

TWO NEW NORTH AMERICAN *POTENTILLA* SECT. *RUBRICAULES* (ROSACEAE)

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ABSTRACT

Two new entities of *Potentilla* are described in sect. *Rubricaulis*. ***Potentilla hudsonii* Ertter, sp. nov.**, which ranges from the prairies of Saskatchewan and adjacent Montana to southwestern Yukon, differs from *Potentilla modesta* in having both ternate and palmate leaves equally common, from *P. furcata* in having a more congested inflorescence with shorter pedicels, and from both in its more deeply incised leaves with more densely hairy adaxial surfaces, and near absence of visible glands. ***Potentilla hookeriana* var. charletii Ertter, var. nov.**, endemic to the Snake Range in White Pine County, Nevada, differs from typical *P. hookeriana* in having more densely hairy adaxial leaflet surfaces, leaves that are more often subpalmate, and pedicels somewhat longer and sturdier, resulting in a more open inflorescence. A table and key summarize the diagnostic differences among these species and varieties.

The complexities of *Potentilla* sect. *Rubricaulis* (Rydb.) A. Nelson were such that a detailed synopsis (Ertter et al. 2013) was published as precursor to the more condensed account of the genus in *Flora of North America North of Mexico* (Ertter et al. 2015). Even with the extensive collaborative efforts that went into preparing this treatment, several elements were specifically excluded pending further research. Subsequent fieldwork and analysis of herbarium specimens has now provided sufficient data to recognize two of these elements as additions to sect. *Rubricaulis*, described below. The descriptions and discussions are followed by a table and key summarizing the differences among the new taxa and other members of sect. *Rubricaulis* that have overlapping or adjacent ranges. Descriptions and terminology largely follow that of other species in sect. *Rubricaulis* in Ertter et al. (2015). All photos are by the author.

A new species of *Potentilla* centered in the Canadian prairies

Among the specifically excluded elements were “plants from the northern prairies of Saskatchewan, Alberta, and Montana [which] evidently represent an undescribed taxon” (Ertter et al. 2013). These plants are described here as a new species.

POTENTILLA HUDSONII Ertter, **sp. nov.** (Figures 1–4) **TYPE: Canada. Saskatchewan.** Mennon, dry rocky grassy slope at top of North Saskatchewan River breaks, occasional with *Geum triflorum*, *Senecio*, *Avena hookeri*, 8 Jun 1969, *Hudson* 2612 (holotype: SASK170533; isotypes: DAO, SASK40926).

Differs from *Potentilla modesta* Rydb. in having both ternate and palmate leaves equally common, from *P. furcata* A.E. Porsild in having a more congested inflorescence with shorter pedicels, and from both in its more deeply incised leaves with more densely hairy adaxial surfaces, near absence of visible glands, and core distribution on the northern prairies.

