

## Synopsis of family Woodsiaceae (Diels) Herter

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**Abstract:** The synopsis reflects data on the diversity, synonymy and distribution of genera and species of the family Woodsiaceae. The largest species diversity of the family is located in the mountain systems of America (northern and central) and Eurasia (central and eastern). The family Woodsiaceae is represented by 7 genera (*Cheilanthopsis*, *Eriosoriopsis*, *Hymenocystis*, *Physematium*, *Protowoodsia*, *Woodsia*, *Woodsiopsis*) and 58 species. In the article we propose 3 new combinations in the genera *Woodsiopsis* (*Woodsiopsis* × *abbeae* (Butters) Shmakov, *Woodsiopsis* × *kansana* (R.E.Brooks) Shmakov, *Woodsiopsis* × *maxonii* (R.M.Tryon) Shmakov).

**Keywords:** *Cheilanthopsis*; distribution; *Eriosoriopsis*; *Hymenocystis*; *Physematium*; *Protowoodsia*; subgenus; *Woodsia*; Woodsiaceae; *Woodsiopsis*

This paper is a continuation of the previously published system of Woodsiaceae (Diels) Herter (Shmakov, 2015). We, as well as a number of authors, consider Woodsiaceae *sensu stricto* (Tzvelev, 1991, 2005; Shmakov, Kiselev, 1995; Shmakov, 2001, 2003, 2009, 2011, 2015, 2015; Christenhusz et al., 2011; Rothfels et al., 2012; Zhang et al., 2013; Larsson, 2014; PPG1, 2016). The division of the family into genera in this work corresponds to the previously presented system (Shmakov, 2015).

The synopsis is based on treatments of the family for the floras of America (Arana, Mynssen, 2016; Brown, 1964; Kessler, Smith, 2018; Mickel, Smith, 2004; Windham, 1993), Africa (Roux, 2009), Eurasia (Valentine, Moore, 1964; Shmakov, 2001, 2003, 2009, 2011; Tzvelev, 2012; Zhang et al., 2013; Kim, Sun, 2015), as well as materials from herbarium collections of St. Petersburg (LE), Moscow (MW), Berlin (B ), Beijing (PE), Paris (P), Kew (K), Geneva (G), Vienna (W), Zurich (Z), Jena (JE), Prague (PR), Kyoto (KYO), Frankfurt am Main (FR), Tokyo (TI), Novosibirsk (NS, NSK), Tomsk (TK), Vladivostok (VLA), America's Virtual Herbariums (GH, US, RB, HY, UC, JEPS, etc.) and Europe ( BM, E, FL, MA, etc.) and our collections stored in Barnaul (ALTB).

### Taxonomic treatment

Fam. **Woodsiaceae** (A. Gray) Herter, 1949, Revista Sudamer. Bot. 9: 14. – Tribe *Woodsieae* A. Gray, 1856, Man. Bot., ed. 2: 588. – Tribe *Woodsiaea* Diels, 1899, in Engl. & Prantl, Nat. Pflanzenfam. I, 4: 158, 159.

**Type:** *Woodsia* R. Br.

Seven genera and 58 species distributed in America, Eurasia and Africa.

**Protowoodsioideae** Shmakov, 2001, Turczaninowia, 4 (1–2): 65.

**Type:** *Protowoodsia* Ching

Five genera and about 23 species distributed mainly in the New World, fewer ones in Africa, Madagascar, the Caucasus and East Asia.

**Protowoodsia** Ching, 1945, Lingn. Sci. J. 21, 1–4: 36.

**Type:** *P. manchuriensis* (Hook.) Ching

One species in subtropical and partly temperate areas of East Asia.

**Protowoodsia manchuriensis** (Hook.) Ching, 1945, Lingn. Sci. J. 21, 1–4: 37. – *Woodsia manchuriensis* Hook. 1861, Sec. Cent. Ferns tab. 98. – *Dicalpe manchuriensis* (Hook.) Trevis. 1875, Nuovo Giorn. Bot. Ital. 7: 160. – *Physematium manchuriense* (Hook.) Nakai, 1925, Bot. Mag. (Tokyo) 39: 176. – *Woodsia insularis* Hance, 1861, Ann. Sci. Nat. 5, 15: 228.

**Type:** “Manchuria, C.W. Wilford, 1094, July and August 1859” (K).

**Distribution:** China (Hebei, Jilin, Liaoning, Anhui, Shandong, Zhejiang, Jiangxi), Japan, Korea, Russia (Far East).

**Hymenocystis** C.A. Mey. 1831, Verzeichn. Pl. Cauc.: 229. – *Physematium* sect. *Hymenocystis* (C.A. Mey.) Tzvel. 2005, Novit. Syst. Pl. Vasc., 37: 34.

**Type:** *H. fragilis* (Trev.) A. Askerov (= *H. caucasica* C.A. Mey.)

One species in Caucasus.

*Hymenocystis fragilis* (Trev.) A. Askerov, 1986, Izv. Akad. Nauk Azerbajdzansk. S.S.R., Ser. Biol. Med. Nauk, 3: 52. – *Dicksonia fragilis* Trev. 1816, Berl. Mag. 7: 155, t. 3, f. 18–19. – *Woodsia fragilis* (Trev.) T. Moore, 1857, Ind. Fil. 101, nom. illeg. – *Hymenocystis caucasica* C.A. Mey. 1831, Verzeichn. Pl. Cauc.: 229.

**Type** (Аскеров, 2001): “L.C. Trevirano, 1816, Ges. Naturf. Freunde Berlin, t. 3, f. 18-19”.

**Distribution:** Abkhazia, Azerbaijan, Georgia, Russia (Caucasus).

*Cheilanthopsis* Hieron. 1920, Notizbl. Bot. Gard. Berlin-Dahlem, 7(69): 406-409.

**Type:** *C. indusiosa* (H. Christ) Ching

Three species in Hymalaya and SW China.

*Cheilanthopsis indusiosa* (H. Christ) Ching, 1932, Sinensia. 3(5): 154. – *Woodsia indusiosa* H. Christ, 1909, Notul. Syst. (Paris), 1(2): 44. – *Cheilanthes straminea* Brause, 1913, Hedwigia, 54 (2): 205, t. 4, f. H. – *Cheilanthopsis straminea* (Brause) Hieron., 1920, Notizbl. Bot. Gard. Berlin-Dahlem, 7, 69: 406.

**Type:** “Yunnan: On-kia-tsen, pres Kiao-kia, 18 septembre 1908, № 162, Ten et Ducloux” (P).

**Distribution:** China (Yunnan, Sichuan), Bhutan.

*Cheilanthopsis elongata* (Hook.) Copel. 1931, Univ. Calif. Publ. Bot. 12: 395. – *Woodsia elongata* Hook. 1844, Sp. Fil. 1: 62, pl. 21 C. – *Physematium elongata* (Hook.) Trevis. 1875, Nuovo Giorn. Bot. Ital. 7: 161.

