

**Added to California Rare Plant Rank 1B.3 of the CNPS Inventory on
December 18, 2014**

Rare Plant Status Review: *Cryptantha spithamaea*

Proposed Addition to California Rare Plant Rank 1B.3, G2 / S2

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Changes made to the original document appear in blue text.

Background

Cryptantha spithamaea is an annual herb in the Boraginaceae that is endemic to the northern and central Sierra Nevada foothills of California. Johnston (1939) first described *C. spithamaea*, and it was shortly thereafter treated as *C. rostellata* var. *spithamaea* by Jepson (1943). It continued to be recognized as a variety of *C. rostellata* by subsequent authors (Abrams 1951, Munz 1959). *Cryptantha spithamaea*, as well as *C. rostellata* were then treated as synonyms of *Cryptantha flaccida*, a common and widespread plant, in *The Jepson Manual* (Kelley and Wilken 1993). Then, however, both were resurrected as full species in *The Jepson Manual, Second Edition* (Kelley et al. 2012; note that the “Kelley” authors from the first and second edition of *The Jepson Manual* are different people). The *Flora of North America* treatment is not yet available, but R. Kelley (pers. comm. 2013) intends to recognize *C. spithamaea* there as well. Due to their prior synonymy, a brief discussion of the differences between these taxa is warranted. *Cryptantha spithamaea* is similar to both *C. flaccida* and *C. rostellata* in that all three usually just have one nutlet. *Cryptantha spithamaea* has a wider gap at the base of the nutlet than *C. flaccida*, and also has a longer fruit axis relative to the nutlet size (Kelley et al. 2012). Although *C. spithamaea* and *C. flaccida* key out close to each other in Kelley et al. (2012), overall the two species do not strongly resemble each other morphologically (R. Kelley pers. comm. 2013), and are not directly related to each other (Taylor 2010). *Cryptantha spithamaea* is separated from *C. rostellata* by its shorter corolla limb, its appressed to ascending calyx lobe midvein hairs (vs. stout hooked, or curved bristles), and its lack of basal exudate (Kelley et al. 2012). *Cryptantha spithamaea* is a serpentine-endemic, while *C. rostellata* is never found on serpentine. The two taxa are geographically disjunct, as the southern known extent of *C. rostellata* is about 200 miles north of any known *C. spithamaea* occurrence (Consortium of California Herbaria, CCH 2014).

Another serpentine-endemic, *C. mariposae* (California Rare Plant Rank, CRPR 1B.3), is similar to, and overlaps geographically with *C. spithamaea*, but the two are not known to co-occur (R. Kelley pers. comm. 2013). *Cryptantha mariposae* generally has 3 or 4 nutlets, vs. the single nutlet of *C. spithamaea* (although both can occasionally have 2 nutlets), in addition to other morphological differences (Kelley et al. 2012). Johnston (1939) suggested that *C. spithamaea* is most closely related to *C. hispidula*, a serpentine-endemic of the North Coast Ranges. Likewise, Taylor (2010) notes that *C. spithamaea* keys out to *C. hispidula* in Kelley and Wilken’s (1993) key. *Cryptantha spithamaea* has more elongate calyx lobes and the plants are smaller and more

abundantly and strictly branched than *C. hispidula* (Johnston 1939). *Cryptantha spithamaea* was not included in phylogenetic analyses by Hasenstab-Lehman and Simpson (2012), so its phylogenetic position is not well-understood. Photos of the nutlets of all five species that were mentioned above are available at <http://www.sci.sdsu.edu/plants/cryptantha/> (Simpson 2014). The photos of *C. spithamaea* are of a slightly immature nutlet, and the wide gap at the nutlet base is perhaps better seen in a photo of a nutlet from the type specimen (Fig. 1). *Cryptantha spithamaea* flowers from April to May (CCH 2014).

Cryptantha spithamaea is a serpentine-endemic, and appears to grow in somewhat moister areas than *C. mariposae*, as it is sometimes found in creekbeds (Kelley et al. 2012). *Cryptantha spithamaea* sometimes occurs in semi-barren sites, where the vegetation consists of chaparral or cismontane woodland (Kelley et al. 2012). *Cryptantha spithamaea* occurs between 275 and 460 meters in elevation.

There are only eight known occurrences of *C. spithamaea*, all of which are restricted to the foothills of Mariposa and Tuolumne Counties. Four of the occurrences have not been documented in over 70 years, while four of the occurrences were vouchered by D.W. Taylor in the late 1990s. Very little information on population sizes is available, but the plant was noted as being "locally quite abundant on serpentine" at the type locality, three miles northwest of Coulterville (Johnston 1939). Kelley (pers. comm. 2013) stated that *C. spithamaea* has a level of rarity similar to that of *C. mariposae*. Of the eight known occurrences, two are on lands owned by the BLM, one is on Bureau of Reclamation Land, and five have an unknown landowner. The occurrences with an unknown land manager could either occur on BLM, Bureau of Reclamation, Hetch Hetchy Water and Power, or privately-owned lands.

Due to the prior synonymy of *C. spithamaea* with *C. flaccida*, it is possible that additional specimens of *C. spithamaea* have been vouchered under the name *C. flaccida*. To address this concern, we examined all of the specimen labels of *C. flaccida* from Mariposa and Tuolumne Counties currently in the CCH (2014). Of these, only 12 non-duplicate collections were noted as occurring on serpentine, or were very close to a known occurrence of *C. spithamaea*. The first author examined most of those specimens from the UC Davis and UC/Jepson Herbaria (a few could not be found), and was unable to find any additional specimens that keyed to *C. spithamaea*. Specimens representing up to four additional occurrences should still be examined to determine if they are *C. spithamaea*. They include *Janeway 8012* (CHSC), *T.W. & J. Nelson 9424* (HSC), *D.W. Taylor 14302* (UC), *Jepson 6323* (JEPS), and *G.F. Hrusa 10890* (CDA, UCR).

Little is known about the threats to *Cryptantha spithamaea*, particularly because many of the occurrences are old and have imprecise location information. However, populations at the Red Hills Area of Critical Environmental Concern, managed by the BLM, should be protected.

Based on the available information, CNPS and CNDDDB recommend adding *Cryptantha spithamaea* to California Rare Plant Rank 1B.3. If more information on this plant becomes available in the future, we will re-evaluate it at that time.



Figure 1. Nutlets from the type specimen of *Cryptantha spithamaea* (Hoover 2169) with the widened gap at the nutlet base. Photo by D. Slakey.

Recommended Actions

CNPS: Add *Cryptantha spithamaea* to CRPR 1B.3

CNDDDB: Add *Cryptantha spithamaea* to G2 / S2

New CNPS Inventory Record

Cryptantha spithamaea I.M. Johnston

Red Hills beaked cryptantha

Boraginaceae

CRPR 1B.3

Calaveras, Mariposa, Tuolumne
Coulterville (439B) 3712062, Penon Blanco Peak (440A) 3712063, Moccasin (458D)
3712073, Chinese Camp (458C) 3712074, Sonora (458B) 3712084, New Melones Dam
(459A) 3712085, Angels Camp (476D) 3812015
Chaparral, cismontane woodland / serpentinite, sometimes streambeds, sometimes
openings; elevation 275 – 460 meters
Annual herb. Blooms April to May.
[Similar to *C. hispidula* and *C. mariposae*](#). A synonym of *C. flaccida* in *TJM* (1993). See
Journal of the Arnold Arboretum 20(3):385-386 for original description.

Literature Cited

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