

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

**Rare Plant Status Review: *Eriastrum ertterae*
Proposed Addition to California Rare Plant Rank ~~1B.2~~, G1 / S1**

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Changes made to the original document appear in blue text.

Background

Eriastrum ertterae D. Gowen is an annual herb in the Polemoniaceae that is endemic to the Lime Ridge area of Contra Costa County. It was recently described by Gowen (2013), and is therefore not included in *The Jepson Manual* (Patterson 1993) or *The Jepson Manual, Second Edition* (De Groot et al. 2012); however, it is included in Ertter and Naumovich's (2013) *Annotated Checklist of the East Bay Flora*. The *Flora of North America (FNA)* treatment for Polemoniaceae is not yet available. *Eriastrum ertterae* is named after Barbara Ertter, the first person to collect this species. At the time of collection, however, the plant was in dry fruiting condition, and therefore unidentifiable (Ertter and Bowerman 2002; Gowen 2013). It was later determined by Gowen (2013) that fresh flowering material was no easier to determine, as it didn't fit well with any described taxa. Following several years of additional fieldwork, morphological analysis, and common garden experiments, Gowen (2013) confirmed it as a distinct, extremely localized taxon. *Eriastrum ertterae* doesn't fit well into any species that were previously described (S. De Groot pers. comm. 2013). Prior to its description, collections of *E. ertterae* by D. Gowen and B. Ertter were annotated to *E. brandegeae* (D. Gowen pers. comm. 2012 and 2013), and subsequently added to the CNDDDB record for *E. brandegeae* as EO# 58. After a status review of *E. brandegeae* by CNPS and CNDDDB in July of 2012, however, this record was removed from the CNDDDB. *Eriastrum ertterae* differs from *E. brandegeae* and *E. tracyi* (another similar taxon) in that most plants of *E. ertterae* have more than one ovule per locule (versus only one ovule per locule), and bracts that are less lobed (the bracts of *E. ertterae* are usually 1-3 lobed, while the bracts of *E. brandegeae* and *E. tracyi* are often 3-5 lobed) (S. De Groot pers. comm. 2013).

Eriastrum ertterae is actually most similar to *E. hooveri*, but differs in having more robust corollas (Gowen 2013); "the corolla tube plus throat (i.e., fused portion of the corolla) of *E. ertterae* is 3.7 mm long or longer, while in *E. hooveri* it is 3.6 mm long or shorter" (S. De Groot pers. comm. 2013). *Eriastrum ertterae* also has longer filaments (1.3 mm or longer versus 1.3 mm or shorter in *E. hooveri*) (S. De Groot pers. comm. 2013), with anthers placed at, or just beyond the sinus (versus anthers placed not far beyond the mid length of the corolla in *E. hooveri*) (Gowen 2013). *Eriastrum ertterae* is also geographically isolated from *E. hooveri*, with the closest population of *E. hooveri* being in the Panoche Hills of western Fresno County, approximately 160 km away. Lastly, *E. ertterae* has a different blooming time than *E. hooveri*. Field and common garden experiments showed that the first flowers of *E. ertterae* appear almost a month

later than for *E. hooveri* (Gowen 2013). *Eriastrum ertterae* differs from the newly described *E. rosamondense* (a species previously identified as *E. hooveri*) in having a smaller leaf primary axis (about 0.5-0.75 mm wide versus about 1 mm wide), and in length of stamen exsertion; “[t]he stamens of *E. rosamondense* are exserted 0.4-1.0 mm beyond the sinuses, while the stamens of *E. ertterae* are included or exserted up to 0.5 mm beyond the sinuses” (S. De Groot pers. comm. 2013). *Eriastrum ertterae* also flowers later than *E. rosamondense*, which mostly flowers from late April through the third week of May (S. De Groot pers. comm. 2013). *Eriastrum ertterae*, *E. rosamondense*, and *E. hooveri* all occur in alkaline to semi-alkaline habitats and are fairly small annuals with tiny white or pale blue flowers, and it is therefore understandable that they have all been treated within *E. hooveri* in the past. *Eriastrum ertterae* is known to flower from June to July (Consortium of California Herbaria 2013; Gowen 2013).

Eriastrum ertterae occurs in fine sandy soil in openings or along the edges of chaparral (Consortium of California Herbaria 2013; Gowen 2013). It is generally in alkaline or semi-alkaline habitat (S. De Groot pers. comm. 2013), and has been observed growing in association with *Navarretia atractyloides* (Consortium of California 2013). *Eriastrum ertterae* is known from an approximate elevation of 200 to 290 meters (Google Earth 2013; D. Gowen pers. comm. 2013).

Eriastrum ertterae is only known from two occurrences, on and near the summit of Lime Ridge Open Space, slightly northwest of Mt. Diablo, between the towns of Clayton and Walnut Creek in Contra Costa County. The total range of *E. ertterae* is only about 1.3 square miles, making it “the most geographically restricted of all species of *Eriastrum*” (S. De Groot pers. comm. 2013). There are only three small sites where *E. ertterae* grows, all of which are separated from each other by a distance of 0.2 to 0.7 km (Gowen 2013). “Depending on weather patterns for any given year, each site might only have several hundred to possibly a thousand plants, making *E. ertterae* a plant of obvious conservation concern” (Gowen 2013). The occurrences of *E. ertterae* at Lime Ridge Open Space are managed by the City of Walnut Creek. Close monitoring and protection measures for *E. ertterae* should be set into place.

Direct threats to *E. ertterae* are currently unknown. Potential threats at Lime Ridge Open Space include aggressive single track mountain biking, electric transmission tower maintenance (due to proximity of tower to one occurrence), non-native plants (mostly *Centaurea melitensis*), and to a lesser degree hiking (H. Bartosh pers. comm. 2013). However, Furthermore, with such a restricted distribution and small number of individuals, we recommend a Threat Rank of .1 at least .2 at this time.

Based on the available information, CNPS and CNDDDB recommend adding *Eriastrum ertterae* to California Rare Plant Rank 1B.1 4B.2 of the CNPS Inventory. If additional information becomes available in the future which might constitute a change in the rarity status of *E. ertterae*, we will re-evaluate its status at that time.

Recommended Actions

CNPS: Add *Eriastrum ertterae* to 1B.1 ~~4B.2~~

CNDDDB: Add *Eriastrum ertterae* to G1 / S1

Draft CNPS Inventory Record

Eriastrum ertterae D. Gowen

Lime Ridge eriastrum

Polemoniaceae

CRPR 1B.1 ~~4B.2~~

Contra Costa

Clayton (464B) 3712188

Chaparral (openings or edges) / alkaline or semi-alkaline, sandy; elevation 200 – 290 meters.

Annual herb. Blooms June to July.

Known only from the Lime Ridge area. **Potentially threatened by recreational activities, electric transmission tower maintenance, and non-native plants.** Similar to *E. hooveri*. See *Journal of the Botanical Research Institute of Texas* 7(1):21-24 (2013) for original description.

Literature Cited

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