

Nomenclature Changes for Some Pteridophytes of Taiwan

Chen-Meng Kuo⁽¹⁾

(Manuscript received 8 June, 2002; accepted 20 June, 2002)

ABSTRACT: In the preparation of the Manual of Taiwan Vascular Plants, name changes for 17 pteridophytes are needed. New names are as follows: *Huperzia taiwanense* (C. M. Kuo) C. M. Kuo, *Cyclosorus auriculata* (J. Sm.) C. M. Kuo, *Cyclosorus cuspidatum* (Blume) C. M. Kuo, *Cyclosorus dictyoclinoides* (Ching) C. M. Kuo, *Cyclosorus erubescens* (Wall. ex Hook.) C. M. Kuo, *Cyclosorus esquirolii* (H. Christ) C. M. Kuo, *Cyclosorus griffithii* (Moore) C. M. Kuo, *Cyclosorus gymnopteridifrons* (Hayata) C. M. Kuo, *Cyclosorus insularis* (K. Iwats.) C. M. Kuo, *Cyclosorus longipetiolatum* (K. Iwats.) C. M. Kuo, *Cyclosorus omeiensis* (Baker) C. M. Kuo, *Cyclosorus pozoii* (Lag.) C. M. Kuo, *Cyclosorus tottoides* (H. Ito) C. M. Kuo, *Polystichum acuminatum* (Diels) C. M. Kuo, *Polystichum nervosum* (Ching & K. H. Shing) C. M. Kuo, *Polystichum taiwanense* (Tagawa) C. M. Kuo, and *Tectaria harlandii* (Hook.) C. M. Kuo.

KEY WORD: Taiwan, Pteridophytes, New combination.

INTRODUCTION

In the preparation of the Manual of Taiwan Vascular plants, the author realized that name changes of some species in the flora of Taiwan volume 1 (Huang, 1994) should be made because of either previous illegitimate nomenclature or new treatment in latest publications. The name changes and related notes of some pteridophytes are as follows.

NOMENCLATURE

1. *Huperzia taiwanense* (C. M. Kuo) C. M. Kuo, *comb. nov.*

Lycopodium taiwanense C. M. Kuo, *Taiwania* 30: 51-52. 1985; Tsai & Shieh in *Fl. Taiwan* (2nd ed.) 1: 43. 1994.

Phlegmariurus taiwanensis Ching, *Acta Bot. Yunnan.* 4: 124. 1982, *nom. nud.*.

Huperzia taiwanensis (Ching) Holub, *Folia Geobot. Phytotax.* 20: 77. 1985, *nom. nud.*.

Huperzia formosana Holub, *Folia Geobot. Phytotax.* 26: 92. 1991, *nom. illeg.*.

Lycopodium pulcherrimum auct. non Wall. ex Hook. & Grev.: Hayata, *Icon. Pl. Form.* 4: 132. 1914; DeVol in *Fl. Taiwan* 1: 33. 1975.

According to the most recent classification (Ollgaard, 1987) and molecular study (Wikström and Kenrick, 2001) of the Lycopodiaceae, this species is better regarded as a *Huperzia* species. When the name *Lycopodium taiwanense* was published (Kuo, 1985), the author indicated that Ching's name was invalid because Hayata (1914) had neither published a new name nor provided Latin description. As a result, Holub's subsequent name treatments (Holub, 1985, 1991) were illegitimate and a new combination is needed.

1. Department of Botany, National Taiwan University, Taipei 106, Taiwan. e-mail: kuocm@ccms.ntu.edu.tw

2. *Cyclosorus auriculata* (J. Sm.) C. M. Kuo, *comb. nov.*

Phegopteris auriculata J. Sm., Hist. Fil. 233. 1875.

Thelypteris auriculata (J. Sm.) K. Iwats. Acta Phytotax. Geobot. 19: 11. 1961; Tsai & Shieh in Fl. Taiwan (2nd ed.) 1: 405. *pl.* 163. 1994.

Cyclogramma auriculata (J. Sm.) Ching, Acta Phytotax. Sin. 8: 317. 1963; Kuo in Fl. Taiwan 1: 408. *pl.* 138. 1975.

3. *Cyclosorus cuspidatum* (Blume) C. M. Kuo, *comb. nov.*

Meniscium cuspidatum Blume, Enum. Pl. Javae 2: 114. 1828.

Abacopteris cuspidata (Blume) Ching, Bull. Fan Mem. Inst. Biol., Bot. 8: 245. 1938.

Phegopteris cuspidata (Blume) Mett., Farn. Pheg. 4: 25. 1858.

