

## Five new genera and three new species of Grammitidaceae (Filicales) and the re-establishment of *Oreogrammitis*

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### Abstract

Five new genera of Grammitidaceae (Filicales) are described: *Ctenopterella* Parris (12 species), *Dasygrammitis* Parris (six species), *Radiogrammitis* Parris (28 species), *Tomophyllum* (E.Fourn.) Parris (22 species) and *Xiphopterella* Parris (six species). *Oreogrammitis* Copel. (Grammitidaceae) is re-established (110 species). New combinations are made in all six genera. Synonymy is provided, types are indicated, including those of synonyms, and lectotypes are chosen for some names. Three new species are described from Peninsular Malaysia, *Oreogrammitis malayensis* Parris, *O. kunstleri* Parris and *Xiphopterella gracilis* Parris.

### Introduction

Grammitidaceae contains more than 20 genera and more than 750 species, mostly occurring in montane forests in the wet tropics of both hemispheres. Parris (2003) lists the currently recognized genera. Parris (1997a) notes that in Old World Grammitidaceae, *Ctenopteris* Blume ex Kunze, *Grammitis* Sw. *s.l.* and *Xiphopteris* Kaulf. have been used for some time as unsatisfactory artificial genera, based on frond dissection, pending further study on generic boundaries in the family. *Ctenopteris* is a synonym of *Prosaptia* C.Presl, however, while *Xiphopteris* is a synonym of *Cochlidium* Kaulf. and *Grammitis s.str.* is a small genus of c. 23 species with blackish sclerotic lamina margins. Ranker *et al.* (2004) demonstrate clearly that *Ctenopteris* and *Grammitis* are not monophyletic. Parris 1997a, 1998a, 2002a and 2004 form part of a series describing new genera in Old World Grammitidaceae and re-assigning the species formerly treated as *Ctenopteris*, *Grammitis s.l.* and *Xiphopteris*.

Preparation of an account of Grammitidaceae for the Flora of Peninsular Malaysia necessitates the description of five new genera, *Ctenopterella* Parris, *Dasygrammitis* Parris, *Radiogrammitis* Parris, *Tomophyllum* (E.Fourn.) Parris and *Xiphopterella* Parris, and the re-establishment of *Oreogrammitis* Copel., as part of a revision of the Old World

genera of Grammitidaceae. Two new species of *Oreogrammitis* and one new species of *Xiphopterella* from Peninsular Malaysia are described here. New species from areas other than Peninsular Malaysia will be described later. Monographs of the new genera, together with *Oreogrammitis*, are currently being prepared and will contain detailed species descriptions, keys to species and distribution maps. Synonymy is provided below for the new combinations. Types of all names are indicated and some lectotypes are chosen here.

## Ctenopterella

*Ctenopterella* Parris, gen. nov.

**Typus generis:** *C. blechnoides* (Grev.) Parris

*Rhizomata dorsiventralia, stipitibus in duobus seriebus, interdum articulatis, interdum phyllopodiiis. Paleae pallidae brunneae ad atrobrunneae, non clathratae, non iridescentes, glabrae, impolitae, subpolitae vel politae, cellulis turgidis vel non turgidis, sine septis. Pili integri et ramosae, albidi vel pallidi brunnei ad atrobrunnei. Laminae profunde pinnatifidae, pinnatae vel bipinnatifidae; venae non anastomosantes, plerumque pinnatim ramosae, raro dimidiatae ramosae, extremis venarum plerumque hydathodo in superficie. Pinnae soris plerumque in duobus serialibus, raro uniseriate, sori in lamina non immersi vel parum immersi, rotundi vel elliptici; sporangia glabra. Species 12, Africae ad Polynesiae incolae.*

**Rhizomes** dorsiventral, stipes in two rows, sometimes articulated to rhizome, phyllopodia sometimes present. Rhizome scales pale to medium brown, not clathrate, not iridescent, glabrous, dull to glossy, cells turgid or not, without cross-walls. Hairs simple and branched, whitish or pale to dark brown. **Laminae** deeply pinnately lobed, pinnate or bipinnately lobed; venation free, veins in pinnae usually pinnately branched, rarely dimidiately branched, ends of vein branches usually with hydathodes on adaxial surface of lamina. **Sori** on pinnae, usually in two rows, rarely in one row, superficial or slightly sunken, ± circular to elliptic; **sporangia** glabrous. 12 species, Africa to Polynesia.

The generic name is a diminutive of *Ctenopteris*, in which most of the species were formerly placed.

Species of *Ctenopterella* were not sampled by Ranker *et al.* (2004), so the position of the genus in their clade system is unknown. Four Old World

clades are recognised (Ranker *et al.* 2004); I, II, III and VIII. All species in Clades II and VIII have dorsiventral rhizomes, with stipes in two rows, as do most species in Clade 1, except for *Radiogrammitis parva* (Brause) Parris and *R. hirtelloides* (Copel.) Parris, which have radial rhizomes, with stipes in whorls. Species of Clade III belong to *Tomophyllum*, *Scleroglossum* and *Calymmodon* and all have radial rhizomes, with stipes in whorls. On the basis of rhizome form, type of rhizome scale and hair types *Ctenopterella* is more likely to be in Clade Ia near *Themelium* [including *T. conjunctisorum* (Baker) Parris], or Clade II, than in Clades III or Clade VIII, which contains the Hawaiian Islands endemic genus *Adenophorus*.

**1. *Ctenopterella blechnoides* (Grev.) Parris, *comb. nov.***

*Grammitis blechnoides* Grev., Ann. Mag. Nat. Hist. 2, 1 (1848) 328, t. 17. **Type:** *Sibbald s.n.*, Raiatea, Society Is. (E, lecto., chosen here; E, isolecto.). - *Polypodium blechnoides* (Grev.) Hook., Sp. Fil. 4 (1863) 180. - *Cryptosorus blechnoides* (Grev.) J.Sm., Hist. Fil. (1875) 87. - *Ctenopteris blechnoides* (Grev.) W.H.Wagner & Grether, Univ. Calif. Publ. Bot. 23 (1948) 61. - *Polypodium decorum* Brack., U. S. Expl. Exped. 16 (1854) 7, t. 2 f. 2. **Type:** *U.S. Expl. Exped. s n.*, Tahiti, Society Is. (K, US, *n.v.*). - *Polypodium macgregori* Baker, Ann. Bot. 8 (1894) 130. **Type:** *Macgregor s.n.*, Rossel I., Milne Bay, Papua New Guinea (K, holo.). - *Polypodium moultonii* Copel., Philipp. J. Sci., C. Bot. 10 (1915) 149. **Type:** *Native collector*, Bur. Sci. 2572, Retuh, Sadong, Sarawak, East Malaysia [MICH, lecto. (Parris, 2002b)]. - *Ctenopteris moultonii* (Copel.) C.Chr. & Tardieu, Notul. Syst. (Paris) 8 (1939) 181. - *Polypodium revolvens* Alderw., Bull. Jard. Bot. Buitenzorg, sér. 3, 2 (1920) 170, f. G. **Type:** *Teysmann 50*, Mt Sanggir, Banka Is., Sumatra (BO, *n.v.*; L, *n.v.*). - *Polypodium pseudorevolvens* Alderw., Bull. Jard. Bot. Buitenzorg, sér. 3, 5 (1922) 219. **Type:** *Bunnemeijer 6902*, Mt Tanda, Lingga I., Sumatra (BO *n.v.*; L). - *Polypodium palaoinsulare* Hosokawa, Trans. Nat. Hist. Formosa 31 (1941) 476. **Type:** *Hosokawa 9049*, Mt Sul, Babeldaob, Palau (Herb. Taihoku Imperial Univ., holo., *n.v.*). - *Ctenopteris palaoinsularis* (Hosokawa) H.Ito, Bot. Mag. Tokyo 67 (1954) 215.

**2. *Ctenopterella cornigera* (Baker) Parris, *comb. nov.***

*Polypodium cornigerum* Baker, Syn. Fil. ed. 2 (1874) 508. **Type:** *Thwaites C. P. 4005*, Horton Plains, Sri Lanka (PDA, holo.). - *Grammitis cornigera* (Baker) Ching, Bull. Fan Mem. Inst. 10 (1941) 240. - *Xiphopteris cornigera* (Baker) Copel., Gen. Fil. (1947) 215. - *Micropolypodium cornigerum* (Baker) X.C.Zhang, Fl. Reipub. Pop. Sin. 6 (2000) 301.

**3. *Ctenopterella denticulata* (Blume) Parris, *comb. nov.***

*Grammitis denticulata* Blume, Fl. Javae 2 (1830) 121, t. 50, f. 4. **Type:** *Blume*

*s.n.*, Java (L, *n.v.*). – *Polypodium denticulatum* (Blume) C.Presl, Tentamen (1836) 178. – *Calymmodon denticulatus* (Blume) T.Moore, Index Fil. (1857) lxii. – *Ctenopteris denticulata* (Blume) C.Chr. & Tardieu, Notul. Syst. (Paris) 8 (1939) 181. – *Polypodium solidum* Mett., Abhandl. Senckenberg. Naturf. Gesell. 2 (1857) 53, t. 1, f. 1-3. **Type:** Zollinger 165, Java (LZ†). – *Ctenopteris solida* (Mett.) J.Sm., Hist. Fil. (1875) 184. – *Grammitis solida* (Mett.) Ching, Bull. Fan Mem. Inst. Biol. 10 (1941) 241. – *Polypodium undosum* Baker, J. Bot. 28 (1890) 108. **Type:** Macgregor *s.n.*, Mt Musgrave, Central, Papua New Guinea (K, holo.). – *Ctenopteris undosa* (Baker) Copel., Philipp. J. Sci. 81 (1953) 103. – *Polypodium sibirongae* Christ, Ann. Jard. Bot. Buitenzorg, sér. 2, 4 (1904) 36. **Type:** F. & P. Sarasin 2011, Mt Sibaronga, Sulawesi (BAS, *n.v.*). – *Polypodium serratodentatum* Alderw., Bull. Dép. Agric. Indes Néerl. 18 (1908) 20. **Type:** Forbes 244, Java? (BO, holo., *n.v.*). – *Polypodium solidum* var. *bolanicum* Rosenst., Repert. Spec. Nov. Regni Veg. 12 (1913) 177. **Syntypes:** Keysser B 21 & 39, Bolan Mts, Papua New Guinea (both UC). – *Polypodium bolanicum* (Rosenst.) Copel., Univ. Calif. Publ. Bot. 12 (1931) 403. – *Ctenopteris bolanica* (Rosenst.) Copel., Philipp. J. Sci. 81 (1953) 103. – *Polypodium serratodentatum* var. *major* Alderw., Bull. Jard. Bot. Buitenzorg, sér. 2, 16 (1914) 59. **Type:** Matthew 230, Kapahiang-barisan, Sumatra (BO, *n.v.*; K). – *Polypodium scalpturatum* C.Chr., Svensk Bot. Tidskr. 16 (1922) 100, f. 6. **Type:** Kaudern 37, Bolaang to Mongondou, Sulawesi (BM, *n.v.*). – *Polypodium vernicosum* Alderw., Nova Guinea 14 (1924) 46. **Syntypes:** Lam 1797, 1850, Mt Doorman, Papua (both BO, *n.v.*). – *Polypodium pycnophyllum* C.Chr., Brittonia 2: 308 (1937). **Type:** Brass 4421, Mt Albert Edward, Central, Papua New Guinea (BM, holo., *n.v.*; BRI, MICH, NY, iso., *n.v.*). – *Ctenopteris pycnophylla* (C.Chr.) Copel., Philipp. J. Sci. 81 (1953) 102.

**4. *Ctenopterella gordonii*** (S.B.Andrews) Parris, *comb. nov.*

*Polypodium gordonii* Watts, Proc. Linn. Soc. New South Wales 39 (1915) 792, t. 89, f. 12 *non* Baker (1879). **Type:** Watts & Gordon *s.n.*, Tully Falls, Queensland, Australia [NSW, lecto. (Parris, 1998b); BRI, MEL, isolecto.]. – *Ctenopteris gordonii* S.B.Andrews, Austrobaileya 1 (1977) 12, *nomen novum pro Polypodium gordonii* Watts (1915) *non* Baker (1879).

**5. *Ctenopterella khaoluangensis*** (Tagawa & K.Iwats.) Parris, *comb. nov.*

*Xiphopteris khaoluangensis* Tagawa & K.Iwats., Acta Phytotax. Geobot. 23 (1969) 177, f. 14. **Type:** Iwatsuki *et al.* T.14594, Khao Luang, Nakhon Si Thammarat, Thailand (KYO, holo., *n.v.*; K, iso.). – *Ctenopteris malayana* Parris, Kew Bull. 41 (1986) 494. **Type:** Piggott 1285, G. Ulu Kali, Pahang/Selangor, Peninsular Malaysia (K, holo.).

**6. *Ctenopterella lepida*** (Brause) Parris, *comb. nov.*

*Polypodium lepidum* Brause, Notizbl. Bot. Gard. Berlin-Dahlem 8 (1922) 139. **Type:** *Vaupel 421*, Mangaloa, Savaii, Samoa (B, *n.v.*).

**7. *Ctenopterella macrorhyncha*** (Baker) Parris, *comb. nov.*

*Polypodium macrorhynchum* Baker, J. Bot. 18 (1880) 370. **Type:** *Kitching s.n.*, Tanala, Madagascar (K).

**8. *Ctenopterella parvula*** (Bory ex Willd.) Parris, *comb. nov.*

*Polypodium parvulum* Bory ex Willd., Sp. Pl. 5 (1810) 182. **Type:** Réunion (B, *n.v.*; photo. FI). - *Ctenopteris parvula* (Bory ex Willd.) J.Sm., Hist. Fil. (1875) 185. - *Grammitis parvula* (Bory ex Willd.) C.V.Morton, Contr. U. S. Nat. Herb. 38 (1973) 261.

**9. *Ctenopterella pediculata*** (Baker) Parris, *comb. nov.*

*Polypodium lobbianum* Hook., Sp. Fil. 4 (1863) 226, t. 278B *non* Hook. (1853). **Type:** *Lobb, s.n.*, Sarawak, East Malaysia (CGE, K). - *Polypodium pediculatum* Baker in Hook. & Baker, Syn. Fil. (1868) 455, *nomen novum pro P. lobbianum* Hook. (1863) *non* Hook. (1853). - *Ctenopteris lobbiana* J.Sm., Hist. Fil. (1875) 185, *nomen novum pro P. lobbianum* Hook. (1863) *non* Hook. (1853). - *Polypodium inarticulatum* Copel., Philipp. J. Sci. 1, Suppl. 2 (1906) 160, *nomen superfl. illegit. pro P. pediculatum* Baker (1868). - *Ctenopteris pediculata* (Baker) Copel., Fern Fl. Philipp. 3 (1960) 530.

**10. *Ctenopterella seemannii*** (J.Sm.) Parris, *comb. nov.*

*Polypodium contiguum* Brack., Wilkes, U. S. Expl. Exped. 16 (1854) 6, t. 2, f. 1 *non* (G. Forst.) J.Sm. (1841). **Type:** *U.S. Expl. Exped. s. n.*, Muthuata Mts, Fiji (K, MICH, US, *n.v.*). - *Cryptosorus seemannii* J.Sm., Bonplandia 9 (1861) 262, *nomen novum pro Polypodium contiguum* Brack. (1854) *non* (G. Forst.) J.Sm. (1841). - *P. seemannii* (J.Sm.) Copel., B. P. Bishop Mus. Bull. 93 (1932) 69. - *Ctenopteris seemannii* (J.Sm.) Copel., J. Arnold Arboretum 30 (1949) 442.

**11. *Ctenopterella vodonaivalui*** (Brownlie) Parris, *comb. nov.*

*Ctenopteris vodonaivalui* Brownlie, Nova Hedwigia, Beih. 55 (1977) 357, t. 40, f. 10. **Type:** *Vodonaivalu 2173*, Namosi, Viti Levu, Fiji (CHR, holo.).

**12. *Ctenopterella zenkeri*** (Hieron.) Parris, *comb. nov.*

*Polypodium zenkeri* Hieron., Bot. Jahrb. Syst. 46 (1911) 385. **Type:** *Zenker 1507*, Yaunde, Cameroon (B, lecto., chosen here; BM, E, K, P, isolecto., *n.v.*). - *Ctenopteris zenkeri* (Hieron.) Tardieu in Aubreville, Fl. Cameroun 3 (1964) 327. - *Xiphopteris zenkeri* (Hieron.) Schelpe, Contr. Bolus Herb. 1 (1969)

12. - *Polypodium decorum* var. *excaudatum* Bonap., Notes Ptérid. 4 (1917) 79. **Syntypes:** *Perrier de la Bâthie* 7533, Forêt d'Analamazaotra, Madagascar (BM, P, n. v.); *Perrier de la Bâthie* 7593, Manankazo au Nord-Est d'Ankazohe, Madagascar (P, n. v.); *Perrier de la Bâthie* 7643, Montagnes du Sambirano, Madagascar (P, n. v.). - *Ctenopteris excaudata* (Bonap.) Tardieu, Notul. Syst. (Paris) 15 (1959) 445. - *Polypodium excaudatum* C. Chr., Arch. Bot. Caen. 2 (1928) 215. **Type:** *Perrier de la Bâthie* 7533, Forêt d'Analamazaotra, Madagascar (BM, holo.; P, iso., n. v.).