**Type:** “Nagunda, Himalaya, Lady Dalhousie Sept. 28 th” (K), “Northern India, Edgeworth” (K).

**Distribution:** China (Xizang, Yunnan), Bhutan, Myanmar, India (Arunachal Pradesh, Uttar Pradesh, Sikkim, Himachal Pradesh), Nepal.

*Cheilanthopsis kangdingensis* (H.S. Kung, L.B. Zhang & X.S. Guo) Shmakov, 2003, Pteridol. New Millennium: 64. – *Woodsia kangdingensis* H.S. Kung, L.B. Zhang & X.S. Guo, 1995, Acta Bot. Yunnan. 17 (4): 421-422, f. 2

**Type:** “Kangding, Liuba, alt. 3400 m., on the rock wall under Picea forest, N 6180, 18 Aug. 1981, H.S. Kung” (CDBI).

**Distribution:** China (Sichuan).

*Physematium* Kaulf. 1829, Flora 12: 341.

**Type:** *P. molle* Kaulf.

Five species distributed in Central and South America, Africa and Madagascar.

*Physematium angolensis* (Schelpe) Shmakov, 2015, Turczaninowia, 18(2): 12. – *Woodsia angolensis* Schelpe, 1976, in Garcia de Orta, Sér. Bot. 3: 53.

**Holotype:** “Angola, Huíla, Lubango, Tundavala (Serra da Chela) ao quilòmetro 18 da escarpa rochosa junto à fends, 30.04.1971, A. Borges 131” (LISC; isotype: COI, LUA1).

**Distribution:** Angola, South Africa.

*Physematium burgessiana* (Gerr. ex Hook. & Baker) Shmakov, 2015, Turczaninowia, 18(2): 12. – *Woodsia burgessiana* Gerr. ex Hook. & Baker, 1866, Synopsis filicum, 2: 48. – *Woodsia montividentis* (Spreng.) Hieron var. *burgessiana* (Gerr. ex Hook. & Baker) Schelpe, 1969, J. S. Afr. Bot. 35: 138.

**Holotype:** “Natal, near the Tugela River, Gerrard & McKen s.n.” (K – K000351038; isotype: S, SAM, TCD).

**Distribution:** Lesotho, Madagascar, South Africa, Zimbabwe.

*Physematium canescens* (Kunze) Trevis. 1875, Nuovo Giorn. Bot. Ital. 7: 155. – *Woodsia canescens* (Kunze) Mett. 1864, Ann. Sci. Nat. Bot, sér. 5, 2: 249, Fig. 324L. – *Cheilanthes canescens* Kunze, 1839, Linnaea, 13: 143.

**Type:** “Mexico: Polverillos pr. Mexico. 10.1829, C. J. W. Schiede s.n.” (syntype – B200094653).

**Distribution:** Mexico.

*Physematium molle* Kaulf. 1829, Flora, 12: 341. – *Woodsia mollis* (Kaulf.) J. Sm. 1841, J. Bot. (Hooker),

4: 191. – *Woodsia guatemalensis* Hook. 1844, Sp. Fil. 1: 60, t. 21A. – *Woodsia fragilis* Liebm. 1849, Mexic. Bregn. 280 (reprint 128). – *W. mexicana* R.Br. 1830, Pl. Asiat. Rar. (Wallich), 1: 41, nom. inval.

**Type:** “Mexico. s. coll. s.n.” (LE?).

**Distribution:** Guatemala, Mexico, Nicaragua, El Salvador.

*Physematium montividentis* (Spreng.) Shmakov, 2015, Turczaninowia, 18(2): 12. – *Woodsia montividentis* (Spreng.) Hieron. 1896, Bot. Jahrb. 22: 363. – *Dicksonia montevidensis* Spreng., 1827, in L., Syst. Veg., ed. 16, 4, 1: 122. – *Woodsia montevidensis* var. *fuscipes* Hieron. 1907, Hedwigia 46: 322. *Woodsia incisa* Gillies ex Hook. & Grev. 1831, Icon. Filic. 2. t. 191. – *Physematium incisum* (Gillies ex Hook. & Grev.) C. Presl, 1836, Tent.: 66. – *Woodsia peruviana* Hook. 1844, Sp. Fil. 1: 61, pl. 21B. – *Dicalpe peruviana* (Hook.) Trevis. 1875, Nuovo Giorn. Bot. Ital. 7: 160. – *Woodsia crenata* (Kunze) Hieron. 1904, Bot. Jahrb. Syst. 34(4):

440. – *Cheilanthes crenata* Kunze, 1834, Linnaea, 9: 84. – *Woodsia crenata* var. *pallidipes* Hieron. 1904, Bot. Jahrb. Syst. 34(4): 440. – *W. cumingiana* (Kunze) Hook. 1844, Sp. Fil. [W. J. Hooker] 1: 61. – *W. jujuiensis* Copel. 1941, Univ. Calif. Publ. Bot. 19: 297, tab. 50. – *W. pallida* Copel. 1941, Univ. Calif. Publ. Bot. 19: 297. t.51.

**Lectotype** (Tryon & Stolze, 1991; Arana et al., 2016): "Uruguay. ("Brasilia") [Montevideo], Pan d'Acucar, F. Sellow d 517" (B – B200094654!; isolectotype: B200120343!).

**Distribution:** Argentina, Bolivia, Brazil (south and southwest), Chile, Colombia, Ecuador, Peru, Uruguay, Venezuela.

**Woodsiopsis** Shmakov, 2015, Turczaninowia, 18(2): 12. – *Woodsia* subgen. *Perrinia* Hook. 1844, Sp. Fil. 1: 62, p.p.

**Type:** *W. obtusa* (Sprengel) Shmakov (*Woodsia obtusa* (Sprengel) Torrey)

10 species, 3 subspecies and 3 hybrid species distributed in North America and Mexico.

***Woodsiopsis appalachiana*** (T. M. C. Taylor) Shmakov, 2015, Turczaninowia, 18(2): 12. – *Woodsia appalachiana* T. M. C. Taylor, 1947, Amer. Fern J. 37: 88. – *Woodsia scopulina* subsp. *appalachiana* (T. M. C. Taylor) Windham, 1993, Contr. Univ. Michigan Herb. 19: 58. – *W. scopulina* D.C.Eaton var. *appalachiana* (T.M.C.Taylor) C.V.Morton, 1950, Amer. Fern J. 40: 224. – *W. oregana* D.C.Eaton var. *appalachiana* (T.M.C.Taylor) B.Boivin, 1967, Bull. Soc. Bot. France 113: 409.

**Holotype:** "USA. West Virginia: on a mountain 4 miles north of Old Sweet, 14 Sep 1903, Steele & Steele 306" (GH; isotype: MO).

