

Added to California Rare Plant Rank 4.2 of the CNPS Inventory on October 2, 2013**Rare Plant Status Review: *Erythranthe sierrae*
Proposed New Add to California Rare Plant Rank 4.2, G3 / S3**

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Changes made to the original document are in blue text.

Background

Erythranthe sierrae is an annual herb in the Phrymaceae that is endemic to the southern foothills of Sierra Nevada, California. It was recently described by Fraga (2012) and is not included in *The Jepson Manual, Second Edition*, but is expected to be included in an updated version of the *Jepson eFlora* (B. Baldwin pers. comm. 2013), and upcoming *Flora of North America, Vol. 17* treatment of Phrymaceae. *Erythranthe sierrae* was recognized by Fraga (2012) after reviewing herbarium specimens of *E. palmeri* (*Mimulus palmeri*) and in conducting field work. It is differentiated from *E. palmeri* morphologically in having white (vs. yellow) stamens, leaf margins that are entire or sometimes toothed (vs. always entire), and a pale pink to pink corolla limb (vs. deep pink to purple). *Erythranthe sierrae* is also differentiated from *E. palmeri* regionally as it is endemic to the Sierra Nevada, whereas *E. palmeri* sensu stricto is only known from the Transverse Ranges. In addition to being morphologically and regionally distinct, *E. sierrae* is also distinguished based on molecular studies analyzing nuclear ribosomal ITS and three non-coding chloroplast regions (Fraga 2012). *Erythranthe sierrae* is similar to, and appears to be closely related to *E. gracilipes*, but is distinguished by corolla morphology. “*Erythranthe sierrae* has corolla lobes that are more or less equal in size and a tube-throat that is funnelform and expands gradually to the limb. In contrast, *E. gracilipes* has two reduced adaxial lobes that are smaller than the three abaxial lobes and a tube-throat that is cylindrical and expands abruptly to the limb” (Fraga 2012). Based on the corolla morphology of *E. sierrae*, it is presumed to be primarily outcrossing. Halictid bees were frequently observed visiting this species over the course of Fraga’s (2012) study and are presumed to be its primary pollinators. *Erythranthe sierrae* is mostly known to flower from March to July and is most commonly fruiting in June and July (Fraga 2012). Two historical collections of *E. sierrae* from high elevation at Breckenridge Mountain indicate very late and out of ordinary blooming times from August (*Twisselmann 4733*) and October (*Bauer 6*). Recent collections from this area, however, were from June (*Fraga 3443*) and July (*Fraga 3514*), and represent a blooming period that is more uniform of this species (Consortium of California Herbaria 2013).

Erythranthe sierrae “primarily occurs in decomposed granite in vernal wet depressions, swales, at the edges of streams, dry meadows, and in openings of pine forest and oak woodland” (Fraga 2012). It is usually in sandy soils, but also occurs in gravel, and is known from an approximate elevation of 185 to 2,285 meters (Consortium of California Herbaria 2013). Species associates of *E. sierrae* include the following: *Abies concolor*, *Claytonia perfoliata*, *Diplacus bolanderi*, *D. constrictus*, *Erythranthe*

breweri, *E. floribunda*, *Nemophila maculata*, *Pinus jeffreyi*, *P. sabiniana*, *Phacelia curvipes*, *Plagiobothrys* sp., *Quercus chrysolepis*, *Q. douglasii*, *Q. kelloggii*, and *Ribes quercetorum* (Fraga 2012).

Erythranthe sierrae is known from approximately 59 occurrences throughout the southern foothills of Sierra Nevada, from Kern, Fresno, and Tulare counties. Over 80% (49 of 59) of its occurrences are historical (occurrences not “seen” in the past 20 years are considered historical by the CNDDDB), and over 50% (33 of 59) have not been documented in over 50 years. According to N. Fraga (pers. comm. 2013), the range of *E. sierrae* used to expand down toward the central valley and therefore it has been impacted by development. One collection from “near Bakersfield” in 1935 (*Derby CAS222918*) (Consortium of California Herbaria 2013, as *Mimulus palmeri*) is too vague to adequately map and is possibly extirpated from development. A 1943 collection from Pine Flat in Fresno County (*Carter 48*) is likely extirpated as this area is now the Pine Flat Reservoir (D. York pers. comm. 2013). Several other populations at lower elevations are also possibly extirpated (Fraga 2012), and historical occurrences should be sought after in attempts to determine their current status. At the same time, however, *E. sierrae* has a relatively widespread distribution (Fraga 2012), and N. Fraga (pers. comm. 2013) found it to be quite abundant where seen, except at more disturbed sites at lower elevation. Furthermore, if this species were to be targeted for surveys it is likely that a lot more populations could easily be found, and it would seem too common for California Rare Plant Rank (CRPR) 1B (N. Fraga pers. comm. 2013).