## Dasygrammitis

*Dasygrammitis* Parris, gen. nov.

**Typus generis:** *D. mollicoma* (Nees & Blume) Parris

*Rhizomata* radialia, stipitibus in verticillis, non articulatis. *Paleae mediae* brunneae ad atrobunneae, non clathratae, non iridescentes, plerumque politae, raro subpolitae, ad marginem pilis mediis brunneis ad atrobunneis, raro pallidis brunneis, cellulis plerumque turgidis, raro subturgidis, sine septis. *Pili integri et ramosi, plerumque atrobunnei, raro medii brunnei. Laminae plerumque pinnatae, raro pinnatifidae vel bipinnatifidae; venae non anastomosantes, pinnatim ramosae, extremis venarum hydathado in superficie destitutis. Pinnae soris in duobus serialibus, raro uniseriati, sori in lamina non immersa, rotundi vel elliptici; sporangia glabra vel uno vel duobus pilis juxta annulum ad basim sporangio vel apicem versus. Species 6, Ceylonae ad Polynesiae incolae.*

**Rhizomes** radial, stipes in whorls, not articulated to rhizome. Rhizome scales medium to dark red-brown, rarely pale red-brown, concolorous, not clathrate, not iridescent, usually glossy, rarely subglossy, with medium to dark red-brown, rarely pale red-brown, simple eglandular hairs on margin, cells usually turgid, rarely subturgid, without cross-walls. Hairs simple and branched, usually dark brown, rarely medium brown. **Laminae** usually pinnate, rarely deeply pinnately lobed or bipinnatifid; venation free, veins pinnately branched in pinnae, ends of vein branches without hydathodes on adaxial surface of lamina. **Sori** in two rows on pinnae, superficial, ± circular to elliptic; **sporangia** glabrous or with one or two medium to dark red-brown hairs adjacent to annulus at base of sporangium or part way towards apex. Six species, Sri Lanka to Polynesia.

The generic name refers to the often shaggy nature of the frond indumentum and to *Grammitis*, the type genus of the family.

No species of *Dasygrammitis* were sampled by Ranker *et al.* (2004), so its position in their clade system is unknown. On the basis of rhizome form and hair types it is likely to be in Clade III, characterized by radial rhizomes, together with *Tomophyllum*, *Scleroglossum* and *Calymmodon*. It most closely resembles *Tomophyllum*, but differs from it in darker usually glossy rhizome scales with usually turgid cells, darker hairs and the absence of hydathodes.

**1. *Dasygrammitis brevivenosa*** (Alderw.) Parris, *comb. nov.*

*Polypodium brevivenosum* Alderw., Bull. Jard. Bot. Buitenzorg, sér. 2, 28 (1918) 40. **Type:** Brooks 299/S, Lebong Simpang, Bengkoelen, Sumatra (BO, *n.v.*). - *Ctenopteris brevivenosa* (Alderw.) Holttum, Rev. Fl. Malaya 2 (1955) 228.

**2. *Dasygrammitis crassifrons*** (Baker) Parris, *comb. nov.*

*Polypodium crassifrons* Baker in Hook. & Baker, Syn. Fil. (1867) 325. **Type:** Deplanche *s.n.*, New Caledonia (K). - *Grammitis crassifrons* (Baker) Ching, Bull. Fan Mem. Inst. Biol. 10 (1941) 240. - *Ctenopteris crassifrons* (Baker) Brownlie, Pacific Sci. 14 (1960) 401. - *Prosaptia crassifrons* (Baker) Parris, Kew Bull. 50 (1995) 165. - *Polypodium stenopteron* Baker, J. Bot. 24 (1886) 183. **Type:** Thurston *s.n.*, Viti Levu, Fiji (K). - *Polypodium hispidosetosum* Rosenst., Repert. Spec. Nov. Regni Veg. 10 (1912) 162. **Type:** Franc 1318, Mt Mou, New Caledonia (P, *n.v.*).

**3. *Dasygrammitis fuscata*** (Blume) Parris, *comb. nov.*

*Polypodium fuscatum* Blume, Enum. Pl. Javae (1828) 129. **Type:** Blume *s.n.*, Java (L, *n.v.*). - *Ctenopteris fuscata* (Blume) Blume ex Kunze, Bot. Zeit. 4 (1846) 425. - *P. mollicomum* Nees & Blume var. *fuscatum* (Blume) Alderw., Malayan Ferns (1908) 601.

**4. *Dasygrammitis malaccana*** (Baker) Parris, *comb. nov.*

*Polypodium malaccanum* Baker, Ann. Bot. 8 (1894) 129. **Type:** Ridley 3345, G. Mering, Johor, Peninsular Malaysia (K, holo.; SING, iso., *n.v.*). - *Polypodium pachycaulum* Copel., Philipp. J. Sci. 56 (1935) 105, t. 10. **Type:** Copeland *s.n.*, Mt Apo, Mindanao, Philippines (MICH, UC). - *Ctenopteris pachycaulis* (Copel.) Copel., Fern Fl. Philipp. 3 (1960) 529. - *Ctenopteris matutumensis* Copel., Philipp. J. Sci. 81 (1952) 45. **Type:** Copeland *s.n.*, Mt Matutum, Mindanao, Philippines (MICH, holo.).

**5. *Dasygrammitis mollicoma*** (Nees & Blume) Parris, *comb. nov.*

*Polypodium mollicomum* Nees & Blume, Nova Acta 11 (1823) 121, t. 12, f. 2. **Type:** Blume *s.n.*, Java (L). - *Ctenopteris mollicoma* (Nees & Blume)

Kunze, Bot. Zeit. 4 (1846) 425. - *Polypodium rufescens* Brause, Bot. Jahrb. Syst. 49 (1912) 43 non Blume (1830). **Type:** *Schultze* 322, Augusta River, West or East Sepik, Papua New Guinea (B, left hand plant, lecto., chosen here). - *Polypodium rufidulum* C.Chr., Index Fil. Suppl. 3 (1934) 157, *nomen novum pro P. rufescens* Brause (1912) non Blume (1830). - *Ctenopteris rufidula* (C.Chr.) Parris, Fern Gaz. 12 (1980) 118. - *Ctenopteris micropaleata* Copel., Gen. Fil. (1947) 219, *nomen superfl. illegit. pro P. rufidulum* C.Chr., *P. rufescens* Brause (1912), non Blume (1830), non *C. rufescens* Kunze.

**6. *Dasygrammitis purpurascens* (Nadeaud) Parris, comb. nov.**

*Polypodium purpurascens* Nadeaud, Enum. Pl. Indig. Tahiti (1873) 25. **Type:** *Nadeaud s.n.*, Tahiti, Society Is. (P, n.v.). - *Ctenopteris purpurascens* (Nadeaud) Copel., J. Arnold Arboretum 30 (1949) 442.

### **Radiogrammitis**

***Radiogrammitis* Parris, gen. nov.**

**Typus generis:** *R. setigera* (Blume) Parris

*Rhizomata* radialia, stipitibus in verticillis, non articulatis. *Paleae pallidae brunneae ad atrobrunneae, plerumque non clathratae, raro clathratae, plerumque non iridescentes, raro iridescentes, plerumque subpolitae, raro impolitae, glabrae, cellulis plerumque non turgidis, raro turgidis, sine septis; paleae interdum absentes. Pili plerumque integri, raro ramosi, albidii vel pallidi brunnei ad atrobrunnei. Laminae plerumque simplices, raro pinnatim lobatae; venae non anastomosantes, plerumque dichotome uni-bi-(tri-)ramosae, raro simplices vel pinnatim ramosae, extremis venarum interdum hydathado in superficie. Sori plerumque in duobus, raro ad duodecimos, serialibus, plerumque uno, raro ad sextos, utroque medio-venae, plerumque in lamina non immersi, interdum parum immersi, raro profunde immersi, rotundi vel elliptici; sporangia praecocia in soris proprie pilis uno usque ad novena ad apicem juxta annulum, sporangia serotina in soris glabra. Species 28, Ceylonae ad Polynesiae incolae.*

**Rhizomes** radial, stipes in whorls, not articulated to rhizome. Rhizome scales pale to dark brown, usually not clathrate, rarely clathrate, usually not iridescent, rarely iridescent, usually subglossy, rarely dull, glabrous, cells usually not turgid, rarely turgid, without cross-walls; scales sometimes absent. Hairs usually simple, rarely branched, whitish or pale to dark brown. **Laminae** usually simple, rarely pinnately lobed; venation free, veins usually dichotomously one-two-(three-) branched, rarely simple or pinnately branched, ends of vein branches sometimes with hydathodes on adaxial surface of lamina. **Sori** usually in two rows, rarely up to 12, usually one,



rarely up to six, on each side of the mid-vein, usually on surface of lamina, sometimes slightly sunken in broad shallow depressions, rarely deeply sunken in steep-sided pits,  $\pm$  circular to elliptic; first-developed **sporangia** of each sorus characteristically with one to nine hairs at apex of sporangium adjacent to annulus; later-developed sporangia of each sorus glabrous. 28 species, Sri Lanka to Polynesia.

The generic name refers to the radial rhizome and to *Grammitis*, in which the species were formerly placed.

Species of *Radiogrammitis* sampled by Ranker *et al.* (2004) are in the lower part of Clade Ia. *Radiogrammitis* closely resembles *Oreogrammitis*, but differs in its radial, rather than dorsiventral rhizome, and in the absence of rhizome scales in numerous species.

**1. *Radiogrammitis ahenobarba*** (Parris) Parris, *comb. nov.*

*Grammitis ahenobarba* Parris, *Blumea* 29 (1983) 142, f. 22, 3. **Type:** *Gibbs 5551*, Anggi Lakes, Vogelkop Peninsula, Papua (BM, holo.).

**2. *Radiogrammitis alepidota*** (M.G.Price) Parris, *comb. nov.*

*Grammitis alepidota* M.G.Price, *Philipp. Agricult.* 57 (1974) 34, f. 1. **Type:** *Price 2149*, Mt Banahaw, Luzon, Philippines (PNH, holo., *n.v.*; K, L, US, iso., *n.v.*).

**3. *Radiogrammitis beddomeana*** (Alderw.) Parris, *comb. nov.*

*Polypodium beddomeanum* Alderw., *Bull. Jard. Bot. Buitenzorg*, sér. 2, 28 (1918) 39. **Type:** *Wall 30*, Bogawantalawa, Sri Lanka (BO, *n.v.*; photo., BM). - *Grammitis beddomeana* (Alderw.) Ching, *Bull. Fan Mem. Inst. Biol.* 10 (1941) 240.

**4. *Radiogrammitis cheesemanii*** (Parris) Parris, *comb. nov.*

*Grammitis cheesemanii* Parris, *N. Z. J. Bot.* 31 (1993) 15. **Type:** *Cheeseman s. n.*, Te Kou, Rarotonga, Cook Is. (AK, holo.; AK, iso.).

**5. *Radiogrammitis clavipila*** (Parris) Parris, *comb. nov.*

*Grammitis clavipila* Parris, *Blumea* 29 (1983) 156, f. 21. **Type:** *Vink 17020*, Ibiwara, Enga, Papua New Guinea, (L, holo.; LAE, iso.).

**6. *Radiogrammitis coredrosora*** (Alderw.) Parris, *comb. nov.*

*Polypodium coredrosorum* Alderw., *Nova Guinea* 14 (1924) 44. **Type:** *Lam 1550A*, Mt Doorman, Papua [BO, lecto. (Parris, 1983); BM, L, isolecto.]. *Grammitis coredrosora* (Alderw.) Copel., *Philipp. J. Sci.* 80 (1952) 179.

**7. *Radiogrammitis graminella*** (C.Chr.) Parris, *comb. nov.*

*Polypodium simplex* Baker, J. Bot. 14 (1876) 12 *non* Burm.f. (1868) *nec*. Sw. (1801) *nec* Lowe (1858). **Type:** *Whitmee 123*, Samoa (CGE, GH *n.v.*; K). - *Polypodium graminellum* C.Chr., Index Fil. (1906) 530, *nomen novum pro P. simplex* Baker *non* Burm.f. (1868) *nec* Sw. (1801) *nec* Lowe (1858). - *Grammitis graminella* Sledge, Brit. Fern Gaz. 9 (1967) 340.

**8. *Radiogrammitis havilandii*** (Baker) Parris, *comb. nov.*

*Polypodium havilandii* Baker, Trans. Linn. Soc. London, Bot. 2, 4 (1894) 253. **Type:** *Haviland 1488*, Mt Kinabalu, Sabah, East Malaysia (K, holo.). - *Polypodium multisorum* Copel., Philipp. J. Sci., C. Bot. 12 (1917) 61. **Type:** *Topping 1665*, Mt Kinabalu, Sabah, East Malaysia [MICH, lecto. (Parris 1990); BM, US, isolecto., *n.v.*]. - *Grammitis havilandii* (Baker) Copel., Gen. Fil. (1947) 211.

**9. *Radiogrammitis hirtella*** (Blume) Parris, *comb. nov.*

*Polypodium hirtellum* Blume, Enum. Pl. Javae (1828) 122. **Type:** *Blume 71*, G. Gede, Java (L, lecto., chosen here). - *Grammitis hirtella* (Blume) Tuyama, Bot. Mag. Tokyo 51 (1937) 125. - *Grammitis pusilla* Blume, Fl. Javae 2 (1829) 109, t. 46, f. 4, *excl. varieties, nomen illegit. superfl. pro Polypodium hirtellum* Blume. - *Polypodium pusillum* (Blume) Christ, Ann. Jard. Bot. Buitenzorg 15 (1897) 145.

**10. *Radiogrammitis hirtelloides*** (Copel.) Parris, *comb. nov.*

*Polypodium hirtelloides* Copel., Bull. B. P. Bishop Mus. 59 (1929) 17. **Type:** *Gillespie 2387*, Nadarivatu, Viti Levu, Fiji (BISH, MICH, UC, *n.v.*). - *Grammitis hirtelloides* (Copel.) Copel., Philipp. J. Sci. 80: 146 (1952).

**11. *Radiogrammitis hirtiformis*** (Rosenst.) Parris, *comb. nov.*

*Polypodium hirtiforme* Rosenst., Repert. Spec. Nov. Regni Veg. 12 (1913) 176. **Type:** *Keysser B.48*, Bolan Mts, Morobe, Papua New Guinea [S, lecto. (Parris 1983); BM, UC, isolecto.].

**12. *Radiogrammitis holttumii*** (Copel.) Parris, *comb. nov.*

*Grammitis holttumii* Copel., Univ. Calif. Publ. Bot. 18 (1942) 224. **Type:** *Holttum SFN 23384*, Cameron Highlands, Pahang, Peninsular Malaysia (MICH, holo.; K, SING, UC, iso.).

**13. *Radiogrammitis jagoriana*** (Mett. ex Kuhn) Parris, *comb. nov.*

*Polypodium jagorianum* Mett. ex Kuhn, Linnaea 36 (1869) 128. **Type:** *Jagor 835*, Luzon, Philippines (B, lecto., chosen here; BM, isolecto.). - *Grammitis*

*jagoriana* (Mett. ex Kuhn) Tagawa, Acta Phytotax. Geobot. 10 (1941) 284. - *Polypodium koordersii* Christ, Ann. Jard. Bot. Buitenzorg 15 (1897) 144, t. 15, f. 19 A-C. **Type:** *Koorders 17135B*, Mt Klabat, Minahassa, Sulawesi (BO, lecto., chosen here; L, isolecto.). - *Polypodium christii* Copel., Polypodiaceae Philipp. (1905) 118. **Type:** *Copeland 1520*, Mt Apo, Mindanao, Philippines (MICH, lecto., chosen here; BM, isolecto.). - *Grammitis cuneifolia* Copel., Philipp. J. Sci. 56 (1935) 479, t. 8, f. 2. **Type:** *Clemens 40962*, Mt Kinabalu, Sabah, East Malaysia [MICH, lecto. (Parris *et al.*, 1992)].

