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Cyatheaceae Kaulf., *Wesen Farrenkr.*: 119. 1827.

Type:—*Cyathea* Sm., *Mém. Acad. Roy. Sci. (Turin)* 5: 416. 1793.

Sphaeropteris Bernh., *J. Bot. (Schrader)* 1800(2): 122. 1801.

1. ***Sphaeropteris gardneri*** (Hook.) R.M.Tryon, *Contr. Gray Herb.* 200: 20. 1970. **E!**

Cyathea gardneri Hook., *Sp. Fil. [W. J. Hooker]* 1: 21. 1844, not *Cyathea gardneri* (Hook.) Lellinger, *Amer. Fern J.* 77(3): 94. 1987 [1988] Type:—BRAZIL. Minas Gerais: Without locality, *Gardner* S328 (holotype BM, isotype F)

Cyathea mamillata Fée, *Crypt. Vasc. Bresil* 1: 176. 1869. Type:—BRAZIL. Rio de Janeiro: Serra Caraça, *Glaziou* 247 (holotype not located, isotypes BR-6978235/-6977535, P-00642530).

Cyathea attenuata Fée, *Crypt. Vasc. Bresil* 1: 178. 1869. Type:—BRAZIL. Minas Gerais: Without locality, 1844, *Weddell* 1062 (holotype not located, isotype P-00642529).

Distribution and habitat:—Endemic; Mato Grosso, Minas Gerais, Rio de Janeiro and São Paulo at 450–600 m.

Remarks:—Lellinger (1987) erroneously recombined the name *Trichopteris gardneri* (Hook.) R.M.Tryon, *Contr. Gray Herb.* 200: 45. 1970, to *Cyathea gardneri*, oblivious of the earlier homonym. The currently valid name for that species is *C. mexiae* Copel., *Univ. Calif. Publ. Bot.* 17: 30. 1932. The homonym was the reason that Forzza *et al.* (2010) did not list *Sphaeropteris gardneri* in their account, thus omitting an endemic species for Brazil.

Prado & Labiak (2001) corrected the name of the collector of the type specimen of *Cyathea mamillata* and gave a concise description of the species.

Alsophila R.Br., *Prodr. Fl. Nov. Holland.*: 158. 1810.

2. ***Alsophila capensis*** (L.f.) J.Sm. subsp. ***polypodioides*** (Sw.) D.S.Conant, *J. Arnold Arbor.* 64(3): 369. 1983. **E!**

Cyathea polypodioides Sw., *Kongl. Vetensk. Acad. Handl.* 1817(1): 78. 1817. Type:—BRAZIL. Minas Gerais: Villa Rica, *Freyreis s.n.* (holotype S).

Hemitelia gardneriana C.Presl, *Abh. Boehm. Ges. Wiss. V.* 5: 320. 1848. Type:—BRAZIL. Rio de Janeiro: Serra dos Orgãos, *Gardner* 5954 (holotype not located, isotypes P, US-photo GH).

Distribution and habitat:—Endemic; Minas Gerais, Rio de Janeiro, São Paulo, Paraná, Santa Catarina, Rio Grande do Sul at 120–1000 m in sheltered spots with forests, along creeks and in gorges, also directly on sandstone cliffs. This species does not tolerate frosts or direct sun.

3. ***Alsophila cuspidata*** (Kunze) D.S.Conant, *J. Arnold Arbor.* 64: 371. 1983. *Cyathea cuspidata* Kunze, *Linnaea* 9: 101.

1834. *Nephelea cuspidata* (Kunze) R.M.Tryon, *Contr. Gray Herb.* 200: 40. 1970. Type:—PERU. Loreto: Prov. Maynas, February 1831, *Poeppig diar.* 2286 (holotype LZ, destroyed, isotypes B, P-photo GH).

Distribution and habitat:—Acre at 50–100 m, expected from Pará and Amazonas, in lowland rain forests, premontane forests and gallery forests; also Nicaragua, Costa Rica, Panama, Colombia, French Guyana, Ecuador, Peru and Bolivia.

Remarks:—Previously reported from Paraguay (Gastony 1973) but these records are based on *Alsophila sternbergii*.

4. ***Alsophila salvinii*** Hook., *Syn. Fil.* 36. 1866. Type: Type:—GUATEMALA. Baja Verapaz: Chilasco, 1862 [1852?], *O. Salvin & F.C. Godman n. 4β* (holotype K-000589753/-000589754, possible isotype GH *n.v.*).

Distribution and habitat:—Minas Gerais at 1150–1200(–1600) m in cool humid forests; also in southern Mexico, Chiapas, Guatemala, Belize, Honduras, El Salvador and Nicaragua, with disjunct populations in northern and central Peru at 900–2600 m.

Remarks:—For further discussion see Schwartsburd *et al.* (2015).

5. ***Alsophila setosa*** Kaulf., *Enum. Filic.* 249. 1824. *Cyathea setosa* (Kaulf.) Domin, *Pteridophyta*: 264. 1929. *Nephelea setosa* (Kaulf.) R.M.Tryon, *Contr. Gray Herb.* 200: 40. 1970. Type:—BRAZIL. Without locality, *Chamisso s.n.* (holotype LZ, destroyed, isotypes B, P-00631633).

Hemitelia setosa (Kaulf.) Mett., *Fil. Lechl.* 2: 30. 1859. Type:—BRAZIL. Without locality, without date, *Sellow s.n.* (holotype not located, isotype K-000589889).

Lophosoria dorsalis Fée, *Crypt. Vasc. Bresil* 1: 173. 1869. *Alsophila dorsalis* (Fée) Christ, *Bull. Herb. Boissier II.* 2: 648. 1902. *Cyathea dorsalis* (Fée) Domin, *Pteridophyta*: 262. 1929. Type:—BRAZIL. Without locality, without date, *Glaziou* 228 (holotype P-00642503).

Cyathea leucosticta Fée, *Crypt. Vasc. Bresil* 1: 182. 1869. Type:—BRAZIL. Rio de Janeiro: “In Brasilia fluminensi, Tijuca,” *Glaziou*

6. ***Alsophila sternbergii*** (Sternb.) D.S.Conant, J. Arnold Arbor. 64(3): 371. 1983.

6.1. ***Alsophila sternbergii*** var. ***sternbergii***. *Cyathea sternbergii* Sternb., Vers. Fl. Vorwelt 1: 47. 1820. *Nephelea sternbergii* (Sternb.) R.M.Tryon, Contr. Gray Herb. 200: 40. 1970. Type:—BRAZIL. Minas Gerais: “Habitat in Brasiliae Capitania Goyaz ad Limoero non procul St. Izidro”, *Pohl s.n.* (holotype W, isotypes BM, BR, PRC).

Cyathea hassleriana Christ, Bull. Herb. Boissier II. 7: 926. 1907. Type:—PARAGUAY. La Cordillera, near Caacupe, September, *Hassler 120* (holotype P, isotype S-PA).

Cyathea caesariana Christ, Denkschr. Kaiserl. Akad. Wiss., Wien. Math.-Naturwiss. Kl. 79: 18, 1908. *Hemitelia caesariana* (Christ) A.Samp., Bol. Mus. Nac. Rio Janeiro 1: 19. 1923. Type:—BRAZIL. São Paulo: “In circuitu urbis Cerqueira-Cesar”, July 1901, *Wettstein 3* (= *Wettstein & Schiffner s.n.*?) (lectotype P-00642405).

Cyathea rojasii Christ, Repert. Spec. Nov. Regni Veg. 6: 348. 1909. Type:—PARAGUAY. Amambay: Sierra de Amambay, April 1904, *Hassler 10414* (lectotype P-00642406/-00642408/-00631643/-00631644, designated by Gastony 1973: 133, isolectotype UC-477996).

Cyathea schizolepis Copel., Univ. Calif. Publ. Bot. 17: 27. 1932. Type:—BRAZIL. Minas Gerais: Viçosa, Fazenda de Aguada, 725 m, *Mexia 5059* (holotype UC-4660087/-466090, isotypes F, GH, MO, NY, US).

Distribution and habitat:—Goiás, Minas Gerais, Rio de Janeiro, São Paulo, in the understory of Mata Atlântica and in gallery forests at 500–1300 m; also in Argentina and Paraguay.

6.2. ***Alsophila sternbergii*** var. ***acanthomelas*** (Fée) D.S.Conant, J. Arnold Arbor. 64(3): 371. 1983. **E!**

Cyathea acanthomelas Fée, Crypt. Vasc. Bresil 1: 177. 1869. *Nephelea sternbergii* (Sternb.) R.M.Tryon forma *acanthomelas* (Fée) Brade, Bradea 1 (10): 74. 1971. *Nephelea sternbergii* (Sternb.) R.M.Tryon var. *acanthomelas* (Fée) Gastony, Contr. Gray Herb. 203: 135. 1973. Type:—BRAZIL. Rio de Janeiro: “In Brasilia Fluminensi”, Corcovado, 19 March 1865, *Glaziov 379* (holotype P-00642403, isotypes K-000589892, P-00642404 & -02142016, S-06-936, US).

Cyathea sampaioana Brade & Rosenst., Bol. Mus. Nac. Rio 7: 137. 1931. Type:—BRAZIL. Rio de Janeiro: Teresópolis, 17 October 1929, *Brade 9601* (holotype PH- 00009177 ?, isotype UC-4423990).

Distribution and habitat:—Endemic; Pernambuco, Bahia, Rio de Janeiro, Paraná, Santa Catarina at 400–700 m.

Cyathea Sm., Mém. Acad. Roy. Sci. (Turin) 5: 416. 1793. *Incl. Hymenophyllopsis* K.I.Goebel, Flora 124: 3. 1929. *Cyathea* subgenus *Hymenophyllopsis* (K.I.Goebel) Christenh., Phytotaxa 1: 38. 2009.

Incl. Cnemidaria C.Presl, Tent. Pterid.: 56. 1836.

Group I. ***Hymenophyllopsis*** clade

[***Cyathea asplenoides*** (A.C.Sm.) Christenh., Phytotaxa 1: 39. 2009.]

Hymenophyllopsis asplenoides A.C.Sm. in Gleason, Bull. Torrey Bot. Club 58: 302, 1931. *Asplenium asplenoides* (A.C.Sm.) Pitt. in Pitt., Lasser *et al.* Cat. Fl. Venez. 1: 45. 1945. Type:—VENEZUELA. Amazonas: Summit of Mount Duida, 5500–6000 ft, *Tate 439* (holotype NY- fragments BM, M n.v., US).

Distribution:—Not native but to be expected; on Mt. Roraima and other tepuis, in Venezuela (Amazonas, Bolívar) and Guyana, in rock crevices, 1650–2450 m.

[***Cyathea ctenitoides*** (Lellinger) Christenh., Phytotaxa 1: 39. 2009.]

Hymenophyllopsis ctenitoides Lellinger, Mem. New York Bot. Gard. 38: 3. 1984. Type:—VENEZUELA. Bolívar: Chimantá Massif, Churi-Tepui (Muru-Tepui), lower part of lower northwest cumbres, 2100–2200 m, *Wurdack 34175* (holotype US, isotypes NY, UC).

Distribution:—Not native but to be expected on Mt. Roraima; Venezuela (Amazonas, Bolívar), epilithic and terrestrial, in shaded crevices and at the base of rocks often on tepui summits, 2200–2750 m.

7. ***Cyathea dejecta*** (Baker) Christenh., Phytotaxa 1: 39. 2009.