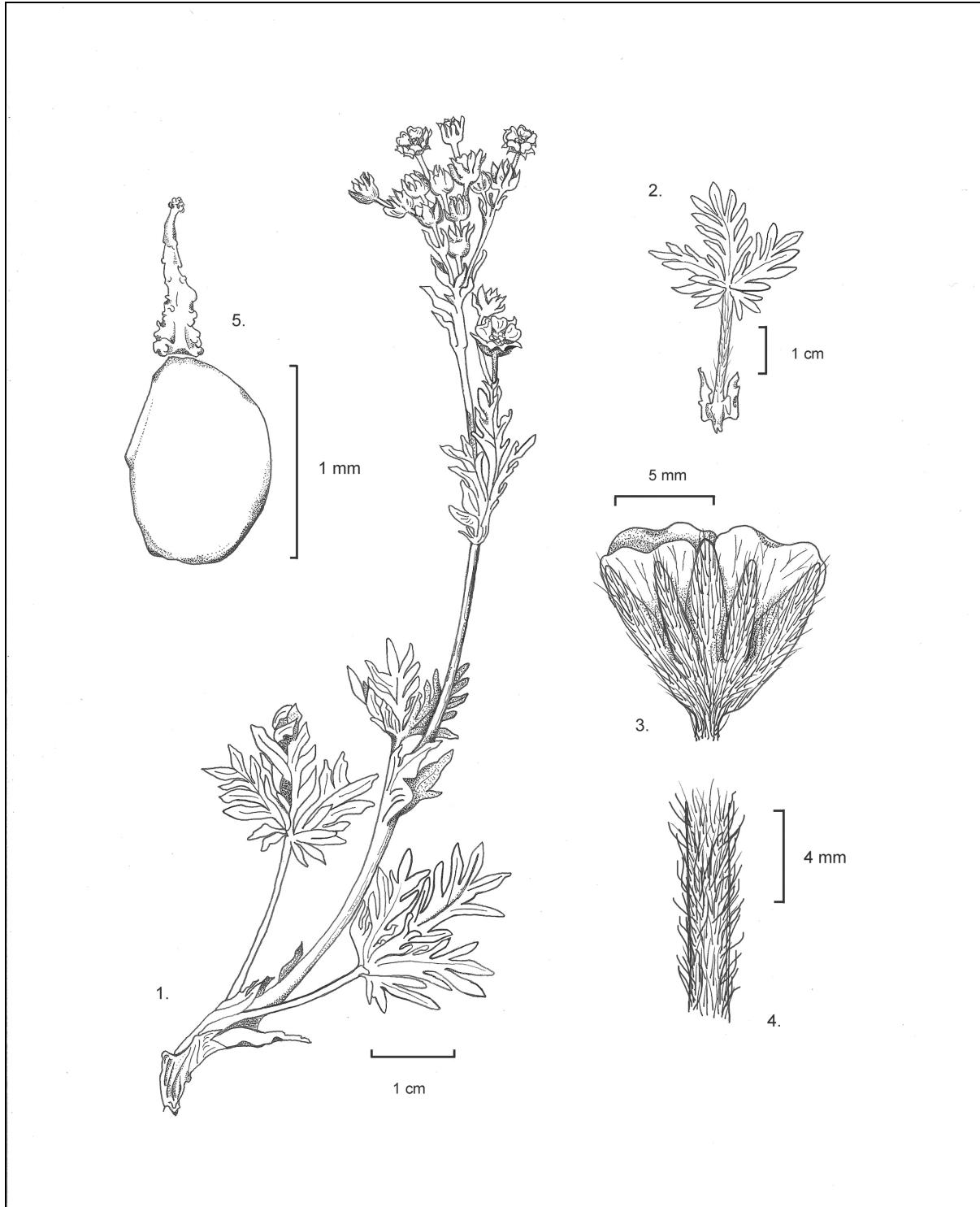


Figure 1. Line drawing of *Potentilla hudsonii*, by Karie Pappani. 1. Habit. 2. Adaxial side of subpalmate basal leaf. 3. Flower, side view. 4. Schematic showing relative density and orientation of petiole hairs. 5. Achene and style. (drawn from Ertter *et al.* 22380, supplemented by field photos and other collections).

Plants gray-green to silvery-white, \pm tufted. **Caudex** simple or few-branched, not sheathed with marcescent whole leaves. **Stems** ascending to nearly erect, (0.7–)1–3 dm long. **Basal leaves** usually both ternate and palmate on same plant (or only ternate in Yukon), rarely subpalmate, (2.5–)3–9(–14) cm long; petiole (0.5–)1–5(–8) cm long, long hairs abundant to dense, appressed to ascending, 1.5–2 mm long, usually stiff, verrucose, short-crisped hairs common, cottony hairs absent, glands absent; leaflets 3–5, not to somewhat overlapping, proximalmost separated from others by 0(–5) mm of leaf axis, central leaflet oblanceolate to elliptic, (0.8–)1.2–3(–5) \times 0.7–1.5(–2) cm, petiolule 0–2(–6) mm long, nearly all of margin incised $\frac{3}{4}$ or more to midvein, revolute, teeth (3)4–5(–7) per side, usually not or scarcely overlapping (except in Yukon), \pm linear to oblanceolate, small secondary teeth sometimes present, 3–7(–10) mm long, apical tufts 0.5–1 mm long, abaxial surface white, long hairs dense on veins, cottony-crisped hairs dense, short hairs and glands absent or obscured, adaxial surface grayish green to grayish, long hairs common to dense, 1.5–2 mm long, usually stiff, short and/or crisped hairs common to abundant, glands, if present, obscured. **Cauline leaves** (1)2(3). **Inflorescences** (3–)8–20(–25)-flowered, congested at anthesis, sometimes becoming more open and elongate with age, branch angle 10–30°. **Pedicels** 0.2–0.7 cm long, proximal ones to 1.2(–1.5) cm long. **Flowers** cup-shaped at anthesis; hypanthium 2–4(–5) mm diam.; epicalyx bractlets linear to narrowly lanceolate-elliptic, 2–4 \times 0.5–1 mm; sepals 3–4.5(–5.5) mm long, apex \pm acute, glands absent or obscured (except in Yukon); petals canary yellow, lacking darker basal patch, \pm ascending at anthesis, scarcely overlapping, 3–5(–6) \times 3–4 mm, equalling or slightly longer than sepals, apex shallowly retuse; filaments opposite sepals ca 2 mm long, other filaments ca 1 mm long, anthers ca 0.4 mm long; carpels ca 30–70, styles \pm 1 mm long, \pm tapered, proximal $\frac{1}{2}$ (– $\frac{3}{4}$) strongly papillate. **Achenes** ca 1.3 mm long, smooth or lightly veined.