**Distribution:** USA (Arkansas, Kentucky, North Carolina, Tennessee, Virginia, West Virginia).

***Woodsiopsis cochisensis*** (Windham) Shmakov, 2015, Turczaninowia, 18(2): 12. – *Woodsia cochisensis* Windham, 1993, Contr. Univ. Michigan Herb. 19: 54, fig. 7.

**Holotype:** "USA. Arizona: Cochise Co., SE wall of Huachuca Canyon in the Huachuca Mts., ca. 2.85 km SE of Blacktail Spring, 6000 ft, 31 Aug 1985, M.D. Windham (781) & G. Yatskievych" (UT; isotype: ARIZ, ASU, MICH, UC, US).

**Distribution:** USA (Arizona, New Mexico), Mexico (north).

***Woodsiopsis cystopteroides*** (Windham & Mickel) Shmakov, 2015, Turczaninowia, 18(2): 12. – *Woodsia cystopteroides* Windham & Mickel, 2004, Mem. New York Bot. Gard. 88: 688, fig. 325F-H, J-K.

**Holotype:** "Mexico. Sinaloa. Ocurahui, Sierra Surotato. Alt. 1829 - 2134 m. (6001 - 7001 ft.). Igneous rocky slope in open Pine-Oak forest. Pine Forest. 1-10 Sep 1941, Gentry 6432" (NY – NY688048; isotype: ARIZ, GH, MICH, PH).

**Distribution:** Mexico.

***Woodsiopsis mexicana*** (Fée) Shmakov, 2015, Turczaninowia, 18(2): 12. – *Woodsia mexicana* Fée, 1857, Sept. Mem. Fam. Foug.: 66. – *Woodsia pusilla* E. Fourn. var. *mexicana* (Fée) T. M. C. Taylor, 1947, Amer. Fern J. 37: 86. – *Woodsia pusilla* E. Fourn. 1880, Bull. Soc. Bot. France, 27: 329. – *W. oregana* D.C.Eaton var. *mexicana* (Fée) B.Boivin, 1967, Bull. Soc. Bot. France 113: 408.

**Holotype:** "Mexico, San Angel, 1855, W. Schaffner 306" (RB – RB00610778).

**Distribution:** Mexico.

***Woodsiopsis neomexicana*** (Windham) Shmakov, 2015, Turczaninowia, 18(2): 12. – *Woodsia neomexicana* Windham, 1993, Contr. Univ. Michigan Herb. 19: 52, fig. 6.

**Holotype:** "U.S.A. New Mexico: Socorro Co., along small tributary of Water Canyon in the Magdalena Mountains ca. 5.84 km SE of the summit of North Baldy, 7050 ft, 23 Aug 1990, M.D. Windham (90-365) & E. Rahe" (UT; isotype: ARIZ, ASU, BRY, COLO, GH, MICH, MO, NMC, NY, TEX, UC, UNM, US).

**Distribution:** USA (Arizona, Colorado, New Mexico, Oklahoma, South Dakota, Texas).

***Woodsiopsis obtusa*** (Sprengel) Shmakov, 2015, Turczaninowia, 18(2): 13. – *Woodsia obtusa* (Sprengel) Torrey, 1840, New York State, Rep. Geol. Surv. 195. – *Polypodium obtusum* Sprengel, 1804, Anleit. Kenntn. Gew. 3: 93. – *W. perriniana* (Spreng.) Hook. & Grev. 1828, Icon. Filic. 1: t. 68.

**Type:** "America septentr. Leg.: M. Kinn s.n." (B!).

**Distribution:** USA (mountainous areas of the eastern part), Canada (Quebec, Ontario).

***Woodsiopsis obtusa* subsp. *occidentalis*** (Windham) Shmakov, 2015, Turczaninowia, 18(2): 13. – *W. obtusa* subsp. *occidentalis* Windham, 1993, Contr. Univ. Michigan Herb. 19: 56.

**Holotype:** "U.S.A. Texas: Llano Co., W side of Inks Lake, on hillside in granite area, 16 Apr 1945, Lundell B484" (LL!; isotype: LL!, RM!).

**Distribution:** USA (Arkansas, Kansas, Montana, Oklahoma, Texas).

***Woodsiopsis oregana*** (D. C. Eaton) Shmakov, 2015, Turczaninowia, 18(2): 13. – *Woodsia oregana* D. C. Eaton, 1865, Canad. Naturalist & Quart. J. Sci. n. s. 2: 90.

**Lectotype** (Windham, 1993): "U.S.A. Oregon: Dalles of the Columbia River, Major Raines in 1855" (YU – YU001264; isolectotype: GH, K).

**Distribution:** USA (California, Colorado, Idaho, Montana, Nevada, Oregon, Utah, Washington, Wyoming), Canada (Alberta, British Columbia, Saskatchewan).

***Woodsiopsis oregana* subsp. *cathcartiana*** (B. L. Robinson) Shmakov, 2015, Turczaninowia, 18(2): 13. – *Woodsia oregana* subsp. *cathcartiana* (B. L. Robinson) Windham, Contr. Univ. Michigan Herb. 19: 58. 1993. – *Woodsia cathcartiana* B. L. Robinson, 1908, Rhodora 10: 30. – *W. oregana* D.C.Eaton var. *cathcartiana* (B.L.Rob.) C.V.Morton, 1950, Amer. Fern J. 40: 222. – *W. oregana* D.C.Eaton f. *cathcartiana* (B.L.Rob.) B.Boivin, 1966, Bull. Soc. Bot. France 113: 408. – *W. oregana* D.C.Eaton f. *glandulosa* T.M.C.Taylor, 1947, Amer. Fern J. 37: 85. – *W. scopulina* D.C.Eaton var. *cathcartiana* (B.L.Rob.) Clute, 1908, Fern Bull. 15: 127. – *W. scopulina* D.C.Eaton f. *cathcartiana* (B.L.Rob.) Clute, 1938, Our Ferns: 133.

**Holotype:** "U.S.A. Minnesota: Taylor's Falls of the St. Croix River, 1874, Cathcart s.n." (GH!).

**Distribution:** USA (Arizona, California, Colorado, Idaho, Iowa, Kansas, Minnesota, Michigan, Montana, Nebraska, Nevada, New Mexico, New York, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Wyoming, Wisconsin), Canada (Manitoba, Ontario, Quebec, Saskatchewan).

***Woodsiopsis phillipsii*** (Windham) Shmakov, 2015, Turczaninowia, 18(2): 13. – *Woodsia phillipsii* Windham, 1993, Contr. Univ. Michigan Herb. 19: 50, fig. 5.

**Holotype:** "USA. Arizona. Cochise Co.: Rucker Canyon, Chiricahua Mountains, canyon sides in pine woods, 6500 feet, 7.10.1945, Walter S. Phillips, 2854" (GH; isotype: ARIZ, ASC, UBC, US).