Pronephrium cuspidatum (Blume) Holttum, Blumea 20: 123. 1972; Tsai & Shieh in Fl. Taiwan (2nd ed.) 1: 396. 1994.

4. *Cyclosorus dictyoclinoides* (Ching) C. M. Kuo, *comb. nov.*

Stegnogramma dictyoclinoides Ching, Sinensia 7: 92. 1936; Tsai & Shieh in Fl. Taiwan (2nd ed.) 1: 403. *pl.* 162. 1994.

Thelypteris dictyoclinoides (Ching) C. M. Kuo, Taiwania 30: 60. 1985.

5. *Cyclosorus erubescens* (Wall. ex Hook.) C. M. Kuo, *comb. nov.*

Polypodium erubescens Wall. ex Hook., Sp. Fil. 4: 236. 1862.

Phegopteris erubescens (Wall. ex Hook.) J. Sm., Hist. Fil. 233. 1875.

Thelypteris erubescens (Wall. ex Hook.) Ching, Bull. Fan Mem. Inst. Biol., Bot. 6: 293. 1936; Tsai & Shieh in Fl. Taiwan (2nd ed.) 1: 405. *pl.* 164. 1994.

Glaphyroidopsis erubescens (Wall. ex Hook.) Ching, Acta Phytotax. Sin. 8: 320. 1963; Kuo in Fl. Taiwan 1: 413. *pl.* 141. 1975.

6. *Cyclosorus esquirolii* (H. Christ) C. M. Kuo, *comb. nov.*

Dryopteris esquirolii H. Christ, Bull. Acad. Int. Geogr. Bot. 17: 144. 1907.

Thelypteris esquirolii (H. Christ) Ching, Bull. Fan Mem. Inst. Biol., Bot. 6: 301. 1936; Tsai & Shieh in Fl. Taiwan (2nd ed.) 1: 408. *pl.* 165. 1994.

Pseudocyclosorus esquirolii (H. Christ) Ching, Acta Phytotax. Sin. 8: 324. 1963; Kuo in Fl. Taiwan 1: 434. *pl.* 153. 1975.

7. *Cyclosorus griffithii* (Moore) C. M. Kuo, *comb. nov.*

Dictyocline griffithii T. Moore, Index Fil. 1: 59. 1857; Tsai & Shieh in Fl. Taiwan (2nd ed.) 1: 379. *pl.* 151. 1994.

Stegnogramma griffithii (T. Moore) K. Iwats., Mem. Coll. Sci. Kyoto Imp. Univ., Ser. B, Biol. 31: 20. 1964.

Thelypteris griffithii (T. Moore) C. F. Reed, Phytologia 17: 280. 1968.

8. *Cyclosorus gymnopteridifrons* (Hayata) C. M. Kuo, *comb. nov.*

Dryopteris gymnopteridifrons Hayata, Icon. Pl. Form. 8: 148. 1919.

Abacopteris gymnopteridifrons (Hayata) Ching, Bull. Fan Mem. Inst. Biol., Bot. 8: 251. 1938.

Pronephrium gymnopteridifrons (Hayata) Holttum, Blumea 20: 112. 1972; Kuo in Fl. Taiwan 1: 429. *pl.* 105. 1975.

Thelypteris gymnopteridifrons (Hayata) C. M. Kuo, Taiwania 30: 61. 1985.

Pronephrium aspera (Pr.) Shieh & Tsai in Fl. Taiwan (2nd ed.) 1: 394. *pl.* 158. 1994.

9. *Cyclosorus insularis* (K. Iwats.) C. M. Kuo, *comb. nov.*

Abacopteris insularis K. Iwats., Acta Phytotax. Geobot. 18: 6. 1959.

Thelypteris insularis (K. Iwats.) K. Iwats., Mem. Coll. Sci. Kyoto Imp. Univ., Ser. B, Biol. 31: 195. 1965.

Pronephrium insularis (K. Iwats.) Holttum, Blumea 20: 123. 1972; Tsai & Shieh in Fl. Taiwan (2nd ed.) 1: 396. 1994.

10. *Cyclosorus longipetiolatum* (K. Iwats.) C. M. Kuo, *comb. nov.*

Abacopteris longipetiolata K. Iwats., Acta Phytotax. Geobot. 18: 11. 1959.

Thelypteris longipetiolata (K. Iwats.) K. Iwats., Mem. Coll. Sci. Kyoto Imp. Univ., Ser. B, Biol. 31: 194. 1965.

Pronephrium longipetiolatum (K. Iwats.) Holttum, Blumea 20: 123. 1972; Tsai & Shieh in Fl. Taiwan (2nd ed.) 1: 397. 1994.