Flowering from (May) June to July, or to August in Montana. Mostly open spots in grasslands, often in thin-soiled, rocky, sandy, and/or heavily grazed sites, as well as gravelly slopes and roadsides; elev. 490–2100 m (highest in Montana).



Figure 2. Habitat (on top of blow-out) of *Potentilla hudsonii* (Ertter *et al.* 22380).

Etymology. Named for John Howard Hudson (1923–2010), a professional chemist whose passion for the Saskatchewan flora resulted in thousands of specimens collected over the course of 50 years (MacPherson 2000). Hudson's collections, donated to SASK in 2008, provide excellent documentation of the declining remnant flora of Saskatchewan's prairies, including multiple collections of this new species named in his honor.



Figure 3. Plant of *Potentilla hudsonii* (Ertter et al. 22380).



Figure 4. Cup-shaped flowers of *Potentilla hudsonii* (Ertter et al. 22380).



Figure 5. Habitat and habit of *Ertter* 22896 in Kluane National Park, Yukon.

Other collections examined. CANADA. Alberta. Hill back of Camp Chelan on Ghost River, 5 Jul 1950, *McCalla 11102* (ALTA); Kle[s]kun Hill, 19 Jun 1979, *Wallis s.n.* (ALTA); Kleskun Hills Park NE of Grand Prairie, 15 Jun 1979, *Wilkinson 33* (ALTA); Snaring River campsite road, Jasper NP, 10 Jun 2006, *Yakimchuk & Ottenbreit s.n.* (ALTA). **Saskatchewan.** Nisbet Provincial Forest, 20 June 1949, *Boivin & Breitung 6119* (DAO); 7 milles au sud-est du lac Bulkin (Bengough), 10 Aug 1951, *Boivin & Gillet 8744* (SASK); no locality, 1857-8, *Bourgeau s.n.* (K); Leslie, 20 Jun 1935, *E.T.H. & R.C.R[ussell] s.n.* (SASK); ca 2 airkm NNW of Petrofka Bridge, 24 Jun 2015, *Ertter et al. 22380* (SRP, UC); Saskatoon, 29 Jun 1939, *Fraser s.n.* (ALTA, DAO, SASK); Saskatoon, 19 Jul 1938, *Furniss 989* (V); Red Deer River plains, Prince Albert, 27 Jun 1942, *Furniss 1004* (SASK, V); Warman, 20 Jun 1935, *Groh s.n.* (DAO); Environ, 25 Jun 196, *Hudson 2508* (DAO, SASK); Herschel, 3 Jun 1984, *Hudson 4437* (SASK); Wolverine, 15 Jun 1989, *Hudson 4829* (SASK); Kerrobert, 10 Jun 1992, *Hudson 5048* (SASK); Richard, 13 Jun 1953, *Jenkins 1240* (DAO); townsite of Richard, 15 Jun 1953, *Jenkins 1269* (DAO); 10 mi E of Saskatoon, 20 Jun 1952, *Ledingham 1364* (NY); Heatherleigh Community Pasture near Sandwith, 7 Jun 1991, *Leighton et al. s.n.* (SASK); ca 1 km N of Petrofka Bridge over North Saskatchewan River along Rt. 12, Aug 1988, *Marvin 3418* (ALTA); N of Rosthern, 1939, *Stevenson 11* (DAO); Rosthern, Jun 1939, *Stevenson s.n.* (SASK). **Yukon** (see discussion). Bear Cr, Alaska Hwy km 1646, 29 Jul 1980, *Cody & Ginns 28592* (DAO); W end Sheep Ridge Trail from Soldier Summit trail, 26 Jun 2017, *Ertter 22896* (ALA, BABY, NY, SRP, UC); Congdon Creek campground, 27 Jun 1987, *Marvin 2502* (ALTA); Alaska Hwy ca 4.8 km S of Edith Creek, 27 Jun 1987, *Marvin 2509* (ALTA). **USA. Montana.** Liberty Co.: Les Trois Buttes (Sweetgrass Buttes), Butte de l'Est, Sommet du Mont-Royal, 10 Aug 1955, *Boivin & Mosquin 11427* (DAO). Toole Co.: Les Trois Buttes, Butte de l'Ouest, 8 Aug 1955, *Boivin & T Mosquin 11267* (DAO).

