

Added to California Rare Plant Rank 1B.2 of the CNPS Inventory on January 30, 2019**Rare Plant Status Review: *Ceanothus foliosus* var. *viejasensis*
Proposed Addition to California Rare Plant Rank 1B.2, G3T1 / S1**

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Background and Taxonomy

Ceanothus foliosus Parry var. *viejasensis* D.O. Burge & Rebman is an edaphic-endemic perennial shrub in the Rhamnaceae known only from Viejas Mountain in San Diego 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 foliosus* var. *viejasensis* was described by Burge et al. (2017) along with two other rare, edaphic-endemic *Ceanothus* taxa, *C. pendletonensis* and *C. thyrsiflorus* var. *obispoensis*, 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 foliosus var. *viejasensis* is the fourth infraspecific taxon of *C. foliosus*, the others being var. *medius*, var. *vineatus* (California Rare Plant Rank 1B.1 [CNPS 2018]), and the nominate variety. It is distinct from other *C. foliosus* taxa on the basis of the vestiture of the abaxial leaf surface, with abundant hairs on the abaxial leaf surfaces and young stems that often form a dense mat, which obscures the tertiary venation. Whereas all other specimens of *C. foliosus* examined usually had sparse abaxial hairs, when present. The ranges of the *C. foliosus* varieties overlap, particularly in San Diego County and the central coast of northern California, and in such areas, intergrading forms are sometimes present. Of the *C. foliosus* varieties, var. *medius* is the most similar to var. *viejasensis*, and can be found nearby, but the leaf morphology of *viejasensis* is sufficiently distinct enough to justify its recognition as a new variety. Aside from other *C. foliosus* varieties, *C. foliosus* var. *viejasensis* is most similar to *C. tomentosus* and can be distinguished by leaf lamina that are often folded lengthwise (vs. leaf lamina that are flat) with wavy margins (vs. plane margins in *C. tomentosus*). The specific epithet, *viejasensis*, refers to its type locality of Viejas Mountain; a 1,277 m peak in central San Diego County that is a well-known local landmark and a sacred site of the Viejas Band of Kumeyaay Indians, whose reservation borders the mountain (Burge et al. 2017).

Ecology

Ceanothus foliosus var. *viejasensis* occurs in chaparral with gabbro-derived soils, and is known from an approximate elevation of 785 to 1,370 meters (Burge et al. 2017). It is presumed to bloom from March to June based on voucher collections (CCH 2018), and field observations are

required to confirm its full blooming period as well to discover additional potential blooming months. Associated species include *Adenostoma fasciculatum*, *Arctostaphylos glandulosa*, *Ceanothus perplexans*, *Hesperoyucca whipplei*, *Heteromeles arbutifolia*, and *Malosma laurina* (Burge et al. 2017). Additional associates may include *Calochortus dunnii*, *Ceanothus oliganthus*, *Logfia gallica*, *Quercus berberidifolia*, *Salvia mellifera*, *Rhus ovata*, *Pickeringia montana*, *Salvia sonomensis*, *Nolina cismontana*, and *Wyethia ovata* (CCH 2018).

Distribution and Abundance

Ceanothus foliosus var. *viejasensis* is currently known only from approximately 4 occurrences on Viejas Mountain in San Diego County. Of the four occurrences, one (1/4, ~25%) is considered historical (occurrences not seen in over 20 years are considered historical by CNDDDB). All 4 occurrences are located in the Cleveland National Forest.

Status

Ceanothus foliosus var. *viejasensis* is a recently described California endemic, and is therefore not ranked elsewhere.

Threats

There are no known direct threats to *Ceanothus foliosus* var. *viejasensis* at this time. It is naturally rare and seemingly 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). All known occurrences of *C. foliosus* var. *viejasensis* are on public land managed by the Cleveland National Forest, and therefore should be considered relatively protected.

Summary

Based on the available information, CNPS and CNDDDB recommend adding *Ceanothus foliosus* var. *viejasensis* to California Rare Plant Rank 1B.2 of the CNPS Inventory. If knowledge on the distribution, threats, and rarity status of *C. foliosus* var. *viejasensis* changes in the future, we will re-evaluate its status at that time.

Recommended Actions

CNPS: Add *Ceanothus foliosus* var. *viejasensis* to CRPR 1B.2
 CNDDDB: Add *Ceanothus foliosus* var. *viejasensis* to G5T1 / S1

Draft CNPS Inventory Record

Ceanothus foliosus Parry var. *viejasensis* D.O. Burge & Rebman

Viejas Mountain ceanothus

Rhamnaceae

CRPR 1B.2

San Diego

Viejas Mountain (020C) 3211676

Chaparral/gabbro; elevation 785-1370 meters.

Perennial shrub. Blooms March to June.

Distinct from other *C. foliosus* vars. in leaf vestiture, with abundant hairs on abaxial leaf surfaces and young stems that often form a dense mat, obscuring tertiary venation (vs. glabrous or usually

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sparse abaxial hairs when present in other vars.). Similar to *C. tomentosus*; differentiated by undulate leaves with lamina that are often folded lengthwise (vs. plane margins with lamina that are flat in *C. tomentosus*). 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. *Systemic Botany* 42(3): 529-542. (Original description.)

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