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Dedicated to the memory of Rudolf Vladimirovich Kamelin (1938–2016), Dr. Biol. Sci., Prof., corresponding member of Russian Academy of Sciences, renown Soviet and Russian botanist, expert in Potentilla, Rosaceae, and a founder of Altai botanical school (Barnaul).

Посвящается светлой памяти доктора биологических наук, члена-корреспондента РАН, профессора Рудольфа Владимировича Камелина (1938–2016), выдающегося советского и российского ботаника, знатока рода Potentilla, семейства Rosaceae, и основателя алтайской школы ботаники.

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A system of subtribe *Potentillinae* J. Presl (Rosaceae Juss.)

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Key words: new combination, typification, new sections, *Argentina* Hill, *Horkelia* Cham. et Schltdl., *Potentilla* L.

Summary. A new system of subtribe *Potentillinae* J. Presl down to the rank of sections is presented. The *Fragariastrum* and *Tormentilla* groups of the genus *Potentilla* L. is classified here as distinct genera, supported by results of molecular studies and morphological differences. Most of species of these groups formerly included in *Potentilla* are transferred to the separate genera *Fragariastrum* Heist. ex Fabr. and *Tormentilla* L. New combinations in *Argentina* Hill, *Horkelia* Cham. et Schltdl., and *Potentilla* are also validated; some sections of these genera are lectotypified. The need of a new typification of *Potentilla* with subsequent conservation of the name in order to avoid nomenclatural instability is briefly discussed; finally, five new sections within *Argentina* are described.

Система подтрибы *Potentillinae* J. Presl (Rosaceae Juss.)

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Ключевые слова: новые комбинации, типификация, новые секции, *Argentina* Hill, *Horkelia* Cham. et Schltdl., *Potentilla* L.

Аннотация. Представлена новая система подтрибы *Potentillinae* J. Presl в мировом объёме до ранга секций. Группы *Fragariastrum* и *Tormentilla* рода *Potentilla* L. на основании результатов молекулярных исследований и морфологических различий рассматриваются здесь в качестве самостоятельных родов. Большинство видов этих групп, ранее включавшихся в *Potentilla*, переводятся в отдельные роды *Fragariastrum* Heist. ex Fabr. и *Tormentilla* L. В родах *Argentina* Hill, *Horkelia* Cham. et Schltdl. и *Potentilla* приводятся новые комбинации, а также лектотипификация отдельных таксонов. Кратко обсуждается необходимость новой типификации рода *Potentilla* последующей консервацией этого названия во избежание номенклатурной нестабильности. В роде *Argentina* описывается пять новых секций.

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Introduction

Development of molecular-genetic methods in the end of XX century prompted phylogenetic research in Rosaceae Juss. and *Potentilla* s. l., in particular. One of the first works in this field was ITS-based phylogenetic analysis which included 14 *Potentilla* s. l. species and members of 19 related genera (each represented by a single species), except for *Fragaria* L. Relevant tree of 34 Rosaceae taxa demonstrated lack of monophyly of *Potentilla*. In a subsequent, ITS- and *trn*LF-based study of 44 Rosaceae (including 18 *Potentilla* s. l.) species (Eriksson et al., 2003), monophyly of *Potentilleae* Juss. has been confirmed.

Potter et al. (2007) constructed a family-wide phylogeny based on a multigene (6 nuclear and 4 cp markers) analysis of 88 Rosaceae genera. Results of this analysis have been utilized for elaboration of a new system of the family. Two subtribes were recognized within *Potentilleae*: 1) *Potentillinae* J. Presl with the single genus *Potentilla* L. (incl. *Argentina* Hill, *Comarella* Rydb., *Duchesnea* Sm., *Horkelia* Cham. et Schltdl., *Horkeliella* (Rydb.) Rydb., *Ivesia* Torr. et A. Gray, *Purpusia* Brandegee, *Stellariopsis* (Baill.) Rydb.); and 2) *Fragariinae* Torr. et A. Gray which comprised *Alchemilla* L. (incl. *Aphanes* L., *Lachemilla* (Focke) Lagerh., and *Zygalchemilla* Rydb.), *Chamaerhodos* Bunge, *Comarum* L. (incl. *Farinopsis* Chrtek et Soják), *Dasiphora* Raf. (=*Pentaphylloides* Duhamel), *Drymocallis* Fourr., *Fragaria* L., *Potaninia* Maxim., *Sibbaldianthe* Juz. (incl. *Schistophyllidium* (Juz. ex Fed.) Ikonn.), *Sibbaldia* L., and *Sibbaldiopsis* Rydb. (Potter et al., 2007). The authors emphasized the lack of reliable non-molecular features for delimitation of the above subtribes.

Such a character has been reported soon by Soják (2008) who discovered that representatives of *Potentillinae* have anthers with two thecae while members of *Fragariinae* possess anthers with one theca. Thus, results of molecular phylogeny have been supported by morphological data.

More recently, Faghir et al. (2014) reconstructed the phylogeny of Iranian species of *Potentilla* and some related genera (over 60 spp. in total) using ITS and *trn*LF markers. This study confirmed the monophyly of *Potentilla* and pored light on evolution of certain taxonomically important morphological characters. In particular, independent evolvement of anther structure, style shape and position has been demonstrated while parallel evolution was revealed for leaf morphology.

Some other phylogenetic studies puplished in between of Potter et al. (2007) and Faghir et al. (2014) also confirmed monophyly of *Potentilla* and division of *Potentilleae* onto two subtribes (e. g., Dobeš, Paule, 2010; Töpel et al., 2011).

Results and discussion

The current paper presents the global system of subtribe *Potentillinae* comprising 12 genera possessing anthers with two thecae. Majority of genera of *Potentillinae* are endemic to North America and characterized by exclusively pinnate leaves (often with 4–15 pairs of deeply incised and whorled leaflets) and small, usually rather narrow petals. One of the most diverse New World *Potentillinae* genera, *Horkelia*, is distributed in the west of North America. Species of *Horkelia* have 10 stamens with flat broadened filaments predominantly attached to the hypanthium mouth. Carpels often numerous (20–50 and more), usually attached to the hypanthium base; inflorescence laxly racemose. The closest to *Horkelia* is *Horkeliella* represented by three species also distributed in the west of North America (Rydberg, 1908). The latter genus differs from the former by having 20 filaments and sepals recurved at anthesis.

Ivesia is another relatively big North American genus of *Potentillinae* which is characterized by 15–20 (rarely 10 or 5) stament with filiform filaments situated in the upper part of hypanthium, 4–5 to 10–15 carpels, often dense, subcapitate inflorescence and small flowers. Monotypic genus *Purpusia* (arid mountains of Nevada) is represented by cespitose-cusion plant lacking "outer calyx" and having 5 stamens attached to the hypanthium mouth and 5–7 carpels. Another monotypic American genus of *Potentillinae* is *Stellariopsis* endemic to the mountains of California and characterized by 15 stamens attached closer to the hypanthium base. It also has anthers opening by subterminal pores to short lateral slits and a single 1-seeded carpel in an open hypanthium. Leaves compound, pinnate, with numerous pairs of tightly sitting and densely pubescent small leaves.

The above six exclusively North American genera of *Potentillinae* demonstrate unique patterns of leaf morphology and generative organs not characteristic to the rest of subtribe including *Potentilla*. Original morphology within *Potentillinae* is demonstrated by *Duchesnea* (two species and a hybrid: Soják, 2012). It is separated from *Potentilla* and other *Potentillinae* members by big, apically 3–5-dentate epicalyx scales ("outer sepals") and glabrous torus

with numerous ovaries, considerably enlarging and becoming globose, fleshy or spongy, red but, unlike in *Fragaria*, not detaching from the hypanthium. Phylogenetic studies show that *Duchesnea* (*D. indica*) falls into one, almost 100 % supported, clade with *P. reptans* L. and *P. erecta* (L.) Raeusch. (Kechaykin, 2016). R. V. Kamelin (2001) and Th. Wolf (1908) merged *Duchesnea* with *Potentilla*. The prior author placed *P. indica* into the section *Duchesnea* (J. E. Smith) B. K. Dikshit et G. Panigrahi, as Panigrahi and Dikshit (1985) have done while the latter treated the same species as a member of subsection *Gomphostylae* Th. Wolf and group *Tormentillae*, along with *P. erecta, P. reptan*s, *P. flagellaris* Willd. ex D. F. K. Schltdl., etc. (Wolf, 1908). Indeed, *Duchesnea* species share some characters with members of *Potentilla* subgen. *Tormentilla* (L.) Kechaykin, e. g., single flowers on long stalks. Besides, representatives of both groups are perennial herbs with short rhizome and long, creeping shoots rooting at nodes (except for *P. erecta* having erect stem). This morphological similarity apparently reflects common origin of *Duchesnea* and *Tormentilla*. At the same time, having in mind resemblance of fruits of *Duchesnea* and *Fragaria* and inadequate information on phylogenetic position of *D. chrysantha* (Zoll. et Moritzi) Miq. and *D. hara-kurowae* Naruh. et Sugim. it seems reasonable to treat *Duchesnea* for the time being as a distinct genus.