Most of the existing collections of *Potentilla hudsonii* were originally identified as *Potentilla quinquefolia* Rydb., *P. nivea* L. var. *pentaphylla* Turcz. (mistakenly attributed to Lehm.), *P. subquinata* (Lange) Rydb., *P. rubricaulis*, or *P. hookeriana* Lehm. The first four names have commonly been treated as synonyms or elements of a single broadly circumscribed taxon, to which Soják (1986) added *P. hookeriana* after re-evaluating the type. The homotypic synonyms *P. quinquefolia* and *P. nivea* var. *pentaphylla* are now understood to apply to the Asian *P. altaica* Bunge, while *P. subquinata* is now interpreted as the casual hybrid of *P. nivea* and *P. arenosa* (Turcz.) Juz. (Ertter et al. 2013; Soják 1986). In Scoggan's (1978) *Flora of Canada*, plants of *P. hudsonii* would presumably be encompassed by *P. nivea* subsp. *subquinata* (Lange) Hultén, even though the key to species only allows for plants with three leaflets in *P. nivea*.

One possible nomenclatural complication that needed to be resolved prior to publishing *Potentilla hudsonii* was whether the type of *P. hookeriana* might possibly be conspecific. Although the name had traditionally been used for a wide-ranging arctic and alpine species with trifoliate leaves (now known as *P. arenosa*), Soják (1986) noted that the type collection is 3–5-leaved and therefore part of the *P. rubricaulis* species complex. The type locality of *P. hookeriana* is vague, simply “Rocky Mts.,” potentially anywhere from central Alberta to central Utah based on the collector Joseph Burke's itinerary (McKelvey 1955). The northern boundary of Burke's activities was within the range of *P. hudsonii*, and the deeply incised 5-foliate leaves are compatible with that species. The plants themselves are in early anthesis, so that the inflorescences have not yet fully developed. However, it is clear that some pedicels are significantly longer and leaves more bicolored than those of *P. hudsonii*, consistent with the current circumscription of *P. hookeriana* (Ertter et al. 2013, 2015).

The core range of *Potentilla hudsonii* is the prairies of Saskatchewan and Alberta, extending into the edges of jack pine woodland in Nesbit Provincial Forest. Whether the apparently sporadic distribution in Alberta is a true indication of the historical range, or simply an artifact of collecting bias, is uncertain. The species is known in the USA only from the Sweet Grass Hills (“Les Trois Buttes”) in north-central Montana, and from there only by two collections by Boivin and Mosquin in

1955. Throughout this area it is the only representative of sect. *Rubricaulis*, distinctive in its combination of deeply incised silvery leaves, compact inflorescence, and absence of visible glands.

The situation is less clear farther to the northwest, where the range of *Potentilla hudsonii* overlaps the ranges of both *P. rubricaulis* Lehm. and *P. furcata* in southern Yukon (and very likely adjacent British Columbia, though no collections of *P. hudsonii* from this province are currently confirmed). Assigning collections from this area of overlap to one of these three species can be problematic, complicated by the high probability of introgression and hybrid swarms. This is particularly well documented by multiple collections from Congdon Campground, an easily visited site on the Alaskan Highway on the west side of Kluane Lake, including several by the author (Ertter 22729 in July 2016 and 22886-22887 in June 2017). Nevertheless, at least one population from Kluane National Park in the Yukon (Ertter 22896, Fig. 5) consists of morphologically uniform plants whose adaxially silvery leaves and compact inflorescences are diagnostic of *P. hudsonii*, although differing from those in the northern prairies in being more visibly glandular and other exceptions noted in the description. One possible interpretation is that the distribution of *P. hudsonii* in the Yukon is largely relictual and that the species is being swamped by introgression with *P. rubricaulis* and/or *P. furcata* in this part of its range.

The abundance of historical collections of *Potentilla hudsonii* in Saskatchewan obscures the species' possible current rarity. Two days of intensive search for extant populations within a few hours' drive from Saskatoon in 2015 located a single small population of less than twenty plants (Ertter et al. 22380, Figs. 2–4), too few to serve as a type collection. The single site was a sandy blow-out in well-grazed pastureland, in contrast to the dense stands of invasive *Bromus inermis* Leyss. that dominated most of the other sites that were searched, most of which were historical localities.