**14. *Radiogrammitis kinabaluensis*** (Copel.) Parris, *comb. nov.*

*Polypodium kinabaluense* Copel., Philipp. J. Sci. 12, C. Bot. (1917) 60. **Type:** *Clemens 10649 p.p.*, Mt Kinabalu, Sabah, Malaysia [MICH, lecto. (Parris *et al.* 1992); BM, UC, isolecto.]. - *Grammitis kinabaluensis* (Copel.) Copel., Philipp. J. Sci. 56 (1935) 479.

**15. *Radiogrammitis ligulata*** (Baker) Parris, *comb. nov.*

*Polypodium ligulatum* Baker in Hook. & Baker, Syn. Fil. (1867) 320. **Type:** *Wilkes in S. Pacific Expl. Exped. 1838-1842*, Fiji (K). - *Grammitis ligulata* (Baker) Ching, Bull. Fan Mem. Inst. Biol. 10 (1941) 240. - *Polypodium trachycarpum* Mett. ex Kuhn, Linnaea 36 (1869) 127. **Type:** *Vesco s.n.*, Tahiti, Society Is. (B, lecto., chosen here). - *Grammitis trachycarpa* (Mett. ex Kuhn) Copel., Occ. Papers Bishop Mus. 14 (1938) 72.

**16. *Radiogrammitis meijer-dreesii*** (Copel.) Parris, *comb. nov.*

*Grammitis meijer-dreesii* Copel., Univ. Calif. Publ. Bot. 18 (1942) 223. **Type:** *Brass 9898 & Meijer-Drees*, Mt Trikora, Papua (MICH, holo.; A, BO, L, iso.).

**17. *Radiogrammitis multifolia*** (Copel.) Parris, *comb. nov.*

*Polypodium alpestre* Blume, Enum. Pl. Javae (1828) 123 *non* (Hoppe) Spenner (1825). **Type:** *Blume s.n.*, Java [L, lecto. (Parris, 1986)]. - *Grammitis pusilla* var. *alpestris* Blume, Fl. Javae 2 (1829) 110, t. 46, f 5, *pro P. alpestre* Blume (1828) *non* (Hoppe) Spenner (1825). - *Grammitis pusilla* var. *lasiosora* Blume, Fl. Javae 2 (1829) 110, t. 46, f 6. **Type:** *Blume s.n.*, G. Panggrango, Java [L, lecto. (Parris, 1986)]. - *Polypodium lasiosorum* (Blume) Hook., Sp. Fil. 4 (1863) 166. - *Grammitis lasiosora* (Blume) Ching, Bull. Fan Mem. Inst. Biol. 10 (1941) 15. *Grammitis multifolia* Copel., Philipp. J. Sci. 46 (1931) 219. **Type:** *Copeland s.n.*, G. Panggerango, Java [MICH, lecto. (Parris, 1986); BM, BO, UC, isolecto.]. - *Polypodium multifolium* (Copel.) C.Chr., Index Fil. Suppl. 3 (1934) 154.

**18. *Radiogrammitis ornatissima*** (Rosenst.) Parris, *comb. nov.*

*Polypodium ornatissimum* Rosenst., Repert. Spec. Nov. Regni Veg. 5 (1908) 41. **Type:** *Rosenstock's Filices Novoguineensis Exsiccatae* 9, Werner 47, Mt Gelu, Madang, Papua New Guinea [UC, lecto. (Parris, 1983); B, BM, E, S, isolecto.]. - *Grammitis ornatissima* (Rosenst.) Copel., Philipp. J. Sci. 80 (1952) 195. - *Polypodium ornatissimum* var. *dichotomum* Brause, Bot. Jahrb. Syst. 180 (1920) 56. **Type:** *Ledermann 11809*, Mt Schrader, Madang, Papua New Guinea [B, lecto. (Parris, 1983); B, BM, S, isolecto.].

**19. *Radiogrammitis parva*** (Brause) Parris, *comb. nov.*

*Polypodium parvum* Brause, Bot. Jahrb. Syst. 49 (1912) 36, f. 2C. **Type:** *Schlechter 17156*, Kani Mts, Morobe, Papua New Guinea [B, lecto. (Parris 1983); BISH, BM, K, L, MICH, UC, isolecto.]. - *Grammitis parva* (Brause) Copel., Gen. Fil. (1947) 211.

**20. *Radiogrammitis peninsularis*** (Copel.) Parris, *comb. nov.*

*Grammitis peninsularis* Copel., Univ. Calif. Publ. Bot. 18 (1942) 224. **Type:** *Holtum SFN 20678*, G. Tahan, Pahang, Peninsular Malaysia (MICH, holo.; SING, UC, iso.).

**21. *Radiogrammitis plana*** (Alderw.) Parris, *comb. nov.*

*Polypodium planum* Alderw., Bull. Jard. Bot. Buitenzorg, sér. 2, 16 (1914) 32. **Type:** *Matthew 501*, G. Singgalang, Sumatra (BO, lecto., chosen here). - *Grammitis plana* (Alderw.) Parris, Fern Gaz. 12: 180 (1981).

**22. *Radiogrammitis pseudoxiphopteris*** (Parris) Parris, *comb. nov.*

*Grammitis pseudoxiphopteris* Parris, Hooker's Icon. Pl. 40 (1990) t. 3975. **Type:** *Dransfield 837B*, G. Belumut, Johor, Peninsular Malaysia (KLU, holo.).

**23. *Radiogrammitis reducta*** (Alderw.) Parris, *comb. nov.*

*Polypodium reductum* Alderw., Nova Guinea 14 (1924) 41. **Type:** *Lam 1550*, Mt Doorman, Papua [BO, lecto. (Parris, 1983); BM, K, L, MICH, UC, isolecto.]. - *Grammitis reducta* (Alderw.) Copel., Philipp. J. Sci. 80 (1952) 167.

**24. *Radiogrammitis setigera*** (Blume) Parris, *comb. nov.*

*Polypodium setigerum* Blume, Enum. Pl. Javae (1828) 123. **Type:** *Blume s.n.*, G. Gede, Java [L, lecto. (Parris 1983); K, L, isolecto.]. - *Grammitis fasciculata* Blume, Fl. Javae 2 (1829) 112, *nomen illegit. superfl. pro P. setigerum* Blume. - *Polypodium fasciculatum* C.Presl, Tentamen (1836) 180, *nomen illegit. superfl. pro P. setigerum* Blume. - *Polypodium intromissum* Christ, Verh. Natur. Gesell. Basel 11 (1896) 440. **Type:** *Sarasin 1368*, Wawokaraeng,

Sulawesi [BAS, lecto. (Parris, 1983)]. - *Grammitis intromissa* (Christ) Parris, Fern Gaz. 12 (1981) 180. - *Polypodium heanophyllum* Copel., Philipp. J. Sci. 40 (1929) 310. **Type:** *Copeland's Pteridophyta Philippensis Exsiccata 158 [Sphalm. 185]*, Mt Matutum, Mindanao, Philippines [MICH, lecto. (Parris 1983); BM, K, SING, UC, isolecto.]. - *Grammitis setigera* (Blume) Ching, Bull. Fan Mem. Inst. Biol. 10 (1941) 241 non J.Sm. (1875). - *Grammitis cyclosora* Copel., Univ. Calif. Publ. Bot. 18 (1942) 224. **Type:** *Clemens s.n.*, Mt Sarawaket, Morobe, Papua New Guinea (MICH, holo.). - *Grammitis latifolia* DeVol, Fl. Taiwan 1 (1975) 223. **Type:** *Yamamoto s.n.*, Taitungshan, Taitung, Taiwan (TAI, n.v.).

**25. *Radiogrammitis silvicola*** (Parris) Parris, *comb. nov.*

*Grammitis silvicola* Parris, Blumea 29 (1983) 141, f. 22, 2. **Type:** *Croft 134*, Mt Piora, Eastern Highlands, Papua New Guinea (K, holo.; K, LAE, iso.).

**26. *Radiogrammitis subpinnatifida*** (Blume) Parris, *comb. nov.*

*Polypodium subpinnatifidum* Blume, Enum. Pl. Javae (1828) 129. **Type:** *Blume s. n.*, Java (K, L, n.v.). - *Grammitis subpinnatifida* (Blume) Blume, Fl. Javae 2 (1830) 118. - *Xiphopteris subpinnatifida* (Blume) Copel., Gen. Fil. (1947) 215.

**27. *Radiogrammitis tehoruensis*** (M.Kato & Parris) Parris, *comb. nov.*

*Grammitis tehoruensis* M.Kato & Parris, J. Fac. Sci. Univ. Tokyo 3, 15 (1992) 131, f. 4. **Type:** *Kato, Ueda & Fanani C-14155*, Muselleinan Pass, Seram, Moluccas (TI, holo.).

**28. *Radiogrammitis tuberculata*** (Parris) Parris, *comb. nov.*

*Grammitis tuberculata* Parris, Blumea 29 (1983) 99, f. 15, 1. **Type:** *Vink 17495*, Mt Ambua, Enga, Papua New Guinea (L, holo.).

## Tomophyllum

***Tomophyllum*** (E.Fourn.) Parris, *gen. et stat. nov.*

*Polypodium* Sect. *Tomophyllum* E.Fourn., Ann. Sci. Nat. 5, 18 (1873) 283.

**Type species:** *T. subsecundodissectum* (Zoll.) Parris.

**Rhizomes** radial, stipes in whorls, not articulated to rhizome. Rhizome scales pale to medium brown, not clathrate, not iridescent, usually subglossy, rarely dull, with pale to medium brown hairs on margin and/or apex, cells usually not turgid, sometimes turgid, without cross-walls; scales sometimes absent. Hairs simple and branched, whitish or pale to medium brown. **Laminae** deeply

pinnately lobed to tripinnatifid; venation free, veins pinnately branched in pinnae and in pinnules of more dissected species, ends of vein branches with hydathodes on adaxial surface of lamina. **Sori** usually in two rows, rarely in one row, on pinnae, sometimes in one or two rows on pinnules in more dissected fronds, superficial, more or less circular to elliptic; **sporangia** glabrous or rarely with one to three hairs at apex of sporangium adjacent to annulus (*T. congregatifolium*). 22 species, India to Melanesia.

The generic name refers to the pinna dissection of the type species.

Species of *Tomophyllum* sampled by Ranker *et al.* (2004) are in the upper part of Clade III. *Scleroglossum*, also in Clade III, differs from *Tomophyllum* in its simple lamina, with sori deeply sunken in two grooves, one each side of the mid-vein. *Calymmodon*, also in Clade III, has the same type and colour of hairs as *Tomophyllum* and most species of *Calymmodon* also have hydathodes, but the veins of *Calymmodon* are simple, rather than pinnately or bipinnately branched, and each fertile pinna bears a solitary sorus that is protected by a fold of the basiscopic pinna margin, rather than two or more sori that are not protected. See under *Dasygrammitis*, above, for differences between it and *Tomophyllum*.

**1. *Tomophyllum beleense*** (Copel.) Parris, *comb. nov.*

*Ctenopteris beleensis* Copel., Univ. Calif. Publ. Bot. 18 (1942) 225. **Type:** Brass 11041, Bele R., Papua (MICH, holo.; A, *n.v.*; UC, iso.).

**2. *Tomophyllum bipinnatifidum*** (Baker) Parris, *comb. nov.*

*Polypodium bipinnatifidum* Baker, J. Bot. 28 (1890) 109. **Type:** Macgregor s.n., Owen Stanley Range Central, Papua New Guinea (K, holo.). – *Ctenopteris bipinnatifida* (Baker) Copel., Univ. Calif. Publ. Bot. 18 (1942) 225. – *Ctenopteris sesquipinnata* Copel., Univ. Calif. Publ. Bot. 18 (1942) 225. **Type:** Brass 9510, L. Habbema, Papua (MICH, holo.; A, *n.v.*, K, UC, iso.).

**3. *Tomophyllum bipinnatum*** (Copel.) Parris, *comb. nov.*

*Ctenopteris bipinnata* Copel., Univ. Calif. Publ. Bot. 18 (1942) 225. **Type:** Brass 9433, L. Habbema, Papua (MICH, holo.; A, *n.v.*, K, UC, iso.).

**4. *Tomophyllum brachyphlebium*** (Baker) Parris, *comb. nov.*

*Polypodium brachyphlebium* Baker, Ann. Bot. 8 (1894) 129. **Type:** Hancock 49, Barisan Ra., Bengkoelen, Sumatra (K, holo.).

**5. *Tomophyllum brooksiae*** (Alderw.) Parris, *comb. nov.*

*Polypodium brooksiae* Alderw., Bull. Jard. Bot. Buitenzorg, sér. 2, 23 (1916)

19, t. 2. f. 2a & b. **Type:** *Brooks 265/S*, Lebong Tandai, Bengkoelen, Sumatra (BO, *n.v.*; WELT). - *Ctenopteris brooksiae* (Alderw.) Parris, Fern Gaz. 12 (1981) 180.

**6. *Tomophyllum capillatum*** (Brause) Parris, *comb. nov.*

*Polypodium capillatum* Brause, Bot. Jahrb. Syst. 49 (1912) 39, f. 2, g. **Type:** *Schlechter 18032*, Finisterre Mts, Madang, Papua New Guinea (B, lecto., chosen here).

**7. *Tomophyllum congregatifolium*** (Alderw.) Parris, *comb. nov.*

*Polypodium congregatifolium* Alderw., Nova Guinea 14 (1924) 47. **Type:** *Lam 1544*, Mt Doorman, Papua (BO, *n.v.*, K, SING, UC). - *Ctenopteris congregatifolia* (Alderw.) Copel., Philipp. J. Sci. 81 (1953) 112.

**8. *Tomophyllum epaleatum*** (Parris) Parris, *comb. nov.*

*Ctenopteris epaleata* Parris, Fern Gaz. 16 (2002) 239. **Type:** *Faden 76/282*, Horton Plains, Nuwara Eliya, Sri Lanka (K, holo.; GH, UC, US, iso.).

**9. *Tomophyllum hymenophylloides*** (Parris) Parris, *comb. nov.*

*Ctenopteris hymenophylloides* Parris, Kew Bull. 59 (2004) 221, f. 1 A. **Type:** *Edwards 4061 et al.*, Mt Jaya, Papua (K, holo.; A, *n.v.*, BISH, *n.v.*, BO, *n.v.*, CANB, *n.v.*, FRE, *n.v.*, L, *n.v.*, MAN, *n.v.*, all iso.).

**10. *Tomophyllum inconspicuum*** (Blume) Parris, *comb. nov.*

*Polypodium inconspicuum* Blume, Enum. Pl. Javae (1828) 130. **Type:** *Blume s.n.*, Java (L). - *Ctenopteris inconspicua* (Blume) Copel., Philipp. J. Sci. 81 (1953) 103. - *Polypodium gedeense* Alderw., Bull. Jard. Bot. Buitenzorg, sér. 2, 16 (1914) 33. **Type:** *Raciborski s.n.*, G. Gede, Java (BO, *n.v.*).

**11. *Tomophyllum macrum*** (Copel.) Parris, *comb. nov.*

*Polypodium macrum* Copel., Perkins' Fragm. (1905) 189. **Type:** *Copeland 1016*, Mt Apo, Mindanao, Philippines (MICH, lecto., chosen here). - *Ctenopteris macra* (Copel.) Copel., Fern Fl. Philipp. 3 (1960) 529.

**12. *Tomophyllum millefolium*** (Blume) Parris, *comb. nov.*

*Polypodium millefolium* Blume, Enum. Pl. Javae (1828) 134. **Type:** *Blume s.n.*, Java (L, *n.v.*). - *Grammitis millefolia* (Blume) Ching, Bull. Fan Mem. Inst. Biol. 10 (1941) 240. - *Ctenopteris millefolia* (Blume) Copel., Gen. Fil. (1947) 219.

**13. *Tomophyllum minutum*** (Blume) Parris, *comb. nov.*

*Polypodium minutum* Blume, Enum. Pl. Javae (1828) 130. **Type:** *Blume s.n.*, G.

Gede, Java (L *n.v.*). *Ctenopteris minuta* (Blume) Holttum, Rev. Fl. Malaya 2 (1955) 228. *Polypodium callophyllum* C.H. Wright, Bull. Misc. Inform., Kew 1909 (1909) 362. **Type:** *Matthew s.n.*, G. Hijau, Perak, Peninsular Malaysia (K, holo.; K, iso.).

**14. *Tomophyllum perplexum*** (Parris) Parris, *comb. nov.*

*Ctenopteris perplexa* Parris, Fern Gaz. 16 (2001) 201. **Type:** *Sledge 1330 p.p.*, Kandapola, Nuwara Eliya, Sri Lanka (K, holo.).