Besides development, *E. sierrae* is also possibly threatened by grazing, off highway vehicle use, road and trail maintenance, camping, and the presence and abundance of exotic species. These threats may be more severe to populations of *E. sierrae* at lower elevations, and threats at known occurrences should be reassessed to determine their severity (Fraga 2012).

Based on the available information, CNPS and CNDDDB recommend adding *Erythranthe sierrae* to CRPR 4.2 of the CNPS Inventory. Although there are threats to this species and the majority of its occurrences are historical (with some populations possibly extirpated), its relatively widespread distribution, abundance within populations, and likelihood of additional occurrences to be easily found indicate that CRPR 4.2 seems to be the most appropriate rank at this time.

Recommended Actions

CNPS: Add to 4.2

CNDDDB: Add to G3 / S3

Draft CNPS Inventory Record

Erythranthe sierrae N.S. Fraga

Sierra Nevada monkeyflower

Phrymaceae

CRPR 4.2

Kern, Fresno, Tulare

Springville (309A) 3611827, Tehachapi South (212C) 3511814, Keene (213A) 3511825, Pinyon Mtn. (236B) 3511842, Claraville (237A) 3511843, Piute Peak (237B) 3511844, Breckenridge Mtn. (238A) 3511845, Mt. Adelaide (238B) 3511846, Lake Isabella North (260B) 3511864, Lake Isabella South (260C) 3511854, Alta Sierra (261A) 3511865, Glennville (261B) 3511866, Democrat Hot Springs (261C) 3511856, Woody (262A) 3511867, Lamont Peak (283D) 3511871, Kernville (284C) 3511874, Johnsondale (285A) 3511885, Posey (285C) 3511876, Gibbon Peak (286A) 3511887, White River (286D) 3511877, Hockett Peak (307B) 3611824, Durrwood Creek (307C) 3611814, Camp Wishon (308B) 3611826, Sentinel Peak (308D) 3611815, Springville (309A) 3611827, Mineral King (331A) 3611845, Silver City (331B) 3611846, Case Mountain (332A) 3611847, Woodlake (333A) 3611941, Miramonte (355A) 3611961, Tucker Mtn. (355B) 3611962, Auckland (355D) 3611951, Hume (375C) 3611878, Trimmer (377A) 3611983, Pine Flat Dam (377D)* 3611973, Millerton Lake East (398D) 3711915
Cismontane woodland (openings), lower montane coniferous forest (openings), meadows and seeps (dry) / usually granitic, usually sandy, sometimes gravelly, vernal wet depressions, swales, streambanks; elevation 185 to 2,285 meters.

Annual herb. Blooms March to July.

Known only from southern Sierra Nevada. Several occurrences at lower elevations are possibly extirpated. Many occurrences historical; needs field surveys. Possibly threatened by development, grazing, vehicles, road construction and maintenance, recreational activities, and non-native plants. Previously identified as *E. palmeri*. Similar to *E. gracilipes*. Not in *TJM* 2. See *Aliso* 30(1):49-68 (2012) for original description.

Literature Cited

Consortium of California Herbaria (CCH). 2013. Data provided by the participants of the Consortium of California Herbaria. Regents of the University of California, Berkeley. Accessed on 23 May 2013. Available online at: <http://ucjeps.berkeley.edu/consortium/>

Fraga, N. S. 2012. A revision of *Erythranthe montioides* and *Erythranthe palmeri* (Phrymaceae), with descriptions of five new species from California and Nevada, USA. *Aliso* 30(1): 49-68. (original description)