

Rare Plant Status Review: *Horkelia howellii*
Proposed Addition to California Rare Plant Rank 4.3, G4 / S3

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Changes made to the original document are in blue text.

This species review is being expedited through a challenge cost share agreement between the California Native Plant Society and the USDA Forest Service, Pacific Southwest Region. Aside from being advanced as part of this agreement, the process, content, and information provided herein is not altered, modified, or developed differently in any way or form compared to other status reviews developed by CNPS.

Background and Taxonomy

Horkelia howellii (Greene) Rydb. is a perennial herb in Rosaceae known from northern California and southern Oregon. It is included in the *Jepson eFlora* (Ertter 2012) and *Flora of North America* (Ertter and Reveal 2015). *Horkelia howellii* was originally described by E. L. Green in 1887 under the name *Potentilla*, and was transferred to *Horkelia* by Rydberg in 1898. In 1938, Keck subsumed *H. howellii* into *H. sericata* (a CRPR 4.3 species) on grounds of intergradation, and it remained unrecognized in major floras, including Munz (1959) and *The Jepson Manual* (Ertter 1993) until more recently. Both *H. howellii* and *H. sericata* are found to grow sympatrically, and in the California Consortium of Herbaria there are nearly 100 specimens of *H. sericata* in need of review to determine which might actually be *H. howellii* (CCH 2020; Ertter pers. comm 2020). The re-recognition of *H. howellii* and its differentiation between *H. sericata* is best explained in the *Flora of North America* treatment by Ertter and Reveal (2015):

Horkelia sericata:

“D. D. Keck (1938) expanded the circumscription of *Horkelia sericata* to encompass the plants segregated here as *H. howellii*, on the grounds that intergradation is too extensive to justify taxonomic recognition of the extremes. In this evaluation, however, most collections can be unequivocally divided between plants with compact silvery-sericeous leaves with entire or forked stipules (*H. sericata*), and plants with larger, greener leaves and pinnately divided stipules (*H. howellii*). It is not known if the chromosome count provided by P. A. Munz (1959) was derived from *H. howellii* or *H. sericata*.

As here circumscribed, *Horkelia sericata* is a localized taxon known only from Curry County, Oregon, and the Gasquet serpentine area in adjacent Del Norte County, California.”

Horkelia howellii:

“As noted above, *Horkelia howellii* comprises the bulk of what D. D. Keck (1938) and subsequent floras included in *H. sericata*, and the range of the latter is fully encompassed within that of the former. As here circumscribed, *H. howellii* occurs in northwestern California and southwestern Oregon. The handful of collections from Humboldt and Trinity counties, California, including the type of *Potentilla laxiflora* Drew, have leaves approaching *H. daucifolia* but the inflorescence of *H. howellii*; exact petal color is uncertain.”

We suggest following the more recent treatment and re-recognition of *H. howellii* sensu Ertter and Reveal (2015) as described above. While *H. howellii* can still often be confused with *H. sericata*, it is differentiated by basal leaf stipules that are pinnately divided (vs. basal leaf stipules entire or forked), and leaves that are more or less green and 5-15 cm in length (vs. leaves silvery and 3-10 cm in *H. sericata*). Under its revised circumscription, *H. howellii* is believed to be more common than *H. sericata*, and it is possible that *H. sericata* should be changed from CRPR 4 to 2B; however, due to its sympatry with *H. howellii*, and the high number of *H. sericata* vouchers that need to be annotated, we feel that we don't have enough evidence to support changing its rank at this time.

Ecology

In California, *Horkelia howellii* and *H. sericata* occur in dry, rocky serpentine clay within chaparral and lower montane coniferous forest, and are known from an elevation of 180 to 1,200 meters. The *Jepson eFlora* (Ertter 2012) indicates that *H. howellii* has an extended lower elevation of 60 meters, and the CNPS Inventory (CNPS 2020) indicates that *H. sericata*'s elevation range is from 60 to 1,280 meters. While the CNPS Inventory typically utilizes more up-to-date data, we suggest following the elevation ranges of *H. howellii* and *H. sericata* in the *Jepson eFlora* until more records that distinguish between these two species are sorted out. The precise blooming period of each species is also not clear: the CNPS Inventory indicates *H. sericata* blooms from May to July, while the *eFlora* indicates that both *H. howellii* and *H. sericata* bloom from June to August. Without knowing which taxon the CNPS Inventory blooming period might reflect (due to sympatry), we again suggest following the blooming period of June to August in the *Jepson eFlora* for both taxa until their individual records are better defined.

Distribution and Abundance

Horkelia howellii is currently known in California from ten occurrences within the Klamath Ranges of Del Norte and Humboldt counties based on four collections of *H. sericata* in the Consortium of California Herbaria that were annotated to *H. howellii*, and an additional 18 specimens at UC/JEPS that were determined to be *H. howellii* by Barbara Ertter. All occurrences of *H. howellii* are considered historical (occurrences not seen in over 20 years are considered historical by CNDDDB), with the most recent collection being from 1983. However, this isn't surprising based on the remoteness of this species distribution and presumed resulting lack of documentation. Four occurrences of *H. howellii* are in Six Rivers National Forest, one is found in Klamath National Forest, and the remaining five occurrences are on land of unknown ownership.