Rather separate position in the system of *Potentillinae* is occupied by *Dryadanthe* Endl. (Endlicher, 1840). The only species of this genus, *D. tetrandra* (Bunge) Juz., occurs predominantly in high mountains of Central and Middle Asia. It is a densely cespitose to cusion-forming perennial with woody rhizomes and stems to 15 cm tall. The genus *Dryadanthe* differs from *Potentilla* s. str. by having 4 stamens, 4 pistils, and lateral styles. In contrast to the other genera of *Potentillinae*, flowers in *Dryadanthe* are unisexual.

The second biggest genus of *Potentillinae* is *Argentina*. The centre of its diversity and speciation (and, probably, origin) is situated in mountains of Palaeotropics (South-East Asia). 20 species of *Argentina* (over 25% of the whole number) are endemic to New Guinea (Soják, 2012). Majority of *Argentina* species occur at the elevations above 3000 m a. s. l., have leaves with many (in average 10–20) pairs of leaflets; 10 species produce terrestrial creeping stolons rooting at nodes, others develop erect to ascending stems. One of the characters separating *Argentina* from *Potentilla* and other genera of *Potentillinae* is narrow style attached to the ventral side of achene. This feature is, however, not reliable enough as in more than 10 Asian species the styles are subterminal (Soják, 2010). Instead, the difference in stipule structure detected by Soják (2010) appears to be more sufficient for sepatarion of *Argentin*a from *Potentilla*. While stipule auricles in *Potentilla* s. str. are lateral (stretching along the leaf petiole margins), in *Argentina* they are ventral, and this difference is consistent (Soják, 2010). Molecular studies (Kechaykin, 2016; Feng et al., 2014) also support distinctness of *Argentina* from other genera of *Potentillinae*. Based on these findings, we follow Hill (1756), Rydberg (1898, 1908) and Soják (2004, 2010, 2012) in accepting *Argentina* as a separate genus.

Fragariastrum Heist. ex Fabr. and *Tormentilla* L. are also accepted here as distinct genera and the need of a new typification of *Potentilla* L. with subsequent conservation of the latter name is stressed for which the following agruments can be put forward. First, majority of *Potentilla* species are taprooted polycarpic herbs (Serebryakov, 1964) with erect stems and many-flowered terminal inflorescences. It was mentioned in the literature (e. g., Kamelin, 2001) that Rydberg's (1908) lectotypification of *Potentilla* by *P. reptans* L. was not a good decision, an opinion with which we fully agree. *Potentilla reptans* is a stoloniferous polycarpic herb (Serebryakov, 1964) without developed inflorescence (represented by single axillary flowers on long pedicels). This life form is, with few exceptions, untypical for *Potentilla*. R. V. Kamelin (2001) noted that *P. reptans* is similar to some species of *Duchesnea* Sm.

Second, and most important, retention of *P. reptans* as the lectotype of *Potentilla* and acceptance of the genus *Tormentilla* (which contains *P. reptans*), well-sepatated both morphologically and molecularly, would bring severe instability in nomenclature. Namely, it would request several hundreds of transfers of species from *Potentilla* to *Tormentilla* and drastic change of the concept of *Potentilla*. The same action is inevitbale if the above American genera are accepted unless the paraphyletic concept of *Potentilla* is adopted (Ertter, Reveal, 2014).

Hence, a new typification of *Potentilla* is needed. The best potential type would be *P. argentea* L., another, along with *P. reptans*, original member of the genus (Linneaus, 1753). *Potentilla argentea* exhibits basic features typical for most *Potentilla* s. str. species. It is a taprooted polycarpic herb with erect stems, apical many-flowered inflorescence, and terminal styles (subterminal in *Tormentilla*). Unlike *P. reptans*, *P. argentea* readily hybridyze with members of variuos sections of *P.* subgen. *Potentilla*.

Traditional concept of *Potentilla* is adopted here which includes *P. argentea* and excludes its current lectotype, *P. reptans*. Proposal to conserve *Potentilla* with a new type is in preparation.

Potentilla students emphasized that among the species of the genus intensive hybridization takes place which complicates systematics and identification of individual specimens. However, no natural hybrids between representatives of *Potentilla* s. str. with species of *Drymocallis* or *Schistophyllidium* from subtribe *Fragariinae* (where *P. rupestris* L. and *P. bifurca* L., respectively, belong) are known to the date. Furthermore, no native hybrids between the genera of *Potentillinae* and active hybridization (often intersectional) is restricted to the genus *Potentilla*. This is an additional argument in favor of acceptance of *Argentina*, *Drymocallis*, *Fragariastrum*, *Schistophyllidium*, *Tormentilla*, etc.

A key for the genera of *Potentillinae* as well as the system of the subtribe with some comments are given below.

Key to the genera of the subtribe *Potentillinae*

1. Stipule auricles ventral (stretching along the ventral side of leaf petiole) 2

+ Stipule auricles lateral (stretching along the leaf petiole margins) 3

2. Subshrubs. Leaf petioles and pedicels articulate. Carpels pubescent ..... ***Tylosperma***

+ Herbs. Leaf petioles and pedicels not articulate. Carpels glabrour, occasionally pubescent ....***Argentina***

3. Elements of epicalyx (“outer sepals”) 2–3 as wide as sepals, apically 3–5-dentate. Torus in fruit considerably enlarged, globose, fleshy, red or pink (reminding fruits of *Fragaria* L.) ..... ***Duchesnea***

+ Elements of epicalyx (“outer sepals”) narrower than or, rarely, as wide as sepals, apically entire or rarely 2–3-dentate. Torus not enlarged in fruit, not fleshy 4

4. Flowers unisexual, plants dioecious. Filaments 4 (staminoid in male flowers) ..... ***Dryadanthe***

+ Flowers bisexual. Filaments usually 5 to 30 5

5. Anthers opening by subterminal pores to short lateral slits; carpels single .... ***Stellariopsis*** (endemic to California)

+ Anthers opening by lateral slits; carpels usually two or more 6

6. Carpels surrounded by hypanthium walls. Stamens attached to hypanthium; N America 7

+ Hypanthium absent. Stamens attached to torus 10

7. Epicalyx (“outer sepals”) absent .... ***Purpusia***

+ Epicalyx (“outer sepals”) present 8

8. Filaments filiform (except for *Ivesia argyrocoma* (Rydb.) Rydb. var. *argyrocoma*), attached to the upper part of hypanthium, not forming a tube. Hypanthia not flat-bottomed .... ***Ivesia***

+ Filaments flat, dilated at base, attached predominantly to hypanthium mouth, often forming a tube. Hypanthia often flat-bottomed 9

9. Stamens 10. Epicalyx (“outer sepals”) not recurved at anthesis. Leaves usually with 2–20 pairs of leaflets ..... ***Horkelia***

+ Stamens 20. Epicalyx (“outer sepals”) recurved at anthesis. Leaves usually with 15–35 pairs of leaflets ..... ***Horkeliella***

10. Inflorescense open (indeterminate) .... ***Tormentilla***

+ Inflorescense closed (determinate) 11

11. Styles filiform throughout, about twice longer than ripen achenes. Achenes usually pubescent with simple hairs, rarely glabrous ..... ***Fragariastrum***

+ Styles not filiform throughout, as long as or shorter, rarely 2–3 times longer than ripen achenes (sect. *Persicae*) but then dilated and verrucose at base. Achenes glabrous or, rarely, glandular .... ***Potentilla***

System of the subtribe *Potentillinae*

Subtribus *Potentillinae* J. Presl, 1846, Wsobecny Rostl. 1: 491.

Type: *Potentilla* L.

12 genera: *Argentina* Hill, *Dryadanthe* Endl., *Duchesnea* Sm., *Fragariastrum* Heist. ex Fabr., *Horkelia* Cham. et Schltdl., *Horkeliella* (Rydb.) Rydb., *Ivesia* Torr. et A. Gray (incl. *Comarella* Rydb.), *Potentilla* L., *Purpusia* Brandegee, *Stellariopsis* (Baill.) Rydb., *Tormentilla* L., *Tylosperma* Botsch.

Genus I. *Argentina* Hill, 1756, Brit. Herb.: 6; Lam. 1778, Fl. Fr., ed. 2, 3: 118, s. str. – *Potentilla* L. subgen. *Argentina* (Hill) Jeps. 1936, Fl. Calif. 2(2): 175.

Lectotype (Rydberg, 1908: 352): *Argentina anserina* (L.) Rydb. [≡*Potentilla anserina* L.].

73 species, predominantly in Palaeotropics and Holarctics.

1. *Argentina* sect. ***Argentina***. – *Potentilla* L. sect. *Pentaphylloides* Tausch, 1823, Hort. Canal. 1: (unpaged). – *P.* sect. *Anserina* (Gaudin) Pfeiff. 1873, Nomencl. Bot. 1(1): 205. – *P.* ser. *Anserina* (Gaudin) Lehm. 1856, Revis. Potentill.: 8 (as “ser.

