

Added to California Rare Plant Rank 1B.1 of the CNPS Inventory on January 30, 2019**Rare Plant Status Review: *Ceanothus thyrsiflorus* var. *obispoensis*****Proposed Addition to California Rare Plant Rank 1B.1 G5T1/ S1**

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Background and Taxonomy

Ceanothus thyrsiflorus Eschsch. var. *obispoensis* D.O. Burge is an edaphic-endemic perennial shrub in the Rhamnaceae known only from the Hollister Peak area of San Luis Obispo County, California. It is not included in the *Jepson eFlora* (Wilken and Burge 2016) or *Flora of North America North of Mexico* (Schmidt and Wilken 2016). *Ceanothus thyrsiflorus* var. *obispoensis* was described by Burge et al. (2017) along with two other rare, edaphic-endemic *Ceanothus* taxa, *C. pendletonensis* and *C. foliosus* var. *viejasensis*, which are concurrently under review for addition to the CNPS *Inventory*. In order to assess morphological differences of the three new *Ceanothus* taxa, Burge et al. (2017) examined herbarium specimens of the new taxa and their closest relatives. In total, 121 specimens (from RSA, SD, SBBG, and DAV) were examined with the naked eye or at 10-50X magnification under dissecting microscopes, noting characteristics frequently used to diagnose *Ceanothus* taxa, such as leaves, inflorescences, fruits, and young stems. Only qualitative characters were used to differentiate *C. foliosus* var. *viejasensis* and *C. thyrsiflorus* var. *obispoensis* from close relatives, while quantitative data on leaf size and shape was collected for *C. pendletonensis*. Through their analysis it was determined that all three *Ceanothus* are edaphic endemics, restricted to soils derived from a particular type of geological material, including gabbro (*C. foliosus* var. *viejasensis*), dacite (*C. thyrsiflorus* var. *obispoensis*), and granodiorite (*C. pendletonensis*); bringing the total of known edaphic endemic *Ceanothus* taxa to 19.

Ceanothus thyrsiflorus var. *obispoensis* is most similar to *C. thyrsiflorus* var. *griseus* and can be distinguished by young leaves having dense wavy and matted hairs on the abaxial side, often forming a tomentum that obscures tertiary leaf venation (vs. straight abaxial hairs that do not form a tomentum in var. *griseus*). The specific epithet *obispoensis* refers to San Luis Obispo, the closest major city to the type locality and San Luis Obispo County in which the plant is endemic (Burge et al. 2017).

Ecology

Ceanothus thyrsiflorus var. *obispoensis* occurs in chaparral and cismontane woodland in dacite derived soils and is known from an approximate elevation of 140 to 225 meters (Burge et al. 2017). It is believed to bloom in June based on herbarium specimens (CCH 2018). Associated species include *Artemisia californica*, *Baccharis pilularis*, *Ceanothus papillosus*, *Frangula californica*, *Heteromeles arbutifolia*, *Mimulus aurantiacus*, *Quercus agrifolia*, *Sambucus nigra*, and *Vaccinium ovatum* (Burge et al. 2017).

Distribution and Abundance

Ceanothus thyrsiflorus var. *obispoensis* is currently known only from two occurrences in the Hollister Peak area of San Luis Obispo County. Both occurrences are located on private property. Record 1 from the Cerro Cabrillo area is located immediately adjacent to eastern boundary of Morro Bay State Park, and may have the potential to extend into the park. Record 2 is located to the southwest of Chorro Creek Ecological Reserve, though it is unknown whether

suitable habitat exists on the Reserve itself to sustain populations of *Ceanothus thyrsiflorus* var. *obispoensis*. The Hollister Peak area of San Luis Obispo County is home to two other, dacite-endemic, rare taxa, *Arctostaphylos tomentosa* subsp. *daciticola* (CRPR 1B.1: <http://www.rareplants.cnps.org/detail/1573.html>) and *A. osoensis* (CRPR 1B.2: <http://www.rareplants.cnps.org/detail/1571.html>) (CNPS 2018).

Status

Ceanothus thyrsiflorus var. *obispoensis* is a recently described California endemic and is therefore not ranked elsewhere.

