

Added to CRPR 1B.2 in the CNPS Inventory on August 18, 2015

Rare Plant Status Review: *Carex cyrtostachya*
Proposed Addition to California Rare Plant Rank 1B.2, G2G3 / S2S3
 Danny Slakey (CNPS), Aaron E. Sims (CNPS) and Roxanne Bittman (CNDDDB)
 July 9, 2015

Changes made to the original document appear in blue text.

Background

Carex cyrtostachya is a perennial cespitose herb in the Cyperaceae from the northern to central Sierra Nevada that was just recently described by Zika et al. (2013). It was not included in *The Jepson Manual* (Mastroggiuseppe 1993), *The Jepson Manual, Second Edition* (Zika et al. 2012), or the *Flora of North America* (Ball and Reznicek 2002). However, Zika et al. (2012) noted under the description for *C. mendocinensis* that the plants currently attributable to *C. cyrtostachya* may be distinct; *C. cyrtostachya* is now pending inclusion in the Jepson eFlora (Jepson Flora Project 2015). The plants currently attributed to *Carex cyrtostachya* had previously been identified as *Carex mendocinensis*, although botanists had noticed several morphological differences between these plants and *C. mendocinensis*. Zika et al. (2013) analyzed the morphological features of both species, and separated *C. cyrtostachya* from *C. mendocinensis* based on the former's loose and arching (vs. dense and erect) distal lateral spikes, its awned (vs. awnless to minutely-awned) proximal staminate scales, and its longer pistillate scales and pistillate scale awns. The two species are geographically disjunct by about 200 km, with the closest occurrences of *C. mendocinensis* in the Klamath Ranges. The one exception to this is a single confirmed occurrence of *C. mendocinensis* (Ahart 8381) from the northern high Sierra Nevada, only about 40 km from a *C. cyrtostachya* occurrence. No molecular work has been done on *C. cyrtostachya* to date. *Carex cyrtostachya* also closely resembles *C. arctata* and *C. debilis* in eastern North America, but differs in foliar and perigynium characters (Zika et al 2013). *Carex cyrtostachya* fruits from May to August (Zika et al. 2013; Consortium of California Herbaria, CCH 2015).

Carex cyrtostachya grows in moist sites, including wet meadows, marshes, seasonally wet outcrops, and riparian margins (Zika et al. 2013). It is often found in the shade of woody species, both broadleaved and coniferous (Zika et al. 2013). It grows between 610 and 1360 meters in elevation (CCH 2015).

There are currently about 13 known occurrences of *C. cyrtostachya* from Butte County in the north to El Dorado County in the south. Of those, only five are known from National Forests, while the remaining eight have an unknown (presumably private) landowner. Most occurrences are very small, with herbarium specimen labels denoting just a few plants, or treating the plant as locally uncommon. Only three occurrences are treated as being locally common or denote a large number of plants (over 100) (CCH 2015). Zika et al. (2013) suggested that there may be fewer than 20 occurrences and 2000 individuals globally. According to L. Janeway (pers. comm. 2013) and P. Zika (pers. comm. 2015), there are probably not many additional occurrences to be found in

Butte County, but surveys are needed in other parts of its range, including El Dorado and Yuba Counties. *Carex cyrtostachya* has a disjunct distribution, with no known occurrences near the center of its range in Nevada and Placer Counties; it should be searched for in those counties as well. One additional specimen from Butte County, *Ahart 2461*, is currently labeled as *Carex gynodynamis*, a closely related species that can hybridize with *C. mendocinensis* (Zika et al. 2013). The first author reviewed the specimen and determined it to not be *C. cyrtostachya* or *C. mendocinensis* based on its conspicuously hairy leaves, and P. Zika (pers. comm. 2015) thinks it may actually be *C. hirtissima*, a species that is frequent in the area. According to P. Zika (pers. comm. 2015), *C. gynodynamis* does not occur so far away from the coast. Definitively identifying it to species may be difficult, due to the fairly low quality of the specimen (D. Slakey pers. obs. 2015).

Zika et al. (2013) note that *C. cyrtostachya* is potentially threatened by logging and invasive *Rubus* spp. The small size of many occurrences could make them susceptible to local extirpations. Also, occurrences on private land could be prone to hydrological alterations or development (Zika et al. 2013).

Based on the available information, CNPS and CNDDDB recommend adding *Carex cyrtostachya* to CRPR 1B.2. If more information on this plant becomes available in the future, we will re-evaluate its status at that time.

Recommended Actions

CNPS: Add *Carex cyrtostachya* to CRPR 1B.2

CNDDDB: Add *Carex cyrtostachya* to G2G3 / S2S3

Draft CNPS Inventory Record

Carex cyrtostachya Janeway & Zika

Sierra arching sedge

Cyperaceae

California Rare Plant Rank 1B.2

Butte, El Dorado, Yuba

Pollock Pines (525D) 3812075, Tunnel Hill (525B) 3812086, Georgetown (526A) 3812087, Challenge (558B) 3912142, Clipper Mills (574C) 3912152, Cascade (574B) 3912162, Brush Creek (575A) 3912163

Lower montane coniferous forest (mesic), riparian forest (margins), marshes and swamps, meadows and seeps; elevation 610 to 1360 meters.

Perennial herb. Fruits May to August.

Potentially threatened by logging and non-native plants. Possibly threatened by hydrological alterations and development. Previously identified as *C. mendocinensis*; see this plant in *TJM 2*. See *Journal of the Botanical Research Institute of Texas* 7(1):25-35 (2013) for original description.

Literature Cited

Ball, P.W., and A.A. Reznicek. 2002. *Carex*. Pp. 254-572 in Flora of North America Editorial Committee (eds.), Flora of North America North of Mexico, Vol. 23. New York and Oxford.

Consortium of California Herbaria (CCH). 2015. 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 22 June 2015].

Jepson Flora Project (eds.). 2015. *Jepson eFlora*. Website <http://ucjeps.berkeley.edu/IJM.html> [accessed 23 June 2015].

Mastrogiussepe, J. 1993. *Carex*. Pp. 1107-1138 in Hickman, J.C. (ed.), The Jepson Manual: Higher Plants of California. University of California Press, Berkeley.

Zika, P.F., A.L. Hipp, and J. Mastrogiussepe. 2012. *Carex*. Pp. 1308-1338 in Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken (eds.), The Jepson Manual: Vascular Plants of California (2nd ed.). University of California Press, Berkeley and Los Angeles.

_____, L.P. Janeway, B.L. Wilson, and L. Ahart. 2013. *Carex cyrtostachya* (Cyperaceae), a new species of sedge endemic to the Sierra Nevada of California. *Journal of the Botanical Research Institute of Texas* 7(1):25-35.