**Distribution:** USA (Arizona, New Mexico, Texas), Mexico.

***Woodsiopsis plummerae*** (Lemmon) Shmakov, 2015, Turczaninowia, 18(2): 13. – *Woodsia plummerae* Lemmon, 1882, Bot. Gaz. 7: 6. – *W. obtusa* (Spreng.) Torr. var. *plummerae* Maxon, 1901, Proc. U. S. Natl. Mus. 23: 644. – *W. pusilla* E.Fourn. var. *glandulosa* (D.C.Eaton & Faxon) T.M.C.Taylor, 1947, Amer. Fern J. 37(3): 86.

**Type:** "USA: Arizona: Chiricahua Mts., 24 Sept 1881, Lemmon & Lemmon, 891" (UC).

**Distribution:** USA (Arizona, California, Colorado, New Mexico, Oklahoma, Texas), Mexico.

***Woodsiopsis scopulina*** (D. C. Eaton) Shmakov, 2015, Turczaninowia, 18(2): 13. – *Woodsia scopulina* D. C. Eaton, 1865, Canad. Naturalist & Quart. J. Sci. 2: 91. – *W. obtusa* (Spreng.) Torr. var. *lyallii* Hook. 1866, Syn. Fil. (Hooker & Baker): 48. – *W. oregana* D.C.Eaton var. *lyallii* (Hook.) B.Boivin, 1966, Bull. Soc. Bot. France 113: 409.

**Type:** "North America. USA. Colorado. Middle Park. C. C. Parry. 1861" (Syntype: YU); "U.S.A.. Flora Montium Scopulosorum, sub. lat. 39--41°, Hall E. & Harbour J. P., 690b, 1862" (Isosyntype: UC, F).

**Distribution:** USA (Alaska, California, Colorado, Idaho, Montana, Nevada, Oregon, Utah, Wyoming, Washington), Canada (Alberta, British Columbia, Saskatchewan, Yukon).

***Woodsiopsis scopulina* subsp. *laurentiana*** (Windham) Shmakov, 2015, Turczaninowia, 18(2): 13. – *Woodsia scopulina* subsp. *laurentiana* Windham, 1993, Contr. Univ. Michigan Herb. 19: 59.

**Holotype:** "Canada. Quebec: Gaspé Co., Tourelle, on sandstone sea-cliffs, 19-21 Aug 1905, Collins & Fernald 25351" (GH).

**Distribution:** USA (Arizona, California, Colorado, Idaho, Montana, Nevada, Oregon, South Dakota, Utah, Wyoming, Washington), Canada (Alberta, British Columbia, Quebec, Ontario).

***Woodsiopsis* × *abbeae*** (Butters) Shmakov, comb. nov. – *Woodsia* × *abbeae* Butters, 1941, Amer. Fern J. 31: 18. – *W. confusa* T.M.C.Taylor, 1947, Amer. Fern J. 37: 87. – *W. oregana* D.C.Eaton var. *squammosa* B.Boivin, 1960, Naturaliste Canad. 87: 49.

**Type:** "Thunder Bay Distr., Pigeon Bay, Abbe & Abbe 596" (MIN).

**Distribution:** USA (Michigan, Minnesota, Wisconsin), Canada (Ontario, Saskatchewan).

***Woodsiopsis* × *kansana*** (R.E.Brooks) Shmakov, comb. nov. – *Woodsia* × *kansana* R.E.Brooks, 1982, Amer. Fern J. 72(3): 81.

**Type:** "Kansas. McPherson Co.: 2 mi west and 2 mi south of Marquette, east facing sandstone outcrops along a high prairie ridge, 25 June 1976, Ralph Brooks 12259d" (KANU; isotype: MICH, NY).

**Distribution:** USA (Kansas).

***Woodsiopsis* × *maxonii*** (R.M.Tryon) Shmakov, comb. nov. – *Woodsia* × *maxonii* R.M.Tryon, 1949, Amer. Fern J. 38: 169.

**Holotype:** "Damp, shady, slate ledges, northeast side of Sleeping Giant, 2 miles west of Silver Islet, Thunder Bay District, Ontario, Canada, Sept. 5, 1947, R. M. & A. F. Tryon & A. C. Faber 4968" (MO – MO255403).

**Distribution:** USA (Minnesota), Canada (Ontario)

***Woodsioideae*** Shmakov, 2001, Turczaninowia, 4 (1-2): 65.

**Type:** *Woodsia* R. Br.

Two genera and about 35 species distributed mainly in Eurasia with few representatives in the north of North America.

***Woodsia*** R. Br., 1810, Prodr. Fl. Nov. Holl.: 158.



**Type:** *W. ilvensis* (L.) R. Br.

About 27 species almost world-wide.

**Subgen. Acrolysis** (Nakai) Shmakov, 2003, Pteridol. New Millennium: 52. — Sect. *Acrolysis* Nakai, 1925, Bot. Mag. Tokyo, 39: 176.

**Lectotype:** *W. polystichooides* D.C. Eaton

**Sect. Acrolysis** Nakai, 1925, Bot. Mag. Tokyo, 39: 176. — Sect. *Intermediae* Fomin, 1934, Fl. URSS. 1:21, descr. ross., pro parte. — Subsect. *Acrolysis* Nakai, 1925, Bot. Mag. Tokyo, 39: 176, pro sect.

**Lectotype:** *W. polystichooides* D.C. Eaton

About 5 species distributed in East Asia.

***Woodsia macrochlaena*** Mett. ex Kuhn, 1868, J. Bot (London). 6: 270. – *W. sinuata* Makino, 1897, Bot. Mag. Tokyo. 11: 64, non (Hook.) Christ, 1902. – *W. japonica* Makino, 1904, Bot. Mag. Tokyo. 18: 135. – *W. frondosa* Christ, 1908, Fedde. Repert. 5: 12. – *Woodsia insularis* Hook. et Bak. 1874, Syn. Fil. 2: 47, excl. pl. ex Saghal., auct. non Hance, 1861.

**Type:** "Chefoo, Schottmuller, August 1861" (LE).

**Distribution:** Russia (Far East), China (Hebei, Guangdong, Liaoning, Shandong, Shanxi, Zhejiang), Korea, Japan.

***Woodsia oblonga*** Ching et S.H. Wu, 1974, Fl. Tsinling. 2: 221.

Type: "Hopei: Gi Hsien, Pan Shan, ex Herb. Bot. Inst. Bot. Acad. Sin., N 2003, 6.07.1956" (PE).

