

Added to California Rare Plant Rank 1B.1 of CNPS Inventory on June 19, 2013

**Rare Plant Status Review: *Erythranthe carsonensis*
Proposed New Add to California Rare Plant Rank 1B.1, G1 / S1**

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Background

Erythranthe carsonensis is an annual herb in the Phrymaceae that is endemic to northwestern Nevada and adjacent Alpine County in California. It was recently described by Fraga (2012) and is not included in *The Jepson Manual, Second Edition*, but will be included in the upcoming *Flora of North America, Vol. 17* treatment of Phrymaceae. *Erythranthe carsonensis* was named after the Carson Valley region of Nevada, where it primarily occurs. It was originally identified as *E. montioides*; however, the lectotype chosen for *E. montioides* represents a species known only from the Sierra Nevada in California. *Erythranthe carsonensis* is also distinguished based on molecular studies analyzing nuclear ribosomal ITS and three non-coding chloroplast regions. It differs from *E. montioides* sensu stricto in having linear to spatulate leaves (vs. linear-oblongate to ovate) and in having one large central red spot on the lower limb of its corolla (vs. corolla without one large central red spot). *Erythranthe carsonensis* is also similar to *E. suksdorfii*, which is inferred to be its sister species; however, they are distinguished in leaf shape and corolla morphology. *Erythranthe carsonensis* has a longer corolla tube-throat than *E. suksdorfii* (8-11 mm vs. 4-6 mm), bifid corolla lobes (vs. weakly notched to entire), and linear to spatulate leaves that are clasping at the base (vs. linear to lanceolate or ovate and not clasping). Based on corolla morphology, *E. carsonensis* is presumed to be primarily outcrossing, and several insects were observed visiting it (including skipper butterflies and halictid bees). *Erythronium carsonensis* is known to flower from late April to June and is most commonly fruiting in May and June (Fraga 2012).

Erythranthe carsonensis occurs in open areas of Great Basin sagebrush/bitterbrush scrub in coarse granitic soils. It occurs on gentle to moderate slopes of 0 to 15%, and is usually on north aspects, but is occasionally also found on south to southwest aspects. *Erythranthe carsonensis* is known from an approximate elevation of 1,400 to 1,580 meters throughout its entire range, and from 1,480 meters in California. Species associates include the following (* denotes non-native species): *Artemisia tridentata*, **Bromus tectorum*, *Calyptridium roseum*, *Camissonia parvula*, *Cryptantha circumscissa*, *Chrysothamnus viscidiflorus*, *Descurainia pinnata*, *Diplacus nanus*, *Draba verna*, *Ephedra viridis*, **Erodium cicutarium*, *Erythranthe suksdorfii*, *Grayia spinosa*, *Gymnosteris nudicaulis*, *Layia glandulosa*, *Plectritis* sp., *Phacelia curvipes*, *Phacelia linearis*, *Plagiobothrys* sp., *Prunus andersonii*, *Purshia tridentata*, **Sisymbrium altissimum*, *Uropappus lindleyi*, *Vulpia octoflora*, *V. microstachys*, and *Zigadenus paniculatus* (Fraga 2012).

Erythranthe carsonensis is known from only ten extant occurrences, nine of which lie in northwestern Nevada in Carson City, Douglas, and Washoe counties. The single

known occurrence in California was discovered in May, 2011, from the vicinity of Fredericksburg, Alpine County (*Fraga 3803*), on US Bureau of Land Management property. Its occurrence in California was unknown prior to the work by Fraga (2012), and based on herbarium review there are no known historical occurrences from California (N. Fraga pers. comm. 2013). Potential habitat of *E. carsonensis* should be surveyed to determine if additional occurrences exist (Fraga 2012).

In Nevada, *E. carsonensis* is treated as Threatened by the Nevada Native Plant Society and is also being proposed for State listing and for US Forest Service and BLM Sensitive status. It is also ranked S1 in Nevada by NatureServe (NNPS 2011, 2012).

Threats to *E. carsonensis* in Nevada include habitat loss from development and agriculture, presence and abundance of non-native plants, off-highway vehicles, and recreation. Evidence from herbarium specimen label information, literature, and observations by Fraga (2012) indicate that its populations in Nevada have been severely fragmented and reduced, with several populations that are now extirpated. Since there are not any historical occurrence records of *E. carsonensis* known from California, it is difficult to determine if any populations have been extirpated from California. Development is the only specific threat known for the California occurrence as there is housing in the vicinity of the population (N. Fraga pers. comm. 2013).

Based on the available information, CNPS and CNDDDB recommend adding *Erythranthe carsonensis* to California Rare Plant Rank (CRPR) 1B.1 of the CNPS Inventory. Its small distribution and reduced population sizes, significant threats to the majority of its occurrences in Nevada, and single known occurrence in California indicate that *E. carsonensis* meets the requirements for CRPR 1B.1 of the CNPS Inventory.

Recommended Actions

CNPS: Add to CRPR 1B.1

CNDDDB: Add to G1 / S1

Draft CNPS Inventory Record

Erythranthe carsonensis N.S. Fraga

Carson Valley monkeyflower

Phrymaceae

CRPR 1B.1

Nevada

Alpine

Woodfords (522D) 3811977

Great Basin scrub (openings) / granitic; elevation 1,480 meters.

Annual herb. Blooms April-June.

Known in CA only from the vicinity of Fredericksburg. Possibly threatened by development. Previously identified as *E. montioides*. Similar to *E. suksdorfii*. Not in *TJM 2*. See *Aliso* 30(1):49-68 (2012) for original description.