Anserinae"). – *P.* [unranked] *Anserina* Gaudin, 1828, Fl. Helv. 3: 370, 405. – *P.* subgen. *Chenopotentilla* (Focke) Juz. 1941, Fl. URSS, 10: 80, 220. – *P.* sect. *Chenopotentilla* Focke, 1889, Abh. Naturwiss. Vereins Bremen 10(3): 415. – *P.* sect. *Leptostylae* (Th. Wolf) Guşul. 1956, Fl. Republ. Populare Rom. 4: 656. – *P.* subsect. *Leptostylae* (Th. Wolf) Th. Wolf, 1908, Biblioth. Bot. 16(71): 52. – *P.* [unranked] *Leptostylae* Th. Wolf, 1904, Syn. Mitteleur. Fl. 6(16): 671.

Lectotype: *Argentina anserina* (L.) Rydb. [≡*Potentilla anserina* L.].

Six species in mountains and plains of Holarctics, Palaeo- and Neotropics and Australia.

2. *Argentina* sect. ***Brassiae*** Kechaykin et Shmakov, **sect. nov**.

Dwarf compact herbs, cespitose or forming cutions to 60 cm diam. Leaves to 1.5 cm long, very short-petiolate. Lateral leaflets entire, more rarily dissected onto two segments.

Type: *Argentina brassii* (Merr. et L. M. Perry) Soják [≡*Potentilla brassii* Merr. et L. M. Perry]. No. 10156. L. J. Brass & E. Myer-Drees, Sept. 1938. Abundant in alpine bogs. 4120 m. alt. Northern slope of Mt. Wilhelmina (A: 00003012).

Two species in mountains of New Guinea.

3. *Argentina* sect. ***Cristatae*** Kechaykin et Shmakov, **sect. nov**.

Densely to loosely cespitose plants, sometimes forming cusions to 40 cm diam. Leave blades usually more than 1.5 cm long, with (3)4–6(7) pairs of leaflets. Leaves incised, 2–5-toothed on each side.

Type: *Argentina cristata* (H. R. Fletcher) Kechaykin et Shmakov, **comb. nov**. ≡ *P. cristata* H. R. Fletcher, 1950, Notes Roy. Bot. Gard. Edinburgh, 20: 218. [*P. stenophylla* Diels var. *cristata* (H. R. Fletcher) H. Ikeda et H. Ohba.]. 4 Aug. 1920. Altd. 11200 feet. Moka-ji Pass. No. 1803. Coll. R. F. (E: E00012085).

Six species in mountains of South and South-East Asia including New Guinea.

4. *Argentina* sect. ***Habbemanae*** Kechaykin et Shmakov, **sect. nov**.

Non-cespitose plants. Leaves usually with 6–15 (sometimes with 20 and more on the same plant) pairs of leaflets. Leaves serrate- or pseudoserrate-pinnatisect or dissected onto two unequal elliptic lobes. Central costa of lateral leaflet less than 3 mm long.

Type: *Argentina habbemana* (Merr. et L. M. Perry) Soják [≡*Potentilla habbemana* Merr. et L. M. Perry]. No. 9594. L. J. Brass, Aug. 1938. Alpine grassland; abundant on marshy ground. Lake Habbema, 3225 m. camp (A: 00003039).

Three species in mountains of New Guinea.

5. *Argentina* sect. ***Leuconotae*** **(**Dikshit et Panigrahi) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla* L. sect. *Leuconotae* Dikshit et Panigrahi, 1981, J. Orissa Bot. Soc. 3(1): 33. – *Potentilla* L. sect. *Leptostylae* (Th. Wolf) Guşul. subsect. *Microphyllae* (T. T. Yu et C. L. Li) H. Ikeda et H. Ohba ser. *Leuconotae* (Dikshit & Panigrahi) H. Ikeda et H. Ohba, 1999, Himalayan Pl., 3 (Univ. Mus. Univ. Tokyo Bull., 39): 76.

Type: *Argentina leuconota* (D. Don) Soják [≡*Potentilla leuconota* D. Don].

Twelve species in mountains of South and South-East Asia including New Guinea.

6. *Argentina* sect. ***Lineatae*** (H. Ikeda et H. Ohba) Kechaykin et Shmakov, **comb. et stat. nov**. ≡ *Potentilla* L. sect. *Leptostylae* (Th. Wolf) Guşul. subsect. *Microphyllae* (T. T. Yu et C. L. Li) H. Ikeda et H. Ohba ser. *Lineatae* H. Ikeda et H. Ohba, 1999, Himalayan Pl. 3 (Univ. Mus. Univ. Tokyo Bull., 39): 43.

Type: *Argentina lineata* (Trevir.) Soják [≡*Potentilla lineata* Trevir.].

Seven species in mountains of South and South-East Asia including New Guinea.

7. *Argentina* sect. ***Microphyllae*** (T. T. Yu et C. L. Li) Kechaykin et Shmakov, **comb. et stat. nov**. ≡ *Potentilla* L. sect. *Leptostylae* (Th. Wolf) Guşul. ser. *Microphyllae* T. T. Yu et C. L. Li, 1980, Acta Phytotax. Sin. 18: 5.

Type: *Argentina microphylla* (D. Don) Soják [≡*Potentilla microphylla* D. Don].

Ten species in mountains of South and South-East Asia including New Guinea.

8. *Argentina* sect. ***Parvulae*** Kechaykin et Shmakov, **sect. nov**.

Usually non-cespitose plants. Leaves with more than 5 pairs of leaflets. Lateral leaflets round in outline, often with 2–6 teeth on each side. Central costa of lateral leaflet more than 3 mm long.

Type: *Argentina parvula* (Hook. f. ex Stapf) Soják [≡*Potentilla parvula*

Hook. f. ex Stapf]. 1057K, G. D. Haviland, Aug. 1892. Kinabalu, 11000 ft. (K: K000762536).

17 species in mountains of South and South-East Asia including New Guinea.

9. *Argentina* sect. ***Piletophyllum*** (Soják) Kechaykin et Shmakov, **comb. nov**. ≡ *Sibbaldia* L. sect. *Piletophyllum* Soják, 1970, Preslia, 42: 185. [*Piletophyllum* (Sojak) Soják, 2008, Bot. Jahrb. Syst. 127(3): 356].

Type: *Argentina micropetala* (D. Don) Soják [≡*Potentilla micropetala* D. Don]. *Potentilla* sp. E. Gos. Than. 1809. Wallich (BM: BM000521790).

Two species in mountains of South Asia.

10. *Argentina* sect. ***Vittatae*** Kechaykin et Shmakov, **sect. nov**.

Non-cespitose plants. Leaves usually with more than 5 pairs of leaflets. Lateral leaflets entire or apically 2–4-dentate. Central costa of lateral leaflet more than 3 mm long.

Type: *Argentina vittata* (Soják) Soják [≡*Potentilla vittata* Soják]. Kongbo, SE Tibet. No. 13966. Ba La, Pasum Chu. 22. 6. [19]47. Coll. F. Ludlow, G. Sherriff & H. H. Elliot (BM: BM000551381).

Eight species in mountains of South and South-East Asia including New Guinea.

Genus II. *Dryadanthe* Endl. 1840, Gen. Pl.: 1242.

Type: *Dryananthe tetrandra* (Bunge) Juz. [≡*Sibbaldia tetrandra* Bunge, *Potentilla tetrandra* (Bunge) Hook. f.].

Monotypic genus distributed in mountains of Asia between 55° and 26° N.

Genus III. *Duchesnea* Sm. 1811, Trans. Linn. Soc. London, 10(2): 372. – *Potentilla* L. subgen. *Duchesnea* (Sm.) Shah et Wilcock, 1993, Edinb. J. Bot. 50(2): 176. – *Potentilla* L. sect. *Duchesnea* (Sm.) Panigr. et Dikshit, 1985, Bull. Bot. Surv. Ind. 27(1–4): 181.

Lectotype (Rydberg, 1908: 356): *Duchesnea indica* (Andrews) Teschem. [≡*Fragaria indica* Andrews].

Two species in Holarctics, Palaeo- and Neotropics and Australia.

Genus IV. *Fragariastrum* Heist. ex Fabr. 1759, Enum. Meth. Pl.: 64. – *Potentilla* subgen. *Fragariastrum* (Heist. ex Fabr.) Reich. 1828, Consp. Regn. Veget. 167. – *P.* subgen. *Micropogon* Juz. 1941, Fl. URSS, 10: 84. – *Micropogon* Bunge, 1835, Mém. Acad. Imp. Sci. Saint Pétersbourg, 2(7): 552, nom. provis. – *P.* sect. *Nematostylae* (Th. Wolf) Guşuleac, 1956, in Suvulevscu, Fl. Reipubl. Popularis Roman. 4: 602. – *P.* subsect. *Nematostylae* Th. Wolf, 1908, in Biblioth. Bot. 16 (71): 42, 45 p. p.

Lectotype (Panigrahi, Diskhit, 1986: 350): *Fragariastrum sterile* (L.) Schur [≡*Fragaria sterilis* L, = *Potentilla sterilis* (L.) Garcke].

About 40 species in Northern Hemisphere.