Threats

There are no known direct threats to *Ceanothus thyrsiflorus* var. *obispoensis* at this time. It is naturally rare and apparently geographically limited. While there are no known direct threats to this taxon, the nature of its limited geographic range implies that even a small change in land use within its distribution could have drastic reductions in population size. Furthermore, the unusual edaphic ecology of this taxon also means that mitigation efforts via transplantation or ex-situ conservation could be problematic (Burge et al. 2017).

Arctostaphylos tomentosa subsp. *daciticola* and *A. osoensis* co-occur with *C. thyrsiflorus* var. *obispoensis*, and are threatened by urbanization (CNPS 2018). Urbanization is therefore also a potential threat to *C. thyrsiflorus* var. *obispoensis* through proximity.

The Hollister area where *C. thyrsiflorus* var. *obispoensis* occurs has a few different owners; the main peak and southern slope are commonly called the Buckingham Ranch. Much of the southern slope has recently become a conservation easement thanks to The Land Conservancy of San Luis Obispo County. Although the documented occurrences of *C. thyrsiflorus* var. *obispoensis* don't intersect with the parcel protected by the easement, they do share a very similar geology and habitat description that occurs on the parcel; in looking at a geologic dataset, the same geologic unit (porphyritic-aphanitic dacite) underlies much of the peak and upper portions of the easement, as do populations in Record 2 (see the Localities section of the attached "NewAdd_CeanothusThyrsiflorusObispoensis" spreadsheet for location record details). Since the same habitat and soils exist on the newly protected easement, it's probable that *C. thyrsiflorus* var. *obispoensis* also occurs there, and staff of The Land Conservancy of SLO County intend to survey for it on the easement in the coming years (Hall et al. pers. comm. 2018).

Summary

Based on the available information, CNPS and CNDDDB recommend adding *Ceanothus thyrsiflorus* var. *obispoensis* to California Rare Plant Rank 1B.1 of the CNPS Inventory. If knowledge on the distribution, threats, and rarity status of *C. thyrsiflorus* var. *obispoensis* changes in the future, we will re-evaluate its status at that time.

Recommended Actions

CNPS: Add *Ceanothus thyrsiflorus* var. *obispoensis* to CRPR 1B.1
 CNDDDB: Add *Ceanothus thyrsiflorus* var. *obispoensis* to G5T1 / S1

Draft CNPS Inventory Record

Ceanothus thyrsiflorus Eschsch. var. *obispoensis* D.O. Burge

Sent to: CW, J. Hall, L. Roddick, K. Walsh on 12/12/2018

San Luis Obispo ceanothus

Rhamnaceae

CRPR 1B.1

San Luis Obispo

Morro Bay South (247D) 3512037

Chaparral, cismontane woodland/dacite; elevation 140-225 meters.

Perennial shrub. Blooms June.

Potentially threatened by urbanization. Similar to *C. thyrsoiflorus* var. *griseus*; differentiated by dense, wavy, matted hairs on abaxial surfaces of young leaves and twigs, often forming a tomentum that obscures tertiary leaf venation. See *Systemic Botany* 42(3):529-542 (2017) for original description.

Literature Cited

Burge, D. O., J. P. Rebman, M. R. Mulligan, and D. H. Wilken. 2017. Three edaphic-endemic *Ceanothus* (Rhamnaceae) new to science. *Systematic Botany* 42(3): 529-542. (Original description.)

[CNPS] California Native Plant Society, Rare Plant Program. 2018. *Inventory of Rare and Endangered Plants of California* (online edition, v8-03 0.39). Website <http://www.rareplants.cnps.org> [accessed 04 December 2018].

Consortium of California Herbaria. 2018. Data provided by the participants of the Consortium of California Herbaria. Regents of the University of California, Berkeley. Website <http://ucjeps.berkeley.edu/consortium/> [accessed 6 November 2018].

Wilken, D. H. and D. O. Burge. 2016. *Ceanothus*. In: Jepson Flora Project (eds.), *Jepson eFlora*. Website <http://ucjeps.berkeley.edu/IJM.html> [accessed 6 November 2018].

Schmidt, C. L. and D. H. Wilken. 2016. *Ceanothus*. Pp. 77-108 in: Flora of North America Editorial Committee (eds.), *Flora of North America North of Mexico*, Vol. 12. New York and Oxford.

Persons Contacted

Hall, J., K. Walsh, and L. Roddick. 2018. The Land Conservancy of SLO County. Email correspondence about land ownership and conservation of the Hollister Peak area of San Luis Obispo County. Personal communication 4 December 2018.