**15. *Tomophyllum polytrichum*** (Copel.) Parris, *comb. nov.*

*Ctenopteris polytricha* Copel., Univ. Calif. Publ. Bot. 18 (1942) 225. **Type:** *Brass 10518*, L. Habbema, Papua (MICH, holo.; A, *n.v.*, UC, iso.).

**16. *Tomophyllum repandulum*** (Mett.) Parris, *comb. nov.*

*Polypodium repandulum* Mett., Abhandl. Senckenb. Naturforsch. Ges. 2 (1857) 50. **Type:** *Gardner 58*, Sri Lanka (BM, OXF). - *Ctenopteris repandula* (Mett.) C. Chr. & Tardieu in Lecompte, Fl. Gen. Indo-china 7 (1941) 533. - *Polypodium subfalcatum* var. *β glabrum* Beddome, Ferns Brit. India (1866) t. 189, f. B. **Type:** *Thwaites/Gardner C.P. 1290*, Sri Lanka [BM, *lecto.* (Parris, 2002b); B, BM, CGE, E, K, L, P, PDA, UC, all *isolecto.*].

**17. *Tomophyllum sakaguchianum*** (Koidzumi) Parris, *comb. nov.*

*Polypodium sakaguchianum* Koidzumi, Acta Phytotax. Geobot. 1 (1932) 29. **Type:** *Sakaguchi s.n.*, Kawakamimura Shiwonoha, Honto, Japan (KYO, *n.v.*). - *Ctenopteris sakaguchiana* (Koidzumi) H. Ito, J. Jap. Bot. 11 (1935) 90. - *Grammitis sakaguchiana* (Koidzumi) Sugimoto [*ex* Kurata], Hokuriku J. Bot. 6 (1957) 9.

**18. *Tomophyllum sinicum*** (Christ) Parris, *comb. nov.*

*Polypodium sinicum* Christ, Bull. Boiss. 7 (1899) 3. **Type:** *Henry 10186*, Mt Teng Chen Len, Yunnan, China, (K). - *Polypodium convolutum* Baker, Bull. Misc. Inform., Kew 1906 (1906) 12. **Type:** *Henry 10186*, Ten Chen Liu Mts, Yunnan, China (K, holo.). - *Polypodium trichophyllum* Baker, Bull. Misc. Inform., Kew 1906 (1906) 13. **Type:** *Hancock 153*, Red R., Yunnan, China (K, holo.). - *Polypodium tenuissimum* Hayata, Icon. Pl. Formosa 4 (Nov. 1914) 254 *non* Copel. (Feb. 1914). **Type:** *Hayata & Sasaki s.n.*, Arisan, Taiwan (TI, *n.v.*; photo. PE). - *Polypodium hayatae* Masamune, J. Soc. Trop. Agric. Formosa 2 (1930) 31, *nomen novum pro P. tenuissimum* Hayata (Nov. 1914) *non* Copel. (Feb. 1914). - *Ctenopteris hayatae* (Masamune) H. Ito, J. Jap. Bot. 11 (1935) 90.

**19. *Tomophyllum subfalcatum*** (Blume) Parris, *comb. nov.*



*Polypodium subfalcatum* Blume, Enum. Pl. Javae (1828) 130. **Type:** Java (L). - *Ctenopteris subfalcata* (Blume) Kunze, Bot. Zeit. 6 (1848) 120. - *Grammitis subfalcata* (Blume) Ching, Bull. Fan Mem. Inst. Biol. 10 (1940) 16. - *Polypodium subfalcatum* var.  $\beta$  Blume, Enum. Pl. Javae (1828) 130. **Type:** collector unknown, Sulawesi (L).

**20. *Tomophyllum subminutum*** (Alderw.) Parris, *comb. nov.*

*Polypodium subminutum* Alderw., Malayan Ferns (1908) 598. **Type:** Forbes s.n., Java (BO, n.v.). - *Ctenopteris subminuta* (Alderw.) Holttum, Rev. Fl. Malaya 2 (1955) 228.

**21. *Tomophyllum subrepandulum*** (Christ) Parris, *comb. nov.*

*Polypodium subrepandulum* Christ, Ann. Jard. Bot. Buitenzorg, sér. 2, 5 (1905) 119. **Syntypes:** Hallier 3138 (SAR), Hallier 3299 (K), Borneo.

**21. *Tomophyllum subsecundodissectum*** (Zoll.) Parris, *comb. nov.*

*Polypodium subsecundodissectum* Zoll., Syst. Verz. (1854) 37, 48. **Type:** Zollinger 1578, Java (G, n.v.). - *Ctenopteris subsecundodissecta* (Zoll.) Copel., Philipp. J. Sci. 81 (1953) 114. - *Polypodium subfalcatum* var. *semiintegrum* Copel., Philipp. J. Sci., C. Bot. 2 (1907) 138. **Type:** Merrill 5971, Mt Halcon, Mindoro, Philippines (MICH, lecto., chosen here). - *Polypodium secundum* Ridl., Trans. Linn. Soc. London, Bot. 2, 9 (1916) 262. **Type:** Kloss s.n., Mt Carstensz, Papua (BM).

**22. *Tomophyllum walleri*** (Maiden & Betche) Parris, *comb. nov.*

*Polypodium walleri* Maiden & Betche, J. & Proc. Roy. Soc. New South Wales 35 (1911) 799. **Type:** Waller s.n., Herberton, Queensland, Australia [NSW, lecto. (Parris, 1998b); BRI, iso.]. - *Ctenopteris walleri* (Maiden & Betche) S.B.Andrews, Austrobaileya 1 (1977) 12.

## Xiphopterella

*Xiphopterella* Parris, *gen. nov.*

**Typus generis:** *X. hieronymusii* (C.Chr.) Parris

*Rhizomata radialia, stipitibus in verticillis, non articulatis. Paleae pallidae brunneae ad mediae brunneae, non clathratae, non iridescentes, subpolitae, glabrae vel ad apicem pili uno vel duobus, cellulis plerumque non turgidis, raro turgidis, sine septis. Pili integri et ramosi, albidi vel pallidi brunnei ad medii brunnei. Laminae pinnatifidae vel pinnatae; venae non anastomosantes, plerumque dichotome uni-ramosae, raro dimidiate bi-ramosae, extremis venarum interdum hydathado in superficie. Sori in duobus serialibus, uno utroque rhachidis, plerumque uno, raro duo, in pinnam, in lamina non*

*immersi, rotundi vel elliptici; sporangia glabra. Species 6, Malesiae incolae.*

**Rhizomes** radial, stipes in whorls, not articulated to rhizome. Rhizome scales pale to medium brown, not clathrate, not iridescent, subglossy, glabrous or with one or two simple unjointed-hairs or branched hairs at apex, cells without cross-walls. Hairs simple and branched, whitish or pale to medium brown. **Laminae** deeply pinnately lobed to pinnate; venation free, veins usually dichotomously one-branched, rarely dimidiately two-branched, ends of vein branches sometimes with hydathodes on adaxial surface of lamina. **Sori** in two rows, one each side of rachis, usually one, rarely two, per pinna, superficial, ± circular to elliptic; **sporangia** glabrous. Six species, in Malesia.

The generic name is a diminutive of *Xiphopteris*, in which the species were formerly placed.

No species of *Xiphopterella* were sampled by Ranker *et al.* (2004), so its position in their clade system is unknown. On the basis of rhizome form and hair types, it is likely to be in Clade III. *Xiphopterella* resembles *Calymmodon* (in Clade III) in having similar rhizome scales, similar frond dissection and one row of sori on each side of the rachis, but has the veins forked rather than simple and does not have the sori protected by the upward-folded basisopic margin of the pinna. *Micropolypodium* Hayata *s.str.* (Old World species only) resembles *Xiphopterella* in having a radial rhizome and one sorus per pinna, but has rhizome scales always glabrous, lacks branched hairs and has dark brown simple hairs.

***Xiphopterella gracilis*** Parris, *sp. nov.*

**Type:** *Holttum* SFN 20673, c. 1520 m (5000 ft) alt., 30 Aug 1928, G. Tahan, Pahang, Peninsular Malaysia (SING, holo.; BM, *n.v.*, K, iso).

– *Xiphopteris alternidens sensu* Parris (1986), Parris & Edwards (1988) & Parris & Latiff (1997) *non* (Ces.) Copel.

*Species X. alternidenti similis aspectu et rheophytica item, sed stipitibus atris non mediis brunneis, pinnis 18-26 paribus non 8-10, textura coriacea non tenuiter coriacea, pilis integris non ramosis, rhachidi in superficie plus minusve immersa non prominenti, hydathodis praesentibus non carentibus differt.*

**Stipes** winged to base or 1-2 x c. 0.2 mm; glabrous. **Laminae** 35-87 x 2(-3) mm, linear-oblongate, obtuse to bluntly acute at apex, long-attenuate at base, pinnate or deeply pinnately divided to wing c. 0.1 mm wide along rachis, pinnae 18-26 pairs, longest pinnae 1 x 1-2 mm, obovate, oblong, triangular

or broadly triangular, obtuse to bluntly acute at apex, entire; glabrous or with simple jointed hairs (c. 0.1 mm long) occasional to sparse on abaxial surface of rachis; rachis slightly prominent to prominent and concolorous to slightly darker on abaxial surface of lamina, slightly sunken and darker on adaxial surface; lateral veins invisible in transmitted light, not prominent, simple in sterile fronds and some fertile fronds or 1-forked in fertile fronds, acroscopic branch  $\pm$  as long as basiscopic branch, not extending beyond sorus, vein endings with hydathodes. **Sori** 1.1-1.8 x 1.0-1.3 mm, slightly sunken in shallow depressions which may appear slightly prominent on adaxial surface of lamina, discrete when mature, on 9-18 pairs of pinnae, in apical 1/4 to 2/3 of lamina, one per pinna, more or less throughout pinnae, nearer to rachis than margin.

*Distribution:* Peninsular Malaysia, Pahang, (G. Tahan), known only from the type locality.

*Specimens examined in addition to type:* Peninsular Malaysia, Pahang, G. Tahan, 1520-1680 m (5000-5500 ft), 12 July 1905, *Wray & Robinson 5522* (SING); *ibid*, July 1911, *Ridley 15975* (SING); G. Tahan, 1520 m (5000 ft), 15 June 1922, *Haniff & Nur SFN 7989* (SING).

**1. *Xiphopterella alternidens*** (Ces.) Parris, *comb. nov.*

*Polypodium alternidens* Ces., *Atti Ac. Napoli* 7 (1876) 25, t. 2, f. 4. **Type:** *Beccari s.n.*, G. Gading, Sarawak, Malaysia (K). – *Xiphopteris alternidens* (Ces.) Copel., *Gen. Fil.* (1947) 215. – *Polypodium murudense* Copel., *Philipp. J. Sci. C, Bot.* 12 (1917) 61. **Type:** *Bur. Sci. 2924*, G. Murud, Sarawak, Malaysia (PNH†). – *Xiphopteris murudensis* (Copel.) Copel., *Gen. Fil.* (1947) 215.

**2. *Xiphopterella govidjoensis*** (Brause) Parris, *comb. nov.*

*Polypodium govidjoense* Brause, *Bot. Jahrb. Syst.* 49 (1912) 41, f. 2, K. **Type:** *Schlechter 19747*, Govidjoa, Madang or Morobe, Papua New Guinea (B, lecto., chosen here). – *Xiphopteris govidjoensis* (Brause) Copel., *Gen. Fil.* (1947) 215. – *Xiphopteris exilis* Parris, *Kew Bull.* 41 (1986) 503. **Type:** *Holttum SFN 10680*, G. Belumut, Johor, Peninsular Malaysia, (K, holo.; SING, iso.).

**3. *Xiphopterella hecistophylla*** (Copel.) Parris, *comb. nov.*

*Polypodium hecistophyllum* Copel., *Philipp. J. Sci.* 56 (1935) 477, t. 8, f. 1. **Type:** *Clemens 40837*, Mt Kinabalu, Sabah, East Malaysia [MICH, lecto. (Parris *et al.*, 1992); BM, K, UC, isolecto.]. – *Xiphopteris hecistophylla* (Copel.) Copel., *Gen. Fil.* (1947) 215.

**4. *Xiphopterella hieronymusii*** (C.Chr.) Parris, *comb. nov.*

*Polypodium sertularioides* J.Sm. ex Hieron., *Hedwigia* 44 (1905) 98 *non*

Baker (1876). **Syntypes:** *Cuming 380*, Malacca, Peninsular Malaysia (B, n.v., K) & *Griffith s.n.* (B), *Wray in herb. Mus. Perak 1551*, G. Beremban, Pahang, Peninsular Malaysia (B, n.v., UC). – *Polypodium hieronymusii* C.Chr., Index Fil. (1906) 533, *nomen novum pro P. sertularioides* J.Sm. ex Hieron. (1905) non Baker (1876). – *Xiphopteris hieronymusii* (C.Chr.) Holttum, Rev. Fl. Malaya 2 (1955) 218.

**5. *Xiphopterella sparsipilosa*** (Holttum) Parris, *comb. nov.*

*Ctenopteris sparsipilosa* Holttum, Gardens' Bull. 11 (1947) 268. **Type:** *Holttum SFN 23522*, G. Batu Brinchang, Pahang, Peninsular Malaysia (SING, holo.; K, UC, iso.). – *Xiphopteris sparsipilosa* (Holttum) Holttum, Rev. Fl. Malaya 2 (1955) 219.

### **Oreogrammitis**

The genus *Oreogrammitis* was established by Copeland (1917) for one species, *O. clemensiae* Copel. [**Type:** *Clemens 10618 p. p.*, Mt Kinabalu, Sabah, Malaysia (MICH, lecto. (Parris, 1983); BM, isolecto.)], then known only from Mount Kinabalu in Sabah, East Malaysia.

The brief generic description reads ‘*Frondebis confertis, stipitatis, simplicibus, integris, parvis; venis (nisi soriferis) liberis; soro costa parallelo et proximo, lineare, superficiale, nudo; paraphysibus nullis. Genus Eupolypodium derivatum.*’

The description of *O. clemensiae* gives a few more details: ‘*Rhizomate adscendente, brevissimo, paleis pallido-fuscis lanceolatis vel ovatis acutis 2 ad 3 mm longis dense oblecto; stipitibus filiformibus, castaneis, 1.0 ad 2.5 cm altis; fronde lineari-oblongata, 1.5 ad 3.0 mm lata, 2 ad 3 cm longa, obtusa, deorsum sensim attenuata, subcucullata, subcoriacea, fusca, pilis sparsissimis concoloribus mox deciduis vestita; venis inconspicuis, simplicibus vel furcatis; soris usque 12 mm longis, subapicalibus, lateribus frondis deflexis protectis.*’ Copeland regarded his new genus as being related to *Scleroglossum*, but differing in its superficial, rather than sunken sori. He did not mention that the sporangia were setose, nor that the rhizome scales were glabrous. Christensen (1929) retained *Oreogrammitis clemensiae* as a dubious taxon known only from the type collection, commenting on the scanty material not permitting a detailed examination and being unable to form a definite idea of its systematic position. He noted that its scales were like those of *Scleroglossum*, but it seemed very different in its filiform long stipes, long brown hairs along the edges and superficial sori. Christensen & Holttum (1934) also retained the genus after Holttum had collected the species again on Mount Kinabalu, mentioning that the species was distinct, but the validity

of the genus was very problematical.

Parris made three further collections of the species from Mount Kinabalu (Parris *et al.*, 1992) and noted (Parris, 1983) that '*Oreogrammitis clemensiae* was previously placed in a separate monotypic genus because of its fused sori (Copeland, 1917). Collections from the type locality show all degrees of soral fusion from complete to all sori (11 per row) discrete when young and confluent when mature, and the genus is not worthy of recognition. Fused sori are occasionally also found in the circum-antarctic species *Grammitis poeppigiana* (Mett.) Pic. Serm., to which *O. clemensiae* is not closely related. The genus *Scleroglossum* has fused sori, but *O. clemensiae* cannot be regarded as a link between *Grammitis* and *Scleroglossum* as postulated by Copeland (1917). Examination of the rhizome and the frond hairs shows that *O. clemensiae* has no near relationship to *Scleroglossum*.'

The acceptance that *Grammitis* Sw. *s.l.* is an artificial genus based on frond dissection (Parris, 1997a, 1998a; Ranker *et al.*, 2004) and the restriction of *Grammitis* to the black-margined taxa related to and including the type of the genus, *G. marginella* (Sw.) Sw., necessitates the removal from it of numerous Old World species. *Oreogrammitis* is an available name for those that are related to *O. clemensiae*, with the following characters.