1. *Fragariastrum* sect. ***Ancistrifoliae*** (Soják) Kechaykin et Shmakov, **comb nov**. ≡ *Potentilla* sect. *Ancistrifoliae* Soják, 1987, Candollea, 42(2): 495.

Type: ***Fragariastrum*** *ancistrifolia* (Bunge) Kechaykin et Shmakov

Three species in East Asia (Soják, 1987).

Fragariastrum ancistrifolium (Bunge) Kechaykin et Shmakov, **comb nov**. ≡ *Potentilla ancistrifolia* Bunge, 1833, Mém. Acad. Imp. Sci. St.-Pétersbourg, Sér. 6. Sci. Math. 2: 99.

Fragariastrum dickinsii (Franch. et Sav.) Kechaykin et Shmakov, **comb nov**. ≡ *Potentilla dickinsii* Franch. et Sav. 1878, Enum. Pl. Jap. 2: 337.

Fragariastrum rugulosum (Kitag.) Kechaykin et Shmakov, **comb nov**. ≡ *Potentilla rugulosa* Kitag. 1937, Rep. Inst. Sci. Res. Manchoukuo, 1: 260.

Note. This group is intermediate between *Fragariastrum* and *Potentilla*. Woody base and pubescent fruits are characteristic to *Fragariastrum*, though in leaf morphology and inflorescence structure it is closer to sect. *Fragarioides* of *Potentilla* subgen. *Potentilla*. Available molecular data demonstrate relationship of representarives of *F.* sect. *Ancistrifoliae* with either *P.* sect. *Fragarioides* (*trn*LF-based phylogeny) or *Fragariastrum* (ITS-based phylogeny) (Kechaykin, 2016). We keep sect. *Ancistrifoliae* within *Fragariastrum* for the moment but its placement is to be elucidated.

2. *Fragariastrum* sect. ***Bhutanicae*** (Soják) Kechaykin et Shmakov, **comb nov**. ≡ *Potentilla* sect. *Bhutanicae* Soják, 1987, Candollea 42(2): 495, 497.

Type: *Fragariastrum bhutanicum* (Ludlow) Kechaykin et Shmakov.

One species in Bhutan.

Fragariastrum bhutanicum (Ludlow) Kechaykin et Shmakov, **comb nov**. ≡ *Potentilla bhutanica* Ludlow, 1956, Bull. Brit. Mus. (Nat. Hist.), Bot. 2: 68.

3. *Fragariastrum* sect. ***Biflorae*** (Rydb.) Kechaykin et Shmakov, **comb et stat. nov**. ≡ *Potentilla* L. [unranked] *Biflorae* Rydb. 1897, Bull. Torrey Bot. Club 24(1): 13. – *P.* sect. *Biflorae* (Rydb.) O. Stevens, 1959, in North Amer. Fl. 22 (7): 11, comb. inval. (sine cit. bas.). – *P.* sect. *Biflorae* (Th.

Wolf) Schiman-Czeika, 1969, in K. H. Reichinger, Fl. Iran. 66: 85, comb. inval. (sine cit. bas.). – *P.* [unranked] *Biflorae* (Rydb.) Th. Wolf, 1908, Biblioth. Bot. 16(71): 46, 70. – *P.* sect. *Nematostylae* (Th. Wolf) Guşuleac ser. *Biflorae* (Th. Wolf) T.T. Yu & C.L. Li, 1985, Fl. Reipubl. Popularis Sin. 37: 235, 256, comb. inval. – *P.* sect. *Eriocarpae* (Th. Wolf) Juz. ser. *Biflorae* (Th. Wolf) Soják, 1987, Candollea, 42(2): 495, comb. inval. – *P.* sect. *Eriocarpae* (Th. Wolf) Soják ser. *Articulatae* (Th. Wolf) Soják, 1987, Candollea, 42(2): 495.

Type: *Fragariastrum biflorum* (Willd. ex Schltdl.) Kechaykin et Shmakov

Two species; Asia and North America.

Fragariastrum biflorum (Willd. ex Schltdl.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla biflora* Willd. ex Schltdl. 1816, Mag. Neuesten Entdeck. Gesammten Naturk. Ges. Naturf. Freunde Berlin, 7: 295.

Fragariastrum articulatum (Franch.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla articulata* Franch. 1890, Pl. Delavay. 3: 210.

4. *Fragariastrum* sect. ***Camillae*** (Kapeller) Kechaykin et Shmakov**, comb. nov**. ≡ *Potentilla* sect. *Camilla* Kapeller, 1956, Not. Syst. Georg. Inst. Bot. Thibiliss. 19: 18.

Type: *Fragariastrum camillae* (Kolak.) Kechaykin et Shmakov

One species (Caucasus: Russia, Abkhasia).

Fragariastrum camillae (Kolak.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla camillae* Kolak. 1936, Bot. Zhurn. S.S.S.R. 21: 553.

5. *Fragariastrum* sect. ***Curvisetae*** (Th. Wolf) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla* L. [unranked] *Curvisetae* Th. Wolf, 1908, Biblioth. Bot. 16(71): 47, 94. [*Potentilla* sect. *Curvisetae* (Th. Wolf) Schiman-Czeika, 1969, Fl. Iran. 66: 87].

Type: *Fragariastrum curvisetum* (Hook. f.) Kechaykin et Shmakov

Three species distributed in Afghanistan, Pakistan, and India.

Fragariastrum curvisetum (Hook. f.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla curviseta* Hook.f. 1878, Fl. Brit. India, 2(5): 358.

Fragariastrum collettianum (Aitch. et Hemsl.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla collettiana* Aitch. et Hemsl. 1880, in J. Linn. Soc. 18: 53.

Fragariastrum pteropodum (Royle) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla pteropoda* Royle, 1834, Ill. Bot. Him. 2: t. 40 f. 2.

6. *Fragariastrum* sect. ***Elatiores*** (Kapeller) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla* sect. *Elatiores* Kapeller, 1956, Not. Syst. Georg. Inst. Bot. Thibiliss. 19: 21.

Type: *Fragariastrum elatior* (Willd. ex Schltdl.) Kechaykin et Shmakov

One species (Caucasus and Turkey).

Fragariastrum elatior (Willd. ex Schltdl.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla elatior* Willd. ex Schltdl. 1816, Mag. Neuesten Entdeck. Gesammten Naturk. Ges. Naturf. Freunde Berlin, 7: 295.

7. *Fragariastrum* sect. ***Eriocarpae*** (Th. Wolf) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla* L. [unranked] *Eriocarpae* Th. Wolf, 1908, Biblioth. Bot. 16(71): 46, 79. [*Potentilla* L. sect. *Eriocarpae* (Th. Wolf) Juz. 1941, Fl. URSS, 10: 86].

Type: *Fragariastrum eriocarpum* (Wall. ex Lehm.) Kechaykin et Shmakov

One species (India, Nepal, Bhutan, China).

Fragariastrum eriocarpum (Wall. ex Lehm.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla eriocarpa* Wall. ex Lehm. 1831, Nov. Stirp. Pug. 3: 35.

8. *Fragariastrum* sect. ***Fragariastrum*** ≡ *Potentilla* sect. *Fragariastrum* (Heist. ex Fabr.) Ser. 1825, in DC., Prodr. 2: 583. – *P.* sect. *Micranthae* Soják, 1987, Candollea 42(2): 495, 498.

Type: *Fragariastrum sterile* (L.) Schur [≡*Fragaria sterilis* L.].

Six species in Eurasia and northern North America.

Fragariastrum davisii (H. Duman) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla davisii* H. Duman, 1999, in H. Duman et R.R. Mill, Edinburgh J. Bot. 56: 351.

Fragariastrum carniolicum (Kern.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla carniolica* Kern. 1870, Oesterr. Bot. Z. 20: 44.

Fragariastrum imerethicum (Gagnigze et Sokhadze) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla imerethica* Gagnigze et Sokhadze, 1982, Zametki Sist. Georg. Rast. 38: 4.

Fragariastrum micranthum (Ramond ex DC.) Schur, 1853, in Verh. Mittheil. Siebenburg. Ver. Naturw. Hermannst. iv. Anhang (Sert. Fl.Transsilv.): 23. – *Potentilla micrantha* Ramond ex DC. 1805, in Lam. et DC., Fl. Franç., ed. 3, 4: 468.

Fragariastrum nerimaniae (H. Duman) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla nerimaniae* H. Duman, 1999, in H. Duman et R. R. Mill, Edinburgh J. Bot. 56: 349.

Fragariastrum sterile (L.) Schur, 1853, in Verh. Mittheil. Siebenburg. Ver. Naturw. Hermannst. iv. Anhang (Sert. Fl.Transsilv.): 23. – *Fragaria sterilis* L. 1753, Sp. Pl.: 495. – *Potentilla sterilis* (L.) Garke, 1856, Fl. Halle, 2: 200.

Fragariastrum ulrichii (Parolly et Nordt) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla ulrichii* Parolly et Nordt, 2002, Willdenowia, 32: 75.

