

***Plagiobothrys myosotoides* deleted from California Rare Plant Rank 4.3, and *P. torreyi* var. *perplexans* added to 4.3 on August 21, 2012**

Rare Plant Status Review: *Plagiobothrys myosotoides* and *Plagiobothrys torreyi* var. *perplexans*

Proposed deletion of *Plagiobothrys myosotoides* from 4.3, G4Q / S3.3

Proposed New Add of *Plagiobothrys torreyi* var. *perplexans* to 4.3, G4T3 / S3

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Changes made to the original document appear in blue text.

Background

Plagiobothrys myosotoides is a CNPS Rank 4.3 plant that has been included in the CNPS Inventory since 1984. It is not included in *The Jepson Manual, Second Edition (TJM 2)*, as it does not occur in California. *Plagiobothrys myosotoides* is a South American species that was first noted as occurring in California by Johnston (1939), with the name being applied to plants from the Mt. Hamilton Range (currently *P. verrucosus*) and the Sierra Nevada foothills (currently *P. torreyi* var. *perplexans*) and South Coast Ranges (currently *P. torreyi* var. *perplexans* and *P. uncinatus*; *The Jepson Manual, TJM*, 1993; D. Gowen pers. comm. 2012; R. Kelley pers. comm. 2012). Horn's (2000) dissertation reviewed the genus *Plagiobothrys* in South America and included photographs of the nutlets of South American *P. myosotoides* and *P. verrucosus*. These images allowed R. Kelley (pers. comm. 2011), the *TJM 2* and *Flora of North America* treatment author for *Plagiobothrys*, to determine that the California plants did not actually belong to *P. myosotoides*. Instead, he recognized the plants from the Mt. Hamilton Range as *P. verrucosus* (another South American taxon), and the plants from the Sierra Nevada and South Coast Ranges as *P. torreyi* var. *perplexans*. Consequently, CNPS and CNDDDB propose to delete *Plagiobothrys myosotoides* from Rank 4.3 of the CNPS Inventory, and add *Plagiobothrys torreyi* var. *perplexans* to Rank 4.3. *Plagiobothrys verrucosus* is also being proposed as a new addition to Rank 2.1 in a concurrent status review.

Plagiobothrys torreyi var. *perplexans* is an annual herb in the Boraginaceae family that is endemic to California, known from the central and southern Sierra Nevada and the southern outer coast ranges. It is included in *TJM 2* (available online at http://ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=78495), but was treated as *P. myosotoides* in *TJM* (1993); the *Flora of North America* treatment for Boraginaceae is not yet available. *Plagiobothrys torreyi* var. *perplexans* is most similar to *P. tenellus* and *P. torreyi* var. *torreyi* (*TJM 2*, Johnston 1939). It co-occurs with var. *torreyi* in the lower Sierra Nevada Foothills, and can be differentiated by several nutlet characters: var. *perplexans* has rows of round translucent papillae on the abaxial side of the nutlet and the nutlet is strongly arched with a pointed base. *Plagiobothrys torreyi* var. *torreyi* does not have papillae, the nutlet is not arched, and the nutlet base is rounded (*TJM 2*). However, the two varieties may intergrade where they co-occur, as a collection by R. Kelley (YM-YOSE117324) shows nutlets characters that are intermediate between the

two varieties (CCH 2012). *Plagiobothrys tenellus* has a roughly cross-shaped nutlet, while *P. torreyi* var. *perplexans* has a roughly ovate nutlet. *Plagiobothrys torreyi* var. *perplexans* blooms from April to September.

Plagiobothrys torreyi var. *perplexans* is known from a wide variety of habitats in the central to southern Sierra Nevada, including lower and upper coniferous forest, as well as seasonally wet meadows within the lower montane coniferous forest. In the South Coast Ranges, it is found in [chamisal](#) chaparral (CCH 2012), [and there is no coastal influence but rather an interior influence that is similar to where you would find it in the Greenhorn Mountains or southern Sierra Nevada \(R. Kelley pers. comm. 2012\)](#). It is often (but not always) found following fires, and may persist in the seed bank for many years until a fire occurs (R. Kelley pers. comm. 2011, *TJM* 2). The plant has an apparent affinity for igneous soils, which restricts it from many of the Sierra foothills that have metamorphic soils (R. Kelley pers. comm. 2011). *Plagiobothrys torreyi* var. *perplexans* occurs from ~~4495~~ [1070](#) to 2745 meters ([CCH 2012](#)).

There are ~~only about 20~~ [approximately 15](#) known occurrences of *P. torreyi* var. *perplexans* in California. About half of the specimens are currently labeled as *P. myosotoides* in the CCH (2012), but many of those occur at or near an occurrence that has already been annotated to *P. torreyi* var. *perplexans*. All of the occurrences, with the exception of two from the [interior](#) South Coast Ranges, are from the central and southern Sierra Nevada. ~~Eight~~ [Four](#) of those occurrences are found within Yosemite National Park and one is on lands preserved by the Sierra Foothills Conservancy. Only nine of the known occurrences are historical, due mostly to recent surveys in Yosemite National Park (occurrences not documented in the past 20 years are considered historical by the CNDDDB).

Threats to *P. torreyi* var. *perplexans* are currently unknown. Given its occurrence on National Park lands and its fairly widespread distribution in California, it should be considered of minimal conservation concern at this time. Given its affinity for germination after fire, however, it could be negatively affected by fire suppression.

Based on the available information, CNPS and CNDDDB recommend deleting *Plagiobothrys myosotoides* from the CNPS Inventory. We also recommend adding *Plagiobothrys torreyi* var. *perplexans* to Rank 4.3 of the CNPS Inventory. If current records are later found to be an under-representation of its actual distribution and frequency, it will be re-evaluated by CNPS at that time.

Recommended Actions

CNPS: Delete *Plagiobothrys myosotoides* from Rank 4.3; add *Plagiobothrys torreyi* var. *perplexans* to Rank 4.3

CNDDDB: Delete *Plagiobothrys myosotoides* from G4Q / S3.3; add *Plagiobothrys torreyi* var. *perplexans* to G4T3 / S3

Current CNPS Inventory Record

Plagiobothrys myosotoides (Lehm.) Brand

(see Online Inventory at: <http://www.rareplants.cnps.org/detail/1259.html>)

Draft CNPS Inventory Record

Plagiobothrys torreyi (A. Gray) A Gray var. *perplexans* I.M. Johnst.

chaparral popcornflower

Boraginaceae

Rank 4.3

Fresno, Kern, Mariposa, San Luis Obispo, Tulare, Tuolumne

Alta Sierra (261A) 3511865, Auberry (397C) 3711914, El Capitan (437B) 3711966, El

Portal (438A) 3711967, Fairview (284B) 3511884, Kernville (284C) 3511874, Lake

Eleanor (456A) 3711987, Lake Isabella North (260B) 3511864, Lime Mountain (270B)

3512068, Santa Margarita (246A) 3512045, Sentinel Peak (308D) 3611815, Shaver

Lake (397D) 3711913, Ten Lakes (455A) 3711985, Wawona (437C) 3711956

Chaparral, meadows and seeps, lower montane coniferous forest, upper montane coniferous forest / burned areas, igneous soils; elevation 4495 1070 – 2745 meters.

Previously identified as *P. myosotoides*, which does not occur in CA. **Possibly threatened by fire suppression.** Similar to *P. tenellus* and *P. torreyi* var. *torreyi*; co-occurs with var. *torreyi* in the lower Sierra Nevada Foothills. See *Contributions from the Gray Herbarium of Harvard University* 68:72 (1923) for original description.