s.n.* (isosyn: UC! [UC413367], BONN-Nessel!); Kwala Relai [Malaysia]. *M.Haniff & M.Nur 10225* (isosyn: BM! [BM1038044]). Heterotypic synonyms: *Urostachys heroldii* Herter ex Nessel, Revista Sudamer. Bot. 6:167. 1940. Synonym: *Huperzia heroldii* (Nessel) Holub, Geobot. Phytotax. 20(1): 73. 1985. Type: Borneo [Malaysia]. *Hallier* (holo: P?). IPNI ID: urn:lsid:ipni.org:names:77125067-1

- P. guandongensis* Ching, *Acta Bot. Yunnan.* 4(2):123. 1982. Type: China. *S.P.Ko 51291* (holo: PE).
- P. gunturensis* (Alderw.) A.R.Field & Bostock comb. nov. Basionym: *Lycopodium gunturensis* Alderw., *Bull. Jard. Bot. Buitenzorg ser. 2*, 1:14. 1911. Synonym: *Huperzia gunturensis* (Alderw.) Holub, *Folia Geobot. Phytotax.* 20(1): 73. 1985. Type: Indonesia. *A.E.Kerkhoven 15* (holo: BO [BO1826257]). IPNI ID: urn:lsid:ipni.org:names:77125069-1
- P. hamiltonii* (Spreng.) Á.Löve & D.Löve, *Taxon* 26(2-3):324. 1977. Basionym: *Lycopodium hamiltonii* Spreng., *Syst. veg.* 5: 429. 1828. Type: Nepal. *J.Buchanan s.n.* (holo: BM).
- P. harmsii* (Nessel) A.R.Field & Bostock comb. nov. Basionym: *Urostachys harmsii* Herter ex Nessel, *Revista Sudamer. Bot.* 6: 166. 1940. Synonym: *Huperzia harmsii* (Herter ex Nessel) Holub, *Geobot. Phytotax.* 20(1): 73. 1985. Type: Caroline Islands [Micronesia] *R.Kanehira 1316* (iso: NY! [NY127353], US [US1917849]). IPNI ID: urn:lsid:ipni.org:names:77125071-1
- P. hellwigii* (Warb.) A.R.Field & Bostock comb. nov. Basionym: *Lycopodium hellwigii* Warb., *Monsunia*, 1:97. 1898. Synonym: *Huperzia hellwigii* (O.Warb.) Holub, *Geobot. Phytotax.* 20(1): 73. 1985. Type: Papua New Guinea. *F.Hellwig 349* (holo: B! [B112544], iso: BONN-Nessel). IPNI ID: urn:lsid:ipni.org:names:77125073-1
- P. henryi* (Baker) Ching, *Acta Bot. Yunnan.* 4(2):125 1982. Basionym: *Lycopodium henryi* Baker, *Kew Bull.* 1906:15. 1906. Type: China. *Henry 11551* (holo: K).
