

**Kept as California Rare Plant Rank 1B.2 in CNPS Inventory on January 20, 2015**

**Rare Plant Status Review: *Lepidium flavum* var. *felipense***  
**Proposal to keep as California Rare Plant Rank 1B.2, G5T1Q / S1**  
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Changes made to the original document appear in blue text.

**Background**

*Lepidium flavum* var. *felipense* is an annual herb in the Brassicaceae that was first added to the CNPS Inventory in the Second Edition (Smith et al. 1980); it is currently included on California Rare Plant Rank (CRPR) 1B.2. Variety *felipense* was recognized in *The Jepson Manual* (Rollins 1993), but was treated as a synonym of typical *L. flavum* in *The Jepson Manual, Second Edition* (Al-Shehbaz 2012). In the *Flora of North America*, treatment authors Al-Shehbaz and Gaskin (2010) noted that this “smaller-fruited form” does not merit taxonomic recognition. Due to the exclusion of *L. flavum* var. *felipense* from *The Jepson Manual, Second Edition* and *Flora of North America*, a review of its status in the CNPS Inventory and CNDDDB is in order. *Lepidium flavum* var. *felipense* was first described by Hitchcock (1936) from the San Felipe Region of Coachella Valley. Until recently, it has been recognized in most major treatments of the California flora, including Munz’s (1959 and 1974) floras, Rollins (1993), and the *Jepson Desert Manual* (Baldwin et al. 2002). Variety *felipense* has been separated from the typical variety based on fruit morphology. The silicles of var. *felipense* have a suborbicular (vs. oval) shape, are longer (3-4.5 mm versus 2-3 mm) and wider (3-3.5 mm versus 1.5 – 2.2 mm), and have smaller winged apices, as well as styles that are less than half the fruit length (versus more than half the fruit length in var. *flavum*) (Hitchcock 1936; Munz 1959; Rollins 1993). These treatments point to a larger fruit in var. *felipense*, in contrast to Al-Shehbaz and Gaston’s (2010) comment about this form’s smaller fruits. Additionally, the two varieties are geographically disjunct in California, with var. *felipense* occurring primarily in the western part of Anza-Borrego Desert State Park, and var. *flavum* occurring primarily in the Mojave Desert and Owens Valley (within the California portion of its range) (Al-Shehbaz 2012). Only a few California specimens, which are currently treated as *L. flavum*, are geographically intermediate: *J.H. Thomas 449* and *M. Anthony s.n.* from San Bernardino and Riverside Counties, respectively (CCH 2014). However, we were unable to examine these specimens to determine which variety they best fit under.

To address the recent synonymy of var. *felipense* with the typical variety, we questioned the treatment author I. Al-Shehbaz about the treatment, and also queried experienced desert botanists about their opinions on the taxonomy. Al-Shehbaz (pers. comm. 2013) stated simply that he did not see enough differences to merit taxonomic status based on his worldwide study of the genus. On the same note, A. Howald (pers. comm. 2013) said that she had seen both taxa in the field and did not notice significant differences between the two. Most botanists that we questioned, however, had not seen both taxa and were therefore hesitant to make a formal recommendation (J. Andre, D. Bell, L.

Sent to: ES/D, SW, I. Al-Shehbaz, L. Hendrickson, R. O’Dell, R. Preston, J. Whittall on 12/04/2014

Hendrickson, A. Sanders, T. Stoughton pers. comm. 2013). To observe the morphological differences first-hand, the first author examined several specimens at UC Berkeley. Photos of the fruits of two specimens are included below the body of this review (Fig. 1); no ruler was included in the photographs, but the fruits of var. *felipense* were consistently larger than the var. *flavum* fruits. The photographs illustrate some of the differences separating the two varieties, notably the rounder fruits and short-winged apices of var. *felipense*.

The status of *L. flavum* var. *felipense* in Baja California is not as well understood, as treatments do not agree on what occurs there. Of the treatments that recognize var. *felipense*, most do not recognize it as occurring in Baja California (i.e. Baldwin 2002; Munz 1959, 1974; Rollins 1993). However, Wiggins (1980) notes var. *felipense* (sic) as occurring on the eastern flanks of the Sierra Juarez in Baja California. This mountain range is adjacent to San Diego and Imperial Counties, and thus represents a logical extension of the variety southward. Wiggins (1980) also treats var. *flavum* as occurring in the foothills of the Sierra Juarez, so the two varieties may grow in closer proximity in Baja California. Only a single specimen of *L. flavum* from Baja California was found in a search of the Southwest Environmental Information Network (SEINet 2014). That specimen, H.A. Haid, L. Gaston s.n. (UCR17776) is from the Sierra Juarez, and should be examined ; it was not examined by any of the authors.

Based on the available information, CNPS and CNDDDB recommend retaining *Lepidium flavum* var. *felipense* on CRPR 1B.2. The multiple differences in fruit morphology, combined with significant geographic disjunction in the California portion of the range suggest that taxonomic recognition may be warranted. If more information on this plant becomes available in the future, we will re-evaluate it at that time.



Figure 1. Left: silicles of var. *felipense* from San Felipe (*T. S. Brandegee* s.n. UC117633 or UC117632, due to possible error in the CCH 2014)

Right: silicles of var. *flavum* from the Mojave River District (*E. Palmer 18 UC117634*). Three different specimens are mounted on the same sheet for comparison, and a coarse-scale photo of the sheet is available at [http://ucjeps.berkeley.edu/cgi-bin/display\\_smasch\\_img.pl?smasch\\_accno=UC117634](http://ucjeps.berkeley.edu/cgi-bin/display_smasch_img.pl?smasch_accno=UC117634).

### Recommended Actions

CNPS: Keep *Lepidium flavum* var. *felipense* at CRPR 1B.2

CNDDDB: Keep *Lepidium flavum* var. *felipense* at G5T1Q / S1

### Current CNPS Inventory Record

*Lepidium flavum* var. *felipense*

Borrego Valley pepper-grass

Brassicaceae

CRPR 1B.2

San Diego

Cuyamaca Peak (020A)? 32116H5, Tubb Canyon (032B) 33116B4, Earthquake Valley (032C) 33116A4, Ranchita (033A) 33116B5, Borrego Palm Canyon (047C) 33116C4  
Pinyon and juniper woodland, Sonoran Desert scrub / sandy; elevation 455 – 840 meters.

Annual herb. Blooms March to May.

Known from fewer than ten occurrences. Threatened by recreational activities and vehicles. See *Madroño* 3(7):299 (1936) for original description.

### Revised CNPS Inventory Record

*Lepidium flavum* var. *felipense*

Borrego Valley pepper-grass

Brassicaceae

CRPR 1B.2

Baja California

San Diego

~~Cuyamaca Peak (020A)? 3211685~~, Tubb Canyon (032B?) 3311624, Earthquake Valley (032C) 3311614, Ranchita (033A?) 3311625, Borrego Palm Canyon (047C?) 3311634, Warner Springs (048C?) 3311636.

Pinyon and juniper woodland, Sonoran Desert scrub / sandy; elevation 455 – 840 meters.

Annual herb. Blooms March to May.

Many historical locations are suspect; likely only known from Blair Valley and Little Blair Valley in Anza-Borrego Desert SP. Threatened by recreational activities, and vehicles, and non-native plants. Not included in *TJM* 2. See *Madroño* 3(7):299 (1936) for original description.

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