Hymenophyllum dejectum Baker in Hook., Hooker’s Icon. Pl. 17. 1886. *Hymenophyllopsis dejecta* (Baker) K.I.Goebel, Flora 124: 3. 1929. *Asplenium dejectum* (Baker) (A.C.Sm.) Pitt.in Pitt., Lasser *et al.* Cat. Fl. Venez. 1: 46. 1945. Type:—GUYANA. Mount Roraima, *Im Thurn 318* (lectotype K, designated by Christenhusz 2009: 39, isolectotype US).

Distribution: Roraima; also Venezuela (Amazonas, Bolívar) and Guyana, on sandstone crevices and bluffs, 2300–2800 m.

Distribution:—Not native but to be expected; on the Serra da Neblina at the border with Venezuela (Amazonas), dry rock ledges at 1400–1600 m.

Group II. Species with pinnate-pinnatifid laminae

9. ***Cyathea bipinnatifida*** (Baker) Domin, Pteridophyta: 262. 1929. *Alsophila bipinnatifida* Baker, Syn. Fil. (Hooker & Baker), ed. 2: 456. 1874. Type:—GUYANA. “British Guiana”, without date, *Appun* 1032 (holotype K-fragment NY, isotype P).

Alsophila pubescens Baker, Syn. Fil. (Hooker & Baker): 449. 1868. *Trichipteris pubescens* (Baker) R.M.Tryon, Contr. Gray Herb. 200: 46. 1970. *Cyathea pubens* Domin, Pteridophyta: 263. 1929, replaced synonym *Alsophila pubescens* Baker, Syn. Fil. (Hooker & Baker): 32. 1868, not *Cyathea pubescens* Mett. ex Kuhn, Linnaea 36: 164. 1869. Type:—PERU. San Martin: Mt. Guayrapurima, Tarapoto, Aug 1856, *Spruce* 4712 (lectotype K, chosen by Barrington 1978: 52, isoelectotypes BM, GH, NY [fragment of K], P).

Distribution and habitat:—Amazonas, in lower montane rain forests at 800–1000 m; also Colombia, Venezuela, Guyana, Ecuador, Peru and Bolivia at (430–)700–2200(–3450) m.

10. ***Cyathea myriotricha*** (Baker) R.C.Moran & J.Prado in Moran *et al.*, Brittonia 60(4): 363. 2008. **E!**

Polypodium myriotrichum Baker, J. Bot. 23: 217. 1885. Type:—BRAZIL. Minas Gerais: Serra do Caracão, without date, A. Glaziou 15734 (holotype K, isotypes B, GH, H n.v., MICH, P).

Polypodium hirtulum Kunze in Steud., Nomencl. Bot. [Steudel] 2: 341. 1824, replaced synonym: *Polypodium hirsutum* Sw., Kongl. Vetensk. Acad. Handl. 1817(1): 61. 1817, not *Polypodium hirsutum* Desv., Berl. Mag. 5: 317. 1811. *Dryopteris hirtula* (Kunze) C.Chr., Index Filic.: 270. 1905. *Ctenitis hirtula* (Kunze) Brade, Bradea 1: 209. 1972, not *Cyathea hirtula* Mart., Icon. Pl. Crypt.: 76. 1834. Type:—BRAZIL. Without locality [probably Minas Gerais], without date, G.W. Freyreiss s.n. (holotype S, isotype H n.v.).

Polypodium lasiernos Spreng., Syst. Veg. (ed. 16) [Sprengel] 4(1): 61. 1827, *nom. illeg. superfl. for Polypodium hirsutum* Sw., Kongl. Vetensk. Acad. Handl. 1817(1): 61. 1817. *Ctenitis lasiernos* (Spreng.) Copel., Gen. Fil. [Copeland] 124. 1947. *Megalastrum lasiernos* (Spreng.) A.R.Sm. & R.C.Moran, Amer. Fern J. 77: 128. 1988 [1987 publ. 1988]. Type:—The same of *P. hirsutum* Sw., Kongl. Vetensk. Acad. Handl. 1817(1): 61. 1817

Distribution and habitat:—Endemic; Mato Grosso, Minas Gerais, Paraná; on wet open rocks, in crevices, or on steep rock faces at 700–1200 m.

11. ***Cyathea spectabilis*** (Kunze) Domin, Pteridophyta: 264. 1929.

Hemitelia spectabilis Kunze, Linnaea 21: 233. 1848. *Hemistegia spectabilis* (Kunze) Fée, Mém. Foug., 5. Gen. Filic.: 351. 1852. *Cnemidaria spectabilis* (Kunze) R.M.Tryon, Contr. Gray Herb. 200: 52. 1970. Type:—SURINAME. “In declivibus montium reg. inter. ad flumen pr. stationem Victoriam”, April 1847, *Kappler* 1771 (holotype not located, isotypes K, P-photo F, MPU).

Actinophlebia obtusa C.Presl, Gefäßbündel Farn: 48. 1847, Type:—not located. *Ex char.*, Hooker (1844: pl. 14).

Hemitelia klotzschiana H.Karst. ex Klotzsch, Allg. Gartenzeit. 20: 42. 1852. Type:—“Cultivated in the private garden of Privy Councillor Decker, chief court compositor in Berlin”. Authentic material probably “Venezuela, January 1852, Karsten 143” (B-photo F).

Hemitelia spectabilis Kunze var. *trinitensis* Domin, Pterid. Dominica: 72. 1929. *Cyathea spectabilis* (Kunze) R.M.Tryon var. *trinitensis* (Domin) Domin, Pteridophyta: 264. 1929. Type:—TRINIDAD & TOBAGO. Trinidad: La Seiva Valley, 16 January 1921, *Wakefield* s.n. (holotype not located).

Hemitelia spectabilis var. *longipinna* Domin, Pterid. Dominica: 73. 1929. *Cyathea spectabilis* var. *longipinna* (Domin) Domin Pteridophyta: 264. 1929. Type:—The same as of *Hemitelia spectabilis* Kunze, Linnaea 21: 233. 1848.

Cnemidaria spectabilis (Kunze) R.M.Tryon var. *colombiensis* Stolze, Fieldiana, Bot. 37: 63. 1974. Type:—COLOMBIA. El Valle [= Valle del Cauca]: Cordoba, 6–8 May 1922, *Killip* 5039 (holotype US-photo F, isotypes GH n.v., NY).

Distribution and habitat:—Pará; also Colombia, Venezuela, Guyana, Suriname and French Guiana at (75–)130–1300(–2070) m.

Remarks:—*Cyathea roraimensis* is another species of the *Cnemidaria* clade that may occur in Brazil (Mt. Roraima) together with *C. spectabilis*. Fertile plants differs chiefly in having fewer (8–12 vs. 20 or more in *C. spectabilis*), less incised pinnae (Lehnert 2012).

12. ***Cyathea uleana*** (A.Samp.) Lehnert, Brittonia 63(1): 43. 2011a, var. ***uleana***.

Hemitelia uleana A.Samp., Bol. Mus. Nac. Rio Janeiro 1. 65. 1923. *Cnemidaria uleana* (A.Samp.) R.M.Try

Group III. Species with bipinnate fronds and entire to shallowly lobed pinnules

13. ***Cyathea corcovadensis*** (Raddi) Domin, Pteridophyta: 262. 1929. **E!**

Polypodium corcovadense Raddi, Opusc. Sci. 3: 288. 1819. *Alsophila corcovadensis* (Raddi) C. Chr., Index Filic. 41. 1905. *Trichopteris corcovadensis* (Raddi) Copel., Gen. Fil. [Copeland]: 97. 1947. Type:—BRAZIL. Rio de Janeiro: Without locality, without date, *Raddi s.n.* (holotype FI n.v., isotype P [“in vertiu montis Corcovado”]).

Polypodium taenitis Roth, Nov. Pl. Sp.: 394. 1821. *Alsophila taenitis* (Roth) Kunze, Linnaea 9: 90. 1834. *Trichopteris taenitis* (Roth) Hook., Sp. Fil. 1: 35. 1844. Type:—BRAZIL. Rio de Janeiro: “E Rio Janeiro ... communicavit ... Mertens” (holotype not located), *ex charta*.

Trichopteris excelsa C. Presl, Delic. Prag. 1: 172. 1822. *Alsophila excelsa* (C. Presl) Mart. Icon. Pl. Crypt. 63. 1834. *Chnoöphora excelsa* (C. Presl) Mart., Icon. Pl. Crypt. t. 27, 29 f. 1, 2, 37. 1828–34. 1834. Type:—BRAZIL. Rio de Janeiro: “In monte Corcovado ad Rio Janeiro Brasiliae”, *Raddi s.n.* (holotype FI n.v., isotype P).

Alsophila mello-barreto Brade, Arq. Jard. Bot. Rio de Janeiro 11: 22. 1951. *Trichopteris mello-barreto* (Brade) R.M. Tryon, Contr. Gray Herb. 200: 45. 1970. Type:—BRAZIL. Minas Gerais: Serra do Cipó, *Mello-Barreto 512* (holotype HB n.v.), *ex charta*.

Distribution and habitat:—Endemic: Bahia, Minas Gerais, Espírito Santo, Rio de Janeiro, São Paulo, Paraná and Santa Catarina at 0–100(–1300) m.

14. ***Cyathea feeana*** (C. Chr.) Domin, Pteridophyta: 262. 1929. **E!**

Alsophila feeana C. Chr., Index Filic. 42. 1905, replaced synonym: *Alsophila glaziovii* Baker, Fl. Bras. (Martius) 1(2): 592. 1870, not *Alsophila glaziovii* Fée, Crypt. Vasc. Bresil 1: 160. 1869. *Trichopteris feeana* (C. Chr.) Copel., Gen. Fil. [Copeland] 97. 1947. Type:—BRAZIL. Rio de Janeiro: “Orgaos,” *Glaziou 3582* (holotype K-000589845/-000589846, isotypes B, NY [fragment of K]).

Cyathea elegantula Domin, Acta Bot. Bohem. 9: 113. 1930, replaced synonym: *Cyathea sternbergii* Domin, Pteridophyta: 263. 1929, not *Cyathea sternbergii* Pohl ex Sternberg, Fl. Vorwelt 1: 47. 1820; replaced synonym: *Alsophila elegans* Mart., Icon. Pl. Crypt.: 63. 1834, not *Cyathea elegans* Heward, Mag. Nat. Hist. II. 2: 466. 1838. *Trichopteris elegans* (Mart.) C. Presl, Tent. Pterid.: 59. 1836. Type:—BRAZIL. “Crescit in Prov. S. Pauli et Minarum Generalium sylvis,” *Martius s.n.* (M).

Alsophila damazioi Brade, Arq. Jard. Bot. Rio de Janeiro 11: 23. 1951. Type:—BRAZIL. Serra de Sacramento, without date, *Damazio s.n.* (holotype HB n.v., isotypes RB-00543184/-00561287).

Distribution and habitat:—Endemic: Minas Gerais, São Paulo, Rio de Janeiro at 1000–1750 m, in Paraná and Santa Catarina down to 500 m.

15. ***Cyathea marginalis*** (Klotzsch) Domin, Pteridophyta: 263. 1929.

Alsophila marginalis Klotzsch, Linnaea 18: 542. 1844. *Sphaeropteris marginalis* (Klotzsch) R.M. Tryon, Contr. Gray Herb. 200: 20. 1970. *Trichopteris marginalis* J.Sm. ex T. Moore, Ind. Fil.: 53. 1857. *Hemitelia marginalis* (Klotzsch) Jenman, W. Ind. and Guiana Ferns: 43. 1898. Type:—GUYANA. Without locality, without date, *R. Schomburgk 1129* (lectotype B-200136842, here designated, isolectotypes B-200136840/-200136841/-200136843, BM-000787464 [fragment of B], GH [photo of B], K-000589871, NY [fragment of K]).