11. *Cyclosorus omeiensis* (Baker) C. M. Kuo, *comb. nov.*

Polypodium omeiense Baker, J. Bot. 26: 229. 1888.

Leptogramma omeiensis (Baker) Tagawa, J. Jap. Bot. 12: 748. 1936.

Thelypteris omeiensis (Baker) Ching, Bull. Fan Mem. Inst. Biol., Bot. 6: 282. 1936; Tsai & Shieh in Fl. Taiwan (2nd ed.) 1: 410. 1994.

Cyclogramma omeiensis (Baker) Tagawa, Acta Phytotax. Geobot. 7: 53. 1938; Kuo in Fl. Taiwan 1: 410. 1975.

Glaphyopteris omeiensis (Baker) H. Ito, Nov. Fl. Jap. 4: 149. 1938.

12. *Cyclosorus pozoi* (Lag.) C. M. Kuo, *comb. nov.*

Hemionitis pozoi Lag., Gen. Sp. Pl. 33. 1816.

Thelypteris pozoi (Lag.) C.V. Morton, Bull. Soc. Bot. France 106: 234. 1959.

Stegnogramma pozoi (Lag.) K. Iwats., Acta Phytotax. Geobot. 19: 124-125. 1963.

Leptogramma pozoi (Lag.) Ching, Acta Phytotax. Sin. 8: 318. 1963; Tsai & Shieh in Fl. Taiwan (2nd ed.) 1: 381. 1994.

13. *Cyclosorus tottoides* (H. Ito) C. M. Kuo, *comb. nov.*

Leptogramma tottoides Hayata ex H. Ito, Bot. Mag. (Tokyo) 49: 434. 1935; Tsai & Shieh in Fl. Taiwan (2nd ed.) 1: 382. *pl.* 152. 1994.

Stegnogramma tottoides (Hayata ex H. Ito) K. Iwats., Acta Phytotax. Geobot. 19: 121. 1963.

Thelypteris tottoides (Hayata ex H. Ito) C. V. Morton, Amer. Fern J. 56: 179. 1966.

As Smith (1990) indicated, the genera delimitation proposed by Holttum (1971, 1982) is too microscopic and difficult to be applied. In addition, some intergeneric hybridizations were suspected and transitional species were known (Smith, 1990), so the broad generic delimitation is preferred. The above combinations, therefore, are provided.

14. *Polystichum acuminatum* (Diels) C. M. Kuo, *comb. nov.*

Polystichum falcatum (L. f.) Diels forma *acuminatum* Diels, Bot. Jahrb. Syst. 29: 195. 1900.

Cyrtomium macrophyllum (Makino) Tagawa var. *acuminatum* (Diels) Tagawa, Acta Phytotax. Geobot. 7: 78. 1938; Shieh, DeVol & Kuo in Fl. Taiwan (2nd ed.) 1: 314. 1994.

15. *Polystichum nervosum* (Ching & K. H. Shing) C. M. Kuo, *comb. nov.*

Cyrtomium nervosum Ching & K. H. Shing, Acta Phytotax. Sin., Addit. 1: 46. 1965.

Cyrtomium longipes Ching & K. H. Shing, Acta Phytotax. Sin., Addit. 1: 47. 1965.

16. *Polystichum taiwanense* (Tagawa) C. M. Kuo, *comb. nov.*

Cyrtomium taiwanense Tagawa, Acta Phytotax. Geobot. 7: 78. 1938; Shieh, DeVol & Kuo in Fl. Taiwan (2nd ed.) 1: 314. 1994.

The generic characters of *Cyrtomium* were indicated as neither sufficiently correlated nor constant (Kramer *et al.*, 1990), therefore, a new combination is provided here for the only Taiwanese *Cyrtomium* species without available *Polystichum* specific name.

17. ***Tectaria harlandii* (Hook.) C. M. Kuo, *comb. nov.***

Acrostichum harlandii Hook., Sp. Fil. 5: 274. 1864.

Gymnopteris decurrens Hook., Hooker's J. Bot. Kew Gard. Misc. 9: 359. 1857.

Hemigramma decurrens (Hook.) Copel., 37: 404. 1928; Tsai & Shieh in Fl. Taiwan (2nd ed.) 1: 288. *pl.* 122. 1994., non *Tectaria decurrens* (C. Presl) Copel. 1907 (based on *Aspidium decurrens* C. Presl 1825).

Hemigramma was reduced into a synonym of *Tectaria* in the work of Kramer *et al.* (1990). However, the epithet of the species known as *H. decurrens* (Hook.) Copel. could not be used in *Tectaria* because a early homonym is there. As a result, the next available epithet *harlandii* is chosen.