Rhizomes dorsiventral, stipes in two rows, sometimes articulated to rhizome, sometimes with prominent phyllopodia. Rhizome scales pale to dark brown or blackish, usually not clathrate, rarely clathrate, usually not iridescent, rarely iridescent, usually subglossy, rarely dull or glossy, glabrous, cells usually not turgid, rarely subturgid or turgid, without cross-walls except in *O. dolichosora*. Hairs usually simple, rarely branched. Laminae usually simple, rarely pinnatifid or pinnate; venation usually free, rarely with occasional anastomoses, veins usually dichotomously one-two(-four)-branched, rarely pinnately branched, ends of vein branches sometimes with hydathodes on adaxial surface of lamina. Sori in two (to six or more) rows on  $\pm$  simple laminae, one (to three or more) on each side of the mid-vein, in two rows, one on each side of pinna mid-vein when pinnate, superficial or slightly sunken in broad shallow depressions, rarely deeply sunken in steep-sided pits, on abaxial surface of lamina,  $\pm$  circular to narrowly elliptic; first-developed sporangia of each sorus characteristically with one to nine simple eglandular hairs clustered at apex of sporangium adjacent to annulus; later-developed sporangia of each sorus glabrous. 110 species, India to Polynesia.

The generic name refers to the montane habitat of the type species and to *Grammitis*, in which the species were formerly placed. Species of

*Oreogrammitis* sampled by Ranker *et al.* (2004) are in the upper part of Clade Ia. See under *Radiogrammitis* above for differences between it and *Oreogrammitis*.

***Oreogrammitis kunstleri*** Parris, *sp. nov.*

**Type:** *Kunstler s.n.*, April 1880, G. Ledang, Johor, Peninsular Malaysia, (E, holo.).

*Species aspectu O. reinwardtio similis, sed pilis brevioribus densioribus, venis non manifestis, ramis venarum in longitudine aequalibus non ramo acroscopico multo brevioribus quam ramo basiscopico et hydathodis destitutis non praesentibus differt.*

**Stipes** not articulated to rhizome, phyllopodia absent. Stipes 3-6 x 0.3-0.6 mm; with dense dark red-brown simple unjointed hairs 0.5-0.8 mm long. **Laminae** c. 128 x 6 mm, linear-oblongate, bluntly acute at apex, long-attenuate at base, slightly crenulate, teeth to 0.2 mm long; with dark red-brown simple unjointed hairs 0.4-1.1 mm long frequent to dense on abaxial surface of lamina, frequent to dense on abaxial surface of mid-vein, frequent to dense on margin, frequent on adaxial surface of lamina and frequent on adaxial surface of mid-vein; mid-vein slightly prominent and concolorous on abaxial surface of lamina, not evident on adaxial surface; lateral veins invisible in transmitted light, not prominent on either surface, 1-forked, acroscopic branch extending beyond sorus, more or less as long as basiscopical branch, vein endings without hydathodes. **Sori** 1.7-2.5 x 1.3-1.9 mm, on surface of lamina or slightly sunken in broad shallow depressions, discrete when mature, in apical 2/3 of lamina, c. 33 in each row, nearer to mid-vein than margin. **Sporangia** setose.

**Distribution:** Peninsular Malaysia, Johor (G. Ledang), known only from the type collection.

***Oreogrammitis malayensis*** Parris, *sp. nov.*

**Type:** *Nor Ezzawanis A. T. FRI 52316*, ca 1760 m, 12 Aug 2006, Telekom road to Gunung Ulu Kali, Pahang/Selangor, Peninsular Malaysia (KEP, holo.).

– *Grammitis* sp. 9 in Parris & Latiff (1997).

*Species aspectu Radiogrammitidi peninsulari simillima, sed rhizomate dorsiventrale non radiale, pilis in pagina inferiore laminae brevioribus et pilis sporangiorum longioribus differt.*

**Stipes** sometimes articulated to rhizome, phyllopodia sometimes present.

Stipes 1-7 x 0.2-0.3 mm; with dense dark red-brown simple unjointed hairs 0.3-0.7 mm long. **Laminae** 26-60 x 2-6 mm, narrowly oblanceolate to linear-oblanceolate, bluntly acute to obtuse at apex, long-attenuate at base, entire or slightly crenulate; with dark red-brown simple unjointed hairs 0.2-0.9 mm long scattered to dense on abaxial surface of lamina, sparse to frequent on abaxial surface of mid-vein, frequent to dense on margin, occasional to frequent on adaxial surface of lamina and occasional to frequent on adaxial surface of mid-vein; mid-vein slightly prominent to prominent on abaxial surface of lamina, not prominent to slightly prominent on adaxial surface, concolorous on both surfaces; lateral veins invisible in transmitted light, sometimes slightly prominent and concolorous on adaxial surface of lamina, not prominent on abaxial surface, 1-2-(3-) forked, acroscopic branch extending beyond sorus or not, shorter than basispic branch, vein endings without hydathodes. **Sori** 1.3-3.3 x 1.2-2.5 mm, on surface of lamina or slightly sunken in broad shallow depressions, discrete to confluent when mature, in apical 1/3 to 1/2 of lamina, 4-18 in each row, nearer to mid-vein than margin. **Sporangia** setose.

*Distribution:* Peninsular Malaysia, known from Pahang/Selangor and Johor.

*Specimens examined in addition to type:* Peninsular Malaysia, Pahang/Selangor, Telekom road to G. Ulu Kali, ca 1760 m, 12 Aug. 2006, *Nor Ezzawanis A. T. FRI 52318, 52328* (both KEP); Johor, G. Belumut, 910 m (3000 ft), 25 May 1923, *Holtum SFN 10860 bis* (MICH, SING); G. Ledang, ca 1070 m (3500 ft), 21 April 1930, *Holtum SFN 23701* (MICH, SING, UC); G. Mering, *Ridley 3354 p p.* (SING).

**1. *Oreogrammitis adspersa*** (Blume) Parris, *comb. nov.*

*Polypodium adpersum* Blume, Enum. Pl. Javae (1828) 123 *non* Schrad. (1818). **Type:** *Blume s.n.*, Java [L, lecto. (Parris 1983); L, isolecto.]. – *Grammitis adspersa* Blume, Flora Javae 2 (1830) 115, t. 48, f. 2, *nomen novum pro Polypodium adpersum* Blume (1828) *non* Schrad. (1818). – *Polypodium sessilifolium* Hook., Sp. Fil. 4 (1863) 168 *non* Liebm. (1849). **Type:** *Cuming 222*, Luzon, Philippines [K, lecto. (Parris 1983); BM, CGE, isolecto.]. – *Polypodium subevenosum* Baker in Hook. & Baker, Syn. Fil. (1867) 320. **Type:** *Mactier s.n.*, Penang, Peninsular Malaysia [K, holo.; E, iso.]. – *Grammitis subevenosa* (Baker) C.Chr. & Tardieu, Notul. Syst. (Paris) 8 (1939) 179. – *Grammitis sessilifolia* J.Sm., Hist. Fil. (1875) 181, *nomen novum pro P. sessilifolium* Hook. (1863) *non* Liebm. (1849). – *Polypodium maxwellii* Baker, Bull. Misc. Inform., Kew 1893 (1893) 211. **Type:** *Hose 296*, Mt Gading, Sarawak, East Malaysia (K, holo.; E, SAR, iso.). – *Grammitis maxwellii* (Baker) Parris, Fern Gaz. 12 (1980) 118. – *Polypodium paucisorum*

Copel., Philipp. J. Sci., C. Bot. 2 (1907) 137. **Type:** *Merrill 5964*, Mt Halcon, Mindoro, Philippines [MICH, lecto. (Parris, 1983)]. – *Polypodium malaicum* Alderw., Malayan Ferns (1909) 577, *nomen novum pro P. sessilifolium* Hook. (1863) *non* Liebm. (1849). – *Grammitis malaica* (Alderw.) Tagawa, Acta Phytotax. Geobot. 8 (1939) 173, *nomen superfl. illegit. pro G. sessilifolia* J.Sm. – *Polypodium pilistipes* Alderw., Bull. Jard. Bot. Buitenzorg, sér. 2, 11 (1913) 20. **Type:** no collector, no locality (BO, lecto., chosen here).

**2. *Oreogrammitis albosetosa*** (F.M.Bailey) Parris, *comb. nov.*

*Polypodium albosetosum* F.M.Bailey, Rep. Govt Sci. Exped. Bellenden Ker (1889) 78. **Type:** *Bailey s.n.*, Bellenden Ker, Queensland, Australia [BRI, lecto. (Parris, 1975); BM, BRI, K, MEL, NSW, isolecto.]. – *Grammitis albosetosa* (F.M.Bailey) Parris, Bot. J. Linn. Soc. 70: 36 (1975).

**3. *Oreogrammitis alta*** (Parris) Parris, *comb. nov.*

*Grammitis stipitata* Brownlie, Nova Hedwigia, Beih. 55 (1977) 345, t. 40, f. 4 *non Grammitis stipitata* Proctor (1966). **Type:** *Brownlie 1785*, Mt Tomaniivi, Viti Levu, Fiji (CHR, holo.). – *G. alta* Parris, N. Z. J. Bot. 18 (1980), *nomen novum pro Grammitis stipitata* Brownlie (1977) *non* Proctor (1966).

**4. *Oreogrammitis antipodalis*** (Copel.) Parris, *comb. nov.*

*Xiphopteris antipodalis* Copel., Univ. Calif. Publ. Bot. 18 (1942) 224. **Type:** *Brass 10788*, L. Habbema, Papua (MICH, holo.; BM, K, UC, iso.).

**5. *Oreogrammitis archboldii*** (C.Chr.) Parris, *comb. nov.*

*Polypodium archboldii* C.Chr., Brittonia 2 (1937) 305. **Type:** *Brass 4236*, Mt Albert Edward, Central, Papua (BM, holo.; BO, BRI, NY, iso.). – *Grammitis archboldii* (C.Chr.) Copel., Philipp. J. Sci. 80 (1952) 186.

**6. *Oreogrammitis attenuata*** (Kunze) Parris, *comb. nov.*

*Grammitis attenuata* Kunze, Linnaea 24 (1851) 251. **Syntypes:** *Schmidt s.n.*, *Koch s.n.*, Nilgiris, India (both at JE, *n.v.*). – *Polypodium parasiticum* Mett., Abhandl. Senckenb. Naturf. Gesell. 2 (1857) 36. **Type:** based on *Grammitis attenuata* Kunze *non Polypodium attenuatum* Willd.

**7. *Oreogrammitis austroindica*** (Parris) Parris, *comb. nov.*

*Grammitis austroindica* Parris, Fern Gaz. 16 (2001) 202. **Type:** *Herb. Beddome s.n.*, Nilgiris, India (BM, holo.).

**8. *Oreogrammitis baldwinii*** (Baker) Parris, *comb. nov.*

*Polypodium baldwinii* Baker, Ann. Bot. 5 (1891) 463. **Type:** *Baldwin s.n.*, Kauai, Hawaiian Is. (K). – *Grammitis baldwinii* (Baker) Copel., Philipp. J. Bot. 80 (1952) 158. – *Polypodium knudsenii* Hieron., Hedwigia 44 (1905)



79. **Syntypes:** *Knudsen 90, Baldwin 117*, Kauai, Hawaiian Is.; *Knudsen 7*, Mt Halemanu, Hawaiian Is. (all at B, *n.v.*).

**9. *Oreogrammitis brassii*** (Copel.) Parris, *comb. nov.*

*Grammitis brassii* Copel., Philipp. J. Sci. 60 (1936) 112, t. 21. **Type:** *Brass 2926*, Hinuahaoro, San Cristobal, Solomon Is. (PNH†, holo.; A, lecto., chosen here; BRI, GH, MICH, isolecto.).

**10. *Oreogrammitis caespitosa*** (Blume) Parris, *comb. nov.*

*Grammitis caespitosa* Blume, Enum. Pl. Javae (1828) 115. **Type:** *Matthew s.n.*, G. Gede, Java [K, neo. (Parris, 1983)]. – *Polypodium caespitosum* (Blume) Mett., Ann. Mus. Bot. Lugd. – Bat. 2 (1866) 219.

**11. *Oreogrammitis ceratocarpa*** (Copel.) Parris, *comb. nov.*

*Grammitis ceratocarpa* Copel., Univ. Calif. Publ. Bot. 18 (1942) 223. **Type:** *Clemens 11349*, Ulap, Morobe, Papua New Guinea (MICH, holo.; MICH, UC, iso.).

**12. *Oreogrammitis cervicornis*** (Alderw.) Parris, *comb. nov.*

*Polypodium cervicorne* Alderw., Bull. Jard. Bot. Buitenzorg, sér. 2, 28 (1918) 39. **Type:** *Brooks 303/S*, Lebong Simpang, Bengkoelen, Sumatra (BO, lecto., chosen here; BM, isolecto.). – *Grammitis cervicornis* (Alderw.) Adelbert in van Borssum Waalkes, Annales Bogor. 4 (1960) 25.

**13. *Oreogrammitis christophersenii*** (Copel.) Parris, *comb. nov.*

*Grammitis christophersenii* Copel, Occ. Papers B. P. Bishop Mus. 15 (1939) 89, f. 8. **Type:** *Christophersen & Hume 2277 p. p.*, Matavanu, Savaii, Samoa (BISH, holo.; MICH, UC, iso.).

**14. *Oreogrammitis clavata*** (Parris) Parris, *comb. nov.*

*Grammitis clavata* Parris, Kew Bull. 52 (2004) 219, f. 1 C. **Type:** *Johns 10068*, Mt Jaya, Papua (K, holo.; BO, *n.v.*, FRE, *n.v.*, MAN, *n.v.*, all iso.).

**15. *Oreogrammitis collina*** (Parris) Parris, *comb. nov.*

*Grammitis collina* Parris, Blumea 29 (1983) 174, f. 28, 3. **Type:** *Parris 9294 [sphalm. 9224] & Croxall*, Baiyer-Jimi Divide, Western Highlands, Papua New Guinea (K, holo.; K, LAE, iso.).

**16. *Oreogrammitis conformis*** (Brack.) Parris, *comb. nov.*

*Polypodium conforme* Brack., U. S. Expl. Exped. 16 (1854) 4, t. 1, f. 2. **Type:** *U.S. Expl. Exped. 3*, Ovalau, Fiji (K, US, *n.v.*). – *Grammitis conformis* (Brack.) J.Sm., Hist. Fil. (1875) 181.

**17. *Oreogrammitis congener*** (Blume) Parris, *comb. nov.*

*Grammitis congener* Blume, Enum. Pl. Javae (1828) 115. **Type:** *Blume s.n.*, Java [L, lecto. (Parris, 1986)]. – *Polypodium congenerum* (Blume) C.Presl, Tentamen (1836) 180. – *Polypodium alatellum* Christ, Verh. Natur. Gesell. Basel 11 (1897) 441. **Type:** *F & P Sarasin 1368 p. p.*, Wawokaraeng, Sulawesi (BAS, *n.v.*). – *Grammitis brevipila* Copel., Brittonia 1 (1931) 69. **Type:** *Williams 1581*, Trinidad, Luzon, Philippines (NY, holo.; MICH, UC, iso.). – *Polypodium brevipilum* (Copel.) C.Chr., Index Fil. Suppl. 3 (1934) 145. – *Grammitis duplopilosa* Copel., Brittonia 1 (1931) 69. **Type:** *Williams 1582*, Mt Santo Tomas, Luzon, Philippines (NY, holo.; UC, iso.). – *Polypodium duplopilosum* (Copel.) C.Chr., Index Fil. Suppl. 3 (1934) 148. – *Grammitis petrophila* Copel., Philipp. J. Sci. 56 (1935) 478. **Type:** *Clemens 50133*, Mt Kinabalu, Sabah, East Malaysia [MICH, lecto. (Parris, 1986); BM, K, UC, isolecto.]. – *Grammitis hirtella* var. *major* Holttum, Rev. Fl. Malaya 2 (1955) 216, *nomen invalidum*.

**18. *Oreogrammitis crinifera*** (Parris) Parris, *comb. nov.*

*Grammitis crinifera* Parris, Blumea 29 (1983) 180, f. 29, 2. **Type:** *Pulle 857*, Mt Hellwig, Papua (L, holo.).

**19. *Oreogrammitis crispatula*** (Holttum) Parris, *comb. nov.*

*Grammitis crispatula* Holttum, Gardens' Bull. 11 (1947) 268. **Type:** *Burkill SFN 12705*, Maxwell's Hill, Perak, Peninsular Malaysia (SING, holo.; BM, BO, K, iso.).

**20. *Oreogrammitis curtipila*** (Parris) Parris, *comb. nov.*

*Grammitis curtipila* Parris, Blumea 29 (1983) 112, f. 16, 4. **Type:** *Brass 25776*, Normanby I., Milne Bay, Papua New Guinea (K, holo.; A, CANB, L, LAE, iso.).