Distribution and habitat:—Pará; also in Guyana, Suriname and French Guiana at 700–1000(–2300) m on slopes of table mountains.

16. ***Cyathea miersii*** (Hook.) Domin, Pteridophyta: 263. 1929. **E!**

Alsophila miersii Hook. Sp. Fil. [W.J. Hooker] 1: 38. 1844. Type:—BRAZIL. Rio de Janeiro: Organ Mountains, 1837, *Gardner 117* (lectotype K-000589872, designated by Lehnert 2016: 42, isolectotype P-00631705).

Alsophila decipiens Fée, Crypt. Vasc. Bresil 2: 81. 1872. Types:—BRAZIL. Rio de Janeiro: Itatiaia, without date, *Glaziou 7032* (lectotype P-00631700 [Herb. Cosson], here designated, isolectotypes P-00631701/-00631702 [Herb. Cosson]).

Alsophila hoehneana Brade, Arq. Jard. Bot. Rio de Janeiro 11: 24. 1951. Type:—BRAZIL. São Paulo: Parque do Estado e Jardim Botânico, 25 Feb 1931, *Hoehne s.n.* (holotype HB n.v., isotypes NY).

Alsophila acantha Sehnem in Reitz, Fl. Illustr. Catarin. fasc. CIAT: 46. 1978. *Alsophila acanthodes* Sehnem, Pesquisas 31: 47. 1977, *nom. nud.* Type:—BRAZIL. Santa Catarina: *Sehnem 3142* (holotype PACA n.v.), *ex char.*

Distribution and habitat:—Endemic: Minas Gerais, Rio de Janeiro and São Paulo, in Mata Atlântica at ca. 1300–2100 m.

Sphaeropteris sipapoensis R.M.Tryon, Rhodora 74: 441. 1972. Type:—VENEZUELA. Amazonas: Cerro Sipapo, 2 Feb 1949, Maguire & Politi 28765 (holotype NY-149023–149025, isotypes GH-00022125/-00022126/-00046976, NY-414239 UC-1526608/-1526609, US-00066194/-00066195).

Distribution and habitat:—Amazonas at ca. 150–1700 m on the slopes and tops of table mountains; also in Venezuela.

Remarks:—A recent record from the Brazilian side of Neblina massif represents a considerable extension in range (550 km) and elevation (1700 m) compared to the only other known locality (Carvalho *et al.* 2012).

19. *Cyathea steyermarkii* R.M.Tryon, Rhodora 74: 449. 1972. Type:—VENEZUELA. Amazonas: Cumbre del Cerro Autana, 04°52'N, 67°27'W, 1230–1270 m, 21–22 Sep 1971, Steyermark 105194 (holotype GH-00098090–00098092/-00020909, isotypes COL-000006208, F-0075875F, MO-255857, U-0007318, VEN-274960).

Distribution and habitat:—Venezuela at 1230–1270 m on the Cerro Autana; also in Brazil at 1000 m on the Neblina massif (Carvalho *et al.* 2012).

Remarks:—The main difference to *Cyathea liesneri* is the lack of indusia.

20. *Cyathea thysanolepis* (Barrington) A.R.Sm., Ann. Missouri Bot. Gard. 77(2): 250. 1990.

Trichipteris demissa (C.V. Morton) R.M.Tryon var. *thysanolepis* Barrington, Rhodora 78: 1. 1976. Type:—VENEZUELA. Amazonas: Summit Cerro de la Neblina, Río Yatua, along west escarpment edge west of Cumbre Camp, 1750 m, 15 Jan 1954, Maguire, Wurdack & Bunting 37291 (holotype NY-149013/-149014, isotypes GH-00022185, US-00066243/-00066244)

Distribution and habitat:—Amazonas, Serra da Neblina, at 2115 m; also in Venezuela at 1750 m on the Neblina massif.

Remarks:—Previously treated as variety of *Cyathea demissa* (C.V.Morton) A.R.Sm. ex Lellinger (Lehnert 2012).

Group IV. Species with bipinnate-pinnatifid or more complex laminae and lacking indusia

21. *Cyathea abbreviata* I.Fern., Bradea 8(31): 193. 2000 **E!** Type:—BRAZIL. Pernambuco: Município de São Vicente Ferrer, March 1999, I. Fernandes 1040 (holotype JPB n.v., isotype PARA n.v.).

Distribution and habitat:—Endemic; Alagoas, Bahia, Ceará, Pernambuco, in closed forest remnants, usually close to water, at 480–920 m.

22. *Cyathea atrocastanea* Labiak & F.B.Matos, Syst. Bot. 34(3): 476. 2009. **E!**

Type:—BRAZIL. Espírito Santo: Santa Teresa, Estação Biológica de Santa Lúcia – Museu de Biologia Melo Leitão, 19°53'48"S, 40°36'11"W, 600 m, 11 July 2007, Labiak *et al.*

4008 (holotype UPCB n.v., isotypes RB-804639/-804640, SP n.v.).

Distribution and habitat:—Endemic; Espírito Santo, in montane forests at 600–800 m.

Remarks:—*Cyathea atrocastanea* is very similar to *Cyathea lasiosora*, especially the Bolivian populations, which have a similar weak pubescence.

23. *Cyathea atrovirens* (Langsd. & Fisch.) Domin, Pteridophyta: 262. 1929.

Polypodium atrovirens Langsd. & Fisch., Pl. Voy. Russes Monde: 12. 1810. *Alsophila atrovirens* (Langsd. & Fisch.) C.Presl, Tent. Pterid.: 61. 1836. *Trichipteris atrovirens* (Langsd. & Fisch.) R.M.Tryon, Contr. Gray Herb. 200: 45. 1970. Type:—BRAZIL. Santa Catarina: Isla Sta. Catarina, Langsdorff s.n. (lectotype LE-00000001, designated by Lehnert 2016: 32, isoelectotypes BM, G-00348031 n.v., LE-00000003).

Cyathea compta Mart., in Denkschr. Bot. Ges. Regensb. 2: 146. 1822. *Alsophila compta* (Mart.) Mart., Icon. Pl. Crypt. 1: 66. 1834. *Trichipteris compta* (Mart.) R.M.Tryon, Contr. Gray Herb. 200: 45. 1970. Type:—BRAZIL. Without locality, without date, Martius s.n. (holotype M).

Alsophila radens Kaulf., Enum. Filic. 248. 1824. *Cyathea radens* (Kaulf.) Domin, Pteridophyta: 263. 1929. Type:—BRAZIL. Without locality, without date, A. von Chamisso s.n. (lectotype LE-00008125, designated by Lehnert 2016: 32; isoelectotypes B-20-0000069, P)

Alsophila hookeriana Klotzsch ex Hook., Sp. Fil. [W.J. Hooker] 1: 39. 1844. Type:—BRAZIL. “South Brazil”, Sellow s.n. (lectotype B-20-0000062 [annotated “Sellow 727”], designated by Lehnert 2016: 32, isoelectotypes B-20-0000063, F-0075842F [fragment], NY-908509 [fragment]).

Alsophila leptocladia Fée, Crypt. Vasc. Bresl 1: 161. 1869. *Cyathea leptocladia* (Fée) Domin, Pteridophyta: 262. 1929. Type:—BRAZIL. Rio de Janeiro: “Brasília fluminensis”, October 1871, Glaziov 2299 (lectotype P-00631692 [Herb. Cosson], designated by Lehnert 2016: 32, isoelectotypes BR-006990053, K-000589834, P-00631695, -00631

P-00642426, US-00066226).

Alsophila atrovirens var. *patula* Rosenst., Hedwigia 46: 66. 1906. Type:—BRAZIL. Minas Gerais: Without locality, 1906, *C. Juergens s.n. [Rosenstock Exs. 233]* (lectotype P-00642421, designated by Lehnert 2016: 32).

Alsophila atrovirens var. *squamulosa* Rosenst., Hedwigia 46: 66. 1906. Type:—BRAZIL. Santa Catarina: Passo Mansa, 1905, *F. Haerchen 143 [Rosenstock Exs. 231]* (lectotype P-00642422, designated by Lehnert 2016: 32, isoelectotypes K-000589835, P-00642423–00642425, S-06-951/-06-952/-R-197, US-00066230).

Alsophila verruculosa var. *ulbrichtii* Rosenst., Hedwigia 46: 66. 1906. Type:—BRAZIL. São Paulo: Campinas, 1904, *A. Ulbricht 81b* (lectotype B [without collection number], designated by Lehnert 2016: 32, isoelectotype S-R-212).

Alsophila miquelii Kunze ex Rosenstock (1907: 67). Type:—BRAZIL. Santa Catarina: San José, 1850, *G. Goeden 47* (holotype not located, U?).

Alsophila atrovirens (Langsd. & Fisch.) C.Presl var. *minor* Rosenst., Hedwigia 56: 357. 1915. Type:—BRAZIL. São Paulo: Ypiranga, June 1910, *Lüderwaldt 1311* (holotype S-06-998).

Alsophila proceroides Rosenst., Hedwigia 56: 356. 1915. Type:—BRAZIL. São Paulo: Ribeira, June 1911, *A.C. Brade 5106* (holotype S [fide Barrington 1978: 63] n.v., isotypes NY-148757, UC-442379).

Alsophila fallacina (Domin) Domin, Pterid. Dominica: 85. 1929. *Alsophila dryopteroides* Domin var. *fallacina* Domin, Pterid. Dominica: 89. 1929. *Cyathea fallacina* (Domin) Domin, Acta Bot. Bohem. 9: 115. 1930. Type:—BRAZIL. Rio Grande do Sul: Belém Vélho, 31 October 1897, *E.M. Reineck & J. Czermak 36* (lectotype PR, designated by Lehnert 2016: 32, isoelectotype P-00631691).

Alsophila kleinii Sehnem in Reitz, Fl. Illustr. Catarin. fasc. CIAT: 56. 1978. Type:—BRAZIL. Rio Grande do Sul: São Leopoldo, Faz. São Borja, 30 April 1966, *Sehnem 8693* (holotype PACA).

Distribution and habitat:—Bahia, Goiás, Espírito Santo, São Paulo, Rio de Janeiro, Paraná, Santa Catarina, Rio Grande do Sul, mainly in open swampy habitats, 10–1100 m; also Argentina, Paraguay and Uruguay.

24. *Cyathea dichromatolepis* (Fée) Domin, Pteridophyta: 263. 1929. **E!**

Alsophila dichromatolepis Fée, Crypt. Vasc. Bresil 1: 164. 1869. *Trichipteris dichromatolepis* (Fée) R.M.Tryon, Contr. Gray Herb. 200: 45. 1970. Type:—BRAZIL. Serra dos Órgãos, *Glaziou 1786* (holotype P [Herb. Cosson]).

Alsophila aperta Fée, Crypt. Vasc. Bresil 1: 158. 1869. *Cyathea aperta* (Fée) Domin, Pteridophyta: 262. 1929. Type:—BRAZIL. Rio de Janeiro: Without locality, without date, *A. Glaziou 2301* (lectotype P-00642326 [Herb. Cosson], designated by Lehnert 2016: 35, isoelectotypes BR-0000006989019/-0000006989347, K-000589856, NY-00148636 [fragment of K], P-00642327, S-06-978).