LITERATURE CITED

- Ching, R.-C. 1981/1982. The taxonomy of Chinese Lycopodiaceae (*sens. lat.*). I-IV. Acta Bot. Yunnan. **3**:1-9, 291-305; **4**:119-128, 213-226.
- Hayata, B. 1914. Icones plantarum Formosanarum nec non et contributiones ad floram Formosanam **IV**: 132.
- Holttum, R. E. 1971. Studies in the family Thelypteridaceae III. A new system of genera in the Old World. Blumea **19**: 17-52.
- Holttum, R. E. 1982. Thelypteridaceae. Flora Malesiana II, **1**: 334-560.
- Holub, J. 1985. Transfers of *Lycopodium* species to *Huperzia*: with a note on generic classification in Huperziaceae. Folia Geobot. Phytotax. **20**: 67-80.
- Holub, J. 1991. Some taxonomic changes in Lycopodiales. Folia Geobot. Phytotax. **26**: 81-94.
- Huang, T.-C. (ed.) 1994. Flora of Taiwan, 2nd ed. Vol. 1, 648pp. Editorial Committee of the Flora of Taiwan, Taipei.
- Kramer, K. U., R. E. Holttum, R. C. Moran and A. R. Smith. 1990. Dryopteridaceae. In: Kramer, K. U. and P. S. Green (eds.). The Families and Genera of Vascular Plants. I. Pteridophytes and Gymnosperms. Pp. 101-144. Springer-Verlag, Berlin.
- Kuo, C.-M. 1985. Taxonomy and phylogeography of Taiwanese pteridophytes. Taiwania **30**: 5-100.
- Ollgaard, B. 1987. A revised classification of the Lycopodiaceae *s. lat.* Opera Bot. **92**: 153-178.
- Smith, A. R. 1990. Thelypteridaceae. In: Kramer, K. U. and P. S. Green (eds.). The Families and Genera of Vascular Plants. I. Pteridophytes and Gymnosperms. Pp. 263-272. Springer-Verlag, Berlin.
- Wikström, N. and P. Kenrick. 2001. Evolution of Lycopodiaceae (Lycopsidea): Estimating divergence times from rbcL gene sequences by use of nonparametric rate smoothing. Mol. Phyl. Evol. **19**:177-186.

台灣部分蕨類之名稱變更

郭城孟⁽¹⁾

(收稿日期：2002 年 6 月 8 日；接受日期：2002 年 6 月 20 日)

摘 要

十七種台灣蕨類的名稱在編撰台灣維管束植物簡誌時發現需要變更，它們是台灣石松(線葉蔓石松)(*Huperzia taiwanense* (C. M. Kuo) C. M. Kuo)、耳羽鉤毛蕨(*Cyclosorus auriculata* (J. Sm.) C. M. Kuo)、頂芽新月蕨(*Cyclosorus cuspidatum* (Blume) C. M. Kuo)、溪邊蕨(*Cyclosorus dictyoclinoides* (Ching) C. M. Kuo)、方桿蕨(*Cyclosorus erubescens* (Wall. ex Hook.) C. M. Kuo)、假毛蕨(*Cyclosorus esquirolii* (H. Christ) C. M. Kuo)、聖蕨(*Cyclosorus griffithii* (Moore) C. M. Kuo)、大羽新月蕨(*Cyclosorus gymnopteridifrons* (Hayata) C. M. Kuo)、變葉新月蕨(*Cyclosorus insularis* (K. Iwats.) C. M. Kuo)、長柄新月蕨(*Cyclosorus longipetiolatum* (K. Iwats.) C. M. Kuo)、狹基鉤毛蕨(*Cyclosorus omeiensis* (Baker) C. M. Kuo)、非洲伏蕨(*Cyclosorus pozoi* (Lag.) C. M. Kuo)、尾葉伏蕨(*Cyclosorus tottoides* (H. Ito) C. M. Kuo)、尖葉貫眾蕨(*Polystichum acuminatum* (Diels) C. M. Kuo)、顯脈貫眾蕨(*Polystichum nervosum* (Ching & K.H. Shing) C. M. Kuo)、台灣貫眾蕨(*Polystichum taiwanense* (Tagawa) C. M. Kuo)、沙皮蕨(*Tectaria harlandii* (Hook.) C. M. Kuo)。

關鍵詞：台灣、蕨類、新組合。

1. 國立台灣大學植物學系，台北市 106，台灣。e-mail: kuocm@ccms.ntu.edu.tw