**21. *Oreogrammitis debilifolia*** (Copel.) Parris, *comb. nov.*

*Grammitis debilifolia* Copel., Univ. Calif. Publ. Bot. 18 (1942) 223. **Type:** *Brass 10036 & Meijer-Drees*, Mt Trikora, Papua (MICH, holo.; A, BM, BO, K, L, LAE, UC, iso.).

**22. *Oreogrammitis dictymioides*** (Copel.) Parris, *comb. nov.*

*Grammitis dictymioides* Copel., Univ. Calif. Publ. Bot. 18 (1942) 223. **Type:** *Brass 11848*, L. Habbema, Papua (MICH, holo.; A, BO, L, iso.).

**23. *Oreogrammitis dolichosora*** (Copel.) Parris, *comb. nov.*

*Polypodium dolichosorum* Copel., Philipp. J. Sci. 1 Suppl. (1906) 159, t. 16. **Type:** *Copeland 1524*, Davao, Mindanao, Philippines [MICH, lecto. (Parris,

1983); K, NSW, UC, isolecto.]. – *Grammitis dolichosora* (Copel.) Copel., Philipp. J. Sci. 80 (1952) 188. – *Polypodium ciliolatum* Alderw., Nova Guinea 14 (1924) 43. **Type:** *Lam 1518*, Mt Doorman, Papua [BO, lecto. (Parris, 1983); L, SING, frag. of L at MICH, photo. of L at BM, isolecto.]. – *Grammitis ciliolata* (Alderw.) Copel., Philipp. J. Sci. 80 (1952) 187.

**24. *Oreogrammitis dorsipila*** (Christ) Parris, *comb. nov.*

*Polypodium dorsipilum* Christ in Warburg, Monsunia 1 (1900) 59. **Type:** *Warburg s.n.*, South China (B, *n.v.*). – *Grammitis dorsipila* (Christ) C.Chr. & Tardieu, Notul. Syst. (Paris) 8 (1939) 179.

**25. *Oreogrammitis excelsa*** (Parris) Parris, *comb. nov.*

*Grammitis excelsa* Parris, Blumea 29 (1983) 171, f. 27. **Type:** *Bergman 416*, Kadubaka, Central Range, Papua (S, holo.).

**26. *Oreogrammitis fasciata*** (Blume) Parris, *comb. nov.*

*Grammitis fasciata* Blume, Enum. Pl. Javae (1828) 116. **Type:** *Blume s.n.*, G. Gede, Java [L, lecto. (Parris, 1983); BO, K, L, NSW, isolecto.]. – *Polypodium fasciatum* (Blume) C.Presl, Tentamen (1836) 180. – *Themelium fasciatum* (Blume) Parris, Kew Bull. 59 (2004) 225. – *Polypodium integrum* Brause, Bot. Jahrb. Syst. 49 (1912) 37. **Type:** *Schultze Jena (26) 21*, Tami R., West Sepik, Papua New Guinea [B, lecto. (Parris, 1983)]. – *Grammitis integra* (Brause) Copel., Philipp. J. Sci. 80 (1952) 171. – *Polypodium fuciforme* Rosenst., Nova Guinea 8 (1912) 726. **Type:** *von Römer 846*, Hellwig Mts, Papua [BO, lecto. (Parris, 1983)]. – *Polypodium alpicorne* Ridl., Trans. Linn. Soc. London, Bot. 2, 9 (1916) 261 *non* Baker (1888). **Type:** *Kloss s.n.*, Mt Carstensz, Papua [BM, lecto. (Parris, 1983); K, isolecto.]. – *Polypodium dichotomum* Brause, Bot. Jahrb. Syst. 56 (1920) 190 *non* Houttyn (1783) *nec* Thunb. (1784). **Type:** *Ledermann 9246*, Etappenberg, East Sepik, Papua New Guinea [B, lecto. (Parris, 1983); BM, S, isolecto.]. – *Grammitis angustifolia* Gilli, Ann. Naturhist. Mus. Wien 81 (1978) 24, *non* (Sw.) Heward (1838). **Type:** *Gilli 165*, Mingende, Simbu, Papua New Guinea (W, holo., *n.v.*).

**27. *Oreogrammitis fenicis*** (Copel.) Parris, *comb. nov.*

*Grammitis fenicis* Copel., Univ. Calif. Publ. Bot. 18 (1942) 224. **Type:** *Ramos Bur. Sci. 80147*, Batanes Is., Philippines, (MICH, holo.; K, PNH†, SING, UC, iso.).

**28. *Oreogrammitis flavovirens*** (Alston) Parris, *comb. nov.*

*Polypodium flavovirens* Alston, J. Bot. 78 (1940) 228. **Type:** *Clemens 6764*, Sambanga, Morobe, Papua New Guinea, (B, holo.). – *Ctenopteris flavovirens* (Alston) Parris, Kew Bull. 41 (1986) 69. – *Ctenopteris clemensiae* Copel.,

Univ. Calif. Publ. Bot. 18 (1942) 225. **Type:** *Clemens s.n.*, Rawlinson Range, Morobe, Papua New Guinea (MICH, holo.; UC, iso.). – *Ctenopteris schizophlebia* Copel., Univ. Calif. Publ. Bot. 18 (1942) 225. **Type:** *Clemens s.n.*, Rawlinson Ra., Morobe, Papua New Guinea (MICH, holo.; UC, iso.).

**29. *Oreogrammitis forbesiana*** (W.H. Wagner) Parris, *comb. nov.*

*Grammitis forbesiana* W.H. Wagner, Contr. Univ. Michigan Herb. 19 (1993) 70. **Type:** Wagner 65386, Haelaau to Puu Kukui, Maui, Hawaiian Is. (MICH, holo., *n.v.*; BISH, iso., *n.v.*).

**30. *Oreogrammitis frigida*** (Ridl.) Parris, *comb. nov.*

*Polypodium frigidum* Ridl., Trans. Linn. Soc. London, Bot. 2, 9 (1916) 259. **Type:** *Kloss s.n.*, Mt Carstensz, Papua [BM, lecto. (Parris, 1983)]. – *Grammitis frigida* (Ridl.) Copel., Univ. Calif. Publ. Bot. 18 (1942) 223. – *Grammitis caricifolia* Copel., Univ. Calif. Publ. Bot. 18 (1942) 223. **Type:** *Clemens s.n.*, Mt Sarawaket, Morobe, Papua New Guinea (MICH, holo.). – *Grammitis plurisetulosa* Copel., Univ. Calif. Publ. Bot. 18 (1942) 223. **Type:** Brass 10109 & Meyer-Drees, Mt Trikora, Papua (MICH, holo.; A, BO, BRI, L, UC, iso.).

**31. *Oreogrammitis glabrata*** (Brownlie) Parris, *comb. nov.*

*Grammitis glabrata* Brownlie, Nova Hedwigia, Beih. 55 (1977) 348, t. 40, f. 1. **Type:** Brownlie 800, Mt Delaikora, Vanua Levu, Fiji, (CHR, holo.).

**32. *Oreogrammitis glossophylla*** (Parris) Parris, *comb. nov.*

*Grammitis glossophylla* Parris, Blumea 29 (1983) 47, f. 3, 2. **Type:** Brass 28495, Rossel I., Milne Bay, Papua New Guinea (L, holo.).

**33. *Oreogrammitis graminifolia*** (Copel.) Parris, *comb. nov.*

*Grammitis graminifolia* Copel., Univ. Calif. Publ. Bot. 18 (1942) 223. **Type:** Brass 5092, Mt Tafa, Central, Papua New Guinea (NY, holo.; BM, BO, BRI, GH, MICH, iso.). – *Themelium graminifolium* (Copel.) Parris, Kew Bull. 59 (2004) 225.

**34. *Oreogrammitis habbemensis*** (Copel.) Parris, *comb. nov.*

*Grammitis habbemensis* Copel., Univ. Calif. Publ. Bot. 18 (1942) 223. **Type:** Brass 10520, L. Habbema, Papua (MICH, holo.; A, BO, L, iso.).

**35. *Oreogrammitis hispida*** (Copel.) Parris, *comb. nov.*

*Grammitis hispida* Copel., Univ. Calif. Publ. Bot. 18 (1942) 224. **Type:** Brass 10257, L. Habbema, Papua (MICH, holo.; A, BM, BO, K, L, LAE, iso.).

**36. *Oreogrammitis hookeri*** (Brack.) Parris, *comb. nov.*

*Polypodium setigerum* Hook. & Arnott., Bot. Beechey's Voy. (1832) 103, t. 21A non Blume (1828). **Type:** *Bidwill s.n.*, Hawaiian Is. (K). - *Polypodium hookeri* Brack., U.S. Expl. Exped. 16 (1854) 4, *nomen novum pro P. setigerum* Hook. & Arnott (1832) non Blume (1828). - *Grammitis hookeri* (Brack.) Copel., Philipp. J. Sci. 80 (1952) 157. - *Grammitis setigera* J.Sm., Hist. Fil. (1875) 181, *nomen novum pro P. setigerum* Hook. & Arnott (1832) non Blume (1828).

**37. *Oreogrammitis imberbis*** (Parris) Parris, *comb. nov.*

*Grammitis imberbis* Parris, Blumea 29(1) (1983) 128, f. 19, 3. **Type:** Croft & Lelean LAE 65885, Mt Scorpion, West Sepik, Papua New Guinea (LAE, holo.).

**38. *Oreogrammitis inconstans*** (Alderw.) Parris, *comb. nov.*

*Polypodium inconstans* Alderw., Nova Guinea 14 (1924) 43. **Type:** Lam 1882, Mt Doorman, Papua [BO, lecto. (Parris, 1983)]. - *Grammitis inconstans* (Alderw.) Copel., Philipp. J. Sci. 80 (1952) 193.

**39. *Oreogrammitis insularis*** (Copel.) Parris, *comb. nov.*

*Grammitis insularis* Copel., Univ. Calif. Publ. Bot. 18 (1942) 223. **Type:** Vaupel 451, Samoa (US, holo., *n.v.*; B, *n.v.*, MICH, iso.). - *Grammitis impressa* Copel., Philipp. J. Bot. 80 (1952) 242, f. 95. **Type:** Bartlett 7964A, Dalok Soeroengam, Tapianoeli, Sumatra (US, holo.; UC, iso.).

**40. *Oreogrammitis interrupta*** (Baker) Parris, *comb. nov.*

*Monogramma interrupta* Baker, Ann. Bot. 5 (1891) 482. **Type:** Macgregor *s.n.*, Mt Yule, Gulf, Papua New Guinea (K, holo.; BM, iso.). - *Pleurogramme interrupta* (Baker) Christ, Farnkr. der Erde (1897) 55. - *Nematopteris interrupta* (Baker) C.Chr., Dansk Bot. Ark. 6 (1929) 31. - *Grammitis interrupta* (Baker) Copel., Gen. Fil. (1947) 214. - *Polypodium pyxidiforme* Alderw., Bull. Jard. Bot. Buitenzorg, sér. 2, 1 (1911) 28. **Type:** de Kock 45, Mt Goliath, Papua [BO, lecto. (Parris, 1983); BM, isolecto].

**41. *Oreogrammitis jeraiensis*** (Parris) Parris, *comb. nov.*

*Grammitis jeraiensis* Parris, Hooker's Icon. Pl. 40 (1990), t. 3976. **Type:** Abdullah 615, G. Jerai, Kedah, Peninsular Malaysia (KLU, holo.).

**42. *Oreogrammitis kjellbergii*** (C.Chr.) Parris, *comb. nov.*

*Polypodium kjellbergii* C.Chr. in Kjellberg & C.Chr., Bot. Jahrb. Syst. 66 (1933) 63. **Type:** Kjellberg 1102, B. Watoewila, Sulawesi, (BM, BO, S, *n.v.*).

**43. *Oreogrammitis knutsfordiana*** (Baker) Parris, *comb. nov.*

*Polypodium knutsfordianum* Baker, J. Bot. 28 (1890) 107. **Type:** *Macgregor s.n.*, Mt Knutsford, Central, Papua New Guinea (K, holo.). – *Grammitis knutsfordiana* (Baker) Copel., Univ. Calif. Publ. Bot. 18 (1942) 224. – *Polypodium oleandroides* Baker, Ann. Bot. 8 (1894) 128. **Type:** *Macgregor s.n.*, Mt Suckling, Milne Bay, New Guinea (K, holo.). – *Polypodium warburgii* Christ in Warburg, Monsunia 1 (1900) 59. **Type:** *Warburg 17882*, G. Sibella, Bacan, Moluccas [B, lecto. (Parris, 1983)]. – *Polypodium setosum* var. *calvum* Copel., Philipp. J. Sci., C. Bot. 2 (1907) 136. **Type:** *Merrill 5965*, Mt Halcon, Mindoro, Philippines (MICH). – *Polypodium diplosoroides* Rosenst., Nova Guinea 8 (1912) 724. **Type:** *von Römer 1167*, Hellwig Mts, Papua [BO, lecto. (Parris, 1983)]. – *Grammitis nigrosetosa* Copel., Univ. Calif. Publ. Bot. 18 (1942) 224. **Type:** *Stresemann 404*, G. Fogha, Buru, Moluccas (L 936.248...162, holo.; photos at CGE, PARRIS). – *Grammitis stresemannii* Copel., Univ. Calif. Publ. Bot. 18 (1942) 224. **Type:** *Stresemann 268*, Ceram, Moluccas (L936.248...170, holo.; photos at CGE, PARRIS).

**44. *Oreogrammitis leonardii*** (Parris) Parris, *comb. nov.*

*Grammitis leonardii* Parris, Bot. J. Linn. Soc. 70 (1975) 38, f. 5 A & B. **Type:** *Brass 20075*, Mt Finnegan, Queensland, Australia (BRI, holo.; A, iso.).

**45. *Oreogrammitis locellata*** (Baker) Parris, *comb. nov.*

*Polypodium locellatum* Baker, J. Bot. 28 (1890) 108. **Type:** *Macgregor 26*, Mt Victoria, Central, Papua New Guinea (K, holo.; BM, iso.). – *Grammitis locellata* (Baker) Copel., Occ. Papers Bishop Mus. 15 (1939) 86. – *Grammitis stenocrypta* Copel., Philipp. J. Sci. 46 (1931) 220. **Type:** *Copeland s.n.*, G. Gede, Java [MICH, lecto. (Parris, 1983); BM, BO, UC, isolecto.]. – *Polypodium stenocryptum* (Copel.) C. Chr., Index Fil. Suppl. 3 (1934) 158. – *Grammitis stomatocarpa* Copel., Univ. Calif. Publ. Bot. 18 (1942) 223. **Type:** *Brass 9858A & Meijer-Drees*, Mt Trikora, Papua (MICH, holo.; A, BM, BO, BRI, L, iso.).

**46. *Oreogrammitis loculosa*** (Alderw.) Parris, *comb. nov.*

*Polypodium loculosum* Alderw., Nova Guinea 14 (1924) 42. **Type:** *Lam 1267*, Doorman R., Papua [L, lecto. (Parris, 1983); BM, isolecto.]. – *Grammitis loculosa* (Alderw.) Copel., Univ. Calif. Publ. Bot. 18 (1942) 223.

**47. *Oreogrammitis longiceps*** (Rosenst.) Parris, *comb. nov.*

*Polypodium longiceps* Rosenst., Repert Spec. Nov. Regni Veg. 12 (1913) 177. **Type:** *Keysser B.72*, Bolan Mts, Morobe, Papua New Guinea (S, n.v., UC). – *Ctenopteris longiceps* (Rosenst.) Copel., Philipp. J. Sci. 81 (1953) 103.

**48. *Oreogrammitis maireau*** (Copel.) Parris, *comb. nov.*

*Grammitis maireau* Copel., B. P. Bishop Mus. Occ. Papers 14 (1938) 71.

**Type:** *St John & Maireau 15553*, Mt Perahu, Rapa, Austral Is. (BISH 498689, lecto., chosen here; BISH 10935, K, MICH, WELT, isolecto.).

**49. *Oreogrammitis marivelesensis*** (Copel.) Parris, *comb. nov.*

*Grammitis marivelesensis* Copel., Univ. Calif. Publ. Bot. 18 (1942) 224. **Type:** *Copeland 215*, Luzon, Mt Mariveles, Philippines (MICH, holo.).

**50. *Oreogrammitis medialis*** (Baker) Parris, *comb. nov.*

*Polypodium mediale* Baker in Hook. & Baker, Syn. Fil. ed. 2 (1874) 507. **Type:** *Wall s.n.*, Sri Lanka [K, lecto. (Parris, 2002b)]. – *Grammitis medialis* (Baker) Ching, Bull. Fan Mem. Inst. Biol. 10 (1940) 15.