Alsophila ceropteris Fée, Crypt. Vasc. Bresil 1: 163. 1869. Type:—BRAZIL. Rio de Janeiro: “Brasília fluminensi”, without date, *A. Glaziou 981* (lectotype P-00642311, designated by Lehnert 2016: 35, isoelectotypes P-00642307/-00642309/-00642310).

Alsophila corcovadensis Fée, Crypt. Vasc. Bresil 1: 163. 1869, not *Alsophila corcovadensis* (Raddi) C.Ch., Index Filic.: 41. 1905. Type:—BRAZIL. Rio de Janeiro: “Brasília fluminensi ad Montem Corcovado”, without date, *Glaziou 985* (lectotype P-00642314, designated by Lehnert 2016: 35, isoelectotypes P-00642315, UC-181422).

Alsophila arbuscula C.Presl in Baker, Fl. Bras. 1(2): 322. 1870. *Cyathea arbuscula* (Baker) Domin, Pteridophyta: 262. 1929. *Trichipteris arbuscula* (Baker) R.M.Tryon, Contr. Gray Herb. 200: 45. 1970. Type:—BRAZIL. Rio de Janeiro, without date, *A. Glaziou 2300* (lectotype P-00642326, designated by Lehnert 2016: 35, isoelectotypes BR-0000006989019/-0000006989347, K-000589856, P-00642327).

Alsophila pallida Rosenst., Hedwigia 56: 356. 1915. *Cyathea pallida* (Rosenst.) Domin, Pteridophyta: 263. 1929. Type:—BRAZIL. São Paulo: Rais da Serra, 1909, *E. Wacket 225* (lectotype B-20-0000118, designated by Lehnert 2016: 35, isoelectotypes NY-00148728, PH-00001978, S-R-209, UC-442380).

Cyathea mesocarpa Domin, Acta Bot. Bohem. 9: 136. 1930, replaced synonym: *Alsophila dryopteroides* Domin, Bull. Misc. Inform. Kew: 218. 1929, not *Cyathea dryopteroides* Maxon, Amer. Fern J. 14: 99. 1925. *Alsophila mesocarpa* (Domin) C.Ch., Index Filic., Suppl. Tert.: 22. 1934. Type:—BRAZIL. Minas Gerais: Without date, *W. Gardner 5331* (holotype K-000589850).

Distribution

thus range and ecology insufficiently known. Both species have oblanceolate laminae, which have entire pinnules in the smaller pinnae near the base but pinnatifid pinnules in the larger central pinnules.

26. ***Cyathea hirsuta*** C.Presl, Delic. Prag. 1: 190. 1822. **E!** *Alsophila hirsuta* (C.Presl) Kunze, Linnaea 9: 98. 1834. *Trichipteris hirsuta* (C.Presl) R.M.Tryon, Contr. Gray Herb. 200: 45. 1970. Type:—BRAZIL. Rio de Janeiro: Corcovado, without date, J.B.E. Pohl s.n. (lectotype PRC-452785, designated by Lehnert 2016: 6, isoelectotypes NY-00148686, W-0053349/-0053350).

Distribution and habitat:—Endemic; Espírito Santo, Rio de Janeiro, São Paulo, Paraná, Santa Catarina at 100–900 m in Mata Atlântica.

27. ***Cyathea iheringii*** (Rosenst.) Domin, Pteridophyta: 262. 1929. **E!**

Alsophila iheringii Rosenst., Hedwigia 56: 358. 1915. *Trichipteris phalerata* (Mart.) Barrington var. *iheringii* (Rosenst.) Barrington, Rhodora 78(813): 5. 1976. Type:—BRAZIL. São Paulo: Alto da Serra, October 1909, H. Luederwaldt 1036 (lectotype B-20-0000282, designated by Barrington 1976: 5, isoelectotypes MICH-1191156, NY-00148689, PH-00001975, S-R-206, UC-442404).

Alsophila atrovirens André var. *furcativenia* Rosenst., Hedwigia 46: 66. 1906. Type:—BRAZIL. Santa Catarina: Blumenau, Passo Mansa, 1905, F. Haerchen 10 [Rosenstock Filicum Exs. 234] (holotype not located, isotype US-00066227).

Alsophila guineorum Brade & Rosenst., Bol. Mus. Nac. Rio Janeiro 7: 140. 1931. Type:—BRAZIL. Rio de Janeiro: Teresópolis, Serra Cavallo, 20 October 1929, A.C. Brade 9842 (holotype not located, isotypes NY-00148683, UC-442402).

Alsophila paleolata Mart. var. *subnuda* Rosenst., Hedwigia 46: 68. 1906. Type:—BRAZIL. Santa Catarina: Blumenau, Warnow, G. Goeden 37 (lectotype W-1909-0010307, designated by Lehnert 2016: 37). Excluded syntype: Itapocú, F. Haerchen 41 (not located).

Alsophila portoana Brade, Arq. Inst. Biol. Veg. 1(3): 223. 1935. *Trichipteris portoana* (Brade) R.M.Tryon, Contr. Gray Herb. 200: 46. 1970. Type: BRAZIL. Rio de Janeiro: Serra da Itatiaia, Três Picos, 27 June 1930, A.C. Brade 10235 10235 (lectotype RB-00543188, designated by Lehnert 2016: 37, isoelectotype RB-00561288)

Alsophila roquettei Brade & Rosenst., Bol. Mus. Nac. Rio Janeiro 7: 139. 1931. Syntypes:—BRAZIL. Rio de Janeiro: Serra do Calvado, Teresópolis, 4 October 1929, A.C. Brade 9569 (HB n.v., isosyntype B_20_0000281) & 9836 (HB n.v.)

Distribution and habitat:—Endemic; Bahia, Rio de Janeiro, São Paulo, Santa Catarina, at 180–1050 m in Mata Atlântica.

Remarks:—*Cyathea iheringii* is the glabrescent extreme of a not fully understood species complex around *C. phalerata* endemic to southeastern Brazil. The other, hairy and scaly extreme represents *C. mexiae*.

28. ***Cyathea lasiosora*** (Kuhn) Domin, Pteridophyta: 262. 1929.

Alsophila lasiosora Kuhn, Linnaea 36: 157. 1869. *Alsophila tarapotensis* Rosenst., Repert. Spec. Nov. Regni Veg 7: 291. 1909, *nom. superfl.* *Trichipteris lasiosora* (Kuhn) R.M.Tryon, Contr. Gray Herb. 200: 45. 1970. Type:—PERU. San Martin: “Mt. Campana, East Peru,” R. Spruce 4349 [correctly 4249] (lectotype B-20-0000191, designated by Lehnert 2016: 14, isoelectotypes BM-000937696–000937699, COL [fragment of GH], GH-00020417/-00020418, K-000589978, LE-00008108, NY-148693, P-00631726/-00631727), US-00066259 [fragment of K-000589978]/-00066288 [fragment ex Herb. Bonaparte]). Excluded because putatively a different sample of the same species [most labelled “Spruce 4249 var. videtur”]: B-20-0000190, K-000589975–000589977, P-00631728/-00631729.

Alsophila nigra Mart., Icon. Pl. Crypt.: 71. 1834. *Trichipteris nigra* (Mart.) R.M.Tryon, Contr. Gray Herb. 200: 46. 1970. Type:—BRAZIL. Amazonas: “Flumen Japurá in Provincia Rio Negro dicta”, C.F.P. Martius s.n. (holotype M, isotypes B-20-0000188, NY-148719 [fragment of Herb. Martius]/-148720 [fragment of B], LE-00008117, M [3 sheets]).

Alsophila mapiriensis Rosenst., Repert. Spec. Nov. Regni Veg. 25: 57. 1928. Type:—BOLIVIA. La Paz: [Larecaja,] San Carlos, region of Mapiri, [ca. 15°20'S, 68°15'W,] 850 m, 9 December 1926, O. Buchtien 292 (lectotype S-R-207, designated by Lehnert 2016: 15, isoelectotypes NY-00148699, UC-478278).

Alsophila killipii Maxon, Amer. Fern J. 32: 58. 1942. Type:—PERU. Loreto: Between Yurimaguas and Balsapuerto, 1929, E.P. Killip & J.D. Smith 28133 (holotype US-00066255/-00066256/-00066257, isotypes F n.v., NY-00148692).

Distribution and habitat:—Acre, Amazonas, Roraima, Pará, Amapá; also in Colombia, Venezuela, French Guiana, Ecuador, Peru, and Bolivia, in terra firme forest and Andean foothills at 100–1250 m, most common below 1000 m.

Opusc. Sci. 3: 288. 1819, *hom. illeg.*, not *Polypodium axillare* Aiton, Hort. Kew. [W. Aiton] 3: 466. 1789. *Cyathea axillaris* (Raddi) Lellinger, Amer. Fern J. 77(3): 93. 1987 [1988]. Type:—BRAZIL. Without locality, without date, *G. Raddi s.n.* (lectotype P-00631723, designated by Lehnert 2016: 38, isoelectotypes B-20_0000173, FI? n.v.).

Alsophila pectinata Fée, Crypt. Vasc. Bresil 1: 168. 1869. Type:—BRAZIL. Rio de Janeiro: “Circa Tijuca”, *Glaziou 1704* (lectotype P-00631718 [Herb. Cosson], designated by Lehnert 2016: 38; isoelectotypes BR-0000006988647/-0000006989309, NY-00148735 [fragment], P-00631719/-00631720/-00631721/-00631722, S-06-964/-06-965).

Alsophila glumacea Fée, Crypt. Vasc. Bresil 1: 170. 1869. Type:—BRAZIL. Rio de Janeiro: “Brasília fluminensis”, *Glaziou 2290* (lectotype P-00631712 [Herb. Cosson], designated by Lehnert 2016: 38, isoelectotypes B-20-0000183, BR-0000006988623/-0000006988326/-0000006988333, K-000589866, P-00631711/-00631715/-02142007, S-06-962).

Alsophila nigrescens Fée, Crypt. Vasc. Bresil 1: 170. 1869. Type:—BRAZIL. Rio de Janeiro: “Brasília fluminensis”, *Glaziou 2289* (lectotype P-00631716 [Herb. Cosson], designated by Lehnert 2016: 38, isoelectotypes B-20-0000184, BR-0000006987664/-0000006988005, K-000589863, NY-00148721 [fragment of P], S-06-971).

Cyathea albidopaleata Copel., Univ. Calif. Publ. Bot. 17: 25. 1932. *Alsophila albidopaleata* (Copel.) C.Chr., Index Filic., Suppl. Tert.: 20. 1934. *Trichipteris albidopaleata* (Copel.) R.M.Tryon, Contr. Gray Herb. 200: 44. 1970. Type:—BRAZIL. Minas Gerais: Viçosa, Corrêga Reberrô, *Mexia 4868* (holotype UC, isotype MICH?).

Distribution and habitat:—Endemic; Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo, Paraná, at 40–1050 m in Mata Atlântica.

Remarks:—Lellinger (1987) created the new combination *Cyathea axillaris* for this species, apparently unaware that *Alsophila leucolepis* (Martius 1834) is the earliest legitimate name. It supersedes *Phegopteris axillaris* (Fée 1852), which was acts as new name for the illegitimate homonym *Polypodium axillare* (Raddi 1819). This makes *Cyathea leucofolis* the combination of priority in the genus (Domin 1929).