9. *Fragariastrum* sect. ***Laterales*** (Döll) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla* L. [unranked] *Laterales* Döll, 1843, Rhein. Fl.: 769, p. p. ≡ *Potentilla* L. sect. *Laterales* (Döll) Gren. et Godr. 1848, Fl. France, 1: 522. – *P*. sect. *Crassinerviae* (Th. Wolf) Juz. 1941, Fl. URSS, 10: 90. – *P.* [unranked] *Crassinerviae* Th. Wolf, 1908, Biblioth. Bot. 16(71): 47, 97. – *P.* sect. *Umbellatae* Soják, 1987, Candollea 42(2): 495, 497.

Type: *Fragariastrum caulescens* (L.) Schur

About 14 species in mountains of Europe and North Africa.

Fragariastrum alchimilloides (Lapeyr.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla alchimilloides* Lapeyr. 1782, Mém. Acad. Sci. Toulouse, 1: 212, t. 17.

Fragariastrum brachypetalum (Fisch. et C. A. Mey. ex Lehm.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla brachypetala* Fisch. et C. A. Mey. ex Lehm. 1849, Del. Sem. Hort. Hamburg.: 9.

Fragariastrum caulescens (L.) Schur, 1853, in Verh. Mittheil. Siebenburg. Ver. Naturw. Hermannst. iv. Anhang (Sert. Fl. Transsilv.): 23. – *Potentilla caulescens* L. 1756, Cent. Pl. 2: 19.

Fragariastrum clusianum (Jacq.) Schur, 1853, in Verh. Mittheil. Siebenburg. Ver. Naturw. Hermannst. iv. Anhang (Sert. Fl. Transsilv.): 23. – *Potentilla clusiana* Jacq. 1774, Fl. Austriac. (Jacquin), 2: 10, t. 116.

Fragariastrum crassinervium (Viv.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla crassinervia* Viv. 1825, App. Fl. Cors. Prodr.: 2.

Fragariastrum doddsii (P. H. Davis) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla doddsii* P. H. Davis, 1957, Notes Roy. Bot. Gard. Edinburgh, 22: 169.

Fragariastrum doerfleri (Wettst.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla doerfleri* Wettst. 1892, in Luerss. Bibl. Bot. Heft, 26: 39.

Fragariastrum grammopetalum (Moretti) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla grammopetala* Moretti, 1826, Giorn. Fis. Chim. Storia Nat. Med. Arti Dec. 2: 9: 67.

Fragariastrum haynaldianum (Janka) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla haynaldiana* Janka, 1872, Oesterr. Bot. Z. 22: 176.

Fragariastrum nitidum (L.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla nitida* L. 1756, Cent. Pl. 2: 18.

Fragariastrum nivalis (Lapeyr.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla nivalis* Lapeyr. 1782, Mém. Acad. Sci. Toulouse, 1: 210, t. 16.

Fragariastrum savvalensis (Pawł.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla savvalensis* Pawł., Fragm. Florist. Geobot. 11: 69. 1965.

Fragariastrum saxifragum (Ardoino ex De Not.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla saxifraga* Ardoino ex De Not. 1848, Index Seminum [Genoa]: 25.

Fragariastrum valderium (L.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla valderia* L. 1759, Syst. Nat., ed. 10. 2: 1064.

10. *Fragariastrum* sect. ***Lupinoides*** (Tausch) Kechaykin et Shmakov, **comb. nov.** ≡ *Potentilla* sect. *Lupinoides* Tausch, 1823, Hort. Canal., sine pag. – *P.* sect. *Campestres* (Poeverl.) Juz. 1941, USSR, 10: 91. – *P.* [unranked] *Campestres* Poeverl. 1898, Denkschr. Bayer. Bot. Ges. Regensburg, 7(1): 220.

Lectotype (Soják, 1987: 495): *Fragariastrum album* (L.) Schur

Two species in Europe.

Fragariastrum album (L.) Schur, 1853, in Verh. Mittheil. Siebenburg. Ver. Naturw.

Hermannst. iv. Anhang (Sert. Fl.Transsilv.): 23. – *Potentilla alba* L. 1753, Sp. Pl.: 498.

Fragariastrum montanum (Brot.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla montana* Brot. 1805, Fl. Lusit. 2: 350.

11. *Fragariastrum* sect. ***Plumosistylae*** (Pawlowski) Kechaykin et Shmakov, **comb. nov.** ≡ *Potentilla* sect. *Plumosistylae* Pawlowski, 1965, Fragm. Fl. Geobot. 11: 79.

Type: *Fragariastrum libanotica* (Boiss.) Kechaykin et Shmakov

Three species in Greece, Turkey, Lebanon and Syria.

Fragariastrum arcadiensis (Latroú) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla arcadiensis* Latroú, 1985, Candollea, 40(1): 121.

Fragariastrum isauricum (P. H. Davis) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla libanotica* Boiss. var. *isaurica* P. H. Davis, 1957, Notes Roy. Bot. Gard. Edinburgh, 22: 171. ≡ *Potentilla isaurica*

(P. H. Davis) Pawł., 1965, Fragm. Florist. Geobot. 11: 81.

Fragariastrum libanoticum (Boiss.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla libanotica* Boiss. 1843, Diagn. Pl. Nov. Orient., ser. 1, 3: 4.

12. *Fragariastrum* sect. ***Speciosae*** (Th. Wolf) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla* L. [unranked] *Speciosae* Th. Wolf, 1908, Biblioth. Bot. 16(71): 46, 85. ≡ *Potentilla* sect. *Speciosae* (Th. Wolf) Juz. 1941, Fl. URSS, 10: 89.

Type: *Fragariastrum speciosa* (Willd.) Kechaykin et Shmakov

Seven species in Europe (Balkans), Turkey, Iraq, and Lebanon.

Fragariastrum apenninum (Ten.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla apennina* Ten. 1815, Cat. Hort. Neap.: 50.

Fragariastrum deorum (Boiss. et Heldr.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla deorum* Boiss. et Heldr. 1856, Diagn. Pl. Orient. ser. 2, 2: 51.

Fragariastrum discipulorum (P. H. Davis) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla discipulorum* P. H. Davis, 1957, Notes Roy. Bot. Gard. Edinburgh, 22: 168.

Fragariastrum divinum (Albov) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla divina* Albov, 1891, Otchet Trudy Odessk. Otdel. Ross. Obshch. Sadovod., Prilozh.: 103.

Fragariastrum kionaeum (Halácsy) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla kionaea* Halácsy, 1888, Verh. K.K. Zool.-Bot. Ges. Wien, 38: 751.

Fragariastrum owerinianum (Rupr. ex Boiss.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla oweriniana* Rupr. ex Boiss. 1872, Fl. Orient. 2: 705.

Fragariastrum speciosa (Willd.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla speciosa* Willd. 1799, Sp. Pl., ed. 4, 2(2): 1110.

Genus V. *Horkelia* Cham. et Schltdl. 1827, Linnea, 2(1): 26. – *Potentilla* L. sect. *Horkelia* (Cham. et Schltdl.) Baill. 1869, Hist. Pl. 1(6): 372. – *Potentilla* L. subgen. *Horkelia* (Cham. et Schltdl.) Jeps. 1925, Man. Fl. Pl. Calif.: 484. – *Potentilla* L. subgen. *Horkelia* (Cham. et Schltdl.) J. T. Howell, 1945, Leafl. W. Bot. 4(6): 176, comb. inval.

Type: *Horkelia californica* Cham. et Schltdl.

Ca. 20 species in western North America (west of USA and north-west of Mexico).

1. *Horkelia* sect. ***Capitatae*** (Rydb.) Ertter et Reveal, 2007, Novon, 17(3): 316. – *H.* sect. *Capitatae* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 7, comb. inval. (sine cit. bas.). – *H.* [unranked] *Capitatae* Rydb. 1898, Mem. Dept. Bot. Columbia Coll. 2: 120, 122. – *Potentilla* L. sect. *Capitatae* (Rydb.) Crum, 1934, Leafl. W. Bot. 1(10): 100.

Type: *Horkelia capitata* Lindl. [≡*H. fusca* Lindl. var. *capitata* (Lindl.) M. Peck].

Note. O. A. Stevens (1959) proposed some combinations at the rank of a section which, however, do not meet the requirements of ICN Art. 41.5 (McNeill et al., 2012) and are thus invalid.

2. *Horkelia* sect. ***Hispidulae*** Ertter et Reveal, 2007, Novon, 17(3): 316.

Type: *Horkelia hispidula* Rydb.

3. *Horkelia* sect. ***Horkelia***. – *H.* sect. *Californicae* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 7, comb. inval. (sine cit. bas.). – *H.* [unranked] *Californicae* Rydb. 1898, Mem. Dept. Bot. Columbia Coll. 2: 120, 121. – *H.* sect. *Cuneatae* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 7, comb. inval. (sine cit. bas.). – *H.* [unranked] *Cuneatae* Rydb. 1898, Mem. Dept. Bot. Columbia Coll. 2: 120, 121. – *H.* sect. *Tenuilobae* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 7, comb. inval. (sine cit. bas.). – *H.* [unranked] *Tenuilobae* Rydb. 1908, N. Amer. Fl. 22(3): 269, 275.

Type: *Horkelia californica* Cham. et Schlecht.

