

Additions to the pteridophyte flora of Thailand

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ABSTRACT. Recent fieldwork and a review of specimens previously collected from Thailand deposited at BCU, BKF and K has resulted in the discovery of 19 pteridophyte species previously unrecorded for Thailand.

INTRODUCTION

The pteridophytes were completed for the Flora of Thailand in four parts (Tagawa & Iwatsuki, 1979, 1985, 1988, 1989). 630 species were recognised as occurring in Thailand. Subsequently a number of papers have been published in which new taxa have been described or new records have been added to the pteridophyte diversity of Thailand (Mitsuta, 1985; Parris, 1998; Hovenkamp et al., 1998; Boonkerd & Nooteboom, 2001; Rachata & Boonkerd, 2001; Boonkerd & Pollawatn 2002a, 2002b; Lindsay & Middleton, 2004; Lindsay et al., 2004; Suksathan, 2004). Boonkerd & Pollawatn (2000) compiled a list with distribution maps and many photos of all the pteridophytes of Thailand in which an additional 27 species were included. This rate of addition of new taxa and new records to a recently completed flora account reflects the fact that pteridophytes are often neglected on traditional collecting trips and we urge all collectors in Thailand (and indeed elsewhere) to pay more attention to them.

The senior author of this paper has worked on Thai pteridophytes for many years. The other authors have been engaged in a collecting programme in southern Thailand where some of the specimens for these new records have been collected.

The following list includes only taxa not previously recorded as occurring in Thailand. For each we have listed the place of publication, the basionym where necessary, type details, and any collections of this taxon from Thailand. Most previous additions of new taxa for families already completed for the Flora of Thailand include descriptions. We have not done this because there are so many new taxa and because many of the other citations of new pteridophyte records for Thailand also lack descriptions thereby already breaking the completion of coverage. With so many taxa to be added to the Flora of Thailand what is needed is a comprehensive revision of the pteridophyte volumes, possibly in an interactive key and plant information format that will allow for frequent electronic updates.

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NEW PTERIDOPHYTE RECORDS FOR THAILAND

Type details are given below but we have not made any attempt to lectotypify taxa.

ADIANTACEAE

Adiantum latifolium Lam., Encycl. 1: 43. 1783. Type: French Caribbean, Guadeloupe, *Proctor* 20110 (neotype A!; photo LP; isoneotype US).

Thailand.— PENINSULAR: Narathiwat [Amphoe Su Ngai Kolok, *Niyomdham et al.* 944 (BKF, K)].

Doryopteris allenae R.M. Tryon, Contr. Gray Herb. 191: 91, f. 1–4. 1962. Type: Malaya, Perak, Gunong Idong, *Molesworth-Allen* 4736 (holotype GH!).

Thailand.— PENINSULAR: Yala [Amphoe Bannang Sata, *T. Boonkerd & R. Pollawatn* 216 (BCU)].

Taenitis interrupta Hook. & Grev., Icon. Filic. t. 63. 1828. Type: Singapore, *Wallich* 142 (K-W!).

Thailand.— PENINSULAR: Surat Thani [Ko Tao, *Kerr* 16043 (K)].

ASPLENIACEAE

Asplenium finlaysonianum Wall. ex Hook., Icon. Pl. 10: t. 937. 1854. Bangladesh, Sylhet, *Wallich* 2682 (K-W!).

Thailand.— PENINSULAR: Pattani [Ban Sai Khao, *Eryl Smith* 1961 (K)].

ATHYRIACEAE

Diplazium procumbens Holttum, Gard. Bull. Straits. Settle. 11(1): 95, f. 4. (1940). Type: Malaysia, Frasers Hill, *Holttum* S.F.N. 36503 (MICH!).

Thailand.— SOUTH-WESTERN: Phetchaburi [Kaeng Krachan National Park, trail from Khao Phanoen Thung Ranger substation to Than Thip Waterfall, *Middleton et al.* 1762 (A, BKF)].

CYATHEACEAE

Cyathea moluccana R. Br., Mém. Soc. Linn. Paris 6: 322. 1827. Type: Moluccas, *C. Smith* s.n. (BM!).

Thailand.— PENINSULAR: Narathiwat [Amphoe Waeng, Sirindhorn Falls, *T. Boonkerd & R. Pollawatn* 263 (BCU)].

DAVALLIACEAE

Davallia embolostegia Copel., Philipp. J. Sci. 1(Suppl. 2): 147, t. 3. 1906. Type: Philippines, Luzon, Lepanto, Bagnen, *Copeland* 1914 (MICH!).