30. ***Cyathea mexiae*** Copel., Univ. Calif. Publ. Bot. 17: 30. 1932. **E!**

Alsophila mexiae (Copel.) C.Chr., Index Filic., Suppl. Tert.: 22. 1934. *Trichipteris mexiae* (Copel.) R.M.Tryon, Contr. Gray Herb. 200: 45. 1970. Type:—BRAZIL. Minas Gerais: Viçosa, E of the Agricultural College, 20 July 1930, *Y. Mexia 4882* (holotype UC-466093–466096, isotypes B-20-0000131, CAS-0002248, BM-001067924, F-0075944F, GB-0048119, K-000589860, LA-00000017, MO-255862, NO-0109710, P-00633029, PH-00009191, U-0008063).

Alsophila gardneri Hook., Sp. Fil. [W.J. Hooker] 1: 40. 1844. *Trichipteris gardneri* (Hook.) R.M.Tryon, Contr. Gray Herb. 200: 45. 1970. *Cyathea gardneri* (Hook.) Lellinger, Amer. Fern

J. 77(3): 94. 1987 [1988], *hom. illeg.*, not *Cyathea gardneri* Hook., Sp. Fil. [W.J. Hooker] 1: 21. 1844. Type:—BRAZIL. Minas Gerais: San Gaetano, September 1840, *G. Gardner 5330* (lectotype K-000227578, designated by Barrington 1978: 66, isoelectotypes B-20-0000129, BM-000937609, F-0075841F [fragment of P], K-000227577, P-00642353, US-00066249, W).

Distribution and habitat:—Endemic; Minas Gerais and Rio de Janeiro at 700–1400 m.

31. ***Cyathea microdonta*** (Desv.) Domin, Pteridophyta: 263. 1929.

Polypodium microdontum Desv., Berl. Mag. 5: 319. 1811. *Alsophila microdonta* (Desv.) Desv., Mém. Soc. Linn. Paris 6: 319. 1827. *Trichipteris microdonta* (Desv.) R.M.Tryon, Contr. Gray Herb. 200: 46. 1970. Type:—“*America Australi*,” without date, *N.A. Desvaux s.n.* (lectotype P-00633063, designated by Lehnert 2016: 41, isoelectotype P-00633064). *Alsophila armata* Mart., Icon. Pl. Crypt. 72: 28, 42. 1834, replaced synonym: *Polypodium aculeatum* Raddi, Opusc. Sci. 3: 288. 1819, not *Polypodium aculeatum* L., Sp. Pl. 2: 1090. 1753, not *Alsophila armata* (Sw.) C.Presl, Tent. Pterid.: 62. 1836. *Alsophila ferox* C.Presl, Tent. Pterid.: 62. 1836, *nom. superfl.* *Alsophila aculeata* (Raddi) J.Sm., London J. Bot. 1: 667. 1842. Type:—BRAZIL. Rio de Janeiro: Mountains of Rio de Janeiro, without date, *G. Raddi s.n.* (holotype FI n.v., isotype BR-0000006987992).

Distribution and habitat:—Acre, Amazonas, Amapá, Pará, Rondônia, Roraima, Tocantins, Bahia, Ceará, Paraíba, Pernambuco, Piauí, Goiás, Mato Grosso, Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo; also Mexico, Guatemala, Belize, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Cuba, Hispaniola, Puerto Rico, Trinidad & Tobago, Colombia, Venezuela, Guyana, Suriname, French Guiana, Ecuador, Peru, Brazil and Bolivia at 0–7

400 m, *G.S. Perrotet s.n.* (lectotype PR, designated by Lehnert 2016: 43, isoelectotype NY-0014874 [fragment of PR]).

Distribution and habitat:—Pará; also in Venezuela, Guyana, Suriname and French Guiana at 140–1300 m, in lowland rain forests on terra firme and in premontane forest. 33. *Cyathea phalerata* Mart., in Denkschr. Bot. Ges. Regensb. 2: 146. 1822.

Alsophila phalerata (Mart.) Mart., Icon. Pl. Crypt. 67. 1834. *Trichipteris phalerata* (Mart.) Barrington, Rhodora 78(813): 5. 1976. Type:—BRAZIL. Bahia: “Crescit in silvis montanis ad Almadam et alibi Provincia Bahiensi”, *C.F.P. Martius s.n.* (lectotype M, designated by Lehnert 2016: 43, isoelectotypes B-20-0000286/-20-0000300, BM, K-000589884/-000589885, NY-00148740, US-00066274 [fragment of NY]).

Alsophila paleolata Mart., Icon. Pl. Crypt. 68. 1834. *Cyathea paleolata* (Mart.) Copel., Univ. Calif. Publ. Bot. 17. 30. 1932. *Trichipteris paleolata* (Mart.) R.M.Tryon, Contr. Gray Herb. 200: 46. 1970. Type:—BRAZIL. Minas Gerais: Pro. Minarum silvis e.g. ad Villa Rica, 1818, *C.F.P. Martius s.n.* (lectotype M, designated by Lehnert 2016: 43, isoelectotypes B-20-0000301, NY-00148723 [fragment of B]).

Alsophila blanchetiana C.Presl, Abh. Königl. Böhm. Ges. Wiss., ser. 5: 388. 1851. *Alsophila blancheti* Trev., Herb. Crypt. Trevis. 2: 165. 1851, *nom. superfl.* *Cyathea blanchetiana* (C. Presl) Domin, Acta Bot. Bohem. 9: 98. 1930. Type:—BRAZIL. Bahia: Without locality, without date, *Blanchet 77* (lectotype PRC-452783, designated by Lehnert 2016: 30, isoelectotype BM-000937705)

Alsophila contracta Fée, Crypt. Vasc. Bresil 1: 167. 1869. *Cyathea contracta* (Fée) Domin, Pteridophyta: 262. 1929. Type:—BRAZIL. Rio de Janeiro: Serra de Ariro, 17 April 1868, A. Glaziou 2296 (lectotype P-00167444 [Herb. Cosson], designated by Lehnert 2016: 44 isoelectotypes BR-0000006987633, K-000589883, NY [fragment of P], P-00167445/-00631764, S-06-798).

Alsophila eriocarpa Fée, Crypt. Vasc. Bresil 1: 162. 1869. Type:—BRAZIL. Rio de Janeiro: Corcovado, August 1867, A. Glaziou 1706 (lectotype P-00631742 [Herb. Cosson], designated by Lehnert 2016: 44, isoelectotypes BR-0000006987602/-0000006987930/-0000006988272, P-00631743-00631750 [Herb. Cosson], NY [fragment of P], US [fragment of P]).

Alsophila ludovicana Fée, Crypt. Vasc. Bresil 1: 169. 1869. Type:—BRAZIL. Rio de Janeiro: Saint Louis, Serra do Órgãos, 11 October 1867, A. Glaziou (lectotype P-00631751 [Herb. Cosson], designated by Lehnert 2016: 44, isoelectotypes BR-0000006987923/-0000006988258, K-000589875, P-00631752/-00631753 [Herb. Glaziou], S-06-989).

Alsophila scobriculata Fée, Crypt. Vasc. Bresil 1: 157. 1869. Type:—BRAZIL. Rio de Janeiro: “Tijuca, près du Bico de Papagaio, 2 April 1868, Glaziou 2293 (lectotype P-00631757 [Herb. Cosson], designated by Lehnert 2016: 44, BR-0000006987626, K-000589881, NY-00148800 [fragment of P], P-00631758/-00631759 [Herb. Cosson]).

Alsophila unguis-cati Fée, Crypt. Vasc. Bresil 1: 165. 1869. Type:—BRAZIL. Rio de Janeiro: San Ludovico, 25 April 1868, Glaziou 2297 (lectotype P-00631766, [Herb. Cosson], designated by Lehnert 2016: 44, isoelectotypes B-20-0000298, BR-0000006987961/-0000006988296, K-000589876, NY [fragment of P], P-00631767-00631770, S-06-990).

Alsophila goyazensis Christ in Schwacke, Pl. Nov. Mineir. 2: 33. 1900. Type:—BRAZIL. Goiás: “Plateau de Goyaz”, 1894–1895, Glaziou 22630 (lectotype P-00631772, designated by Lehnert 2016: 44, isoelectotypes B-20-0000287/-20-0000289, BR-0000006987640, LE-00008045, NY-00148682, P-00631771/-00631773).

Alsophila paulistana Rosenst., Hedwigia 46: 67. 1906. Type:—BRAZIL. São Paulo: Campinas, without date, Ulbricht 141 (holotype S-R-210).

Distribution and habitat:—Mato Grosso, Minas Gerais, Bahia, Espírito Santo, Rio de Janeiro, São Paulo, Paraná, Santa Catarina; also eastern Bolivia at 35–1400 m in gallery forests and Mata Atlântica.

Remarks:—Several names are here excluded from the synonymy of this species (Barrington 1978) because of uncertainties in the typification. *Cyathea phalerata* is wide-ranging and variable, and intermediate in its morphology between the rather glabrescent *C. iheringii* and the strongly pubescent *C. mexiae*. Barrington (1978) treated *C. iheringii* as variety of *C. phalerata*, which in many cases was not further considered in the determinations. The type of *C. phalerata* (with few pale squamules and rather inconspicuous pubescence on the veins abaxially) comes closer to *C. iheringii* whereas the type of *Alsophila paleolata* (with squamules quite numerous and veins visibly hairy abaxially; treated here as synonym of *C. phalerata*) resembles *C. mexiae*. The distinction of these three species (*C. iheringii*, *C. mexiae*, *C. phalerata*) may be quite artificial and simply maintains established names (Barrington 1978).

“*Alsophila phalerata* (Mart.) Mart. var. *latiloba* Domin”, “*Alsophila reitzii* Sehnem in Reitz” and “*Alsophila virens* Sehnem” are *nomina*

Cyathea oreites Domin, Pteridophyta: 263. 1929, replaced synonym: *Alsophila sprucei* Hook., Syn. Fil. 37. 1866, not *Cyathea sprucei* Hook., Syn. Fil. (Hooker & Baker) 20. 1865. Type:—ECUADOR. Chimborazo: Chimborazo, 2500 ft, September 1860, R. Spruce 5740 (lectotype K-000589950 [Herb. Hookerianum], designated by Lehnert 2016: 3, isoelectotypes BM-000777036, P-00642504/-00642505). *Alsophila impressa* Fée, Crypt. Vasc. Bresil 1: 166. 1869. *Cyathea impressa* (Fée) Domin, Pteridophyta: 262. 1929. Type:—BRAZIL. Rio de Janeiro: “Brasilia Fluminensi”, 7 March 1867, A. Glaziou 983 (holotype P [Herb. Fée-Cosson], isotype BR).

Alsophila tijucensis Fée, Crypt. Vasc. Bresil 1: 171. 1869. *Cyathea tijucensis* (Fée) Domin, Pteridophyta: 263. 1929. Type:—BRAZIL. Rio de Janeiro: “Brasilia Fluminensi, ad Tijuca,” 8 August 1868, A. Glaziou 1707 (lectotype P-00167447 [Herb. Fée-Cosson], designated by Windisch 1977: 190, isoelectotypes BR-0000006979348, K-000589859, NY-148807/-148808 [fragments of P], P-00642525).