A new variety of *Potentilla hookeriana*

The nomenclatural history of *Potentilla hookeriana* Lehm. in the broad sense is convoluted, as summarized in Ertter et al. (2013) and mentioned above. Prior to 1986, the name encompassed widespread arctic and alpine plants that had three leaflets that were tomentose abaxially and petioles with stiff spreading hairs. Sometimes this circumscription was treated as a subspecies of *Potentilla nivea* L. (e.g., Scoggan 1978). A period of nomenclatural transition ensued when Soják (1986) not only noted that the type of *P. hookeriana* had some 5-foliolate leaves, but then subsequently (1989) noted that the type of *P. nivea* was in fact conspecific with what had been called *P. hookeriana*, rather than with tomentose-petioled plants that had traditionally been called *P. nivea* s.s. The use of *P. nivea* for plants that had previously been called *P. hookeriana* was briefly adopted, until the original application of *P. nivea* was re-established as a result of conserving the type (Eriksen et al. 1999). The name *P. arenosa* was subsequently adopted for the 3-foliolate arctic component of former *P. hookeriana*, while the latter name was retained for 3–5-foliolate alpine plants in the Rocky Mountains and eastern Great Basin (Ertter et al. 2013, 2015).

The treatment of *Potentilla* for the Intermountain Flora (Holmgren 1997), which was published during the nomenclatural transition period, used *P. nivea* to encompass both *P. nivea* s.s. (tomentose petioles) and at least trifoliolate *P. hookeriana* (hirsute petioles) as now recognized in *Flora of North America* (Ertter et al. 2015). These latter treatments excluded a series of collections from the Intermountain region that differed in having notably hairier adaxial leaflet surfaces and more open inflorescences than typical *P. hookeriana*. These collections are all from the Wheeler Peak area in the Snake Range (mistakenly referenced as “Schell Peak” in Ertter et al. 2013), White Pine County, Nevada. These collections are described here as a new variety, using the rank that is appropriate for the highly restricted range surrounded by the common variety, with nearby intermediates and diagnostic characters that are a matter of degree rather than absolutes.

