

Added to California Rare Plant Rank 1B.1 of the CNPS Inventory on 5 November 2020**Rare Plant Status Review: *Streptanthus medeirosii*****Proposed Addition to California Rare Plant Rank 1B.1, G1 / S1**

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Background and Taxonomy

Streptanthus medeirosii N.Jensen is a perennial herb in Brassicaceae known from Tejon Ranch in the Tehachapi Mountains of southern Kern County, California. It was formally described as a new species this year and is therefore not included in *The Jepson Manual* (Al-Shehbaz 1993), *Jepson eFlora* (Al-Shehbaz 2012), or *Flora of North America* (Al-Shehbaz 2010). *Streptanthus juneae* is another rare species described by Jensen (2020) that is known from the San Bernardino Mountains in San Bernardino County, and is also being proposed for addition to California Rare Plant Rank 1B in a separate status review.

Jensen (2020) described *S. medeirosii* and *S. juneae* based on phylogenetic, morphological, geographical, and ecological evidence, utilizing a species concept consistent with Quiroz (2007) and Freudenstein et al. (2016). Both species are included in the Southern Howellii Clade of *Streptanthus*, a subset of the Howellii Alliance as first characterized by Cacho et al. in 2014. The two previously described species of the Southern Howellii Alliance are *S. bernardinus* and *S. campestris*.

“Large wings at the apices of seeds distinguish *Streptanthus medeirosii* from all other perennial *Streptanthus*” (Jensen 2020). The documented range of *S. medeirosii* does not directly overlap with any other members of the Southern Howellii Clade, but one other perennial species, *S. cordatus*, occurs nearby (Jensen 2020). Several diagnostic characters of *S. medeirosii* serve to distinguish it from the potentially co-occurring and broadly distributed *S. cordatus*, including strongly campanulate (bell shaped) calyces (vs. calyces that are not nearly as inflated proximally), sepals that lack purple pigmentation (vs. sepals that are usually tinged pink to purple apically or entirely pink to purple), and entire to sparsely dentate basal leaves (vs. basal leaves with deeply dentate margins in *S. cordatus*) (Jensen 2020). See Jensen 2020 for additional distinguishing characters between *S. medeirosii* and other members of the Southern Howellii Clade, as well as a dichotomous key to the perennial *Streptanthus* and *Caulanthus* in California. *Streptanthus* comes from Greek meaning “twisted flower,” and the specific epithet, *medeirosii*, is a Latinization of the name of the author’s friend and mentor, Joe Medeiros.

Ecology

In southern Kern County’s cismontane mixed oak-fir forests, *Streptanthus medeirosii* occurs on steep, rocky, east- or north-facing slopes of carbonate or granitic parent material (Jensen 2020), between 1360–1880 meters in elevation (Google LLC 2020). It may also be found in rocky outcrops along road cuts, preferring partial shade or full sun in sparsely vegetated areas (Jensen 2020). “*Streptanthus medeirosii* begins flowering in early June. Flowering extends into early September and fruit set occurs from July through September. Phenology, however, is variable and governed by weather conditions.” (Jensen 2020). *Streptanthus medeirosii* was first collected by Jensen in full flower on the last day of August in 2013. “In contrast, plants had nearly finished flowering by early August in 2017. Plants die back completely to a woody caudex each winter

and are not detectable during dormancy; they resume vegetative growth in the late-spring.” (Jensen 2020). Common associates include: *Bromus diandrus*, *Chenopodium fremontii*, *Eriogonum nudum* var. *pauciflorum*, *E. roseum*, *Erysimum capitatum*, *Hosackia crassifolia* var. *crassifolia*, *Mentzelia albicaulis*, *Nicotiana attenuata*, *Penstemon grinnellii*, *Phacelia ramosissima*, and *Sisymbrium orientale*, *Sambucus nigra* subsp. *caerulea* (Jensen 2020).