4. *Horkelia* sect. ***Parryae*** Ertter & Reveal, 2007, Novon, 17(3): 316.

Type: *Horkelia parryi* Greene

5. *Horkelia* sect. ***Tridentatae*** (Rydb.) Kechaykin et Shmakov, **comb. et stat. nov**. ≡ *Horkelia* Cham. et Schltdl. [unranked] *Tridentatae* Rydb. 1898, Mem. Dept. Bot. Columbia Coll. 2: 120, 122. – *H.* sect. *Tridentatae* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 7, comb. inval. (sine cit. bas.).

Type: *Horkelia tridentata* Torr.

Syn.: *H.* [unranked] *Ambiguae* A. Gray, 1865, Proc. Amer. Acad. Arts, 6: 530. – *H.* sect. *Hirsutae* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 7, comb. inval. (sine cit. bas.). – *H.* [unranked] *Hirsutae* Rydb. 1898, Mem. Dept. Bot. Columbia Coll. 2: 120, 123. – *H.* sect. *Sericatae* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 7, comb. inval. (sine cit. bas.). – *H.* [unranked] *Sericatae* Rydb.1898, Mem. Dept. Bot. Columbia Coll. 2: 120, 123.

Genus VI. *Horkeliella* (Rydb.) Rydb. 1908, N. Amer. Fl. 22(3): 269, 282. – *Horkelia* Cham.

et Schltdl. subgen. *Horkeliella* Rydb. 1898, Mem. Dept. Bot. Columbia Coll. 2: 120.

Type: *Horkeliella purpurascens* (S. Watson) Rydb. [≡*Horkelia purpurascens* S. Watson].

Three species distributed in mountains of California.

Genus VII. *Ivesia* Torr. et A. Gray, 1858, Pacif. Railr. Rep. 6(3): 72. – *Horkelia* Cham. et Schltdl. subgen. *Ivesia* (Torr. et A. Gray) Rydb. 1898, Mem. Dept. Bot. Columbia Coll. 2: 120. – *Potentilla* L. sect. *Ivesia* (Torr. et A. Gray) Baill. 1869, Hist. Pl. 1(6): 372. – *Potentilla* L. subgen. *Ivesia* (Torr. et A. Gray) Jeps. 1925, Man. Fl. Pl. Calif.: 484.

Lectotype (Rydberg, 1908: 283): *Ivesia gordonii* (Hook.) Torr. et A. Gray (‘*gordoni*’) [≡*Horkelia gordonii* Hook.].

26 species distributed in the west of North America (west of USA and north-west of Mexico).

1. *Ivesia* sect. ***Comarella*** (Rydb.) Ertter et Reveal, 2007, Novon, 17(3): 316. – *Comarella* Rydb. 1898, Mem. Dept. Bot. Columbia Coll. 2: 19, 156.

Lectotype (Rydberg, 1908: 291): *Ivesia multifoliolata* (Torr.) D. D. Keck. [≡*Horkelia multifoliolata* Torr., *Comarella multifoliolata* (Torr.) Rydb.].

2. *Ivesia* sect. ***Ivesia***. – *I.* [unranked] *Lycopodioides* (Rydb.) Rydb. 1908, N. Amer. Fl. 22(3): 283, 286. – *I.* sect. *Lycopodioides* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 8, comb. inval. (sine cit. bas.). – *Horkelia* Cham. et Schltdl. subgen. *Ivesia* (Torr. et A. Gray) Rydb. [unranked] *Lycopodioides* Rydb. 1898, Mem. Dept. Bot. Columbia Coll. 2: 121, 124.

Lectotype: *Ivesia gordonii* (Hook.) Torr. et A. Gray

3. *Ivesia* sect. ***Saxosae*** (Rydb.) Ertter et Reveal, 2007, Novon, 17(3): 317. – *Horkelia* Cham. et Schltdl. subgen. *Ivesia* (Torr. et A. Gray) Rydb. [unranked] *Saxosae* Rydb. 1898, Mem. Dept. Bot. Columbia Coll. 2: 120, 125. – *Potentilla* L. sect. *Saxosae* (Rydb.) B.C. Johnst. 1985, Phytologia, 57(4): 299. – *P.* sect. *Saxosae* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 11, comb. inval. (sine cit. bas.). – *I.* sect. *Setosae* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 8, comb. inval. (sine cit. bas.). – *I.* [unranked] *Setosae* Rydb. 1908, N. Amer. Fl. 22(3): 283, 290.

Type: *Ivesia saxosa* (Lemmon ex Greene) Ertter [≡*Potentilla saxosa* Lemmon ex Greene].

4. *Ivesia* sect. ***Unguiculatae*** (Rydb.) Ertter et Reveal, 2007, Novon 17(3): 317. – *I.* sect. *Unguiculatae* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 8, comb. inval. (sine cit. bas.). – *Horkelia* Cham. et Schltdl. subgen. *Ivesia* (Torr. et A. Gray) Rydb. [unranked] *Unguiculatae* Rydb. 1898, Mem. Dept. Bot. Columbia Coll. 2: 120, 124. – *I.* [unranked] *Unguiculatae* (Rydb.) Rydb. 1908, N. Amer. Fl. 22(3): 283, 284. – *I.* sect. *Eremicae* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 8. – *Horkelia* Cham. et Schltdl. subgen. *Ivesia* (Torr. et A. Gray) Rydb. [unranked] *Eremicae* Rydb. 1898, Mem. Dept. Bot. Columbia Coll. 2: 120, 124. – *I.* [unranked] *Eremicae* (Rydb.) Rydb. 1908, N. Amer. Fl. 22(3): 283, 286.

Type: *Ivesia unguiculata* A. Gray.

Genus VIII. *Potentilla* L. 1753, Sp. Pl.: 495; id. 1754, Gen. Pl., ed. 5: 219.

Lectotype (Rydberg, 1908: 293): *P. reptens* L., but see comment above; *P. argentea* L. is to be proposed as a conserved type.

About 300 species in Holarctics (Arctic and temperate zones) as well as mountain regions of Palaeo- and Neotropics.

1. *Potentilla* sect. ***Arenicolae*** (Rydb.) B. C. Johnst. 1985, Phytologia 57(4): 297. – *P.* sect. *Arenicolae* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 11 comb. inval. (sine cit. bas.). – *P.* [unranked] *Arenicolae* Rydb. 1898, Mem. Dept. Bot. Columbia Coll. 2: 22, 31.

Lectotype (Johnston, 1985: 297): *Potentilla newberryi* A. Gray.

2. *Potentilla* sect. ***Asperrimae*** (Chevtaeva) Kurbatski, 2008, Sist. Zametki Mater. Gerb. Krylova Tomsk. Gosud. Univ. 99: 6. – *P.* ser. *Asperrimae* Chevtaeva, 1983, Izv. Akad. Nauk Tadzh. SSR, Biol. Nauk, 1(90): 16.

Type: *Potentilla asperrima* Turcz.

3. *Potentilla* sect. ***Aureae*** (Lehm.) Juz. 1941, Fl. URSS, 10: 197. – *P.* subtrib. *Aureae* Lehm. 1856, Revisio Potentillarum: 6. – *P*. sect. *Aureae* (Lehm.) O. Stevens, 1959, in North Amer. Fl. 22(7): 11, comb. inval. (sine cit. bas.). – *P.* [unranked] *Aureae* (Lehm.) Zimm. 1884, in Jahresber. k. k. Staats-Ober-Realschule Steyr, 14: 17, sine dignit. – *P.* [unranked] *Aureae* (Lehm.) Rydb. 1896, in Bull. Torrey Bot. Club 23(10): 394, sine dignit. – *P.* [unranked] *Aureae vernales* Th. Wolf, 1901, Potentillen-Studien, 1: 50, 123. – *P.* [unranked] *Aureae* (Lehm.) Th. Wolf, 1904, in Aschers. et Graebn., Syn. Mitteleur. Fl. 6(1): 671, 786.

Type: *Potentilla aurea* L.

4. *Potentilla* sect. ***Brevifoliae*** (Rydb.) B. C. Johnst. 1985, Phytologia 57(4): 295, 299. – *P*. sect. *Brevifoliae* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 11, comb. inval. (sine cit. bas.). – *P.* [unranked] *Brevifoliae* Rydb. 1896, Bull. Torrey Bot. Club, 23: 306. – *P.* [unranked] *Brevifoliae* (Rydb.) Rydb. 1898, Mem. Dept. Bot. Columbia Coll. 2: 30.

Type: *Potentilla brevifolia* Nutt.

5. *Potentilla* sect. ***Chrysanthae*** (Lehm.) Juz. 1941, Fl. URSS, 10: 180. – *P.* subtrib. *Chrysanthae* Lehm. 1856, Revisio Potentillarum: 5. – *P.* [unranked] *Chrysanthae* (Lehm.) Zimm. 1884, in Jahres-Bericht der k. k. Staats-Ober-Realschule in Steyr, 14: 13, sine dignit. – *P.* [unranked] *Aureae chrysanthae* Th. Wolf, 1901, Potentillen-Studien, 1: 50, 123. – *P.* [unranked] *Chrysanthae* (Lehm.) Th. Wolf, 1904, in Aschers. et Graebn., Syn. Mitteleur. Fl. 6 (1): 671, 775.