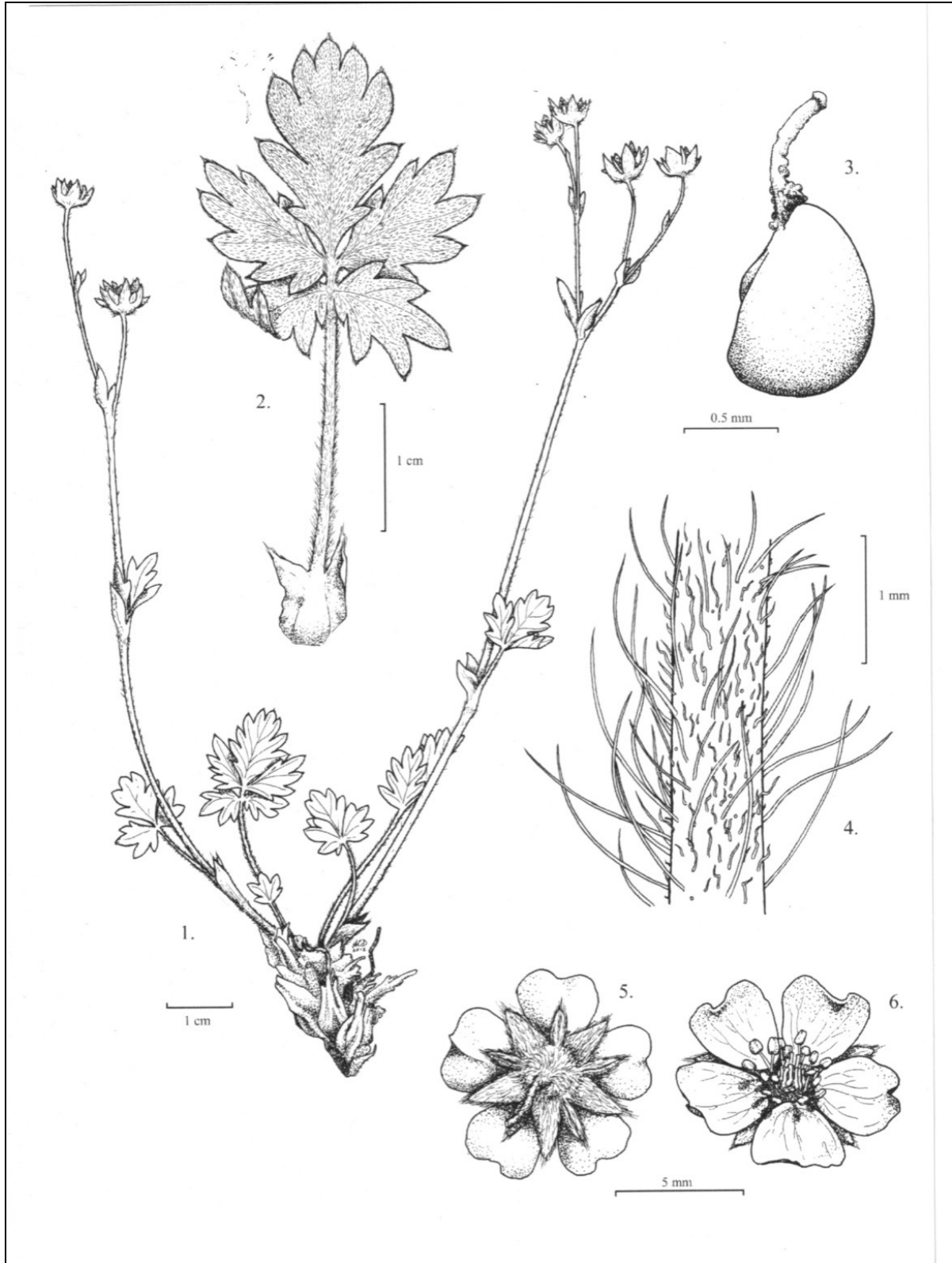


Figure 6. Line drawing of *Potentilla hookeriana* var. *charletii* by Alexa DiNicola. 1. Habit. 2. Adaxial side of subpalmate basal leaf. 3. Achene and style. 4. Petiole hairs. 5. Flower, abaxial side. 6. Flower, adaxial side. (drawn from Ertter & Baker 20433, supplemented by field photos).

POTENTILLA HOOKERIANA Lehm. var. **CHARLETII** Ertter, **var. nov.** (Figs. 6–9) **TYPE: USA. Nevada.** White Pine Co.: Snake Range, ridge N of Wheeler Peak, frequent, 12,000 ft., 4 Aug 1941, *Maguire 21165* (holotype: UC1249488; isotypes: DAO, NY, UTC, WTU).

Differs from typical *Potentilla hookeriana* in having more densely hairy adaxial leaflet surfaces, leaves that are more often subpalmate, and somewhat longer and sturdier pedicels resulting in a more open inflorescence.

Plants gray-green, tufted. **Caudex** branched, usually sheathed with old leaf-bases. **Stems** decumbent to ascending-erect, 0.5–2.1 dm long. **Basal leaves** usually both ternate and palmate or subpalmate on same plant, 1–6(–8) cm long; petiole 0.3–4(–5) cm long, long hairs sparse to abundant, ascending (appressed), 1–1.5(–2) mm long, \pm stiff, verrucose, short-crisped (to cottony) hairs common, glands sparse; leaflets 3–5, \pm overlapping, proximalmost pair separated from others by 0–2 mm of leaf axis, central leaflet \pm obovate, 0.7–1.5(–2) \times 0.5–1.2(–1.5) cm, petiolule 0–1 mm long, distal $\frac{3}{4}$ + of margin incised $\pm \frac{1}{2}$ $\frac{2}{3}$ (– $\frac{3}{4}$) to midvein, \pm revolute, teeth 3–6 per side, often overlapping, \pm ovate to elliptic, 2–5 mm long, apical tufts 0.5–1 mm long, abaxial surface greenish gray to white, long hairs dense on veins, cottony-crisped hairs abundant to dense, short hairs absent, glands probably present but usually obscured, adaxial surface grayish green to grayish, long hairs common to abundant (sparse), \pm 1 mm long, weak to stiff, short and/or crisped hairs sparse to common, glands sparse, sometimes obscured. **Cauline leaves** (0)1(2). **Inflorescences** (1)2–10-flowered, open, branch angle (10–)20–60°. **Pedicels** 0.8–3 cm long, proximal ones to 5 cm long. **Flowers** bowl-shaped at anthesis; hypanthium 3–5 mm diam.; epicalyx bractlets narrowly elliptic, 2–3.5 \times 0.5–1 mm; sepals 3–5 mm long, apex acute, glands sparse to common, not obscured; petals yellow, lacking darker basal patch, slightly overlapping, 4–6 \times 3.5–5 mm, slightly longer than sepals, apex \pm retuse; filaments opposite sepals 1.5–2 mm long, other filaments 0.5–1 mm long, anthers ca 0.5 mm long; carpels ca 20–30, styles \pm 1 mm long, distal $\frac{2}{3}$ – $\frac{3}{4}$ \pm columnar, proximal $\frac{1}{4}$ – $\frac{1}{3}$ strongly papillate. **Achenes** 1.3–1.5 mm long, smooth or lightly veined.