Alsophila quitensis C.Chr., Index Filic.: 47. 1905, replaced synonym: *Alsophila bakeri* Sodiro, Cr. vasc. quit. 532. 1893, not *Alsophila bakeri* Zeiller, Bull. Soc. Bot. France 32: 72. 1885. *Cyathea quitensis* (C.Chr.) Domin, Pteridophyta: 263. 1929, not *Hemitelia quitensis* Domin, Bull. Misc. Inform. Kew 1929(7): 215. Type:—ECUADOR. Pichincha: Valle de Pallatanga cerca de Sardinas, a 1040 m, without date, L. Sodiro s.n. (lectotype SI-006049 [labeled “Puente de Chimbo, legit 9/1891, A. Sodiro”], designated by Lehnert 2016: 3, isoelectotypes NY-00148639 [labeled “crescit in silv. trop. vallis Pallatanga, legit 9/1891, A. Sodiro”])

Alsophila coriacea Rosenst., Mem. Soc. Sci. Nat. Neuchatel 5(2): 50. 1914. *Cyathea coriacea* (Rosenst.) Domin, Pteridophyta: 262. 1929, not *Cyathea coriacea* Kato, J. Fac. Sci. Univ. Tokyo, Bot. 14(5): 376. 1990, *hom. illeg.* Type:—COLOMBIA. “Columbia, in silvis Andium occidentalis inter Valparais et Supia,” 1500 m, 29 September 1910, Mayor 86 (lectotype P-00642527, designated by Lehnert 2016: 4, isoelectotypes S-06-975/-R-202, UC-477919).

Cyathea anacampta Alston, J. Wash. Acad. Sci. 48: 230. 1958. *Trichipteris anacampta* (Alston) R.M.Tryon, Contr. Gray Herb. 200: 44. 1970. Type:—COLOMBIA. Putumayo: Confluence of Río Ticuanayoy at Río Caquetá, 1100 m, 20 January 1945, J.A. Ewan 16081 (holotype BM-000937688, isotypes UC-1077753, US-00066113/-00066114).

Distribution and habitat:—Goiás, Minas Gerais, Espírito Santo, Rio de Janeiro; also in Costa Rica, Panama, Colombia, Venezuela, Ecuador, Peru and Bolivia at 20–1500(–2250) m in humid to wet forests. Preferring warm climates and open sun, flourishing in disturbed habitats.

35. ***Cyathea praecincta*** (Kunze) Domin, Pteridophyta: 263. 1929. **E!**

Alsophila praecincta Kunze, Flora 22 (1, Beibl.): 53. 1839. *Alsophila submarginalis* Domin, Bull. Misc. Inform. Kew 1929(7): 217, *nom. superfl.* *Cyathea submarginalis* (Domin)

Domin, Acta Bot. Bohem. 9: 163. 1930. *Trichipteris submarginalis* (Domin) R.M.Tryon, Contr. Gray Herb. 200: 46. 1970. *Trichipteris praecincta* (Kunze) R.M.Tryon, Contr. Gray Herb. 200: 46. 1970. Type:—BRAZIL. Bahia: Ilheos, [ca. 14°10'S, 53°05'W], 1817–1820, C.F.P. Martius 391 (lectotype B-fragment NY, chosen by Barrington 1978: 71, isoelectotypes K, M, MO, NY).

Distribution and habitat:—Endemic; Alagoas, Bahia, Pernambuco, Minas Gerais, Rio de Janeiro, São Paulo, Paraná, Santa Catarina, at 550–900 m in Mata Atlântica.

36. ***Cyathea pungens*** (Willd.) Domin, Pteridophyta: 263. 1929.

Polypodium pungens Willd., Sp. Pl. 5: 206. 1810. *Alsophila pungens* (Willd.) C.Presl, Tent. Pterid.: 61. 1836. *Trichipteris pungens* (Willd.) R.M.Tryon, Contr. Gray Herb. 200: 46. 1970. Type:—BRAZIL. “Brasilia,” without date, J.C. Hoffmannsegg s.n. (holotype B-20-0000318 [Herb. Willdenow 19716], isotypes NY [fragment of B], US-00066283 [fragment of B]). *Polypodium procerum* Willd., Sp. Pl. 5: 206. 1810. *Alsophila procera* (Willd.) Desv., Mém. Soc. Linn. Paris 6(3): 319. 1827. *Alsophila procera* (Willd.) C.Presl, Tent. Pterid.: 61. 1836. *Trichipteris procera* (Willd.) R.M.Tryon, Contr. Gray Herb. 200: 46. 1970. Type:—BRAZIL. “Brasilia,” without date, J.C. Hoffmannsegg s.n. (holotype B [Herb. Willdenow 19717]-fragment NY).

Alsophila infesta Kunze, Linnaea 9: 98. 1834. *Cyathea infesta* (Kunze) Domin, Acta Bot. Bohem. 9: 125. 1930. *Trichipteris infesta* (Kunze) R.M.Tryon, Contr. Gray Herb. 200: 45. 1970. *Alsophila phalerata* var. *infesta* (Kunze) Farw., Amer. Midl. Naturalist 12: 250. 1931. Type:—PERU. Huánuco: “Peruviae ad Miss. Tocache fluv. Hualgae vicinam,” without date, E. Poeppig s.n. (holotype LZ, destroyed, lectotype W-0056018/-0056019, designated by Lehnert 2016: 45, isoelectotypes B? n.v., BM [fragment of B]).

Alsophila obtusa Klotzsch, Allg. Gartenzeit. 30: 4

of B]). One excluded element (*Stübel* 988, B) represents *Cyathea tortuosa* R.C.Moran; other syntypes (*Stübel* 876a, B, *Stübel* 975, B) are not assignable to species.

Distribution and habitat:—Acre, Amazonas, Pará, Rondônia, Bahia, Ceará, Paraíba, Pernambuco, Goiás, Mato Grosso do Sul, Mato Grosso, São Paulo, Paraná; also Trinidad & Tobago, Colombia, Venezuela, Ecuador, Peru, and Bolivia at 50–1250 m in lowland and premontane forests.

Remarks:—Most specimens seen from the Guyanas, southern Venezuela, and northern Brazil can be attributed to the recently segregated *Cyathea oblonga* (Cremers & Boudrie 2007)

37. *Cyathea rufa* (Fée) Lellinger, Amer. Fern J. 77(3): 94. 1987 [1988]. **E!**

Alsophila rufa Fée, Crypt. Vasc. Bresil 1: 166. 1869. *Trichipteris rufa* (Fée) R.M.Tryon, Contr. Gray Herb. 200: 46. 1970. Type:—BRAZIL. Rio de Janeiro: Without locality, 24 April 1868, A. Glaziou 2291 (lectotype P-00642483, designated by Riba 1969: 14; isoelectotypes P-00631629, NY-[fragment of P], S-06-1020).

Distribution and habitat:—Endemic, Minas Gerais, Espírito Santo, Rio de Janeiro; in Mata Atlântica at 100–900 m.

38. *Cyathea tortuosa* R.C. Moran, Novon 1(2): 99. 1991. Type:—ECUADOR. Napo: Reserva Biológica Jatún Sacha, ca. 8 km ESE de Misahualli, 01°04'S, 77°36'W, 450 m, R.C. Moran & C. Rohrbach 5187 (holotype MO, isotypes DUKE-10000940, F-0075659F-0075666F, QCNE-174-178, UC-1586249-1586251, US-00386073-003860751)

Distribution and habitat:—Amazonas, Ceará, Pará; also in Colombia, Venezuela, Ecuador, and Peru at 300–1200(–1600) m in humid lowland and premontane forests.

39. *Cyathea villosa* Willd., Sp. Pl. 5: 495. 1810.

Chnoophora humboldtii Kaulf., Enum. Filic. 250. 1824, *nom. superfl.* *Alsophila villosa* (Willd.) Desv., Mém. Soc. Linn. Paris 6: 319. 1827. *Chnoophora villosa* (Humb. & Bonpl. ex Willd.) Link, Handb. Erken. Gewächse 3: 35. 1833. *Trichipteris villosa* (Willd.) R.M.Tryon, Contr. Gray Herb. 200: 46. 1970. Type:—VENEZUELA. “America meridionale, ad St. Crucem & ad Caracas (Sucre, Venezuela)”, A. v. Humboldt 436 (holotype B [Herb. Willdenow No. 20175-2]-photo GH, isotypes F, P-00642301/-00669209).

Alsophila rigidula Mart., Icon. Pl. Crypt. 74. 1834. Type:—BRAZIL. São Paulo: “Crescit in sylvis provinciae S.Pauli”, without date, C.F.P. Martius s.n. (holotype M).

Alsophila vernicosa Mett ex. Kuhn, Linnaea 36: 155. 1869. *Cyathea vernicosa* (Kuhn) Domin, Pteridophyta: 263. 1929. *Trichipteris vernicosa* (Kuhn) R.M.Tryon, Contr. Gray Herb. 200: 46. 1970. Type:—VENEZUELA. Aragua: “prope Colonia Tovar”, 1858, A. Fendler 344 (lectotype B-20-0000342, designated by Lehnert 2016: 46, isoelectotypes GH, K-000641004/-000641005, NY-148810 [fragment of

KJ, MO-255856, YU-000670).

Alsophila cipoensis Sehnem in Reitz, Fl. Illustr. Catarin. fasc. CIAT: 96. 1978. Type:—BRAZIL. Minas Gerais: Jaboticatuba, Serra do Cipó, 5 August 1972, G. Hatschbach 29880 (holotype PACA n.v., isotypes UC-1492350, UPCB n.v)

Distribution and habitat:—Bahia, Goiás, Destrito Federal, Minas Gerais, São Paulo, Paraná and Santa Catarina; also in Venezuela and Bolivia at 850–1550(–1800) m.

Group V. Species with bipinnate-pinnatifid or more complex laminae and hemitelioid indusia

[*Cyathea andina* (H.Karst.) Domin, Pteridophyta: 263. 1929]

Hemitelia andina H.Karst., Linnaea 28: 452. 1856. Type:—COLOMBIA. Magdalena: Santa Marta, 2500 m, H. Karsten s.n. (holotype B-photo GH).

Hemitelia servitensis H.Karst., Linnaea 28: 451. 1856. Type:—COLOMBIA. “Crescit in silvis humidis umbrosis Novo-Granatae Provinciae Cundinamarcae altitudine 2000 metr. inter Susumuco et Servita”, H. Karsten s.n. (holotype W, isotypes B [“Servita, Bogotá,” Herb. Mettenius], P-photo GH).

Hemitelia escuquensis H.Karst., Fl. Columb. 2: 181. 1869. *Cyathea escuquensis* (H.Karst.) Domin, Pteridophyta: 264. 1929. Type:—VENEZUELA. “Sinus Maracaibensis prope Escuque, 100 m”, Karsten s.n. (holotype W, probable isotype B [“Escuque, Venezuela”, Karsten 28, Herb. Mettenius]).

Hemitelia joadii Baker, Ann. Bot. (Oxford) 5: 187. 1891. *Cyathea joadii* (Baker) Domin, Pteridophyta: 264. 1929. Type:—COLOMBIA. Magdalena: Santa Marta, December 1863, Joad s.n. (holotype K).

Distribution and habitat:—Haiti, Puerto Rico, Colombia, Venezuela, Ecuador, Peru, Bolivia, in humid forests at 200–1900 m.

Remarks:—Previous reports from Brazil (Forzza *et al.* 2010; <http://floradobrasil.jbrj.gov.br/>

(Berlin) 2: 296. 1844, not *Cyathea leprieurii* (Kunze) Domin, Pteridophyta: 264. 1929. Type:—FRENCH GUIANA. Cayenne, *Leprieur s.n.* (holotype NY [Herb. Jenman]-photo GH).

Distribution and habitat:—Suriname and French Guiana, in understory of wet forests between 200–500 m.