Thailand.— EASTERN: Nakhon Ratchasima [Amphoe Pak Chong, Khao Yai National Park, *T. Boonkerd & R. Pollawatn* 349 (BCU)].

DRYOPTERIDACEAE

Arachniodes conifolia (T. Moore) Ching, Acta Bot. Sin. 10: 257. 1962.— *Lastrea conifolia* T. Moore, Index Filicum (T. Moore) 88 (1857). Type: Nepal, *Wallich* 341 (K-W!).

Thailand.— SOUTH-WESTERN: Kanchanaburi [Amphoe Thong Pha Phum, Thong Pha Phum National Park, *A. Sathapattayanon* 32 (BCU)].

Dryopteris diffracta (Baker) C. Chr., Index Filic. 262. 1905.— *Nephrodium diffractum* Baker, Kew Bull. 1898: 230. 1898. Type: China, Yunnan, Mengtze, *Henry* 9028 (K!).

Thailand.— NORTHERN: Phitsanulok [Phu Hin Rong Kla National Park, *T. Boonkerd & R. Pollawatn* 62 (BCU)].

Polystichum scariosum (Roxb.) C.Morton, Contr. U.S. Natl. Herb. 38(7): 359. 1974.— *Polypodium scariosum* Roxb., Calcutta J. Nat. Hist. 4: 494. 1844. Type: Amboyna (but see Morton's discussion of the collecting locality), *Roxburgh* s.n. (BR, G).

Thailand.— PENINSULAR: Kanchanaburi [Amphoe Thong Pha Phum, Thong Pha Phum National Park, *A. Sathapattayanon* 143 (BCU)].

GLEICHENIACEAE

Gleichenia hirta Blume, Enum. Pl. Javae 250. 1828. Type: Moluccas, Island of Tidore, *Reinwardt* s.n. (L!).

Thailand.— PENINSULAR: Trang [Amphoe Yan Ta Khao, Khao Banthat Mountains, summit area of Phu Pha Mek, *Middleton et al.* 2028 (A, BKF)].

LINDSAEACEAE

Lindsaea dissectiformis Ching, *Sinensia* 1(4): 52. 1930. Type: China, Hainan, Hung Mo Shan, *F.A. McClure* 18312 (A!).

Thailand.— PENINSULAR: Trang [Amphoe Yan Ta Khao, Khao Banthat Mountains, trail to summit of Phu Pha Mek, *Middleton et al.* 1970 (A, BKF)].

MARATTIACEAE

Angiopteris angustifolia C. Presl, *Suppl. Tent. Pterid.*, 21. 1845. Type: Philippines, Luzon, *Cuming* 18 (K).

Thailand.— PENINSULAR: Narathiwat [Amphoe Waeng, Sirindhorn Falls, *T. Boonkerd & R. Pollawatn* 235 (BCU)].

OSMUNDACEAE

Osmunda javanica (C. Presl) Blume, *Enum. Pl. Javae*. 252. 1828.— *Plenasium javanicum* C. Presl, *Abh. Böhm. Ges. Wiss.* 5: 325. 1848. Type: Indonesia, Java, Gunung Salak, *Anon.* s.n. [Leiden accession number 908310172] (L!).

Thailand.— PENINSULAR: Narathiwat [Amphoe Waeng, Sirindhorn Falls, *T. Boonkerd & R. Pollawatn* 251 (BCU)].

POLYPODIACEAE

Aglaomorpha drynarioides (Hook.) Roos, *Blumea* 31(1): 153. 1985.— *Acrostichum drynarioides* Hook., *Sp. Fil.* 5: 284. 1864. Type: Malaysia, Penang, *Norris* s.n. (K!).

Thailand.— PENINSULAR: Narathiwat [Amphoe Bacho, Budo-Su-ngai Padi National Park, *T. Boonkerd & R. Pollawatn* 340 (BCU)].

Belvisia spicata (L. f.) Mirbel ex Copel., *Gen. Fil.* 192. 1947.— *Acrostichum spicatum* L. f., *Suppl. Pl.* 444. 1781. Type: Mauritius, *Commerson* s.n. (P!).

Thailand.— SOUTH-WESTERN: Kanchanaburi [Amphoe Thong Pha Phum, Thong Pha Phum National Park, *A. Sathapattayanon* 67 (BCU)].