Flowering from July to August. Alpine ridges, fellfields, quartzite rubble; elev. 3400–3700 m.

Etymology. I am pleased to name this *Potentilla* after David Alan Charlet (b. 1953), in recognition of his contributions to our understanding of the distribution of high-montane plants in Nevada, in particular conifers (Charlet 1996, 2007).

Other collections examined. **Nevada.** White Pine Co. (all Snake Range): trail to Wheeler Peak, above treeline, *Charlet 2572* (UC); trail up Wheeler Peak; N38.9964° W114.3225°, *Ertter & Baker 20433* (see discussion); saddle between Wheeler Peak and Bald Mountain, rocky ridgetop, *Holmgren & Vincent 10975* (BRY, NY, RSA, UC); NW side of Wheeler Peak, near rim of cirque, *Marvin 3193* (ALTA); N side Wheeler Peak, rocky slopes above Stella Lake, *McVaugh 6031* (UC).

As previously indicated, *Potentilla hookeriana* var. *charletii* is known only from the north end of the Snake Range in Great Basin National Park, White Pine Co., Nevada, from Wheeler Peak to Bald Mountain. Plants occur above timberline on a quartzite substrate, sometimes with the endemic *P. holmgrenii* D.F. Murray and Elven (Fig. 10). Two collections from relatively nearby mountain ranges in Utah approach var. *charletii* in their leaflet adaxial vestiture but lack the other diagnostic characters. These are *Goodrich 19022* (BRY, NY, UT) from the Deep Creek Mountains in Juab County and *Goodrich 24187* (ASU, BRY) from Mount Terrill in Sevier County. Both collections lack subpalmate leaves and have inflorescences more diagnostic of var. *hookeriana*. Pubescence of plants in *Goodrich 19022* is silkier than typical for *P. hookeriana*; further research on populations in the Deep Creek Mountains is warranted.

Permission to collect this and other *Potentilla* in Great Basin National Park (permit GRBA-2010-SCI-0012) is gratefully acknowledged, and it was a genuine pleasure to spend a day on Wheeler Peak with park naturalist Gretchen Baker. Unfortunately, the current requirement that national parks retain ownership of any specimens collected within the park is incompatible with most herbaria's accession policies. A previously distributed collection is therefore reluctantly used as the holotype for this new variety, while the ultimate disposition of the collection that was made with this use in mind (Ertter & Baker 20433), and on which the description is primarily based, remains to be determined.



Figure 7. Habitat of *Potentilla hookeriana* var. *charletii* on the north side of Wheeler Peak, looking north across saddle to Bald Mountain (upper left).



Figure 8. Habit of *Potentilla hookeriana* var. *charletii* (Ertter & Baker 20433).



Figure 9. Flower of *Potentilla hookeriana* var. *charletii* (Ertter & Baker 20433); sixth petal is anomalous.



Figure 10. *Potentilla holmgrenii* (left) and *P. hookeriana* var. *charletii* (right of center) growing side by side on Wheeler Peak.

Table 1. Summary of significant differences among *Potentilla hudsonii*, *P. hookeriana* var. *charletii*, and other members of sect. *Rubricaulis* that have overlapping or adjacent ranges. Full descriptions of other species, along with explanations of terminology, are in Ertter et. al (2015).