Remarks:—This species is represented by material previously attributed to *Cyathea andina* in the Guyana Highlands, which Tryon (1976) already reported to be quite different from the Andean plants. *Cyathea boryana* has not been recorded yet from Brazil but occurs literally on the border to Suriname. The only specimen that Tryon (1976) cites from Brazil, Roraima, was not seen by us. Someone acquainted with Brazilian tree ferns may mistake *C. boryana* for the widespread *C. leucofolis*, which lacks indusia and occurs only in the Mata Atlântica.

40. ***Cyathea cyatheoides*** (Desv.) K.U.Kramer, Pteridophytes of Suriname 39. 1978.

Hemitelia cyatheoides Desv., Mém. Soc. Linn. Paris 6: 321. 1827. Type:—FRENCH GUIANA. “Habitat in Cajenna”, anon., Herb. Desvaux (holotype P-photo GH, -photo UC).

Hemitelia stigmata Desv., Mém. Soc. Linn. Paris 6: 321. 1827. *Sphaeropteris stigmata* (Desv.) R.M.Tryon, Contr. Gray Herb. 200: 20. 1970. Type:—FRENCH GUIANA. “Habitat in America?”, a small label indicates “America,” Herb. A.N. Desvaux (holotype P-photo GH, -photo UC).

Hemitelia hostmannii Hook., Icon. Pl. 7: t. 646. 1844. *Alsophila hostmannii* (Hook.) J.Sm. Bot. Mag. 72: 37. 1846. *Amphicosmia hostmannii* (Hook.) T.Moore, Ind. Fil. CIV. 1857. *Hemitelia multiflora* Sm. var. *hostmannii* (Hook.) Baker (1870: 313). Type:—SURINAME. Without locality, without date, *Hostmann s.n.* (holotype K [Herb. Hookerianum]).

Hemitelia guianensis Hooker, Icon. Pl. 7: t. 648. 1844. *Hemitelia multiflora* (Sm.) R.Br. ex Spreng. var. *guianensis* Baker, Fl. Bras. (Martius) 1(2): 313. 1870. Type:—GUYANA. “British Guiana,” Parker s.n. (not located), ex. char.

Hemitelia kegelii Kunze, Linnaea 21: 235. 1848. *Amphicosmia kegelii* (Kunze) T.Moore, Index Fil. 60. 1857. Type:—SURINAME. “Locis umbrosis ‘Cordonpad’ prope Joden Savanne,” Kegel s.n. (holotype not located), ex. char.

Hemitelia urolepis Kunze, Linnaea 21: 235. 1848. *Amphicosmia urolepis* (Kunze) T.Moore, Index Fil. 61. 1857. Type:—GUYANA. “Ex Guiana misit Moricand; dein vidi pinnules a Ricardo Schomburgk reportatis,” (holotype not located), ex. char.

Hemitelia lingulata C.Presl, Abh. Königl. Böhm. Ges. Wiss., ser. 5: 392. 1851. *Amphicosmia lingulata* (C. Presl) T.Moore, Index Fil. 60. 1857. Type:—FRENCH GUIANA. “Gujana gallica,” Perrotet s.n. (holotype PRC-fragment NY).

Alsophila guianensis Regel, Ann. Sci. Nat., Bot. sér. 4, 12: 373. 1859. *Cyathea guianensis* (Regel) Domin, Acta Bot. Bohem. 9: 120. 1930. Type:—GUYANA. “Patria verosimiliter Guiana. Specimen vivum ex horto cl. Blassii accepimus”, ex char.

Hemitelia multiflora, (Sm.) R.Br. ex Spreng. var. *sprucei* Baker,

Fl. Bras. (Martius) 1(2): 313, 591. 1870. Type:—VENEZUELA. Amazonas: “prope San Carlos, ad Río Negro, Brasilia borealis,” Spruce 3154 (holotype K [Herb. Hookerianum]).

Cyathea bakeriana Domin, Acta Bot. Bohem. 9: 96. 1930. *Hemitelia bakeriana* (Domin) Christensen, Index Filic., Suppl. Tert.: 110. 1934, replaced synonym: *Hemitelia multiflora* Sm. var. *sprucei* Baker, not *Cyathea sprucei* Hook., Syn. Fil. (Hooker & Baker): 20. 1865, not *Alsophila sprucei* Hook., Syn. Fil. 37. 1866.

Distribution and habitat:—Amazonas, Rondonia, Pará and Roraima at ca. 50–125 m; also in the Amazonian lowland rainforests of Colombia, Venezuela, Guyana, Suriname and French Guiana at 40–200 m.

Remarks:—*Cyathea cyatheoides* seems to be closely related to *C. surinamensis* and *C. bradei*, which share oblanceolate fronds with tapering, often strongly alternate basal pinnae. “*Alsophila laevis* J.Sm.” and “*Amphicosmia laevis* T.Moore” are *nomina nuda* assignable to this species.

41. ***Cyathea leucolepismata*** Alston, J. Wash. Acad. Sci. 48: 231. 1958.

Type:—COLOMBIA. Putumayo: Near San Diego de Colorado, between Umbria and Puerto Asís, 16 January 1945, Ewan 16784 (holotype BM, isotypes S, UC, US).

Cyathea amazonica R.C.Moran, Nordic J. Bot. 15: 53. 1995. Type:—ECUADOR. Napo: Upper Río Tiputini, ca. 2 h from bridge on Coca-Auca oilfield road, 00°43'S 76°57'W, 300 m, 21 July 1991, Øllgaard & Blasco 99065 (holotype AAU, isotypes K, LPB, QCA, QCNE, U, UC, US).

Distribution and habitat:—Colombia, Ecuador, Peru, Bolivia, in lower montane forests 90–1300 m.

Remarks:—This species is very similar in habit and indument to the exindusiate *Cyathea leucofolis* Domin from southeastern Brazil. *Cyathea leucolepismata* is widespread in the eastern Andean foothills and may be present in Brazil in the Serrania de Huanchaca on the border with Bolivia.

42. ***Cyathea macrocarpa*** (C.Presl) Domin, Pteridophyta: 264. 1929.

northeastern Brazil. Windisch (1978) doubted the correctness of its *locus classicus* in Bahia, Brazil, but the species has recently been recollected there. “*Hemitelia megalosora* Trevis.” and “*Cyathea moricandiana* Kunze” are *nomina nuda* on which *Hemitelia moricandiana* Kunze is based.

43. ***Cyathea macrosora*** (Baker) Domin, Pteridophyta: 263. 1929.

Alsophila macrosora Baker in Thurn, Timehri 5: 211. 1886. *Hemitelia macrosora* (Baker) Jenman, Ferns Brit. W. Ind. & Guiana: 45. 1898. *Sphaeropteris macrosora* (Baker) Wind., Bradea 1: 372. 1973. Type:—GUYANA. Mount Roraima, 5750 ft, *Im Thurn* 87 (holotype K, isotype US).

Distribution and habitat:—Pará; also Colombia, Venezuela, Guyana, Suriname and French Guiana at 100–1700 m.

Remarks:—Windisch (1978) recognized two varieties in *Cyathea macrosora*, var. *reginae* and var. *vaupensis*, which are here treated as separate species, *C. traillii* and *C. vaupensis*. *Cyathea macrosora* is characterized by variably bicolored petiole scales and the general absence of scurf. The indusia of the studied material are not as variable in size as pointed out by Windisch (1978), who reports that the indusia may be almost lacking.

44. ***Cyathea platylepis*** (Hook.) Domin, Pteridophyta: 264. 1929.

Hemitelia platylepis Hook., Sec. Cent. Ferns: 100. 1861. Type:—VENEZUELA. Territorio Federal Amazonas: Dept. Río Negro, “Prope San Carlos, ad Río Negro, Brasilia borealis”, 1853–1854, *Spruce* 3127 (holotype K, isotypes BM, GOET).

Hemitelia minima C.V.Morton, Fieldiana, Bot. 28: 9. 1951. **Type:**—VENEZUELA. Bolívar: Ptari-tepui, on “Cave Rock” above “Cave Camp”, 1810 m, 29 October 1944, *Steyermark* 59481 (holotype F, isotypes MO, UC).

Distribution and habitat:—Amazonas; also in Colombia (250–900 m) and Venezuela (350–2600 m).

45. ***Cyathea surinamensis*** (Miq.) Domin, Pteridophyta: 264. 1929.

Hemitelia surinamensis Miq., Inst. Versl. Meded. Kon. Nederl. Inst. Wetensch. 1842: 191. 1843. *Alsophila surinamensis* (Miq.) J.Sm., Ferns Br. and For. 244. 1866. Type:—SURINAME. Bergendaal, *Focke s.n.* (holotype U, photo GH); the fragment *ex Herb. Miquel* (K) is probably the same collection (Windisch 1978).

Polypodium hirsutum Desv., Berl. Mag. 5: 317. 1811. *Hemitelia hirsuta* (Desv.) Weatherby, Contr. Gray Herb. 114: 31. 1936. *Sphaeropteris hirsuta* (Desv.) R.M.Tryon, Contr. Gray Herb. 200: 20. 1970. Type:—French Guiana. “Habitat in Gallia equinoxialia”, additional label “Cayenne”, *Herb. A.N.Desvaux s.n.* (holotype P n.s., GH [photo]).

Hemitelia parkeri Hook., Icon. Pl. 7: t. 643. 1844. *Amphicosmia*

parkeri (Hook.) J.Sm. ex T.Moore, Ind. Fil.: 61. 1857. *Cyathea parkeri* (Hook.) K.U.Kramer, Acta Bot. Neerl. 3: 492. 1954. *Hemitelia multiflora* (Sm.) R.Br. ex Spreng. var. *parkeri* (Hook.) Baker, Fl. Bras. (Martius) 1(2): 314. 1870. Type:—GUYANA. „Guiana“, *Parker s.n.* (holotype, K [Herb. Hookerianum,] NY [fragm. ex K]).

Alsophila leprieuriana Kunze, Linnaea 21: 235. 1848, *nom. nud.* Type:—FRENCH GUIANA. *Leprieur* 206 (mixed collection, P n.v. (*Cyathea surinamensis*), U n.v. (*Cyathea cyatheoides*), fide Windisch, 1978).

Polypodium pauciflorum Hook., Sp. Fil. [W. J. Hooker] 4. 242. 1862. Type:—SURINAME. *Hostmann s.n.* (holotype K [Herb. Hookerianum, “Hostmann 64”], photo GH).

Hemitelia multiflora (Sm.) R.Br. ex Spreng. var. *superba* Jenman, Bull. Misc. Inform. Roy Bot. Gard. Trinidad no. 15: 47. 1898. Type:—GUYANA. Isosuru River, on the trackless way to Mt. Raywa, *Jenman s.n.* (holotype K, isotype US).

Hemitelia superba Maxon, Amer. Fern J. 19: 44. 1929. *Cyathea superba* (Maxon) Domin, Acta Bot. Bohem. 9: 164. 1930. Type:—GUYANA. “Region of Mt. Raywa“, *Jenman s.n.* (holotype, US).

Alsophila piligera Hieron., Hedwigia 45: 234. 1906. *Cyathea piligera* (Hieron.) Domin, Pteridophyta: 263. 1929. Type:—BRAZIL. Pará: “habitat Brasilia: specimen prope urbem Para collectum est,” *Stübel* 1139 (holotype B).

Distribution and habitat:—Amazonas, Amapa, Pará; also Guyana, Suriname, French Guiana, in Amazonian rainforest between 10–770 m.