**Distribution:** China (Hebei, Beijing, Henan, Shandong).

***Woodsia polystichooides*** D.C. Eaton, 1858, Proc. Amer. Acad. Arts. 4: 110. – *W. polystichooides* var. *nudiuscula* Hook., 1862, Gard. Fern. ad. t. 32. – *W. polystichooides* var. *veichii* Hance, 1861, Ann. Sci. Nat. 5, 15: 229. – *W. polystichooides* var. *incisa* Ching et Y.T. Hsien, 1974, Fl. Tsinling. 2: 146, 222. – *Woodsia brandtii* Franch. et Sav, 1879, Enum. Pl. Jap. 2: 205, 616-617. – *Woodsia sinuata* (Hook.) Christ, 1902, Bull. Herb. Boissier, ser. 2, 2 (10): 830, nom. illeg. – *Physematium polystichooides* (D.C. Eaton) Trev, 1875, Nuov. Giorn. Bot. It. 7: 161.

**Type:** "Hakodadi, Japan, C. Wright, 1853-56" (isotype: K, GH, US).

**Distribution:** Russia (Far East), China (Hebei, Jilin, Liaoning, Beijing, Anhui, Shandong, Shaanxi, Zhejiang, Jiangxi, Hubei, Taiwan), Korea, Japan.

***Woodsia pilosa*** Ching, 1974, Fl. Tsinling. 2: 222.

Type: "Honan: Laochin Shan, M.H. Sze et P.C. Ting, N 22848, 16.08.1957" (PE).

**Distribution:** China (Henan).

***Woodsia subintermedia*** Tzvel. 1991, Pl. Vascul. Orient. Extr. Sov. 5: 83. – *W. intermedia* Tagawa, 1936, Acta Phytotax. Geobot. (Kyoto): 250, non Rupr. 1845. – *Woodsia taishanensis* F.Z. Li et C.K. Ni, 1982, Acta Phytotax. Sinica. 20 (3): 343.

**Type:** "Manchuria: Mt. Lao-t'ieh-shan, Prov. Feng-t'ien, Aug. 16, 1931. M. Kobayasi" (KYO).

**Distribution:** Russia (Far East), China (Heilongjiang, Henan, Hebei, Shandong, Jilin, Liaoning, Shanxi), Korea, Japan.

**Sect. Subcordatae** (Shmakov) Shmakov, 2015, Turczaninowia, 18(2): 13. – Ser. *Subcordatae* Shmakov, 1995, Обзор видов сем. Woods. Евраз.: 41.

**Type:** *W. subcordata* Turcz.

The section is highly polymorphic, with about 4 species distributed in East Asia.

***Woodsia kitadakensis*** Ohwi, 1930, Bot. Mag. Tokyo. 44: 572. – *W. saitoana* Tagawa, 1936, Acta Phytotax. Geobot. 5: 250. – *W. pseudoilvensis* Tagawa, 1936, Acta Phytotax. Geobot. 5: 251. – *W. subcordata* Turcz. var. *kitadakensis* (Ohwi) Mitsuta, 1979, Acta Phytotax. Geobot. 30(1-3): 100.

**Type:** "Hondo: Mt. Katadake in Prov. Kai. 24 August 1929. J. Ohwi (KYO)".

**Distribution:** Russia (Far East), China (Heilongjiang, Jilin), Korea, Japan.

***Woodsia longifolia*** Tagawa, 1936, Acta Phytotax. Geobot. 5: 252. – *W. subcordata* Turcz. var. *longifolia* (Tagawa) Tzvelev, 1991, Pl. Vascul. Orient. Extr. Sov. 5: 85.

**Type:** "Korea: Hozyoto, Prov. Kanhoku, 1383 A. July 24, 1935. R. Saito" (KYO).

**Distribution:** Russia (Far East), China (Heilongjiang, Jilin), Korea, Japan.

***Woodsia sinica*** Ching, 1932, Sinensia. 3 (5): 145.

Type: "Shansi: Nin-wu Hsien, Lu-y-shan, on shaded rock crevices, 19 Aug. 1929, T. Tang, N 1392" (PE).

**Distribution:** China (Shanxi).

***Woodsia subcordata* Turcz.** 1832, Bull. Soc. Nat. Mosc. 5: 206. – *W. eriosora* Christ, 1908, Fedde. Repert. 5: 22. – *W. viridis* Ching, 1932, Sinensia. 3: 146. – *W. polystichoides* var. *sinuata* Hook., 1862, Gard. Ferns: 32. – *W. sinuata* (Hook.) Christ, 1902, Bull. Herb. Boiss. ser. 2, 2: 830, non Makino, 1897. – *W. conmixta* Ching, 1949, Bull. Fan Mem. Inst. Biol. N. S.: 314, pro nom. nov. *W. sinuata* (Hook.) Christ. – *W. microsora* Kodama, 1917, in Matsum., Icon. Pl. Koisikav. 3: 101, t. 196.

**Type:** "China bor. Turczaninow (LE)".

**Distribution:** Russia (East Siberia, Far East), China (Heilongjiang, Jilin, Liaoning), Mongolia, Korea, Japan (?).

**Subgen. *Woodsia*** – Sect. *Woodsia* Ma, 1985, Fern Gaz. 13, 1: 23, pro parte min. – Sect. *Euwoodsia* Hook., 1844, Sp. Fil. 1: 63, pro subgen.

**Type:** *W. ilvensis* (L.) R. Br.

**Sect. *Woodsia*** Ma, 1985, Fern Gaz. 13, 1: 23. – Sect. *Euwoodsia* Hook., 1844, Sp. Fil. 1: 63, pro subgen. – Sect. *Intermediae* Fomin, 1934, Fl. URSS. 1: 21, descr. ross., pro parte

**Type:** *W. ilvensis* (L.) R. Br.

About 7 species distributed in the Northern Hemisphere.

***Woodsia acuminata*** (Fomin) Sipl., 1974, News Syst. Higher Plants. 11: 327. – *W. ilvensis* var. *acuminata* Fomin, 1925, Bull. Jard. Bot. Kieff. 3: 3, t. 1.

**Lectotype** (Shmakov & Kiselev, 1995): "Distr. Nerczinsk, ditio fluvii Argun, systema flum. Urjumkan, in valle Schuruscheza Superior. 22.VII.1909. I. Krascheninnikow" (LE).

**Distribution:** Kazakhstan, Mongolia, China (Manchuria?, Xinjiang), Russia (West Siberia, East Siberia, Far East).

***Woodsia asiatica*** Shmakov et Kiselev, 1995, Surv. Fam. Woods. Eur.: 40.

**Type:** "Prov. Czita, distr. Tungiro-Olekmense, jugum Tunginskii, in fontibus Gapanga. Alpes. In rupibus. 18–20 Aug. 1966, V. Siplivinsky" (LE; isotype: TK).

**Distribution:** Kazakhstan, Mongolia, Russia (West Siberia, East Siberia).

***Woodsia calcarea*** (Fomin) Shmakov, 1995, Surv. Fam. Woods. Eur.: 29. – *W. ilvensis* var. *calcarea* Fomin, 1930, Fl. Sibir. and Orient. Extr. 5: 21.