In preparation of the *Jepson eFlora* treatment, Barbara Ertter examined 29 specimens previously labeled as *H. sericata* and determined that 18 (62%) of them were actually *H. howellii*. There are an additional 97 specimens of *H. sericata* that haven't been recently annotated, and Ertter (pers. comm. 2020) feels that the ratio of mislabeled specimens she determined before is likely to be consistent. This means there could be an estimated 60 additional records of *H. howellii* than are currently documented. Within California, *Horkelia sericata* is believed to only be found around the Gasquet serpentine area in Del Norte County with only about 20 occurrences. However, based on the currently available data, it is known from an estimated 48 occurrences, mainly from Del Norte County (44), with remaining occurrences in Humboldt (1), Siskiyou (2), and Trinity (1) counties. The 48 occurrences of *H. sericata* are considered an estimate at this time due to it being a CRPR 4 taxon, and therefore not being tracked at the occurrence level and mapped in the CNDDDB, in addition to the need for a majority of its vouchers to be annotated.

Status and Threats

In Oregon, neither *Horkelia howellii* or *H. sericata* are currently considered rare enough to warrant a rank or be included on the Oregon watchlist, however *Horkelia howellii* will be examined to determine if it should be ranked in the 2021 review by the Oregon Biodiversity Information Center (ORBIC). *Horkelia sericata* was previously considered a List 3 in Oregon but was dropped from their list as being too common in 2016. Even though both species are not ranked in Oregon, *H. howellii* is considered to be more rare than *H. sericata* in that state (Vrilakas pers comm. 2020).

Summary

Based on the available information, CNPS and CNDDDB recommend adding *Horkelia howellii* to California Rare Plant Rank 4.3 of the CNPS Inventory. If knowledge on the distribution, threats, and rarity status of *H. howellii* changes in the future, we will re-evaluate its status at that time. In the future, we also recommend reviewing *H. sericata* for potential rank change to CRPR 2B, pending annotations and field surveys throughout its range in California, and will be added to the CNPS Inventory Backlog for potential change to 2B, pending additional information.

Recommended Actions

CNPS: Add *Horkelia howellii* to CRPR 4.3
CNDDDB: Add *Horkelia howellii* to G4 / S3

Draft CNPS Inventory Record

Horkelia howellii (Greene) Rydb.

Howell's horkelia

Rosaceae

CRPR 4.3

Del Norte, Humboldt, Trinity, Siskiyou
Oregon

~~Weaverville (649B) 4012268~~, Somes Bar (703B) 4112344, Shelly Creek Ridge (739A) 4112387, High Plateau Mtn. (739B) 4112388, Gasquet (739C) 4112378, High Divide (740A) 4112481, Hiouchi (740D) 4112471

Chaparral, lower montane coniferous forest / serpentinite, clay; elevation 60-1200 meters.

Perennial herb. Blooms June to August.

Previously included in *H. sericata*. See *Pittonia* 1(6): 104 (1887) for original description, and *Bulletin of the Torrey Botanical Club* 25(1): 55 (1898) for revised nomenclature.

Revised CNPS Inventory Record (changes to original record are in green text)

Horkelia sericata S. Watson

~~Howell's horkelia~~ **silky horkelia**

Rosaceae

CRPR 4.3

~~Del Norte, Humboldt?~~

Oregon

~~Klamath Glen (722C) 4112358, Childs Hill (723A) 4112461, High Plateau Mtn. (739B) 4112388, Gasquet (739C) 4112378, High Divide (740A) 4112481, Hiouchi (740D) 4112471~~

Chaparral, lower montane coniferous forest / serpentinite, clay; elevation ~~60-1280~~ **180-1200** meters.

Perennial herb. Blooms ~~May to July~~ **June to August**

~~Does plant occur in HUM Co.?~~ Previously included *H. howellii*. See *Proceedings of the American Academy of Arts and Sciences* 20: 364 (1885) for original description.

Literature Cited

Ertter, B. 2012. *Horkelia*. In: Jepson Flora Project (eds.), *Jepson eFlora*. Website <http://ucjeps.berkeley.edu/IJM.html> [accessed 4 August 2020].

Ertter, B. and J. Reveal. 2015. *Horkelia*. In: *Flora of North America*. Website http://www.efloras.org/flora_page.aspx?flora_id=1 [accessed 4 August 2020].

Greene, E. L. 1887. West American phases of the genus *Potentilla*. *Pittonia* 1(6): 104.

Keck, D.D. 1938. Revision of *Horkelia* and *Ivesia*. *Lloydia* 1: 75-142. (Not seen.)

Munz, P. A. and D. D. Keck. 1959. *A California Flora*. Berkeley: University of California Press. 1681 pp.

Rydberg, P. A. 1898. Some changes in the nomenclature of North American Rosaceae. *Bulletin of the Torrey Botanical Club* 25(1): 55.

Watson, S. Contributions to American Botany. *Horkelia sericata* in: *Proceedings of the American Academy of Arts and Sciences* 20: 364.

Personal Communications

Ertter, Barbara. 2020. Email regarding rarity of *Horkelia howellii* and *H. sericata*. 2 July 2020.

Vrilakas, Sue. 2020. Botanist/Data Manager Oregon Biodiversity Information Center. Email regarding rarity of *Horkelia howellii* in Oregon. 28 July 2020.