Remarks:—*Cardenas* 3002 (F) is a sterile juvenile plant from Prov. Pando, Bolivia, that could also represent this species. “*Alsophila weigeltii* C.Presl” is a *nom. nud.* A specimen at K, *Poitau s.n.* (“*Poitau dedit, Jul 1924*”) bears this name (fide Windisch 1978). Further *nom. nud.* assignable to *Cyathea surinamensis* are “*Alsophila strigosa* J.Sm.”, “*Amphicosmia strigosa* T.Moore”, and “*Hemitelia strigosa* Alston”.

46. ***Cyathea traillii*** (Baker) Domin, Pteridophyta: 264. 1929.

Hemitelia traillii Baker, Ann. Bot. (Oxford) 5: 188. 1891. Type:—BRA

firme and premontane forests on sandstone at 120–1000 m.

47. ***Cyathea vaupensis*** (Windisch) Lehnert, Phytotaxa 26: 55. 2011b.

Sphaeropteris macrosora (Baker) Windisch var. *vaupensis* Windisch, Bradea 1: 374. 1973. Type:—COLOMBIA. Vaupés: Cerro Isibukuri, Río Kanari, Comisaria del Vaupés, *Schultes & Cabrera* 13407 (holotype GH).

Distribution and habitat:—Amazonas, Roraima; also Colombia, Venezuela, Guyana, Suriname, French Guiana, Ecuador and Peru in moist forests on terra firme at 75–500 m.

Remarks:—Easily recognized and distinguished from *Cyathea macrosora* by its ample cover of persistent, clearly bicolorous petiole scales, which reach along at least the lower half of the rachises. *Cyathea vaupensis* is recognized here at the species level, because its differences to *C. macrosora* are even more evident than those of *C. macrosora* var. *reginae*, which has already been accepted at the species level as *C. traillii* (Baker) Domin.

Group VI. Species with bipinnate-pinnatifid or more complex laminae and indusia reaching all around the receptacles

48. ***Cyathea aurea*** Klotzsch, Allg. Gartenzeit. 24: 105. 1856. Type (cited by Karsten in Fl. Columb. 2: 149, t. 178 (1869)):—VENEZUELA. Aragua: “grows in mountains near the city of Caracas, in very fertile humid forests between Petaquire and Colonia Tovar”, 1500 m, *Karsten s.n.* (holotype not located). Authentic specimen (fide Tryon 1976): Herb. Schlechtendal, *Karsten* 7 (B [fragment], NY [fragment], PRC). *Cyathea aurea* Klotzsch var. *squamosa* H. Karst., Linnaea 28: 459. 1857. Type:—VENEZUELA. Aragua: Vicinity of Caracas, between Petaquire and Colonia Tovar, *Karsten s.n.* (holotype B).

Distribution and habitat:—Amazonas; also Venezuela, expected from adjacent Colombia.

Remarks:—“*Cyathea flaccida* Mett.” is a *nom. nud.* assignable to this species.

49. ***Cyathea delgadii*** Pohl ex Sternb., Vers. Fl. Vorwelt 1: 47. t. B. 1820. Type:—BRAZIL. Goiás: “Gancho do Generale Delgado in via ad Caldas Novas”, without date, *Pohl s.n.* (holotype PRC-fragment GH).

Cyathea vestita Mart., Denkschr. Bot. Ges. Regensb. 2: 146. 1822. Type:—BRAZIL. Minas Gerais: Without locality, *Pohl* 663 (holotype W-fragment BM, isotype BR-06869892).

Cyathea oligocarpa Kunze, Linnaea 9: 101. 1834. *Cyathea schanschin* var. *oligocarpa* (Kunze) Hieron., Hedwigia 45: 230. 1906. Type:—PERU. Huanuco: Pampayaco, *Poeppig* (Diar. 1101) (holotype LZ, destroyed, isotypes [Poeppig 218] B, MO, P).

Cyathea hirtula Mart., Icon. Pl. Crypt. 76. 1834. Type:—BRAZIL. Bahia: Almada, Serra do Mar, *Wied zu Neuwied*

(holotype BR-6979010, -06979041 & -06978860, -photo, -fragment BM).

Cyathea schanschin Mart., Icon. Pl. Crypt. 77, 1834. Type:—BRAZIL. São Paulo: Curibiba, *Martius* (M-photo BM, isotype BM-photo GH).

Cyathea denticulata Goldm., Nova Acta 19 Suppl. I. 466. 1843, *ex charta*.

Cyathea abrupteaudata Fée, Crypt. Vasc. Bresil 1. 183. 1869. Type:—BRAZIL. Rio de Janeiro: Tijuca, 2 April 1868, *Glaziov* 2284 (holotype P-00625711–00625713, -photo GH, isotypes B, K-0589847, NY [fragment of P], US).

Cyathea féei Fée, Crypt. Vasc. Bresil 1. 179. 1869. Type:—BRAZIL. Rio de Janeiro: *Glaziov* 2286, Herb. Fée-Herb. Cosson (Lectotype P-photo GH, -fragment NY).

Cyathea sphaerocarpa Fée, Crypt. Vasc. Bresil 1. 180. 1869. Type:—BRAZIL. Rio de Janeiro, Brazil, *Glaziov* 2283 (P n.v. [Herb. Fée- Herb. Cosson]). Foto (GH n.v.).

Cyathea pilosa Baker, Syn. Fil. (Hooker & Baker), ed. 2: 19. 1874. Type:—PERU. San Martin: “Andes of east Peru, (Tarapoto)”, *Spruce* 4729 (holotype K, isotypes BM-fragment US, GH, P-fragment F?, US [fragment ex Herb. Rosenstock]).

Cyathea copelandii Kuhn & Luer, Abh. Nat. Ver. Bremen 7: 278. 1882. Type:—BRAZIL. Espírito Santo: „South Trinidad” [Vitória, Ilha de Trindade], *Copeland s.n.* (holotype P-photo GH, isotype K-000589848).

Cyathea hypotricha Christ, Bull. Herb. Boissier ser. 2, 4: 947. 1904. Type:—COSTA RICA: *Wercklé*, Herb. Christ (holotype P-00355742, isotypes P-00355743, NY [fragment of P]).

Cyathea bahiensis Rosenst., Repert. Spec. Nov. Regni Veg. 20: 90. 1924. Type:—BRAZIL. Bahia: São Gomala, Gebiet des Rio Femmeas, February 1913, *von Luetzelburg* 543 (holotype M-photo BM).

Cyathea micromera Rosenst., Repert. Spec. Nov. Regni Veg. 20: 90. 1924. Type:—BRAZIL. Goiás: Apertada-Hora, *von Luetzelburg* 12841 (holotype M-photo BM).

Cyathea trinidad

PERU. Puno, St. Gavan, *Lechler s.n.* (holotype, LZ destroyed, -fragm. B).

Cyathea castanea Baker, Syn. Fil. (Hooker & Baker), ed. 2: 451. 1874. Type:—PERU. San Martin, Tarapoto (Andes of Peru), *Spruce 4723* (holotype, K; isotypes, GH, MO, P, US).

Distribution and habitat:—Amazonas, also in Colombia, Ecuador, Peru and Bolivia at 750–1600 m, characteristically found below ridgetops of small mountains

Dubious and excluded names

Alsophila alutacea Kunze, Flora 54. 1839. *Alsophila phalerata* (Mart.) Mart. var. *alutacea* (Kunze) Baker, Fl. Bras. (Martius) 1(2): 327. 1870. *Alsophila infesta* Kunze var. *alutacea* (Kunze) Baker, Syn. Fil. (Hooker & Baker), ed. 2: 457. 1874. *Cyathea alutacea* (Kunze) Domin, Acta Bot. Bohem. 9: 90. 1930. Type:—BRAZIL. Bahia: Ilheos, *Dryas s.n.* (holotype not located). Excluded material:—GUYANA. Demerara, 1830, *J. Parker s.n.* (K).

Remarks:—Kunze described *Alsophila alutacea* solely on the Brazilian collection made by Dryas (Kunze 1839: 54). In his amended account of Hooker's Species Filicum he draws attention to his earlier publication, which went unnoticed by Hooker (1844), and cites additional specimens that he determined as *A. alutacea* in the meantime (Hooker 1844: 327). Judging from the description, the name belongs to the typical form of *Cyathea phalerata* Mart.

Previously regarded a syntype, the collection by Parker from Guyana can be excluded from that species. It represents most likely a luxuriant plant of the exindusiate *C. pungens*. We have seen only digital images of the type material and could not evaluate the indusia. The original description under *Alsophila* would suggest their absence; furthermore a note on one of the three sheets at K bears in pencil the note "all veins simple", which is characteristic of *C. pungens*, just like the clearly visible black bases of the costules.

Alsophila pabstii Brade, Arq. Jard. Bot. Rio de Janeiro 18: 26, 1965. Syntypes:—BRAZIL. Distrito Federal: Região da nova Capital, Brasília, 13 November 1958, *C.F.J. Pabst 4935 & E. Pereira 4608* (RB [Herb. Bradeanum 7223] n.v.).

Remarks:—We reckon that the two collectors sampled the same plant together on the same day. Although they represent syntypes, there is no reason to choose one as lectotype. We have not seen the specimens, yet from the description it is almost certain that this name represents the typical form of *Cyathea phalerata* Mart.

"*Alsophila paleolata* Sehnem, Sellowia 7: 139. 1956", *hom. illeg.*

Alsophila paleolata Mart. var. *nigrescens* Hook. ex Baker Fl. Bras. (Mart.) 1(2): 330. 1870. *Alsophila nigrescens* (Baker) Sehnem in Reitz, Fl. Ilustr. Catarin. fasc. CIAT: 85. 1978 *hom. illeg.*, not *Alsophila nigrescens* Fée, Crypt. Vasc. Bresil 1.

170. 1869. Syntypes:—BRAZIL. „Brasilia australi“, *Sellow s.n.* (not located). Rio de Janeiro: Near Rio de Janeiro, A. *Glaziou 2283, 2285* (not located).

Remarks:—Baker (1870) states that this variety is hairy but has almost no scales on the lamina, which would fit *Cyathea phalerata* Mart. He further reports it from Colombia without citing a specimen.

Alsophila paleolata Mart. var. *eriocarpa* Christ, Bull. Herb. Boissier II. 2. 646. 1902. Syntypes:—BRAZIL. Goyaz: Colombista, 4 November 1894, A. *Glaziou 22628* (P); Minas Gerais: Serra do Ouro Preto, without date, *Schwacke 11410* (holotype not located).

Remarks:—Judging from the description and the material seen, this could be either *Cyathea mexiae* or *Cyathea villosa* but a secure distinction is not possible.

"*Alsophila paleolata* Mart. f. *erosa* Rosenstock", *nom. ined.* The specimen "BRAZIL. Paraná: Villa Nova, 1906, *Annie?* (illegible handwriting) [Herb. Rosenstock 246]" at (M, W) bears this name.

Remarks:—This collection represents a shade form of *Cyathea phalerata* with some insect damage.

Alsophila phalerata var. *squamulosa* T. Moore, Index Fil. 55. 1857 citing Hooker (1846: 42). Syntypes:—BRAZIL. Bahia: Ilheos, Moricand (not located).—GUYANA. Dermera (not located).—GUADELOUPE. C.S. *Parker, esq.* (not located).—DOMINICA. Dr. *Imray 110* (not located).

Remarks:—At the moment, even a tentative placement of this name is impossible given the geographical range of the unlocated type specimens.

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