- P. hillianus* (Nessel) A.R.Field & Bostock comb. nov. Basionym: *Urostachys hillianus* Nessel, *Repert. Spec. Nov. Regni Veg.* 36:16. 1934. Synonym: *Huperzia hilliana* (Nessel) Holub, *Geobot. Phytotax.* 20(1): 73. 1985. Type: India. *H.C.Levinge s.n.* (holo: K, iso: BONN-Nessel). IPNI ID: urn:lsid:ipni.org:names:77125075-1
- P. holstii* (Hieron.) A.R.Field & Bostock comb. nov. Basionym: *Lycopodium holstii* Hieron. in Engler, *Pflanzenw. Ost-Afrikas* C:90. 1985. Synonyms: *Huperzia holstii* (Hieron.) Pic.Serm., *Webbia* 23: 163. 1968. Type: Usambara [Tanzania]. *C.Holst 8814* (holo: B! [B112586], iso: K! [K351205], P! [P466630], BM! [BM785226]). IPNI ID: urn:lsid:ipni.org:names:77125077-1
- P. horizontalis* (Nessel) A.R.Field & Bostock comb. nov. Basionym: *Urostachys horizontalis* Nessel, *Bärlappgewächse* 225. 1939. Synonym: *Huperzia horizontalis* (Herter ex Nessel) Holub, *Geobot. Phytotax.* 20(1): 73. 1985. Type: Borneo [Malaysia]. *A.W.Niewenhuis 311* (iso: L! [L57351], BONN-Nessel). IPNI ID: urn:lsid:ipni.org:names:77125079-1
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- P. jaegeri* (Herter) A.R.Field & Bostock comb. nov.** Basionym: *Urostachys jaegeri* Herter, *Revista Sudamer. Bot.* 8:24. 1949. Synonym: *Huperzia jaegeri* (Herter) Pic.Serm., *Webbia* 23: 163. 1968. Type: Sierra Leone. *Jaeger 1522* (holo: P! [P466622]). IPNI ID: urn:lsid:ipni.org:names:77125083-1
- P. juniperistachyus* (Hayata) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium juniperistachyum* Hayata, *Ik. Pl. Formos.* 4:132. 1914. Synonym: *Huperzia juniperistachya* (Hayata) Holub, *Geobot. Phytotax.* 20(1): 74. 1985. Type: Taiwan. *Kawakami & Nakahara 787* (holo: TI). IPNI ID: urn:lsid:ipni.org:names:77125085-1
- P. lauterbachii* (E.Pritz. ex Schumann & Lauterb.) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium lauterbachii* E.Pritz. ex Schumann & Lauterb., *Südsee* 149. 1900. Synonym: *Huperzia lauterbachii* (E.Pritz.) Holub, *Geobot. Phytotax.* 20(1): 74. 1985. Type: New Guinea. *C.A.G.Lauterbach 3174* (holo: B, iso: BONN-Nessel). IPNI ID: urn:lsid:ipni.org:names:77125087-1
- P. lecomteanus* (Nessel) A.R.Field & Bostock comb. nov.** Basionym: *Urostachys lecomteanus* Nessel, *Repert. Spec. Nov. Regni Veg.* 36(12-15):187. 1934. Synonyms: *Huperzia lecomteana* (Nessel) Holub, *Geobot. Phytotax.* 20(1): 74. 1985. Type: Madagascar. (holo: BONN-Nessel 492). IPNI ID: urn:lsid:ipni.org:names:77125089-1
- P. ledermannii* (Herter) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium ledermannii* Herter, *Bot. Jahrb. Syst.* 54:232. 1916. Synonym: *Huperzia ledermannii* (Herter) Holub, *Geobot. Phytotax.* 20(1): 74. 198. Type: New Guinea. *C.Keysser 199* (iso: SUNIV!, B! [B113004]). IPNI ID: urn:lsid:ipni.org:names:77125091-1
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- P. longus* (Copel.), A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium longum* Copel., *Philipp. J. Sci.* 60:100, t.3. 1936. Type: Solomon Islands. *S.F.Kajewski 1953* (holo: PHN destroyed, iso: BM! [BM16725], MICH! [MICH1287171]). IPNI ID: urn:lsid:ipni.org:names:77125094-1
- P. lonyangensis* C.Y.Ma, *Bull. Bot. Res., Harbin* 10(3):58. 1990.** Type: China. *C.Y.Ma 3246* (holo: AMMS).
