

**Added to California Rare Plant Rank 2B.2 of the CNPS Inventory on
October 28, 2013**

Rare Plant Status Review: *Carex nardina*
Proposed Addition to California Rare Plant Rank 2B.2, G4G5 / S1
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Changes made to the original document appear in blue text.

Background

Carex nardina is a perennial herb in the Cyperaceae with a circumboreal distribution. Within North America, it is found in nine northwestern States and in most Canadian provinces and territories (NatureServe 2013). It was not included in *The Jepson Manual* (Mastrogiosseppe 1993) or *the Jepson Manual, Second Edition* (Zika et al. 2012). It was included in the *Flora of North America* treatment, although not for California (Ball et al. 2002; available online at http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=242357352). In 2011, York (2012) discovered the only two known occurrences of *C. nardina* for California, growing in the Marble Mountains Wilderness of Siskiyou County. Since the original description of *Carex nardina*, its taxonomy has been up for debate due to the existence of a closely related, or perhaps synonymous, *Carex hepburnii*. *Carex nardina* was first described by Fries (1839) from Lapland in northern Finland, while Boott (1839) described *Carex hepburnii* from the Rocky Mountains of North America later that same year. The distinction between these two species remains unclear; in the past they have been treated as distinct species (Egorova 1999), infra-taxa of *C. nardina* (Löve et al. 1972), or as synonyms (Ball et al. 2002). Both forms occur in North America, but their geographic limits are uncertain (Ball et al. 2002). The two forms differ in several fruit characteristics, which are summarized in Table 1 (see Appendix I). Despite the uncertainty in taxonomy, the California occurrences remain rare, whether under the name *C. nardina*, *C. hepburnii*, or an infraspecific taxon. Following the convention of Ball et al. (2002), we recognize the California plants as *C. nardina*. In California, *Carex nardina* has been observed fruiting from August to September (York 2012, D. York pers. comm. 2013). Since identification of this plant requires fruit, not flowers, and the flowering period for California is unknown, the phenology of the fruiting period, rather than flowering period, will be included in the CNPS Inventory.

The California populations of *Carex nardina* are found on limestone rock outcrops within subalpine coniferous forest (York 2012). The occurrences are located between 2,105 and 2,175 meters in elevation (York 2012; Consortium of California Herbaria, CCH, 2013). In other parts of its range, *Carex nardina* grows in rocky, usually calcareous locations within alpine or arctic tundra (J. Starr pers. comm. 2013; Ball et al. 2002). [Many sites of *C. nardina* in Washington are not on calcareous substrates, but some are limy \(P. Zika pers. comm. 2013\).](#)

There are only two known occurrences of *Carex nardina* in California, both in the Marble Mountains Wilderness of the Klamath National Forest. Both populations are small, consisting of a few scattered individuals (D. York pers. comm. 2013). They are only separated by a distance of about 4.25 km. A third record of *Carex nardina* for California is included in the CCH (2013), but review of this specimen revealed that it is actually *Carex filifolia* (J. Starr pers. comm. 2013). Herbarium staff at the San Diego Natural History Museum, where the specimen is housed, have been notified of the correct identification of this specimen. Additional populations of *Carex nardina* should be searched for in limestone rock outcrops of far northern California.

Although widespread globally, *Carex nardina* is rare throughout much of its range in North America. In Oregon and Wyoming, it is ranked "Imperiled" (S2; generally 20 or fewer occurrences), while in Manitoba and Ontario, it is ranked "critically imperiled" (S1, generally 5 or fewer occurrences). It is included in the Oregon Biodiversity Information Center's (ORBIC) Rank 2, comparable to California Rare Plant Rank 2B (ORBIC 2013). In other states where it occurs, *C. nardina* is unranked or apparently secure (NatureServe 2013). [See Wilson et al. \(2008\) for a range map of C. nardina in Oregon and Washington.](#)

York (pers. comm. 2013) noted that there are no obvious threats to either population of *Carex nardina* and accordingly recommended a threat rank of .3. However, given the very small number of populations in the state, as well as the small size of both populations, one or both of them could potentially be extirpated through a stochastic event. Additionally, global climate change could potentially affect *C. nardina*, especially when considering that the California occurrences are roughly at the southern extent of the species' range in North America.

Based on the available information, CNPS and CNDDDB recommend that *Carex nardina* be added to California Rare Plant Rank 2B.2 in the CNPS Inventory. If additional taxonomic work is performed on this group, CNPS and CNDDDB will re-evaluate it at that time, although nothing more than a non-substantive name change would likely result. Also, if additional information on its distribution and threats becomes available in the future, we will re-evaluate its status at that time, as necessary.

Recommended Actions

CNPS: Add to California Rare Plant Rank 2B.2

CNDDDB: Add to G4G5 / S1

Draft CNPS Inventory Record

Carex nardina Fries

nard sedge

Cyperaceae

CRPR 2B.2

Alaska, Colorado, Idaho, Montana, Nevada, Oregon, Utah, Washington, Wyoming

Siskiyou

Marble Mountain (719C) 4112352

Subalpine coniferous forest / carbonate, rocky outcrops; elevation 2105-2175 meters.
Perennial herb. Fruits August to September.

Discovered in CA by D. York in 2011; known in CA only from the Marble Mtns. Possibly threatened by global climate shifts and stochastic events. If taxonomically recognized, some North American populations would be attributed to *C. hepburnii*. See *Novitiarum Florae Suecicae Mantissa* 2:55 (1839) for original description, and *Madroño* 59(4):231 (2012) for information on discovery in CA.

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Appendix I

Character	<i>C. nardina</i>	<i>C. hepburnii</i>
perigynia shape	ovate- or spindle-shaped	obovate or broadly elliptic
perigynia size	(3-)3.5-5 x 1.4-1.6 mm	3-5 x 1.5-2 mm
beak formation and size	gradually formed, 0.5 mm	obscure to 0.4 mm
stipe formation and size	distinct, 0.5-1 mm	obscure (< 0.2 mm)
type locality	Lapland (Finland)	Rocky Mountains

Table 1. Distinguishing characteristics that separate *Carex nardina* and *Carex hepburnii*. Data taken from Ball et al. (2002).