

**Added to California Rare Plant Rank 1B.1 of the CNPS Inventory on May 14, 2014**

**Rare Plant Status Review: *Grimmia vaginulata*  
Addition to California Rare Plant Rank 1B.1, G1 / S1**

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**Background**

*Grimmia vaginulata* is one of 29 bryophytes that are being added to the CNPS Inventory and CNDDDB based on decisions made at one to three California Bryophyte Working Group (CBWG) meetings held on January 18, 2010, January 28, 2013, and January 30, 2014. The CBWG is a committee of bryology experts that are familiar with the taxonomic, rarity, and/or conservation status of bryophytes in California. If you are interested in joining and/or learning more about this group, please contact the first author at [asims@cnps.org](mailto:asims@cnps.org) or (916) 324-3816.

*Grimmia vaginulata* is a moss in the Grimmiaceae that is endemic to the central coast of California. It was recently described by Kellman (2011), and is different from all North American *Grimmia* in having a transparent extension of the vaginula that extends to the base of the capsule, known as an ochrea, which is referred in the specific epithet. *Grimmia vaginulata* is also distinguished from all other North America *Grimmia* in being a very small plant that is julaceous (resembling a catkin) wet or dry, having hyaline margins on upper leaves, and a dissected peristome. It is similar to *G. anodon* and *G. plagiopodia* in leaf shape; however, *G. vaginulata* is a much smaller and narrower plant that remains julaceous wet or dry, and has straight, centrally inserted seta (vs. sigmoid, eccentrically inserted seta in *G. anodon* and *G. plagiopodia*). *Grimmia vaginulata* appears to be most closely related to *G. capillata* in both gametophytes and sporophytes; however, they are morphologically distinct, and *G. capillata* is known only from the Mediterranean Sea.

Thus far, *Grimmia vaginulata* has “only been found on vertical or underhanging surfaces on calcareous sandstone boulders that have eroded out of less calcareous sandstone bedrock of the Butano Formation” (Kellman 2011). It occurs on rocks that are scattered through chaparral comprised of *Adenostoma fasciculatum*, *Arctostaphylos tomentosa*, *Ceanothus cuneatus*, *C. papillosus*, and *Eriodictyon californicum*. With the exception of a recent collection from marble rock, the sandstone outcrops in which *G. vaginulata* occurs is also the only known substrate of *Orthotrichum kellmanii*, another coastal endemic with a California Rare Plant Rank of 1B.2. *Grimmia vaginulata* is known from an approximate elevation of 685 meters. Associated bryophytes include: *Amphidium californicum*, *Antitrichia californica*, *Gemmabryum californicum*, *Didymodon vinealis*, *Tortula muralis*, *Grimmia torenii*, *G. pulvinata*, *Gymnostomum calcareum*, *G. viridulum*, *Orthotrichum kellmanii*, and *Cephaloziella divaricata* (Kellman 2011).

*Grimmia vaginulata* is currently only known from the type locality: above the Basin Trail and below China Grade Road in Big Basin Redwoods State Park, Santa Cruz County (Kellman et al. 5869, CAS). It has only been found on four out of several hundred

boulders in the area, and its entire known distribution fits within a circle of ten meters. Due to its severely limited distribution, it is imperative that no further collections of *G. vaginulata* are made until additional occurrences are potentially discovered. Additional surveys for *G. vaginulata* are needed throughout preferred habitat within the Butano Formation. Similar sandstone outcrops in the Los Padres National Forest have been surveyed for *G. vaginulata* by J. Shevock (pers. comm. 2013), but it was not found. “Even if additional occurrences are discovered, *Grimmia vaginulata* will almost certainly remain a very narrowly restricted endemic...” (Kellman 2011).

*Grimmia vaginulata* is potentially threatened by stochastic events. Although fire is an adaptive trait of the chaparral ecosystem, fire could possibly extirpate the entire known occurrence of *G. vaginula*; a very hot fire in June of 2008 killed virtually all bryophytes in similar habitat in the Bonny Doon Ecological Preserve in Santa Cruz County (Kellman 2011).

### **Actions**

CNPS: Added to 1B.1

CNDDDB: Added to G1 / S1

### **Draft CNPS Inventory Record**

*Grimmia vaginulata* Kellman

vaginulate grimmia

Grimmiaceae

CRPR 1B.1

Santa Cruz

Big Basin (408B) 3712222

Chaparral (openings) / rocky, boulder and rock walls, carbonate; elevation 685 meters.

Moss

Potentially threatened by fire. Similar to *G. anodon* and *G. plagiopodia*. See *Madroño* 58(3):190-198 (2011) for original description.

### **Literature Cited**

Kellman, K. 2011. *Grimmia vaginulata*, (Bryopsida, Grimmiaceae) a new species from the central coast of California. *Madroño* 58(3): 190-198. (original description)