- P. macgregorii* (Baker) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium macgregorii* Baker, *J. Bot.* 28: 109. 1890. Synonym: *Huperzia macgregorii* (Baker) Holub, *Geobot. Phytotax.* 20(1): 74. 1985. Type: New Guinea. *W.MacGregor 68* (holo: K!, iso: BM! [BM1038027, BM1038028]). Heterotypic synonyms: *Lycopodium versteegii* Alderw., *Bull. Jard. Bot. Buitenzorg, ser. 2, 24:4.* 1917; *Huperzia versteegii* (Alderw.) Holub, *Geobot. Phytotax.* 20(1): 77. 1985. Type: (holo: New Guinea. *G.M.Vertseeg 2510* (holo: U! [U7449]). *Urostachys whartoniensis* Nessel, *Repert. Spec. Nov. Regni Veg.* 38:62. 1935. *Huperzia whartoniensis* (Nessel) Holub, *Geobot. Phytotax.* 20(1): 78. 1985. Type: Papua New Guinea. *L.J.Brass*

4729 (iso: NY! [NY127367], iso: BRI! [AQ24833]). IPNI ID: urn:lsid:ipni.org:names:77125096-1

- P. macrostachys* (Hook. ex Spring) N.C.Nair & S.R.Ghosh, J. Econ. Taxon. Bot. 12(1):194. 1988.** Synonyms: *Huperzia macrostachys* (Hook. ex Spring) Holub, Geobot. Phytotax. 20(1): 74. 1985. Type: India. *F.Adams s.n.* (syn: K). Sri Lanka. *Walker s.n.* (syn: K).
- P. mannii* (Hillebr.) W.H.Wagner, Contr. Univ. Michigan Herb. 20:241 1995.** Basionym: *Lycopodium phlegmaria* var. *mannii* Hillebr., Fl. Hawaiian Isl. 645. 1888. Type: Hawaii. *H.Mann & W.T.Brigham 506* (iso: BISH! [BISH1005485], MO! [MO22681]).
- P. marsupiiiformis* (D.L.Jones & B.Gray) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium marsupiiiforme* D.L.Jones & B.Gray, Austrobaileya 2:128. 1985. Synonym: *Huperzia marsupiiiformis* (D.L.Jones & B.Gray) Holub, Geobot. Phytotax. 26(1): 92. 1991. Type: Australia. *B.Gray 3841* (holo: BRI! [AQ419317], CNS! [QRS78343]). IPNI ID: urn:lsid:ipni.org:names:77125098-1
- P. megastachyus* (Baker) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium megastachyum* Baker, J. Linn. Soc. Bot. 21:454. 1885. Synonym: *Huperzia megastachya* (Baker) Tardieu, Adansonia sér. 2, 10: 18. 1970. Type: Madagascar. *R.Baron 2840* (holo: K! [K351218, K351219]). IPNI ID: urn:lsid:ipni.org:names:77125100-1
- P. merrillii* (Herter) A.R.Field & Bostock comb. nov.** Basionym: *Urostachys merrillii* Herter, Bot. Arch. 3:15. 1923. Synonym: *Huperzia merrillii* (Herter) Holub, Geobot. Phytotax. 20(1): 74. 1985. Type: Philippines. *E.D.Merrill 965* (iso: UC! [UC1096474], U! [U7444], MICH! [MICH1191096]). IPNI ID: urn:lsid:ipni.org:names:77125103-1
- P. milbraedii* (Herter) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium milbraedii* Herter, Hedwigia 49:90. 1909. Synonym: *Huperzia milbraedii* (Herter) Pic.Serm., Webbia 23:163. 1968. Type: Cameroon. *Milbraed 3449* (holo: B). IPNI ID: urn:lsid:ipni.org:names:77125104-1
- P. mingcheensis* Ching, Acta Bot. Yunnan. 4(2): 125. 1982.** Synonym: *Huperzia mingcheensis* (Ching) Holub, Folia Geobot. Phytotax. 20: 74. 1985. Type: China. *P.S.Chiou 2069* (holo: PE). See recent note on the nomenclature of this species (Zhang 2012).