	<i>rubricaulis</i>	<i>furcata</i>	<i>hudsonii</i>	<i>modesta</i>	<i>hookeriana</i>	<i>charletii</i>
stem length dm	1.5–4	(0.5–)1–3	(0.7–)1–3	(0.3–)0.5–1.5(–2.5)	(0.3–)0.5–2	0.5–2.1
leaf dissection	ternate and palmate, rarely subpalmate	ternate and palmate, sometimes subpalmate or only ternate	ternate and palmate, rarely subpalmate or only ternate	usually palmate, rarely ternate or subpalmate	usually ternate and palmate, rarely subpalmate	ternate and palmate or subpalmate
petiole length cm	2.5–7	2.5–8	(0.5–)1–5(–8)	0.5–3.5(–5)	0.5–6	0.3–4(–5)
central lfl length cm	1.5–4	1.4–2.5(–5)	(0.8–)1.2–3(–5)	0.5–2(–2.5)	0.5–2.5	0.7–1.5(–2)
lfl incision to midvein	½–¾(+)	½–¾+	¾+	½–¾	½–¾(+)	± ½–¾(–¾)
lfl teeth per side	(4)5–8	3–5	(3)4–5(–7)	2–5	2–6	3–6
lfl tooth length mm	4–5 mm	5–6	3–7(–10)	(1–)2–5	1–5	2–5
lfl adaxial color	green to grayish green	green to grayish green	grayish green to grayish	grayish green	green to grayish green	grayish green to grayish
lfl adaxial hair density	sparse to common	sparse to common	common to dense	common to abundant	sparse to common	common to abundant (sparse)
infl. density	open	± open	congested	± congested	open	open
infl. branch angle	(10–)20–45°	5–30(–50)°	10–30°	20–35°	20–50°	(10–)20–60°
flower # per infl.	4–20	7–12(–20)	(3–)8–20(–25)	(1–)3–10	1–6(–8)	(1)2–10
pedicel length cm (proximal maximum)	0.5–3(–5)	(0.5–)1–2(–3)	0.2–0.7(–1.5)	0.2–0.5(–1.2)	(0.5–)1–2(–3)	0.8–3(–5)
hypanth. diam. mm	4–6	2.5–3.5	2–4(–5)	3–4	3–4	3–5
sepal glands	evident	evident	absent or obscured (except Yukon)	evident	evident	evident
petal length × width mm	5–7 × (4–)5–6.5	3–5(–6) × 3–4(–5)	3–5(–6) × 3–4	3.5–5 × 3–4	3–6(–7) × 4–5	4–6 × 3.5–5

Key to the species in Table 1 (modified from Ertter et al. 2015)

1. Inflorescences ± congested; pedicels 0.2–0.7 cm long, proximal to 1.2(–1.5) cm long; leaflets grayish green to grayish adaxially — inflorescence branch angle 10–35°; leaves rarely subpalmate.
 2. Sessile glands evident on sepals (and elsewhere); leaves almost all palmate, rarely ternate, incised ½–¾ to midvein; teeth (1–)2–5 mm long; mountains of Colorado, Idaho, w Montana, Utah, and Wyoming **Potentilla modesta**
 2. Sessile glands absent or obscured on sepals (and elsewhere) except in Yukon; leaves usually both ternate and palmate on same plant, incised ¾ or more to midvein; teeth 3–7(–10) mm long; Great Plains in Saskatchewan, Alberta, and n-central Montana, sporadic in s Yukon **Potentilla hudsonii**
1. Inflorescences ± open; pedicels 0.5–3 cm long, proximal to 5 cm long; leaflets green to grayish adaxially — sessile glands evident on sepals; leaves usually both ternate and palmate or subpalmate on same plant, incised ½–¾+ to midvein.
 3. Inflorescence branch angle 5–30(–50)°; petals 3–5(–6) × 3–4(–5) mm — leaflets green to grayish green adaxially, teeth 3–5 per side; unglaciated areas in ne British Columbia, Yukon, and interior Alaska **Potentilla furcata**
 3. Inflorescence branch angle (10–)20–60°; petals 3–7 × 3.5–6.5 mm.
 4. Stems 1.5–4 dm long; leaflet teeth (4)5–8 per side; inflorescence 4–20-flowered; hypanthium 4–6 mm diam.; glaciated regions of w Canada and adjacent Alaska — leaflets green to grayish green adaxially **Potentilla rubricaulis**
 4. Stems (0.3–)0.5–2.1 dm long; leaflet teeth 2–6 per side; inflorescence 1–10-flowered; hypanthium 3–4(–5) mm diam.; mostly alpine regions, Rocky Mountains to eastern Great Basin **Potentilla hookeriana**
 5. Leaves green to grayish green adaxially with sparse to common hairs; leaves rarely subpalmate; pedicels (0.5–)1–2 cm long, proximal to 3 cm long; s Canadian Rockies to Idaho, Nevada (but not the Snake Range), Utah, and Colorado var. **hookeriana**
 5. Leaves grayish green to grayish adaxially with common to abundant (rarely sparse) hairs; leaves often subpalmate; pedicels 0.8–3 cm long, proximal to 5 cm long; Snake Range, White Pine Co., Nevada var. **charletii**

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