Microsorium insigne (Blume) Copel., *Univ. Calif. Publ. Bot.* 16(2): 112. 1929.— *Polypodium insigne* Blume, *Enum. Pl. Javae* 127 (1828). Type: Indonesia, Java, *Zippelius* s.n. (L!).

Thailand.— NORTHERN: Phitsanulok [Phu Hin Rong Kla National Park, *T. Boonkerd* 1732 (BCU)].

Pyrrosia rasamalae (Racib.) K. H. Shing, Amer. Fern J. 73(3): 78. 1983.—
Polypodium rasamalae Racib., Pteridoph. Buitenzorg 99. 1898. Type: Indonesia, Java,
Telagabodas, *Raciborski* 83 (BO, K!, L!, M, P!, US).

Thailand.— NORTHERN: Tak [Amphoe Umphang, *T. Boonkerd* 1250, 1332 (BCU, L)]; SOUTH-WESTERN: Phetchaburi [Amphoe Kaeng Krachan, Kaeng Krachan National Park, Khao Phanoen Thung Lookout, *Middleton et al.* 1803 (A, BKF)].

Selliguea stenophylla (Blume) B.S.Parris in Parris, Beaman & Beaman (eds), The Plants of Mt Kinabalu I. Ferns & Fern Allies 151. 1991.— *Polypodium stenophyllum* Blume, Enum. Pl. Javae 124. 1828. Type: Indonesia, Java, *Blume* s.n. (L!).

Thailand.— PENINSULAR: Narathiwat [Amphoe Bacho, Budo-Su-ngai Padi National Park, *T. Boonkerd & R. Pollawatn* 209 (BCU)].

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REFERENCES

- Boonkerd, T. & Nootboom, H. P. 2001. A new species of *Microsorium* (Polypodiaceae) from Thailand. *Blumea* 46: 581–583.
- Boonkerd, T. & Pollawatn, R. 2000. Pteridophytes in Thailand. Office of Environmental Policy and Planning, Bangkok.
- _____. 2002a. *Leptochilus minor* Fée (Polypodiaceae), a new record for Thailand. *The Natural History Journal of Chulalongkorn University* 2: 1–3.
- _____. 2002b. The first record of *Pteridium aquilinum* (L.) Kuhn var. *latiusculum* (Desv.) Underw. ex A.Heller (Dennstaedtiaceae) in Thailand. *Thai Forest Bulletin (Botany)* 30: 72–74.
- Hovenkamp, P. H. et al. 1998. Polypodiaceae. In: Kalkman, C. et al. (eds), *Flora Malesiana, Series II, Ferns and Fern Allies, Volume 3*, Rijksherbarium/Hortus Botanicus, Leiden.
- Lindsay, S. & Middleton, D. J. 2004. *Adiantum phanomensis* (Adiantaceae), a new fern species from Peninsular Thailand. *Harvard Papers in Botany* 8: 137–140.
- Lindsay, S., Suddee, S., Middleton, D. J. & Pooma, R. 2003, publ. 2004. Matoniaceae (Pteridophyta) - a new family record for Thailand. *Thai Forest Bulletin (Botany)* 31: 47–52.

- Mitsuta, S. 1985. Nine new records of ferns to Thailand flora. *Acta Phytotaxonomica et Geobotanica* 36(4–6): 148.
- Parris, B. S. 1998. The addition of *Acrosorus streptophyllus* (Baker) Copel. (Grammitidaceae: Pteridophyta) to the flora of Thailand. *Fern Gazette* 15(6): 215–216.
- Rachata, P. & Boonkerd, T. 2001. *Selaginella ciliaris* (Retz.) Spring (Selaginellaceae), a new record for Thailand. *Thai Forest Bulletin (Botany)* 29: 38–39.
- Suksathan, P. 2004. A new species of *Adiantum* (Pteridaceae) from Thailand. *American Fern Journal* 94(2): 77–80.
- Tagawa, M. & Iwatsuki, K. 1979. In: Smitinand, T. & Larsen, K. (eds), *Flora of Thailand*, Vol. 3, part 1. Royal Forest Department, Bangkok.
- _____. 1985. In: Smitinand, T. & Larsen, K. (eds), *Flora of Thailand*, Vol. 3, part 2. Royal Forest Department, Bangkok.
- _____. 1988. In: Smitinand, T. & Larsen, K. (eds), *Flora of Thailand*, Vol. 3, part 3. Royal Forest Department, Bangkok.
- _____. 1989. In: Smitinand, T. & Larsen, K. (eds), *Flora of Thailand*, Vol. 3, part 4. Royal Forest Department, Bangkok.