Distribution and Abundance

Streptanthus medeirosii is known from three occurrences, all within Tejon Ranch of southern Kern County (Jensen 2020). Record 1, based upon *Jensen 524* and *2419*, is the type location situated farthest to the east of the known occurrences. It consists of only about 100 plants growing over an area of approximately 0.2 hectares. The plants at this site are situated near a regularly used dirt road and may be threatened by activities related to road maintenance. Record 2, based upon *Jensen 4764*, consists of approximately 50 plants spread over 0.1 hectares. Plants at this site occur in a remote and roadless area and no known threats to this location are characterized. Record 3 is known from a *Laeger s.n.* collection from 2017. Due to proximity to the Tejon Mountain Village development area, the plants at this location were unavailable for examination, and population numbers for the site are unknown.

Herbarium record *Jensen 524* was mis-numbered and currently reflects a collection made of an associated species, *Sambucus nigra* subsp. *caerulea*. This record will be corrected to reflect the correct collection record at earliest convenience by the species’ author (CCH 2020, Jensen pers. comm 2020). Future fieldwork is likely to discover new occurrences of this species, as many areas of suitable habitat have not yet been surveyed (Jensen 2020).

Status and Threats

Streptanthus medeirosii is threatened by development (record 3), and potentially threatened by road maintenance (record 2) (Jensen 2020). Due to the recent nature of the discovery and description of this species, considerations for *Streptanthus medeirosii* were not included in the final Environmental Impact Report for the Tejon Mountain Village development area (Kern County 2009). This taxon is highly vulnerable and should be considered for listing under the California and Federal Endangered Species Acts.

Summary

Based on the available information, CNPS and CNDDDB recommend adding *Streptanthus medeirosii* to California Rare Plant Rank 1B.1 of the CNPS Inventory. If knowledge on the distribution, threats, and rarity status of *S. medeirosii* changes in the future, we will re-evaluate its status at that time.

Recommended Actions

CNPS: Add *Streptanthus medeirosii* to CRPR 1B.1

CNDDDB: Add *Streptanthus medeirosii* to G1 / S1

Draft CNPS Inventory Record

Streptanthus medeirosii N.Jensen

Tejon jewelflower

Brassicaceae

CRPR 1B.1

Kern

Winters Ridge (188B) 3411886, Lebec (189D) 3411877

Cismontane woodland / granitic or carbonate; elevation 1360–1880 meters.

Perennial herb. Blooms June to September.

Threatened by development. Potentially threatened by road maintenance. See *Madroño* 67(1):19-34 (2020) for original description.

Literature Cited

Al-Shehbaz, I. A. 2010. *Streptanthus*. In: Flora of North America Editorial Committee (eds.), Flora of North America North of Mexico, Volume 7: Magoliophyta: Salicaceae to Brassicaceae. New York and Oxford. Website <http://www.efloras.org/>.

_____. 2012. *Streptanthus*. Pp 512–577 in B G. Baldwin, D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken (eds.), The Jepson manual: higher plants of California, 2nd edition. University of California Press, Berkeley, CA.

[CCH] Consortium of California Herbaria. 2020. Data provided by the participants of the Consortium of California Herbaria. Regents of the University of California, Berkeley. Accessed Sep. 2020. Website: <http://ucjeps.berkeley.edu/consortium/>.

Freudenstein, J., M. B. Broe, R. A. Folk, and B. T. Sinn. 2016. Biodiversity and the species concept— lineages are not enough. *Systematic Biology* 66: 644– 656.

Google LLC. 2020. Google Earth Pro (Version 7.3.2.5776) [Software]. Available at <https://www.google.com/earth/>.

Jensen, N. 2020. Two new species of *Streptanthus* (Brassicaceae) in southern California, and notes on their conservation. *Madroño* 67 (1): 19-34.

Kern County. 2009. Tejon Mountain Village EIR. Available at: <https://kernplanning.com/environmental-doc/tejon-mountain-village/> [accessed 18 August 2020].

Quiroz, K. D. 2007. Species concepts and species delimitation. *Systematic Biology* 56(6): 879–886. Available at: <https://doi.org/10.1080/10635150701701083>

Personal Communications

Jensen, Nick. 2020. Lead Conservation Scientist, CNPS. Personal communication 20 August 2020.

Kramer, Neal. 2020. Consulting Botanist/Ecologist, Certified Arborist, Kramer Botanical. Personal communication 28 August 2020.