- P. minutifolius* (Alderw.) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium coralium* var. *minutifolium* Alderw., Malayan fern allies 44. 1915. Synonyms: *Huperzia minutifolia* (Alderw.) Holub, Folia Geobot. Phytotax 20(1): 74. 1985. Type: New Guinea. *Ruchmat s.n.* (holo: L). IPNI ID: urn:lsid:ipni.org:names:77125106-1
- P. multifarius* (Alderw.) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium multifarium* Alderw., Bull. Jard. Bot. Buitenzorg, ser. 3, 5:226. 1922. Synonym: *Huperzia multifaria* (Alderw.) Holub, Geobot. Phytotax. 20(1): 75. 1985. Type: Ternate [Moluccas, Indonesia]. *V.M.A.Beguin 1329* (holo: BO [BO186327]). IPNI ID: urn:lsid:ipni.org:names:77125108-1
- P. myrtifolius* (G.Forst.) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium myrtifolium* G.Forst., Florae Insulae Australiae Prodromus. 1786. Synonym: *Hu-*

- perzia myrtifolia* (G.Forst.) Holub, Geobot. Phytotax. 20(1): 75. 1985. Type: New Caledonia. *G.Forster s.n.* (iso: P-Luerss., UPS-Thunb). IPNI ID: urn:lsid:ipni.org:names:77125109-1
- P. nanus* C.Y.Ma, Bull. Bot. Res., Harbin 10(3):58. 1990.** Type: China. *C.Y.Ma 3274* (holo: AMMS).
- P. neocaledonicus* (Nessel) A.R.Field & Bostock comb. nov.** Basionym: *Urostachys neocaledonicus* Nessel, Repert. Spec. Nov. Regni Veg. 36:187. 1934. Synonym: *Huperzia neocaledonica* (Nessel) Holub, Geobot. Phytotax. 20(1): 75. 1985. Type: New Caledonia. *E.Viellard* (lecto: BONN-Nessel designated Øllgaard 1989: 96). IPNI ID: urn:lsid:ipni.org:names:77125110-1
- P. nilagiricus* (Spring) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium nilagiricum* Spring, Bull. Acad. Roy. Sci. Belg. 8:517. 1841. Synonym: *Huperzia nilagirica* (Spring) Dixit, J. Bombay Nat. Hist. Soc. 77(3):541. 1981. Type: India. *Perottet* (holo: G-Deless.). IPNI ID: urn:lsid:ipni.org:names:77125112-1
- P. nummulariifolius* (Blume) Ching, Acta Bot. Yunnan. 4(2):125. 1982.** Basionym: *Lycopodium nummulariifolium* Blume, Enum. pl. Javae 2: 263. 1828. Synonym: *Huperzia nummulariifolia* (Blume) Chambers, Jermy & Crabbe, Brit. Fern Gaz. 10: 176. 1971. Type: Java. *C.L.Blume s.n.* (isolecto: L! [L57363]).
- P. nutans* (Brack.) W.H.Wagner Contr. Univ. Michigan Herb. 20:241. 1995.** Synonym: *Huperzia nutans* (Brack.) Rothm., Feddes Repert. 54: 62. 1944. Type: Hawaii. *Wilkes 10* (holo: US, iso: BISH! [BISH1005484]).
- P. nylamensis* (Ching & S.K.Wu) H.S.Kung & Li Bing Zhang, Acta Phytotax. Sin. 37(1):52. 1999.**
- P. obtusifolius* (P.Beauv.) A.R.Field & Bostock comb. nov.** Basionym: *Lepidotis obtusifolia* P.Beauv., Prodr. Aethéogam. 109. 1805. Synonym: *Huperzia obtusifolia* (P.Beauv.) Rothm., Feddes Repert. 54:61. 1944. Type: Réunion. *J.B.G.M. Bory de St. Vincent* (holo: P! [P466623], iso: B-Wild.! [B-W19344]). Heterotypic synonyms: *Lycopodium pachyphyllum* Kuhn ex Herter, Bot. Jahrb. Syst. 43: Beibl. 98:51. 1909; *Huperzia pachyphylla* (Kuhn) Holub, Geobot. Phytotax. 20(1): 75. 1985. Type: Madagascar. *J.M.Hildebrandt 4141* (holo: B! [B85521], iso: B! [B8522], P! [P466624, P466625, P466626]). IPNI ID: urn:lsid:ipni.org:names:77125167-1