**51. *Oreogrammitis merrillii*** (Copel.) Parris, *comb. nov.*

*Polypodium merrillii* Copel., Perkins' Fragm. (1905) 188. **Type:** *Merrill 754*, Iwahig R., Palawan, Philippines [US, lecto. (Parris, 1983); PNH†, isolecto.]. – *Grammitis merrillii* (Copel.) Copel., Philipp. J. Sci. 80 (1952) 224.

**52. *Oreogrammitis mesocarpa*** (Alderw.) Parris, *comb. nov.*

*Polypodium mesocarpum* Alderw., Nova Guinea 14 (1924) 42. **Type:** *Lam 1878*, Mt Doorman, Papua (BO, lecto., chosen here; L, isolecto.). – *Grammitis mesocarpa* (Alderw.) Copel., Philipp. J. Sci. 80 (1952) 181.

**53. *Oreogrammitis multiblepharis*** (Copel.) Parris, *comb. nov.*

*Grammitis multiblepharis* Copel., B. P. Bishop Mus. Occ. Papers 14 (1938) 71. **Type:** *Mumford & Adamson 586*, Ooumu, Nukuhiva, Marquesas (BISH, holo.; MICH, iso.).

**54. *Oreogrammitis mollipila*** (Baker) Parris, *comb. nov.*

*Polypodium mollipilum* Baker, J. Bot. 28 (1890) 107. **Type:** *Macgregor s.n.*, Owen Stanley Range, Central, Papua New Guinea, (K, holo.; BM, iso.). – *Grammitis mollipila* (Baker) Copel., Univ. Calif. Publ. Bot. 18 (1942) 224.

**55. *Oreogrammitis montana*** (Parris) Parris, *comb. nov.*

*Grammitis montana* Parris, Blumea 29 (1983) 167, f. 26, 1. **Type:** *Clemens s.n.*, Mt Sarawaket, Morobe, Papua New Guinea (BM, holo.; MICH, iso.).

**56. *Oreogrammitis monticola*** (Sledge) Parris, *comb. nov.*

*Grammitis monticola* Sledge, Brit. Fern Gaz. 9 (1967) 344. **Type:** *Sledge 1835*, Mt Fito, Upolu, Samoa (K, holo.).

**57. *Oreogrammitis murrayana*** (C.Chr.) Parris, *comb. nov.*

*Polypodium murrayanum* C.Chr., Brittonia 2 (1937) 304. **Type:** *Brass 4726*,

Wharton Range, Northern, Papua New Guinea (BM, holo.; BRI, MICH, NY, iso., *n.v.*). - *Grammitis murrayana* (C.Chr.) Copel., Philipp. J. Sci. 80 (1952) 200.

**58. *Oreogrammitis neocaledonica*** (Copel.) Parris, *comb. nov.*

*Grammitis neocaledonica* Copel., Univ. Calif. Publ. Bot. 18 (1942) 222. **Type:** *Schlechter 15346*, New Caledonia (L, holo., *n.v.*; E, K, MICH, NSW, iso.).

**59. *Oreogrammitis nigropaleata*** (Copel.) Parris, *comb. nov.*

*Grammitis nigropaleata* Copel., Univ. Calif. Publ. Bot. 18 (1942) 224. **Type:** *Clemens 41018*, Matap, Morobe, Papua New Guinea (MICH, holo.; MICH, UC, iso.).

**60. *Oreogrammitis nipponica*** (Tagawa & K.Iwats.) Parris, *comb. nov.*

*Grammitis nipponica* Tagawa & K.Iwats., Amer. Fern J. 51 (1961) 150, f. A-C. **Type:** *Nakai 5052*, San-no-taki Falls, Honshu, Japan (KYO, holo., *n.v.*).

**61. *Oreogrammitis nuda*** (Tagawa) Parris, *comb. nov.*

*Grammitis nuda* Tagawa, Acta Phytotax. Geobot. 19 (1941) 284. **Type:** *Tagawa 2092*, Tyosyu-gun, Takaio, Taiwan (KYO, holo, *n.v.*).

**62. *Oreogrammitis oblanceolata*** (Baker) Parris, *comb. nov.*

*Polypodium oblanceolatum* Baker, Annals Bot. 8 (1894) 128. **Type:** *Macgregor s.n.*, Mt Suckling, Milne Bay, Papua New Guinea (K, holo.). - *Grammitis oblanceolata* (Baker) Copel., Philipp. J. Sci. 80 (1952) 166. - *Polypodium sparsipilum* Copel., Philipp. J. Sci., C. Bot. 6 (1911) 139. **Type:** *Brooks 14*, Bengkarum, Sarawak, East Malaysia [MICH, lecto. (Parris, 1983); BM, isolecto.]. - *Grammitis sparsipila* (Copel.) Parris, Fern Gaz. 12 (1980) 118. - *Polypodium hirtellum* var. *subcalvum* Alderw., Bull. Jard. Bot. Buitenzorg, sér. 2, 28 (1918) 39. **Type:** *Brooks 302/S*, Lebong Simpang, Bengkoelen, Sumatra (BM, BO). - *Grammitis brevisetulosa* Copel., Univ. Calif. Publ. Bot. 18 (1942) 223. **Type:** *Clemens 40969 p.p.*, Matap, Morobe, Papua New Guinea (MICH, holo.).

**63. *Oreogrammitis oncobasis*** (M.G.Price) Parris, *comb. nov.*

*Grammitis oncobasis* M.G.Price, Contr. Univ. Michigan Herb. 17 (1990) 274, f. 1, D & E. **Type:** *Price 3376*, Mt Burnay, Luzon, Philippines (MICH, holo.).

**64. *Oreogrammitis padangensis*** (Baker) Parris, *comb. nov.*

*Polypodium padangense* Baker, J. Bot. 18 (1880) 213. **Type:** *Beccari s.n.*, G. Singgalang, Sumatra (K, holo.). - *Grammitis padangensis* (Baker) Copel., Philipp. J. Sci. 80 (1952) 212. - *Polypodium stanleyanum* Baker, J. Bot. 28



(1890) 107. **Type:** *Macgregor 25*, Owen Stanley Range, Central, Papua New Guinea (K, holo.; BM, iso.). – *Grammitis stanleyana* (Baker) Copel., Philipp. J. Sci. 80 (1952) 168. – *Polypodium durum* Copel., Leafl. Philipp. Bot. 3 (1910) 837. **Type:** *Elmer 11689*, Mt Calelan, Mindanao, Philippines [MICH, lecto. (Parris, 1983)]. – *Polypodium ciliiferum* Alderw., Bull. Jard. Bot. Buitenzorg sér. 2, 16 (1914) 32. **Type:** *Matthew 708*, G. Sago, Sumatra [BO, lecto. (Parris, 1983)]. – *Polypodium trichocarpum* Alderw., Nova Guinea 14 (1924) 41. **Type:** *Lam 1693*, Mt Doorman, Papua [L, lecto. (Parris, 1983); BM, L, isolecto.]. – *Polypodium trichocarpum* var. *inerme* Alderw., Nova Guinea 14 (1924) 42. **Type:** *Lam 1854*, Mt Doorman, Papua [BO, lecto. (Parris, 1983); L, isolecto.].

**65. *Oreogrammitis palauensis*** (Hosokawa) Parris, *comb. nov.*

*Grammitis palauensis* Hosokawa, Trans. Nat. Hist. Soc. Formosa 31 (1941) 475. **Type:** *Hosokawa 9769*, Sin-Gaspan, Babeldaob, Palau (TI, holo., *n.v.*; BISH, iso.).

**66. *Oreogrammitis papuensis*** (Alderw.) Parris, *comb. nov.*

*Polypodium papuanum* Ridl., Trans. Linn. Soc. London, Bot. 2, 9 (1916) 260 *non* Baker (1886). **Type:** *Kloss s.n.*, Mt Carstensz, Papua [BM, lecto. (Parris, 1983)]. – *Polypodium papuense* Alderw., Handbook Malayan Ferns Suppl. (1917) 521, *nomen novum pro P. papuanum* Ridl. (1916) *non* Baker (1886). – *Grammitis papuensis* (Alderw.) Parris, Fern Gaz. 12 (1980) 118.

**67. *Oreogrammitis pilifera*** (Ravi & J. Joseph) Parris, *comb. nov.*

*Grammitis pilifera* Ravi & J. Joseph, J. Bombay Nat. Hist. Soc. 76 (1979) 348, f. 1-5. **Type:** *Ravi 5711*, Ponmudi Hills, Kerala, India (CAL, holo., *n.v.*; MH, *n.v.*, RH, *n.v.*, iso.).

**68. *Oreogrammitis pilosiuscula*** (Blume) Parris, *comb. nov.*

*Grammitis pilosiuscula* Blume, Enum. Pl. Javae (1828) 115. **Type:** Java, *Blume s.n.* (L, lecto., chosen here). – *Polypodium pilosiusculum* (Blume) C. Presl, Tentamen (1836) 180. – *Grammitis hirta* Blume, Enum. Pl. Javae (1828) 115 *non* Humb., Bonpl. & Kunth (1815). **Type:** *Blume s.n.*, G. Gede, Java (L, lecto., chosen here). – *Polypodium hirtum* C. Presl, Tentamen (1836) 180 *pro G. hirta* Blume (1828) *non* Humb., Bonpl. & Kunth (1815), *non P. hirtum* Sw. (1788), *nec* Schkuhr (1806), *nec* C. Presl (1825), *nec* Vell. (1827). – *Grammitis hirta* var. *B* Blume, Fl. Javae 2 (1829) 111. **Type:** *Van Hasselt s.n.*, G. Karang, Java (L).

**69. *Oreogrammitis piruensis*** (M. Kato & Parris) Parris, *comb. nov.*

*Grammitis piruensis* M. Kato & Parris, J. Fac. Sci. Univ. Tokyo 3, 15 (1992) 127,

f. 2. **Type:** Kato, Ueda & Fanani C-12998, Tanahgoyang to G. Tiang Bendera, Seram, Moluccas (TI, holo.).

**70. *Oreogrammitis pleurogrammoides*** (Rosenst.) Parris, *comb. nov.*

*Polypodium pleurogrammoides* Rosenst., Repert. Spec. Nov. Regni Veg. 5 (1908) 42. **Type:** Werner 22, Mt Gelu, Madang, New Guinea [UC, lecto. (Parris, 1983); S, isolecto.]. – *Grammitis pleurogrammoides* (Rosenst.) Copel., Occ. Papers Bishop Mus. 15 (1939) 86. – *Grammitis vitiensis* Brownlie, Nova Hedwigia, Beih. 55 (1977) 346, t. 40, 2 & 3. **Type:** Vodonaivalu 2170, Mt Voma, Viti Levu, Fiji (CHR, holo.).

**71. *Oreogrammitis polita*** (Brause) Parris, *comb. nov.*

*Polypodium politum* Brause, Bot. Jahrb. Syst. 56 (1920) 185. **Type:** Ledermann 12937A *p.p.*, Felsspitze, East Sepik, Papua New Guinea (B, lecto., chosen here).

**72. *Oreogrammitis pseudolocellata*** (Parris) Parris, *comb. nov.*

*Grammitis pseudolocellata* Parris, Blumea 29 (1983) 189. **Type:** Brass 22893, Mt Dayman, Milne Bay, Papua New Guinea (BM, holo.; A, iso.).

**73. *Oreogrammitis pseudospiralis*** (Alderw.) Parris, *comb. nov.*

*Polypodium pseudospirale* Alderw., Bull. Jard. Bot. Buitenzorg, sér. 2, 1 (1911) 29. **Type:** de Kock 49, Mt Goliath, Papua (BO, *n.v.*). – *Xiphopteris pseudospiralis* (Alderw.) Parris, Alpine & Subalpine Flora Mt Jaya (2006) 118. – *Polypodium roemerianum* Rosenst., Nova Guinea 8 (1912) 725. **Type:** von Römer 1227, Hellwig Mts, Papua [L, lecto. (Morton, 1973)].

**74. *Oreogrammitis queenslandica*** (Parris) Parris, *comb. nov.*

*Grammitis queenslandica* Parris, Bot. J. Linn. Soc. 70 (1975) 39, f. 5 E & F. **Type:** Brass 18222, Speewah, Queensland, Australia (BRI, holo.; A, iso.).

**75. *Oreogrammitis raiateensis*** (J.W.Moore) Parris, *comb. nov.*

*Polypodium raiateense* J.W.Moore, B. P. Bishop Mus. Bull. 102 (1933) 10. **Type:** Moore 183, Mt Temehani, Raiatea, Society Is. (BISH 498920, lecto., chosen here; BISH 79273, BISH 498921, isolecto.). – *Grammitis raiateensis* (J.W.Moore) Copel., Occ. Papers B. P. Bishop Mus. 14 (1938) 72.

**76. *Oreogrammitis reinwardtii*** (Blume) Parris, *comb. nov.*

*Grammitis reinwardtii* Blume, Enum. Addend. (1828) 2. **Type:** Reinwardt *s.n.*, Sulawesi [L, lecto. (Parris, 1983)]. – *Polypodium reinwardtii* (Blume) C.Presl, Tentamen (1836) 180. – *Polypodium sucklingianum* Baker, Ann. Bot. 8 (1894) 128. **Type:** Macgregor *s.n.*, Mt Suckling, Milne Bay, Papua New

Guinea (K, holo.). – *Grammitis sucklingiana* (Baker) Parris, Fern Gaz. 12 (1980) 118. – *Polypodium brooksii* Copel., Philipp. J. Sci., C. Bot. 12 (1917) 60, non (Copel.) C.Chr. (1913). **Type:** *Brooks s.n.*, G. Bongo, Sarawak, East Malaysia (MICH, lecto., chosen here; K, isolecto.). – *Polypodium trichopodium* F.Muell. var. *serratolobatum* Brause, Bot. Jahrb. Syst. 56 (1920) 179. **Type:** *Ledermann 11576*, Lehm River, East Sepik, Papua New Guinea [B, lecto. (Parris, 1983)]. – *Polypodium bongoense* Copel., Philipp. J. Sci. 38 (1929) 153, *nomen novum pro P. brooksii* Copel. (1917) non (Copel.) C.Chr. (1913). – *Grammitis bongoensis* (Copel.) Copel., Philipp. J. Sci. 80 (1952) 271. – *Grammitis reinwardtioides* Copel., Philipp. J. Sci. 56 (1935) 478. **Type:** *Clemens 40792*, Mt Kinabalu, Sabah, East Malaysia [MICH, lecto. (Parris et al, 1992); BM, isolecto.]. – *Grammitis mariae* Copel., Univ. Calif. Publ. Bot. 18 (1942) 223. **Type:** *Clemens 10251A*, Mt Sarawaket, Morobe, Papua New Guinea (MICH, holo.). – *Grammitis matapensis* Copel., Univ. Calif. Publ. Bot. 18 (1942) 223. **Type:** *Clemens 11176*, Matap, Morobe, New Guinea (MICH, holo.; BM, MICH, UC, all iso.).

**77. *Oreogrammitis reptans*** (Parris) Parris, *comb. nov.*

*Grammitis reptans* Parris, Blumea 29 (1983) 156, f. 24, 1. **Type:** *Brass 9841 & Meijer-Drees*, Mt Trikora, Papua (L, holo.; A, BO, MICH, iso.).

**78. *Oreogrammitis rivularis*** (Parris) Parris, *comb. nov.*

*Grammitis rivularis* Parris, Kew Bull. 41 (1986) 514. **Type:** *Matthew s.n.*, G. Bubu, Perak, Peninsular Malaysia (K, holo.).

**79. *Oreogrammitis rupestris*** (Parris) Parris, *comb. nov.*

*Grammitis rupestris* Parris, Blumea 29 (1983) 172, f. 28, 1. **Type:** *Wakefield 1427*, Narirogo Creek, Central, Papua New Guinea (BM, holo.).

**80. *Oreogrammitis salticola*** (Parris) Parris, *comb. nov.*

*Grammitis salticola* Parris, Blumea 29 (1983) 92, f. 13, 1. **Type:** *Parris 5943 & Croxall*, Mt Giluwe, Southern Highlands, Papua New Guinea (K, holo.; K, LAE, iso.).