**Type:** "Kuznetsky Alatau. Basin of the river Tom, slime rocks, covered with sparse forest, near settlement "Stone", 23.06.1909, B.N. Klopotov" (LE).

**Distribution:** China?, Kazakhstan (Altai), Korea?, Mongolia, Russia (West Siberia – Altai).

***Woodsia gorovoi*** Krestsch. & Shmakov, 2007, Turczaninowia, 10(1): 9.

**Type:** "Prov. Amur, distr. Mazanovskensis, ripa dextra fl. Selemdzha, 2 km supra pagi Uglovoe, rupium, 14 VIII 2003, Kreshchenok Ir. An., Kreshchenok Iv. Al." (ALTB, isotype – LE).

**Distribution:** China?, Mongolia?, Russia (East Siberia, Far East).

***Woodsia ilvensis*** (L.) R. Br., 1810, Prodr. Fl. Nov. Holl. 1: 158. – *Acrostichum ilvense* L., 1753, Sp. Pl.: 1071. – *W. hyperborea* var. *rufidula* (Michx.) Koch, 1845, Syn. Fl. Germ. 2: 975. – *Polypodium ilvense* (L.) Vill., 1789, Hist. Pl. Dauph. 3: 848. – *Polypodium arvonicum* Wither, 1796, Bot. Arrang. 3: 774. – *Nephrodium rufidulum* Michx., 1803, Fl. Bor. Amer. 2: 269. – *Aspidium rufidulum* (Michx.) Sw., 1806, Syn. Fil.: 58. – *Notholaena rufidula* (Michaux) Desv., 1827, Ann. Soc. Lin. Paris. Vol. 6: 318. – *W. rufidula* (Michx.) L.C.Beck, 1833, Bot. North. St. 458. 1833. – *W. vestita* Spr., 1819, Nov. Prov. Hort.: 44. – *W. paleacea* Opiz, 1820, Kratos, 2–1: 5. – *W. raiana* Newm., 1844, Hist. Brit. Ferns, 2: 140. – *W. frigida* Gandoger, 1881, Oest. Bot. Zeit. 31 (1): 18. – *W. uralensis* Gandoger, 1881, Oest. Bot. Zeit. 31: 18. – *Lastrea rufidula* (Michaux) C.B. Presl, 1836, Tent. Pterid.: 76.

**Lectotype** (Copeland, 1929): "Amman 51, Herb. Linn. No. 1245.13" (LINN).

**Distribution:** Austria, Britain, China (Xinjiang), Czechia, Finland, France, Germany, Hungary, Iceland, Italy, Jugoslavia (former), Kazakhstan, Korea (?), Mongolia, Japan (?), Norway, Poland, Romania, Slovakia, Sweden, Switzerland, Russia (European Part, Caucasus, West Siberia, East Siberia, Far East), Nort. Amer.

***Woodsia pseudopolystichoides*** (Fomin) Kiselev et Shmakov, 1995, Surv. Fam. Woods. Eur.: 29. – *W. ilvensis* var. *pseudopolystichoides* Fomin, 1925, Bull. Jard. Bot. Kieff. 3: 3.

**Type:** "In ditioe Ussuriensi inter flum. Nachtachu et Swetlaja. № 1717. 21.07.1911. N. Desoulavy" (LE).

**Distribution:** China (Heilongjiang), Korea?, Russia (Far East).

***Woodsia taigischensis*** (Stepanov) Kuznetsov, 2010, Sist. Zаметki Mater. Gerb. Krylova Tomsk. Gosud. Univ. Kuybysheva, 102: 8. – *W. ilvensis* (L.) R.Br. var. *taigichensis* Stepanov, 1993, Sibir. Biol. Zhurn. 1: 48.

**Type:** "Russia, Sajan Occidentalis, jugum Kedranskij, rupes expositionis orientalis ad fl. Taigisch ex adverso ostii fontis Bolschoy Tatarskiy. 14 VIII 1988. N. Stepanov" (LE; isotype: NS, KGU).

**Distribution:** Russia (West Siberia).

**Sect. *Alpinae*** (Shmakov) Shmakov, 2015, Turczaninowia, 18(2): 14. – Series *Alpinae* Shmakov, 1995, Surv. Fam. Woods. Eur.: 28.

**Type:** *W. alpina* (Bolt.) S.F. Gray

Four species and one hybrid, distributed in North America and mountains of Eurasia.

***Woodsia alpina*** (Bolton) S.F. Gray, 1821, Nat. Arr. Brit. Pl.: 2: 17. – *Acrostichum alpinum* Bolton, 1790, Fil. Brit. 2: 76, pl. 42. – *Acrostichum hyperboreum* Liljeblad, 1793, Kongl. Vetén. Acad. Hand. Tom. 14: 201. – *Polypodium arvonicum* Withering, 1796, Bot. Arr. Veg. Nat. Growing in Great Britain. 3: 174. – *Polypodium hyperboreum* Swartz, 1801, J. Bot. (Schrader) Zweiter Band. 27. – *Ceterach alpinum* Lamarck and de Candolle, 1805, Flore Francaise., 3: 567. – *Woodsia hyperboreum* R. Br., 1810, Fl. Nov. Holl.: 158. – *W. alpina* (Bolton) Gray var. *bellii* (G.Lawson) G.Lawson, 1864, Canad. Naturalist Geol. n.s. 1: 4. – *W. alpina* (Bolton) Gray subsp. *bellii* (G.Lawson) Á.Löve & D.Löve, 1977, Taxon 26(2-3): 326. – *W. belli* (G.Lawson) A.E.Porsild, 1945, Rhodora 47: 147. – *W. glabella* R.Br. var. *bellii* G.Lawson, 1864, Edinburgh New Philos. J. ser. 2. 19: 281.

Described from England ("From the Mountains of Wales").

**Distribution:** Austria, Britain, Czechia, Finland, France, Germany, Georgia, Iceland, Italy, Jugoslavia (former), Norway, Poland, Romania, Russia (European Part, Caucasus), Slovakia, Spain, Sweden, Switzerland, Turkey, North Amer.

***Woodsia himalaica*** Ching et S.K. Wu, 1983, Fl. Xizang. 1: 189, t. 5, f. 9-10.

**Type:** "Xizang: Nyalam, in sylvis rupibus alt. 3900 m. Tibetan Medicinal Herb. Exped. 1763, Y.T. Chang et al., 7 Sept. 1972" (PE).

**Distribution:** Afganistan, China (Xizang), India (Himachal Pradesh), Kyrgyzstan.

***Woodsia intermedia*** Rupr., 1845, Beitr. Pflanzenk. Russ. Reich. 3: 54. – *W. gracilis* (Lawson) Butters, 1941, Amer. Fern J. 31 (1): 15. – *W. ilvensis* s. *gracilis* Lawson, 1864, Edinburg New Phil. J. N. S. 19: 281. – *W. alpina* x *ilvensis* Rosendahl, 1915, Svensk Bot. Tids. 9: 418. – *W. glabella* x *ilvensis* Tryon, 1948, Amer. Fern J. 38 (4): 167.