- P. oceanianus* (Herter) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium oceanianum* Herter, Bot. Jahrb. Syst. 43: Beibl. 98:52. 1909. Synonym: *Huperzia oceaniana* (Herter) Holub, Folia Geobot. Phytotax. 20:75. 1985. Type: New Hebrides [Vanuatu] *s.c. s.n.* (syn: P). IPNI ID: urn:lsid:ipni.org:names:77125114-1
- P. oltmannsii* (Herter ex Nessel) A.R.Field & Bostock comb. nov.** Basionym: *Urostachys oltmannsii* Herter ex Nessel [Bärlappgewächse 231. 1939, nom. inval.] Revista Sudamer. Bot. 6: 168. 1940. Synonym: *Huperzia oltmannsii* (Herter ex Nessel) Holub, Geobot. Phytotax. 20(1): 75. 1985. Type: Tahiti. *J.McGillivray 1331*. IPNI ID: urn:lsid:ipni.org:names:77125115-1
- P. ophioglossoides* (Lam.) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium ophioglossoides* Lam., Encycl. (Lamarck) 3:646. 1789. Synonym: *Huperzia ophioglossoides* (Lam.) Rothm., Feddes Repert. 54:62. 1944. Type: Mauritius. *Commer-*

son s.n. (holo: P-Lam). Note: Molecular phylogenetic evidence indicates that this Palaeotropic species belongs to a Neotropical radiation of *Phlegmariurus*. IPNI ID: urn:lsid:ipni.org:names:77125118-1

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- P. parksii* (Copel.) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium parksii* Copel., Bernice P. Bishop. Mus. Bull. 59:8, t.2. 1929. Synonym: *Huperzia parksii* (Copel.) Holub, Geobot. Phytotax. 20(1): 75. 1985. Type: Fiji. *H.E.Parks 20584* (holo: UC! [UC351026], iso: P! [P711367], BISH! [BISH1000370], US! [US1759872]). IPNI ID: urn:lsid:ipni.org:names:77125120-1
- P. patentissimus* (Alderw.) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium patentissimum* Alderw., Bull. Jard. Bot. Buitenzorg, ser. 2, 24:4. 1917. Synonym: *Huperzia patentissima* (Alderw.) Holub, Geobot. Phytotax. 20(1): 75. 1985. Type: Irian Jaya [Indonesia]. *A.A.Pulle 462* (holo: BO, iso: BM, BONN-Nessel, L! [L57365], U). IPNI ID: urn:lsid:ipni.org:names:77125121-1
- P. pecten* (Baker) A.R.Field & Bostock comb. nov.** Basionym: *Lycopodium pecten* Baker, J. Linn. Soc. Bot. 15:421. 1876. Synonym: *Huperzia pecten* (Baker) Tardieu, Adansonia sér. 2, 10: 18. 1970. Type: Madagascar. *W.Pool s.n.* (holo: K1 [K351214]). IPNI ID: urn:lsid:ipni.org:names:77125123-1
- P. perrierianus* (Tardieu) A.R.Field & Bostock comb. nov.** Basionym: *Huperzia perrieriana* Tardieu, Adansonia 10:20. 1970. Type: Madagascar. *H.Perrier 8294* (holo: P). IPNI ID: urn:lsid:ipni.org:names:77125127-1
- P. petiolatus* (C.B.Clarke) H.S.Kung & Li Bing Zhang, Acta Phytotax. Sin. 37(1): 52. 1999.** Basionym: *Lycopodium hamiltonii* var. *petiolatus* C.B.Clarke, Trans. Linn. Soc. London, ser. 2, Bot. 1: 590. 1880. Synonyms: *Huperzia petiolata* (C.B.Clarke) R.D.Dixit, J. Bombay Nat. Hist. Soc. 77(3): 541. 1980 [1981]. Type: Khasia [Bangladesh]. *C.B. Clarke s.n.* (holo: BM).
- P. phlegmaria* (L.) T.Sen & U.Sen, Fern. Gaz. 11(6):421. 1978.** Basionym: *Lycopodium phlegmaria* L., Species Plantarum 2. 1753. Synonym: *Huperzia phlegmaria* (L.) Rothm., Feddes Repert. 54: 62. 1944. Type: India. *s.c. s.n.* (lecto: Dillen (1741) *Historia Muscorum* p. 450 tab. 61 fig 5, A, B & C.! here designated).
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