**81. *Oreogrammitis scabristipes*** (Baker) Parris, *comb. nov.*

*Polypodium scabristipes* Baker, J. Bot. 28 (1890) 108. **Type:** *Macgregor s.n.*, Owen Stanley Range, Central, Papua New Guinea (K, holo.). – *Grammitis scabristipes* (Baker) Copel., Univ. Calif. Publ. Bot. 18 (1942) 223. – *Polypodium ludens* Baker, Ann. Bot. 8 (1894) 129. **Type:** *Hancock 53A*, Java (K, holo.). – *Grammitis ludens* (Baker) Copel., Gen. Fil. (1947) 211. – *Polypodium bulbotrichum* Copel., Philipp. J. Sci. 40 (1929) 309. **Type:** *Copeland's Pteridophyta Philippensia Exsiccata 136*, Mt Pulog, Luzon,

Philippines [MICH, lecto. (Parris, 1983); BM, BO, K, SING, UC, isolecto.].  
 – *Grammitis bulbotricha* (Copel.) Copel., Philipp. J. Sci. 46 (1931) 219.  
 – *Grammitis limapes* Copel., Philipp. J. Sci. 46 (1931) 218. **Type:** *Copeland s.n.*, G. Gede-Panggrango, Java [MICH, lecto. (Parris, 1983); BM, BO, UC, isolecto.]. – *Polypodium limapes* (Copel.) C.Chr., Index Fil. Suppl. 3 (1934) 152. – *Grammitis novoguineensis* Copel., Univ. Calif. Publ. Bot. 18 (1942) 223. **Type:** *Bamler B.41*, Bolan Mts, Morobe, Papua New Guinea (UC, holo.).

**82. *Oreogrammitis scleroglossoides*** (Copel.) Parris, *comb. nov.*

*Grammitis scleroglossoides* Copel., B. P. Bishop Mus. Occ. Papers 15 (1939) 86, f. 6. **Type:** *Takamatsu 1095*, Mt Nan-a-lant, Ponape, Caroline Is. (BISH 498214, lecto., chosen here; BISH 103965, MICH, UC, isolecto.).

**83. *Oreogrammitis setosa*** (Blume) Parris, *comb. nov.*

*Grammitis setosa* Blume, Enum. Pl. Javae (1828) 116. **Type:** *Blume s.n.*, Java (L, lecto., chosen here). – *Polypodium setosum* (Blume) C.Presl, Tentamen (1836) 180 *non* Thunb. (1784) *nec* G.Forst. (1786). – *Polypodium sundaicum* C.Chr., Index Fil. Suppl. 3 (1934) 160, *nomen novum pro Grammitis setosa* Blume *non P. setosum* Thunb. (1784), *nec* G.Forst. (1786). – *Grammitis obscura* Blume, Enum. Pl. Javae (1828) 115. **Type:** *Blume s.n.*, G. Gede-Panggrango, Java, (L, lecto., chosen here). – *Polypodium obscurum* (Blume) Mett., Abhandl. Senckenb. Naturf. Gesell. 2 (1857) 38. – *Polypodium reinwardtii* var. *obscurum* (Blume) C.Chr., Index Fil. (1906) 332. – *Grammitis pubinervis* Blume, Enum. Pl. Javae (1828) 116. **Type:** *Blume s.n.*, Java (L, lecto., chosen here). – *Polypodium pubinerve* (Blume) Christ, Ann. Jard. Bot. Buitenzorg 15 (1897) 146. – *Grammitis obscura* var. *angustata* Blume, Fl. Javae 2 (1830) 113. **Type:** *Kuhl & Van Hasselt s. n.*, G. Panggrango, Java (L). – *Grammitis longa* Fée, Genera (1852) 233. **Type:** *Lobb 271*, “Singapore” (BM, K). – *Polypodium diplosorum* Christ, Verh. Natur. Gesell. Basel 11 (1896) 440. **Type:** *Sarasin 1358*, Wawokaraeng, Sulawesi (BAS, *n.v.*).

**84. *Oreogrammitis setulifera*** (Alderw.) Parris, *comb. nov.*

*Polypodium pumilum* Brause. Bot. Jahrb. Syst. 49 (1912) 38, f. 2, *F non* Cockayne (1909). **Type:** *Schlechter 19112*, Finisterre Mts, Morobe, Papua New Guinea (B, *n.v.*). – *Polypodium setuliferum* Alderw., Bull. Jard. Bot. Buitenzorg, sér. 2, 16 (1914) 32. **Syntypes:** *Matthew 408*, Malacca, Peninsular Malaysia (BO, *n.v.*); *Matthew 651*, Barisan Mts, Sumatra (BO, *n.v.*; K). – *Xiphopteris setulifera* (Alderw.) Parris, Kew Bull. 41 (1986) 69.

**85. *Oreogrammitis sledgei*** (Parris) Parris, *comb. nov.*

*Grammitis sledgei* Parris, Fern Gaz. 16 (2002) 240. **Type:** *Sledge 1281*, Kalu Ganga, Ratnapura, Sri Lanka, (BM, holo.; US, iso.).

**86. *Oreogrammitis subdichotoma*** (Racib. ex Alderw.) Parris, *comb. nov.*

*Polypodium subdichotomum* Racib. ex Alderw., Bull. Dept. Agric. Indes Néerl. 18 (1908) 20. **Type:** *Forbes 2408*, Sumatra (BO, lecto., chosen here). *Grammitis subdichotoma* (Racib. ex Alderw.) Parris, Fern Gaz. 12 (1981) 180.

**87. *Oreogrammitis subfasciata*** (Rosenst.) Parris, *comb. nov.*

*Polypodium subfasciatum* Rosenst., Repert. Spec. Nov. Regni Veg. 5 (1908) 41. **Type:** *Werner 25*, Mt Gelu, Madang, Papua New Guinea [UC, lecto. (Parris, 1983); S, isolecto.]. – *Grammitis subfasciata* (Rosenst.) Copel., Philipp. J. Sci. 80 (1952) 170. – *Polypodium ceramicum* Alderw., Bull. Jard. Bot. Buitenzorg, sér. 3, 2 (1920) 168. **Type:** *Kornassi 1505*, G. Murkele, Seram, Moluccas [BO, lecto. (Parris, 1983); L, isolecto.]. – *Grammitis ceramica* (Alderw.) Ching, Bull. Fan Mem. Inst. Biol. 10 (1941) 240.

**88. *Oreogrammitis subreticulata*** (Copel.) Parris, *comb. nov.*

*Polypodium subreticulatum* Copel., Philipp. J. Sci. C. Bot. 9 (1914) 6. **Type:** *Shaw in Copland King 395*, Taupota, Milne Bay, Papua New Guinea [MICH, lecto. (Parris, 1983); BM, NSW, isolecto.]. – *Grammitis subreticulata* (Copel.) Copel., Philipp. J. Sci. 80 (1952) 185.

**89. *Oreogrammitis subspathulata*** (Brack.) Parris, *comb. nov.*

*Polypodium subspathulatum* Brack., U.S. Expl. Exped. 16 (1854) 3, t. 1, f. 1. **Type:** *U.S. Expl. Exped. s.n.*, Tahiti, Society Is. (US, *n.v.*). – *Grammitis subspathulata* (Brack.) Farw., Amer. Midland Nat. 12 (1931) 294.

**90. *Oreogrammitis sumatrana*** (Baker) Parris, *comb. nov.*

*Polypodium sumatranum* Baker, J. Bot. 18 (1880) 214. **Type:** *Beccari 448*, G. Singgalang, Sumatra (K, lecto., chosen here; BM, BO, FI, *n.v.*, isolecto.). – *Grammitis sumatrana* (Baker) Copel., Philipp. J. Sci. 56 (1935) 105. – *Polypodium subpleiosorum* Racib., Pterid. Buitenzorg (1898) 89. **Type:** *Raciborski s.n.*, Salak West, Java [BO, lecto. (Parris, 1983); KRA, *n.v.*, L, *n.v.*, isolecto.]. – *Polypodium pleiosoroides* Copel., Perkins' Fragm. Fl. Philipp. (1905) 189. **Type:** *Copeland 1011*, Mt Apo, Mindanao, Philippines (PNH†?, *n.v.*). – *Polypodium serraeforme* Brause, Bot. Jahrb. Syst. 49 (1912) 36 *non* (Wall. ex Hook.) J.Sm. (1841). **Type:** *Schlechter 18142*, Finisterre Mts, Morobe, Papua New Guinea [B, lecto. (Parris, 1983); BM, UC, isolecto.]. – *Polypodium subrepandum* Brause, Bot. Jahrb. Syst. 49 (1912) 37. **Type:** *Schultze Jena (26) 16*, Tami, West Sepik, Papua New Guinea [B, lecto. (Parris, 1983)]. – *Grammitis subrepanda* (Brause) Copel., Philipp. J. Sci. 80 (1952) 183. – *Polypodium biseriale* Ridl., Trans. Linn. Soc. London, Bot. 2, 9 (1916) 260 *non* Baker (1867). **Type:** *Kloss s.n.*, Mt Carstensz, Papua [BM, lecto.

(Parris, 1983)]. – *Polypodium carstenszense* Ridl., Trans. Linn. Soc. London, Bot. 2, 9 (1916) 260. Type: *Kloss s. n.*, Mt Carstensz, Papua [BM, lecto. (Parris, 1983); K, isolecto.]. – *Polypodium brauseanum* Alderw., Malayan Ferns Suppl. (1917) 521, *nomen novum pro P. serraeforme* Brause non (Wall. ex Hook.) J.Sm.

**91. *Oreogrammitis taeniophylla*** (Parris) Parris, *comb. nov.*

*Grammitis taeniophylla* Parris, Blumea 29 (1983) 67, f. 7, 3. **Type:** *Hoogland & Craven 11034*, Mt Hunstein, East Sepik, Papua New Guinea (LAE, holo.; CANB, iso., *n. v.*).

**92. *Oreogrammitis temehaniensis*** (J.W.Moore) Parris, *comb. nov.*

*Polypodium raiateense* var. *temehaniense* J.W.Moore, B. P. Bishop Mus. Bull. 102 (1933) 11. **Type:** *Moore 104*, Temehani Plain, Raiatea, Society Is. (BISH 498924, lecto., chosen here; BISH 79247, BISH 498925, isolecto.). – *Grammitis temehaniensis* (J.W.Moore) Parris, Holttum Mem. Vol. (1997) 82.

**93. *Oreogrammitis tenuis*** (Parris) Parris, *comb. nov.*

*Grammitis tenuis* Parris, Blumea 29 (1983) 130, f. 19, 2. **Type:** *Parris 6040 & Croxall*, Watut-Aseki Divide, Morobe, Papua New Guinea (K, holo.; K, LAE, iso.).

**94. *Oreogrammitis tomaculosa*** (Parris) Parris, *comb. nov.*

*Grammitis tomaculosa* Parris, Blumea 29 (1983) 152, f. 23, 3. **Type:** *Brass 10042A & Meijer-Drees*, Mt Trikora, Papua (BM, holo.; A, BO, L, MICH, iso.).

**95. *Oreogrammitis torricelliana*** (Brause) Parris, *comb. nov.*

*Polypodium torricellianum* Brause, Bot. Jahrb. Syst. 49 (1912) 45, f. 3A. **Type:** *Schlechter 14347*, Torricelli Mts, East or West Sepik, Papua New Guinea [B, lecto. (Parris, 1983)]. – *Grammitis torricelliana* (Brause) Parris, Fern Gaz. 12 (1981) 180. – *Grammitis microtricha* Copel., Philipp. J. Sci. 56 (1935) 105, t. 11. **Type:** *Copeland s.n.*, Mt Apo, Mindanao, Philippines [MICH, lecto. (Parris, 1983)].

**96. *Oreogrammitis trichopoda*** (F.Muell.) Parris, *comb. nov.*

*Polypodium trichopodum* F.Muell., Trans. Roy. Soc. Victoria 1 (1889) 41. **Type:** *Macgregor 28*, Mt Victoria, Central, Papua New Guinea [MEL, lecto. (Parris, 1983); BM, K, isolecto.]. – *Grammitis trichopoda* (F.Muell.) Copel, Univ. Calif. Publ. Bot. 18 (1942) 224.

**97. *Oreogrammitis trogophylla*** (Copel.) Parris, *comb. nov.*

*Grammitis trogophylla* Copel., Univ. Calif. Publ. Bot. 18 (1942) 224. **Type:** *Clemens s.n.*, Mt Sarawaket, Morobe, Papua New Guinea (MICH, holo.).

**98. *Oreogrammitis tuyamae*** (H.Ohba) Parris, *comb. nov.*

*Grammitis tuyamae* H.Ohba, Sci. Rep. Tôhoku Univ. 4, 36 (1971) 121, f. 8.

**Type:** *Tuyama s.n.*, Minamiwojima, Volcano Is., Japan (TI, holo., *n. v.*).

**99. *Oreogrammitis uapensis*** (E.D.Br.) Parris, *comb. nov.*

*Polypodium hookeri* var. *uapense* E.D.Br., B. P. Bishop Mus. Bull. 89 (1931)

86. **Type:** *Jones 155A (1210)*, Ua Pou, Marquesas [BISH, lecto. (Parris 1997b)]. – *Grammitis uapensis* (E.D.Br.) Parris, Allertonia 7 (1997) 302.

**100. *Oreogrammitis universa*** (Baker) Parris, *comb. nov.*

*Polypodium universa* Baker, Annals Bot. 5 (1891) 464. **Type:** *Curtis 633*,

Penang, Peninsular Malaysia (K, lecto., chosen here). – *Grammitis universa* (Baker) Copel., Philipp. J. Sci. 80 (1952) 218.

**101. *Oreogrammitis velutina*** (Parris) Parris, *comb. nov.*

*Grammitis velutina* Parris, Kew Bull. 52 (2004) 220, f. 1 B. **Type:** *Johns 10678*, Mt Jaya, Papua (K, holo.; BO, *n. v.*, FRE, *n. v.*, MAN, *n. v.*, iso.).

**102. *Oreogrammitis viridula*** (Alderw.) Parris, *comb. nov.*

*Polypodium viridulum* Alderw., Nova Guinea 14 (1924) 41. **Type:** *Lam 1853*,

Mt Doorman, Papua [L, lecto. (Parris, 1983); BO, isolecto., *n. v.*]. – *Grammitis viridula* (Alderw.) Parris, Fern Gaz. 12 (1980) 118.

**103. *Oreogrammitis vittariifolia*** (C.Chr.) Parris, *comb. nov.*

*Polypodium minimum* Baker, J. Bot. 17 (1879) 41 *non* Aublet (1775). **Type:**

*Burbidge s.n.*, Labuan or Kinabalu, Sabah, Malaysia [K, lecto. (Parris, 1986);

BM, E, K, isolecto.]. – *Polypodium vittariifolium* C.Chr., Index Fil. (1906)

574, *nomen novum pro P. minimum* Baker (1879) *non* Aublet (1775). –

*Grammitis vittariifolia* (C.Chr.) Parris, Fern Gaz. 12 (1980) 118.

**104. *Oreogrammitis wallii*** (Beddome) Parris, *comb. nov.*

*Polypodium wallii* Beddome, Suppl. Ferns S India & Brit. India (1876) 20,

t. 380. **Type:** *Thwaites C. P. 3921*, Adam's Peak, Nuwara Eliya, Sri Lanka

[K, lecto. (Parris, 2002b); GH, isolecto., *n. v.*]. – *Grammitis wallii* (Beddome)

Copel., Philipp. J. Sci. 80 (1952) 240.

**105. *Oreogrammitis whitmeei*** (Baker) Parris, *comb. nov.*

*Polypodium whitmeei* Baker, J. Bot. 14 (1876) 12. **Type:** *Whitmee 124*, Samoa

(CGE, GH, *n. v.*, K). – *Grammitis whitmeei* (Baker) Copel., Philipp. J. Sci. 80

(1952) 150.

**106. *Oreogrammitis wurunuran*** (Parris) Parris, *comb. nov.*

*Grammitis wurunuran* Parris, Bot. J. Linn. Soc. 70 (1975) 40, f. 5 G & H. **Type:** Parris 3703 & Croxall, Mt Bellenden Ker, Queensland, Australia (BRI, holo.; K, iso.).

**107. *Oreogrammitis zeylanica*** (Fée) Parris, *comb. nov.*

*Grammitis zeylanica* Fée, Genera (1852) 234. **Type:** Gardner 56, Sri Lanka (BM, K, OXF, P). – *Polypodium zeylanicum* (Fée) Mett., Abhandl. Senckenb. Naturf. Gesell. 2 (1857) 38.

### Acknowledgements

I am most grateful to the Flora of Peninsular Malaysia project, Forest Research Institute of Malaysia, for a Visiting Research Fellowship to complete the account of Grammitidaceae for the Flora, which was the catalyst for this paper. I should like to thank the curators of A, AK, B, BISH, BM, BO, BRI, CANB, CGE, CHR, E, FI, GH, K, KEP, KLU, LAE, MEL, MICH, NSW, NY, P, PDA, PE, S, SAR, SING, TI, UC, US and WELT for the use of facilities to examine specimens and/or the loan of material. Special thanks are due to Ewen Cameron at AK for facilitating numerous loans.

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