**Type:** "Sabaudia (Herb. Fischer)" (LE).

**Distribution:** Finland, Norway, Sweden, Russia (European Part, Ural, West Siberia).

***Woodsia pilosella*** Rupr., 1845, Beitr. Pflanzenk. Russ. Reich. 3: 54.

**Type:** "Ulutau, N 432, 8 Iuni 1842, Schrenk" (LE).

**Distribution:** Russia (Ural), Kazakhstan (Ulutau, Kokon).

***Woodsia* × *tryonis*** Boivin, 1966, Naturaliste Canad. 93: 273. – *Woodsia glabella* x *ilvensis* Tryon, 1948, Am. Fern Journ., 38: 167.

**Type:** "Damp, shady, slate cliffs, northeast side of Sleeping Giant, 2 miles west of Silver Islet, Thunder Cape, Thunderay District, Ontario, Canada, September 5, 1947, B. M. & A. F. Tryon & A. C. Faber 4962" (MO).

**Distribution:** Canada (Ontario)

**Subgen. *Glabellae*** (Shmakov) Shmakov, 2015, Turczaninowia, 18(2): 14. – *Woodsia* sect. *Woodsia* subsect. *Glabellae* Shmakov, 1995, Surv. Fam. Woods. Eur.: 46.

**Type:** *W. glabella* R. Br.

**Sect. *Glabellae*** (Shmakov) Tzvel., 2005, Novit. Syst. Pl. Vasc., 37: 26. – *Woodsia* sect. *Woodsia* subsect. *Glabellae* Shmakov, 1995, Surv. Fam. Woods. Eur.: 46. — Subsect. *Ilvensis* Ching, 1932, Sinensia. 3, 5: 134, pro parte.

**Type:** *W. glabella* R. Br.

About 6 species distributed in the Northern Hemisphere.

**Series *Glabellae*** Shmakov, 2003, Pteridol. New Millennium: 54.

**Type:** *W. glabella* R. Br.

About 4 species distributed in the Northern Hemisphere.

***Woodsia asplenioides*** Rupr., 1845, Beit. Pflanzen. Russ. Reich. 3: 55. – *W. glabella* R. Br. var. *rotundata* Fomin, 1925, Bull. Jard. Bot. Kieff. 3: 5. – *W. glabella* R.Br. subsp. *asplenioides* (Rupr.) Stepanov, 1993, Sibirsk. Biol. Zhurn. 1: 47.

**Type:** "Mongolia, Schangin" (LE).

**Distribution:** Russia (East Siberia), Mongolia.

***Woodsia glabella*** R. Br., 1823, in Richards, Bot. App. Narrative Fr. J.: 745. – *W. alpina* var. *glabella* (R. Br.) Eaton, 1865, Can. Nat. Geol. N. S. 2: 90. – *W. hyperborea* var. *glabella* (R. Br.) Watt., 1866, Can. Nat. Geol. N. S. 3: 160. – *W. lapponica* Angstrom, 1864, Hartman, Hand. Skand. Pl. ed. 9: 267. – *W. glabella* f. *normalis* Trevisan, 1874, Atti Soc. It. Sci. Nat. 17: 222. – *W. glabella* Tuzson, 1909, Mag. Bot. Lap. 8, nom. superfl. – *W. nikkoensis* H.Ogura & Nakaike, 2002, J. Jap. Bot. 77(5): 296.

**Type:** "wooded country from lat. 54—64 north, Mackensis distr." (?).

**Distribution:** Finland, Iceland, Norway, Russia (European Part, West Siberia, East Siberia, Far East), Sweden, Nort. Amer.

*Woodsia hancockii* Bak., 1891, Ann. Bot. 5: 196. – *Woodsia gracillima* C. Chr., 1924, Acta Horti. Gothob. 1: 42, t. 16, f. a-d. – *Woodsia tsurugisanensis* Makino, 1914, Bot. Mag. Tokyo. 28: 177.

**Type:** "Siao-wu-tai, Pekin, Hancock 18" (K?).

**Distribution:** China (Beijing, Hebei, Shanxi, Heilongjiang, Jilin), Korea, Japan.

*Woodsia pinnatifida* (Fomin) Shmakov, 1995, Surv. Fam. Woods. Eur.: 55. – *W. glabella* var. *pinnatifida* Fomin, 1925, Bull. Jard. Bot. Kieff. 3: 6. – *W. glabella* R.Br. subsp. *pinnatifida* (Fomin) Stepanov, 1993, Sibir. Biol. Zhurn. 1: 47. – *W. heterophylla* (Turcz. ex Fomin) Shmakov, 1995, Surv. Fam. Woods. Eur.: 54, comb. illeg. – *W. glabella* var. *heterophylla* Turcz. ex Fomin, 1925, Bull. Jard. Bot. Kieff. 3: 5. – *W. heterophylla* Turcz., 1856, Fl. Baic.-Dahur. 2, 2: 364, pro syn. – *W. yazawai* Makino, 1904, Bot. Mag. Tokyo. 18: 132.

**Type:** "Transbaikal region, Nerchensky district. Cracks of rocks. The bank of the river Shilka in 2 versts below Voskresensk. 6 VIII 1909. Kuznetsov N.I." (LE).

**Distribution:** China (Gansu, Hebei, Sichuan, Heilongjiang, Jilin, Liaoning, Nei Mongol), Kazakhstan (Altai), Korea, Japan, Mongolia, Russia (European Part, Caucasus, Ural, West Siberia, East Siberia, Far East).

**Series Pulchellae** Shmakov, 2015, Turczaninowia, 18(2): 14.

**Type:** *W. pulchella* Bertoloni

2 species distributed in Europe and China.

*Woodsia pulchella* Bertoloni, 1858, Fl. Ital. Crypt. 1: 111. – *Woodsia glabella* R.Br. subsp. *pulchella* (Bertol.) Á.Löve & D.Löve, 1961, Bot. Not. 114(1): 49.

**Type:** "Tyroli meridionali, ad rupes calcarias in Pusteria, 1853, Hausmann" (?).

**Distribution:** Austria, Germany, Italy, Jugoslavia (former), Romania, Spain, Switzerland.

*Woodsia shensiensis* Ching, 1932, Sinensia. 3 (5): 141.

**Type:** "Shensi: Tai-pai-shan, 4469, 18 Sept. 1932, K. S. Hao" (PE).

**Distribution:** China (Shaanxi).

*Eriosoriopsis* (Kitag.) Ching & S.H. Wu, 1991, Fern Fam. & Gen. China: 402.

**Lectotype:** *E. rosthorniana* Ching et S.H. Wu (= *Woodsia rosthorniana* Deils (= *W. jeholensis* Nakai et Kitag.))

8 species distributed in the mountains of China, the Himalayas and Taiwan.