Type: *Potentilla chrysantha* Trevir.

6. *Potentilla* sect. ***Concinnae*** (Rydb.) A. Nelson, 1909, New Man. Bot. Centr. Rocky Mt.: 255. – *P.* [unranked] *Concinnae* Rydb. 1896, Bull. Torrey Bot. Club, 23: 431. – *P.* sect. *Concinnae* (Rydb.) B. C. Johnst. 1985, Phytologia, 57(4): 299, stat. inval.

Type: *Potentilla concinna* Richardson.

7. *Potentilla* sect. ***Desertae*** (Chevtaeva) Kechaykin et Shmakov, **comb. et stat. nov**. ≡ *Potentilla* L. ser. *Desertae* Chevtaeva, 1981, Izv. Akad. Nauk Tadzh. SSR, Biol. Nauk, 3(84): 22. – *P*. sect. *Desertae* (Chevtaeva) Chevtaeva, 1983, Izv. Akad. Nauk Tadzh. SSR, Biol. Nauk, 1(90): 17, comb. inval. (sine cit. bas.). – *P*. sect. *Desertoria* Kamelin, 1979, Komaroviana annua, 31: 116, nom. nud. et provis. – *P.* sect. *Vvedenskyi* M. M. Mirachmedova, 1998, Uzb. Biol. Zhurn. 3: 33, nom. inval. (sine descr. lat.).

Type: *Potentilla desertorum* Bunge

8. *Potentilla* sect. ***Dumosae*** Soják, 1969, Preslia, 41: 349.

Type: *Potentilla dumosa* (Franch.) Hand.-Mazz.

9. *Potentilla* sect. ***Fasciculato-pilosae*** Kamelin, 2001, Fl. Vostochnoĭ Evropy, 10: 397, 437.

Type: *Potentilla acaulis* L.

10. *Potentilla* sect. ***Fragarioides*** (Lehm.) Juz. 1941, Fl. URSS, 10: 210. – *P.* 'trib.' *Fragarioides* Lehm. 1856, Revisio Potentillarum: 4. – *P.* [unranked] *Fragarioides* (Lehm.) Th. Wolf, 1908, in Biblioth. Bot. 16(71): 52, 635.

Type: *Potentilla fragarioides* L.

11. *Potentilla* sect. ***Graciles*** (Rydb.) A. Nelson, 1899, Bull. Torrey Bot. Club, 26(9): 480. – *P.* [unranked] *Graciles* Rydb. 1897, Bull. Torrey Bot. Club, 24(1): 4. – *P.* sect. *Graciles* (Th. Wolf) Soják, 1983, Čas. Nár. Muz. Praze, Rada Přír. 152(1): 21, comb. inval. (sine cit. bas.). – *P.* sect. *Candidae* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 11, comb. inval. (sine cit. bas.). – *P.* sect. *Heptaphyllae* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 11, comb. inval. (sine cit. bas.). – *P.* sect. *Longipedunculatae* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 11, comb. inval. (sine cit. bas.). – *P.* sect. *Nuttallianae* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 11, comb. inval. (sine cit. bas.). – *P.* sect. *Pectinisectae* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 11, comb. inval. (sine cit. bas.). – *P.* sect. *Permolles* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 11, comb. inval. (sine cit. bas.).

Type: *Potentilla gracilis* Douglas ex Hook.

12. *Potentilla* sect. ***Grandiflorae*** (Th. Wolf) Juz. 1941, Fl. URSS, 10: 179. – *P.* [unranked] *Grandiflorae* Th. Wolf, 1904, in Aschers. et Graebn., Syn. Mitteleur. Fl. 6(1): 671, 771.

Type: *Potentilla grandiflora* L.

13. *Potentilla* sect. ***Haematochroae*** (Th. Wolf) Schiman-Czeika, 1969, Fl. Iran. 66: 91. – *P.* [unranked] *Haematochroae* Th. Wolf, 1904, in Aschers. et Graebn., Syn. Mitteleur. Fl. 6(1): 670, 702. – *P.* sect. *Haematochri* (Rydb.) B.C. Johnst. 1985, Phytologia, 57(4): 296, 300. – *P.* [unranked] *Haematochri* Rydb. 1897, Bull. Torrey Bot. Club, 24(1): 10. – *P.* sect. *Rubrae* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 11, comb. inval. (sine cit. bas.). – *P.* [unranked] *Rubrae* Rydb. 1908, N. Amer. Fl. 22(4): 293, 323.

Type: *Potentilla hamaetochrus* Lehm.

14. *Potentilla* sect. ***Heterosepalae*** (Rydb.) B. C. Johnst. 1985, Phytologia, 57(4): 293, 297. – *P*. sect. *Heterosepalae* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 11, comb. inval. (sine cit. bas.). – *P.* [unranked] *Heterosepalae* Rydb. 1898, Mem. Dep. Bot. Columbia Univ. 2: 21, 23.

Type: *Potentilla heterosepala* Fritsch

15. *Potentilla* sect. ***Leucophyllae*** (Rydb.) A. Nelson, 1909, New Man. Bot. Centr. Rocky Mt.:

255, 256. – *P.* [unranked] *Leucophyllae* Rydb. 1898, Mem. Dept. Bot. Columbia Coll. 2: 22, 31. – *P.* sect. *Hippianae* (Rydb.) Ertter et Reveal, Novon, 17(3): 317. – *P.* [unranked] *Hippianae* Rydb. 1897, Bull. Torrey Bot. Club, 24(1): 1.

Type: *Potentilla leucophylla* Torr. 1827, not Pallas, 1776 [=*P. hippiana* Lehm.].

16. *Potentilla* sect. ***Multifidae*** (Lehm.) A. Nelson, 1909, in Coulter et Nelson, New Man. Bot. Centr. Rocky Mount.: 255. – *P.* trib. *Multifidae* Lehm. 1856, Revisio Potentillarum: 6. – *P.* [unranked] *Multifidae* (Lehm.) Rydb. 1896, in Bull. Torrey Bot. Club 23 (7): 262. – *P.* [unranked] *Multifidae* (Lehm.) Th. Wolf, 1904, in Aschers. et Graebn., Syn. Mitteleur. Fl. 6(1): 670, 698. – *P.* [unranked] *Pensylvanicae* Poeverl. 1904, in Aschers. et Graebn., Syn. Mitteleur. Fl. 6(1): 669 (as "*Pennsylvanicae*"). – *P.* sect. *Adenocarpae* Kurbatsky, 1985, Sist. Zametki Mater. Gerb. Krylova Tomsk. Gosud. Univ. Kuybysheva, 87: 1.

Type: *Potentilla multifida* L.

17. *Potentilla* sect. ***Multijugae*** (Rydb.) A. Nelson, 1909, New Man. Bot. Centr. Rocky Mt.: 255, 226. – *P.* [unranked] *Multijugae* Rydb. 1896, Bull. Torrey Bot. Club, 23: 432. – *P.* sect. *Candicantes* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 11, comb. inval. (sine cit. bas.). – *P.* [unranked] *Candicantes* Rydb. 1898, Mem. Dept. Bot. Columbia Coll. 2: 22, 32.

Type: *Potentilla multijuga* Lehm.

18. *Potentilla* sect. ***Niveae*** (Lehm.) A. Nelson, 1909, in Coulter et Nelson, New Man. Bot. Centr. Rocky Mount.: 255. – *P.* 'subtrib.' *Niveae* Lehm. 1856, Revisio Potentillarum: 8. – *P.* [unranked] *Niveae* (Lehm.) Rydb. 1896, Bull. Torrey Bot. Club 23 (8): 301. – *P.* [unranked] *Canescentes boreales* Th. Wolf, 1903, Potentillen-Studien, 2: 13, 68. – *P.* [unranked] *Niveae* (Lehm.) Th. Wolf, 1904, in Ascherson et Graebner, Syn. Mitteleur. Fl. 6(1): 670, 703.

Type: *Potentilla nivea* L.

19. *Potentilla* sect. ***Persicae*** (Th. Wolf) Juz. 1941, Fl. URSS, 10: 175. – *P.* 'trib.' *Persicae* Th. Wolf, 1906, in Bornm., Bull. Herb. Boissier, 6, ser. 7(8): 612. – *P.* sect. *Butkovii* M. M. Mirachmedova, 1998, Uzb. Biol. Zhurn. 3: 33, nom. inval. (sine descr. lat.).

Type: *Potentilla persica* Boiss. et Hausskn.

