

**Changed to California Rare Plant Rank 3.3 on April 10, 2012****Rare Plant Status Review: *Cardamine nuttallii* var. *gemmata*  
Proposed rank change from 1B.3 to 3.3**

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**Background**

*Cardamine nuttallii* var. *gemmata* was included in the CNPS *Inventory, First Edition* (1974) and is currently a rank 1B.3 taxon. *Cardamine nuttallii* has had a long and confusing history of taxonomic revisions. It was first described as *Dentaria tenella* (Pursh 1814) and was subsequently moved to *Cardamine nuttallii*, as *Dentaria* was treated as a synonym of *Cardamine*, and another species had already been given the name *Cardamine tenella* (Greene 1887). Later, *C. nuttallii* was considered a synonym of *C. tenella*, which was split into varieties (*dissecta*, *quercetorum*, *pulcherrima* and *covilleana*), while *Cardamine californica* var. *gemmata* (synonymous with *C. nuttallii* var. *gemmata*) was described in the same publication (Schulz 1903). More recent treatments have recognized other taxa, such as *Cardamine pulcherrima* (*Vascular Plants of the Pacific Northwest, Vol. 2*) and *C. pulcherrima* var. *tenella* (*Flora of the Pacific Northwest*), which are now treated as synonyms of *C. nuttallii*. Four varieties of *Cardamine nuttallii* (vars. *covilleana*, *dissecta*, *gemmata*, and *nuttallii*) were recognized in *The Jepson Manual, First Edition* (TJM 1). All four of those varieties occur in California and Oregon, while var. *gemmata* also occurs in Washington, and var. *nuttallii* occurs in Washington and British Columbia, Canada (USDA Plants).

The new treatments in the *Flora of North America* (FNA; available online at [http://www.efloras.org/florataxon.aspx?flora\\_id=1&taxon\\_id=250094592](http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=250094592)) and *The Jepson Manual, Second Edition* (TJM 2; available online at [http://ucjeps.berkeley.edu/cgi-bin/get\\_IJM.pl?tid=17168](http://ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=17168)) only recognize *Cardamine nuttallii* at the specific level, noting that past treatments have varied considerably in the application of names to varieties. The main character used to distinguish between the varieties of *C. nuttallii* was the rhizomal leaves (FNA, TJM 2). Variety *nuttallii* is the only one with simple rhizomal leaves; the three others have subpalmately compound rhizomal leaflets. *Cardamine nuttallii* var. *gemmata* has rhizomal leaflets that are ovate to obovate, while those of var. *covilleana* are oblong. *Cardamine nuttallii* var. *dissecta* has sessile rhizomal leaflets and a whitish rhizome, while var. *gemmata* has stalked rhizomal leaflets and a yellowish rhizome (TJM 1). Unfortunately, most herbarium specimens have been collected without any rhizomal leaves, so taxonomic work on this group is “almost an impossible task” (FNA). This challenge, combined with the fact that rhizomal leaf morphology is highly variable and generally not useful for recognizing varieties within the species, has resulted in the lumping of the varieties of *C. nuttallii* into a single species (FNA). Only a fraction of the overall variation in this species has been assessed, and detailed molecular and

cytological studies are needed to better understand infraspecific variation within *C. nuttallii* (TJM 2).

Based on the available information, CNPS and CNDDDB recommend re-ranking *Cardamine nuttallii* var. *gemmata* from 1B.3 to 3.3 in the CNPS Inventory. We also encourage botanists from California to British Columbia to make collections of this species that include rhizomal leaves, which could aid in morphological studies. Molecular and cytological studies would also improve our understanding of variation within *C. nuttallii*.

**Recommended Actions:**

CNPS: Re-rank from CNPS 1B.3 to 3.3

CNDDDB: Re-rank from CNDDDB G5T3 / S2.2 to G5T3Q / S2Q

**Revised CNPS Inventory Record:**

*Cardamine nuttallii* Greene var. *gemmata* (Greene) Roll.

Brassicaceae

yellow-tubered toothwort

Synonyms: *Cardamine gemmata*

Rank 3.3

Del Norte

Shelly Creek Ridge (739A) 41123H7, High Plateau Mtn. (739B)

41123H8, Gasquet (739C) 41123G8, High Divide (740A) 41124H1, Crescent City (740C) 41124G2, Hiouchi (740D) 41124G1

Lower montane coniferous forest, North Coast coniferous forest / serpentinite

Perennial rhizomatous herb. Blooms April – June.

Previously on List 1B.3. Possibly threatened by mining. Candidate for state listing in OR. Main distinction between varieties of *C. nuttallii* treated in *The Jepson Manual* (1993) is differences in rhizomal leaves; however, rhizomal leaf morphology has been found to be highly variable and generally not useful for recognizing varieties within the species. Most herbarium specimens do not have rhizomal leaves to examine; needs field surveys and further study. A synonym of *C. nuttallii* in TJM 2. USFWS uses the name *C. gemmata*. See *Pittonia* 1:162 (1888) for original description, and *Harvard Papers in Botany* 4:43-48 (1993) for revised nomenclature.

**Literature Citations and Review:**

Please see attached "LiteratureReview" excel document.