

**Added to California Rare Plant Rank 4.3 on November 20, 2012****Rare Plant Status Review: *Brodiaea sierrae*****Proposed New Add to Rank 4.3, G3 / S3**

Danny Slakey (CNPS), Aaron Sims (CNPS) and Roxanne Bittman (CNDDDB)

October 16, 2012

Changes made to the original document appear in blue text.

**Background**

*Brodiaea sierrae* is a perennial bulbiferous herb in the Themidaceae family that is endemic to the northern Sierra Nevada Foothills. These plants were previously treated as *Brodiaea californica*, but morphological analyses led Preston (2006) to segregate it from *B. californica* as a separate species. It is included in *The Jepson Manual, Second Edition* (TJM 2; available online at [http://ucjeps.berkeley.edu/cgi-bin/get\\_IJM.pl?tid=82100](http://ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=82100)), but was not included in *The Jepson Manual* (1993). The Themidaceae treatment in the *Flora of North America* is not yet available. Although *B. sierrae* was once treated as *B. californica*, it is actually more similar to *B. leptandra*. *Brodiaea sierrae* can be distinguished from both of those species by its larger flower size, although there is overlap in this character. *Brodiaea sierrae* has different staminode morphology than *B. californica*, and it lacks the anther appendages that are found in low frequency (on about 18% of plants) in most populations of *B. californica*. *Brodiaea sierrae* has wider perianth lobes than *B. leptandra*, and the midribs of the perianth lobes are red violet, vs. green in *B. leptandra* (Preston 2006). *Brodiaea sierrae* blooms from May until August (Consortium of California Herbaria, CCH, 2012).

*Brodiaea sierrae* grows in chaparral and cismontane woodlands, and is usually found on serpentinite or gabbro soils (Preston 2006). It also occasionally occurs on other soil types where conditions limit tree and shrub cover (L. Janeway pers. comm. 2012). This separates it from *B. californica*, which grows in annual grasslands and cismontane woodlands on soils of volcanic origin (Preston 2006), and from *B. leptandra*, which occurs in chaparral and cismontane woodland, often in gravelly soils (TJM 2). *Brodiaea sierrae* occurs between 50 and 945 meters in elevation, although only one occurrence grows at the extreme low end of this range (Ahart – 4053, 8036; CCH 2012). All other known occurrences of *B. sierrae* grow higher in elevation, between 320 and 945 meters (Preston 2006). This elevation gradient is also useful in separating *B. sierrae* from *B. californica*, which grows between 50 and 315 meters in elevation (TJM 2).

There are currently about 47 known occurrences of *B. sierrae* from Butte, Nevada, and Yuba Counties. Some occurrences are relatively close to each other (within a mile or two), so the total number of occurrences may be less if *B. sierrae* grows continuously between nearby occurrences. Although *B. sierrae* is rather restricted in its range and substrates, it is often locally common (R. Preston pers. comm. 2012, CCH 2012). For example, many herbarium labels of plants from Yuba County include modifiers such as “common”, “very common”, or “abundant” (see “Localities” section of attached “NewAdd\_BrodiaeaSierrae” spreadsheet). Only about 16 occurrences are historical

(occurrences not documented in the past 20 years are considered historical by the CNDDDB), and most of those are represented by old collections with vague location data from Nevada County (CCH 2012). It is likely that the current records of *B. sierrae* are an under-representation of its true abundance: on a 2-day survey, K. Callahan (pers. comm. 2012) documented seven previously-unknown occurrences, all within the Grass Valley USGS 7.5' Quadrangle. Additionally, some herbarium specimens of *B. sierrae* may still be treated as *B. californica*.

Road maintenance, development and collecting are the main potential threats to *B. sierrae*. Some populations occur near roads and therefore road maintenance or widening could be an impending threat (R. Preston pers. comm. 2012). At least a few populations occur in locations slated for development (K. Callahan pers. comm. 2012). [Some of the habitat in its range \(especially in Nevada County\) is threatened by development or has already been developed, and is further threatened by vehicles, trash dumping, and other threats associated with urbanization \(N. Jensen pers. comm. 2012\).](#) Additionally, *Brodiaea sierrae* has been distributed commercially under the name *B. californica* (Preston 2006), and it is unclear if cultivated plants are likely to interbreed with wild plants and influence their genetic makeup. Given that *B. sierrae* is the showiest member of this genus (Preston 2006), collecting by bulb enthusiasts is another potential threat.

Based on the available information, CNPS and CNDDDB recommend that *Brodiaea sierrae* be added to California Rare Plant Rank 4.3, based on its limited distribution and its affinity for certain soil types. However, since *B. sierrae* is often noted as being locally common (CCH 2012) and there is a possibility of additional occurrences than are currently documented, it is not considered of high conservation concern. If current records of *Brodiaea sierrae* are later found to be an under-representation of its actual distribution and frequency, it will be re-evaluated by CNPS and CNDDDB at that time.

### Recommended Actions

CNPS: Add *Brodiaea sierrae* to CNPS 4.3

CNDDDB: Add *Brodiaea sierrae* to CNDDDB G3 / S3

### Draft CNPS Inventory Record

*Brodiaea sierrae* R.E. Preston

Sierra foothills brodiaea

Themidaceae

Rank 4.3

Butte, Nevada, Yuba

Bangor (559B) 3912144, Berry Creek (575B) 3912164, Challenge (558B) 3912142, Cherokee (576A) 3912165, Chicago Park (541B) 3912028, Clipper Mills (574C) 3912152, Forbestown (575D) 3912153, French Corral (558C) 3912132, Grass Valley (542A) 3912121, Loma Rica (559C) 3912134, Nevada City (558D) 3912131, Northern Bloomfield (557C) 3912038, Oroville (576D) 3912155, Paradise East (592D) 3912175,

Pulga (591C) 3912174, Rackerby (559A) 3912143, Rough and Ready (542B) 3912122, Smartville (543A) 3912123

Chaparral, cismontane woodland / usually serpentinite or gabbroic; elevation 50 – 945 meters.

Perennial bulbiferous herb. Blooms May to August.

Potentially threatened by [vehicles](#), road maintenance, road widening, development, [illegal dumping](#), [urbanization](#), and horticultural collecting. Similar to, and previously included in *B. californica*; actually more similar to *B. leptandra*. See *Novon* 16:254-259 (2006) for original description.