20. *Potentilla* sect. ***Potentilla***. – *P.* sect. *Terminales* (Döll) Gren. et Gord. 1848, Fl. France, 1: 522, 532. – *P.* [unranked] *Terminales* Döll, 1843, Rhein. Fl.: 772, sine dignit. – *P.* sect. *Argenteae* (Lehm.) Juz. 1941, Fl. URSS, 10: 142. – *P.* 'subtrib.' *Argenteae* Lehm. 1856, Revisio Potentillarum: 6. – *P.* [unranked] *Argenteae* (Lehm.) Zimm. 1884, in Jahres-Bericht der k. k. Staats-Ober-Realschule in Steyr, 14: 9, sine dignit. – *P.* [unranked] *Argenteae* (Lehm.) Rydb. 1898, in Mem. Dep. Bot. Columbia Univ. 2: 21, 24. – *P.* [unranked] *Canescentes* Th. Wolf, 1901, Potentillen-Studien, 1: 21, 122. – *P.* [unranked] *Argenteae* (Lehm.) Th. Wolf, 1908, in Biblioth. Bot. 16 (71): 49, 252. – *P.* sect. *Fedtschenkoana* M. M. Mirachmedova, 1998, Uzb. Biol. Zhurn. 3: 32, nom. inval. (sine descr. lat.).

Lectotype: *Potentilla reptans* L.

21. *Potentilla* sect. ***Ranunculoides*** (Th. Wolf) Juz. 1941, Fl. URSS, 10: 193. – *P.* [unranked] *Ranunculoides* Th. Wolf, 1908, Biblioth. Bot. 16(71): 51, 503.

Type: *Potentilla ranunculoides* Humb. et Bonpl. ex Nestl.

22. *Potentilla* sect. ***Rectae*** (Lehm.) Juz. 1941, Fl. URSS, 10: 160. – *P.* 'subtrib.' *Rectae* Lehm. 1856, Revisio Potentillarum: 5. – *P.* sect. *Rectae* (Lehm.) O. Stevens, 1959, in North Amer. Fl. 22 (7): 11, comb. inval. (sine cit. bas.). – *P.* [unranked] *Rectae* (Lehm.) Th. Wolf, 1901, Potentillen-Studien, 1: 39, 122.

Type: *Potentilla recta* L.

23. *Potentilla* sect. ***Rubricaules*** (Rydb.) A. Nelson, 1909, New Man. Bot. Centr. Rocky Mt.: 255, 256. – *P.* sect. *Rubricaules* (Rydb.) O. Stevens, 1959, in North Amer. Fl. 22 (7): 11, comb. inval. (sine cit. bas.). – *P.* [unranked] *Rubricaules* Rydb. 1898, Mem. Dep. Bot. Columbia Univ. 2: 21, 30.

Type: *Potentilla rubricauli*s Lehm.

24. *Potentilla* sect. ***Subjugae*** (Rydb.) A. Nelson, 1909, New Man. Bot. Centr. Rocky Mt.: 255. – *P.* sect. *Subjugae* (Rydb.) O. Stevens, 1959, in North Amer. Fl. 22 (7): 11, comb. inval. (sine cit. bas.). – *P.* sect. *Subjugae* (Rydb.) B.C. Johnst. 1985, Phytologia, 57(4): 296, 299, comb. inval. – *P.* [unranked] *Subjugae* Rydb. 1896, Bull. Torrey Bot. Club, 23: 397.

Type: *Potentilla subjuga* Rydb.

25. *Potentilla* sect. ***Subviscosae*** (Rydb.) B. C. Johnst. 1985, Phytologia 57(4): 295, 299. (Rydb.). – *P.* sect. *Subviscosae* (Rydb.) O. Stevens, 1959, N. Amer. Fl. 22(7): 11, comb. inval. (sine cit. bas.). –

P. [unranked] *Subviscosae* Rydb. 1896, Bull. Torrey Bot. Club 23: 429.

Type: *Potentilla subviscosa* Greene.

26. *Potentilla* sect. ***Supinae*** (Lehm.) A. Nelson, 1909, in Coulter et Nelson, New Man. Bot. Centr. Rocky Mount.: 255. – *P.* ser. *Supinae* Lehm. 1856, Revisio Potentillarum: 8. – *P.* [unranked] *Supinae* (Lehm.) Rydb. 1898, Mem. Dep. Bot. Columbia Univ. 2: 21, 23. – *P.* sect. *Rivales* (Th. Wolf) Juz. 1941, Fl. URSS, 10: 165. – *P.* [unranked] *Rivales* Th. Wolf, 1903, Potentillen-Studien, 2: 11, 68.

Type: *Potentilla supina* L.

27. *Potentilla* sect. ***Tanacetifoliae*** (Lehm.) Juz. 1941, Fl. URSS, 10: 152. – *P.* 'trib.' *Tanacetifoliae* Lehm. 1856, Revisio Potentillarum: 6. – *P.* [unranked] *Tanacetifoliae* (Lehm.) Th. Wolf, 1904, in Ascherson et Graebner, Syn. Mitteleur. Fl. 6 (1): 670, 743.

Type: *Potentilla tanacetifolia* Willd. ex D. F. K. Schltdl.

Genus IX. *Purpusia* Brandegee, 1899, Bot. Gaz. 27: 446. – *Potentilla* L. subgen. *Purpusia* (Brandegee) J. T. Howell, 1945, Leafl. W. Bot. 4(6): 172.

Lectotype (Rydberg, 1908: 291): *Purpusia saxosa* Brandegee

Three species distributed in arid regions of southwest of USA.

Genus X. *Stellariopsis* (Baill.) Rydb. 1898, Mem. Dept. Bot. Columbia Coll. 2: 19, 155. – *Potentilla* L. sect. *Stellariopsis* Baill. 1869, Hist. Pl. 1: 372. – *P.* sect. *Stellariopsis* (Baill.) O. Stevens, 1959, N. Amer. Fl. 22(7): 11, comb. inval. (sine cit. bas.). – *Ivesia* Torr. et A. Gray sect. *Stellariopsis* (Baill.) Ertter et Reveal, 2007, Novon 17(3): 317.

Type: *Stellariopsis santolinoides* (A. Gray) Rydb. [≡*Ivesia santolinoides* A. Gray].

Monotypic genus occurring in mountains of California.

Genus XI. *Tormentilla* L. 1753, Sp. Pl.: 500.

Lectotype (Green, in Hitchcock et Green, 1929: 159): *Tormentilla erecta* L.

Eight species native to Northern and introduced to Southern Hemisphere.

1. *Tormentilla* L. sect. ***Reptantes*** (Lehm.) Kechaykin et Shmakov, **comb. et stat. nov**. ≡ *P.* ser. *Reptantes* Lehm. 1856, Revisio Potentillarum: 8.

Type: *Tormentilla linnaeana* Kechaykin et Shmakov [≡*Potentilla reptans* L.] (Herb. Linn. No. 655.38, LINN).

Six species in Northern Hemisphere:

T. canadensis (L.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla canadensis* L. 1753, Sp. Pl.: 498.

T. flagellaris (Willd ex D. F. K. Schltdl.) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla flagellaris* Willd ex D. F. K. Schltdl. 1816 in Ges. Naturf. Freunde Berlin (Mag.) 7: 291.

T. hemsleyana (Th. Wolf) Kechaykin et Shmakov, **comb. nov**. ≡ *Potentilla hemsleyana* Th. Wolf, 1908, Biblioth. Bot. 16(71): 667.

T. linnaeana Kechaykin et Shmakov, **nom. nov.** ≡ *Potentilla reptans* L. 1753, Sp. Pl.: 499, non *T. reptans* L. (1753: 500).

T. simplex (Michx.) Kechaykin et Shmakov, **comb. nov.** ≡ *Potentilla simplex* Michx. 1803, Fl. Bor.-Amer. 1: 303.

T. simulatrix (Th. Wolf) Kechaykin et Shmakov, **comb. nov.** ≡ *Potentilla simulatrix* Th. Wolf, 1908, Biblioth. Bot. 16(71): 663.

2. *Tormentilla* L. sect. ***Tormentilla***. – *Potentilla* L. sect. *Tormentilla* (L.) Tausch, 1823, in Hortus Canal. 1: t. 10 (unpaged). – *P.* ser. *Tormentillae* Lehm. 1856, Revis. Potentill.: 8. – *P.* [unranked] *Tormentillae* Rydb. 1898, Mem. Dep. Bot. Columbia Univ. 2: 21, 22, nom. inval. – *P.* [unranked] *Tormentillae* Th. Wolf, 1901, Potentillen-Studien, 1: 99, 123, nom. inval.

Lectotype: *Tormentilla erecta* L. (Herb. Linn. No. 656.1, LINN).

Two species native to Northern and introduced to Southern Hemisphere.

T. erecta L. 1753, Sp. Pl.: 500. – *Potentilla tormentilla* Neck. 1770, Hist. et Commentat. Acad. Elect. Sci. Theod.-Palat. 2: 491.

T. reptans L. 1753, Sp. Pl.: 500. – *Potentilla anglica* Laichrd. 1790, Veg. Europ., ed. 1: 475. – *P. procumbens* Sibth. 1794, Fl. Oxon.: 162.

Genus XII. *Tylosperma* Botsch. 1952, Not. Syst. Herb. Inst. Bot. Acad. Sci. Uzbekistan,

13: 17.

Type: *Tylosperma lignosa* (Willd. ex D. F. K. Schltdl.) Botsch. [≡*Potentilla lignosa* Willd. ex D. F. K. Schltdl.]

Two species distributed in Turkey, Iran, Afghanistan, Pakistan, India, and Middle Asia.

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