**Subgen. Eriosoriopsis** (Kitag.) Shmakov, 2015, Turczaninowia, 18(2): 14. – *Woodsia* sect. *Eriosoriopsis* Kitag. 1935, Rep. First. Sci. Expecl. Manchoukuo. 4 (2): 48.

**Lectotype:** *E. rosthorniana* Ching et S.H. Wu (= *Woodsia rosthorniana* Deils (= *W. jeholensis* Nakai et Kitag.)).

**Sect. Eriosoriopsis** (Kitag.) Shmakov, 2015, Turczaninowia, 18(2): 14. – *Woodsia* sect. *Eriosoriopsis* Kitagawa, 1935, Rep. First. Sci. Expecl. Manchoukuo. 4 (2): 48. – *Woodsia* sect. *Rostornia* Tzvel. 2005, Novit. Syst. Pl. Vasc. 37: 38. – *Woodsia* subsect. *Rosthorniana* Shmakov et Kiselev, 1995, A Surv. Fam. Wood. Eur.: 61.

**Lectotype:** *E. rosthorniana* Ching et S.H. Wu (= *Woodsia rosthorniana* Deils (= *W. jeholensis* Nakai et Kitag.)).

*Eriosoriopsis rosthorniana* (Deils) Ching et S.H. Wu, 1991, Fern Fam. & Gen. of China, 402. – *Woodsia Rosthorniana* Deils, 1900, in Engl. Bot. Jahrb. Syst. 29 (2): 187. – *Woodsia delavayi* Christ, 1905, Bull. Soc. Bot. France, 52 (Mem. 1): 45. – *Woodsia lanosa* var. *attenuata* C. Chr., 1913, Bot. Gaz. 56: 333, 338. – *W. jeholensis* Nakai et Kitagawa, 1934, Rep. First. Sci. Exped. Manchoukuo, 4 (1): 15, cum fig. 48.

**Type:** "Plantae chinensis in prov. Setchuen ab insolis collectae, C. Bock & A. V. Rosthorn (No. 34) 1764" (B).

**Distribution:** China (Shaanxi, Yunnan, Sichuan, Xizang, Hebei, Gansu), Bhutan.

*Eriosoriopsis guizhouensis* (P. S. Wang, Q. Luo & Li Bing Zhang) Shmakov, 2015, Turczaninowia, 18(2): 14. – *Woodsia guizhouensis* P. S. Wang, Q. Luo & Li Bing Zhang, 2012, Novon, 22 (2): 191, fig. 1, 2.

**Holotype:** "China. Guizhou: Bijie City, Yangjiawang, Gonglongping Forestry Center, among crevices on wet limes tone cliff, 27°12.92'N, 104°59.52'E, 1670 m, 21 Sep. 2008, Q. Luo 08301" (CDBI; isotype: BJ, MO).

**Distribution:** China (Guizhou).

**Subgen. Eriosorus** (Ching) Shmakov, 2015, Turczaninowia, 18(2): 14. – *Woodsia* subgen. *Eriosorus* (Ching) Shmakov, 2003, Pteridol. New Millennium: 59. – *Woodsia* sect. *Eriosorus* Ching, 1932, Sinensia. 3 (5): 134.

**Lectotype:** *E. lanosa* (Hook.) Shmakov (= *Woodsia lanosa* Hook.).

**Sect. Eriosorus** (Ching) Shmakov, 2015, Turczaninowia, 18(2): 14. – *Woodsia* sect. *Eriosorus* Ching, 1932, Sinensia. 3 (5): 134. — Subsect. *Eriosorus* Shmakov et Kiselev, 1995, Surv. Fam. Woods. Eur.: 61.

**Lectotype:** *E. lanosa* (Hook.) Shmakov (= *Woodsia lanosa* Hook.).



*Eriosoriopsis andersonii* (Bedd.) Shmakov, 2015, Turczaninowia, 18(2): 15. – *Woodsia andersoni* (Bedd.) Christ, 1905, Bull. Soc. Bot. France: Mem. 1: 45. – *Gymnogramma andersoni* Bedd. 1866, Ferns Brit. Ind. 2: 190, t. 190.

**Type:** "Kumaon. T. Anderson" (K).

**Distribution:** China (Gansu, Shaanxi, Qinghai, Sichuan, Xizang, Yunnan), India (Uttar Pradesh, Sikkim), Nepal.

*Eriosoriopsis cinnamomea* (Christ) Shmakov, 2015, Turczaninowia, 18(2): 15. – *Woodsia cinnamomea* Christ, 1906, Bull. Acad. Int. Geogr. Bot. 16: 122.

**Type:** "Western China. E. H. Wilson, 5369, July 1903" (P, K-isotype).

**Distribution:** China (Sichuan).

*Eriosoriopsis macrospora* (C. Chr. et Maxon) Shmakov, 2015, Turczaninowia, 18(2): 15. – *Woodsia macrospora* C. Chr. et Maxon, 1927, J. Wash. Acad. Sci. 17(19): 499.

**Type:** "Kansu: Taochow. Garganar Gorge, 3600–4200 m. alt. R. C. Ching 906. August. 29. 1923" (PE, US-isotype?).

**Distribution:** China (Gansu).

*Eriosoriopsis lanosa* (Hook.) Shmakov, 2015, Turczaninowia, 18(2): 15. – *Woodsia lanosa* Hook., 1868, Syn. Fil. 47. – *W. pellaepsis* Hand.-Mazz., 1929, Symb. Sinic. 6: 18, t. 1, f. 6.

**Type:** "Pindari. Kumaon. Elevation above the sea 12000 feet, R. Strachey and J. E. Winterbottom, N2" (K).

**Distribution:** China (Xizang, Yunnan, Sichuan), India (Uttar Pradesh, Sikkim, Kashmir).

*Eriosoriopsis cycloloba* (Hand.-Mazz.) Shmakov, 2015, Turczaninowia, 18(2): 15. – *Woodsia cycloloba* Hand.-Mazz., 1929, Symb. Sinic. 6: 19, t. 1, f. 5.

**Type:** "NW – Yunnan: on granite and slate cliffs in Hg. St. of the Burmese Mountains under the Doker-la in the Mekong-Salwin chain, 28° 15'. 4225 m., 17 Sept. 1915 H. Handel-Mazzetti, 8083" (W).

**Distribution:** China (Shaanxi, Yunnan, Sichuan), Nepal.

*Eriosoriopsis okamotoi* (Tagawa) Shmakov, 2015, Turczaninowia, 18(2): 15. – *Woodsia okamotoi* Tagawa, 1938, Acta Phylotax. Geobot. (Kyoto) 7: 185.

**Type:** "Formosa. Prov. Takao: Mt. Kwanzan ca 3700 m. 7 Oct. 1937, S. Okamoto" (KYO).

**Distribution:** China (Taiwan).

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