

Kept as a California Rare Plant Rank 1A taxon in CNPS Inventory on May 21, 2013

Rare Plant Status Review: *Castilleja uliginosa*
Proposal to Keep as California Rare Plant Rank 1A, GXQ / SX
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Changes made to the original document are in blue text.

Background

Castilleja uliginosa is a hemiparasitic perennial herb in the Orobanchaceae that has been included in the CNPS Inventory since 1974 (1st Edition). It was first added to Rank 1B, but is now on Rank 1A of the Inventory. When it was added to the Inventory in 1974, it was only known from one individual plant growing in Pitkin Marsh, Sonoma County. It has also been listed as State-Endangered since 1978. It is now presumed extinct in the wild, and only grows in cultivation at the UC Berkeley Botanical Garden. At the Garden, only the single genotype and the offspring of several backcrossing experiments (with low-elevation forms of *Castilleja miniata*) are growing (M. Wetherwax pers. comm. 2012). *Castilleja uliginosa* was not included in *The Jepson Manual* (TJM 1993) or *The Jepson Manual, Second Edition* (TJM 2); instead, it was treated as a yellow-bracted color variant of the typically red-bracted *Castilleja miniata* ssp. *miniata* in both publications. However, M. Egger (pers. comm. 2012) plans to include it at the species level in his treatment of *Castilleja* for the *Flora of North America* (FNA). Before his backcrossing experiments had been completed, and prior to completion of the *Castilleja* treatment for TJM 1993, L. Heckard (pers. comm. 1984) noted that he tentatively intended to treat *C. uliginosa* as a variety of *C. miniata*. In personal communications during the last five years of Heckard's life (1986-1991), Heckard told Egger that he felt varietal status within *C. miniata* was probably the most appropriate taxonomic status of *C. uliginosa*, but that he wanted to maintain it as a full species for conservation purposes (M. Egger pers. comm. 2012). The lack of recognition of *C. uliginosa* in TJM 1993, therefore, is puzzling. It is possible that T.I. Chuang (co-author for *Castilleja* in TJM 1993; also deceased) made revisions to the *Castilleja* treatment following Heckard's passing.

The morphology and habitat preferences of *C. uliginosa* indicate that it does merit taxonomic recognition, at least at the varietal level. *Castilleja uliginosa* is the only member of the *Castilleja miniata* group which grows in populations that have uniformly pale yellow bracts, although *C. miniata* can infrequently have yellow variants within a population (M. Egger pers. comm. 2012). Additionally, *C. uliginosa* is more uniformly pubescent than typical *C. miniata*. *Castilleja uliginosa* is also unusual in that it occurred in a lowland Bay Area site, compared to the more typical mid- to high-elevation sites where *C. miniata* occurs (M. Egger pers. comm. 2012, Jepson Interchange 2013). A search for California records of *Castilleja miniata* growing at or below 240 meters (the approximate elevation of Pitkin Marsh) (TJM 1993) produced only 28 specimens; all of them were from Del Norte and Humboldt counties and were treated as ssp. *elata* or with no infraspecific determination, except for one specimen from San Luis Obispo County

(Consortium of California Herbaria, CCH, 2013), [which is likely actually *C. affinis* \(M. Egger pers. comm. 2013\)](#). Overall, *C. miniata* is much more common at the higher elevations, with a current total of 1321 records in the CCH (2013). Heckard felt that *C. uliginosa* should be treated as a variety of *C. miniata*, probably because he successfully produced fertile offspring from a cross between the former and *C. miniata* var. *miniata*. However, this does not necessarily warrant full synonymy of the two taxa, as many *Castilleja* spp. can produce fertile hybrids when crossed (M. Egger pers. comm. 2012).

Although *C. uliginosa* may be better placed taxonomically as a variety of *C. miniata*, the combination *C. miniata* var. *uliginosa* has never been made. Therefore, CNPS and CNDDDB recommend continuing to recognize *C. uliginosa* at the species level. It seems unlikely that new populations of *C. uliginosa* will be discovered, given that it has been well-known for a long time, occurs in a well-populated part of California, and is rather showy. Pure *C. uliginosa* cannot be re-introduced into the wild as a self-sustaining population, as it is an obligate outcrosser, and only one genotype exists. Re-introduction using some backcrossed individuals has been considered in the past (S. Morey pers. comm. 1996), but seems unlikely at this point (R. Bittman pers. comm. 2013). Based on the available information, CNPS and CNDDDB recommend maintaining *Castilleja uliginosa* as a Rank 1A plant.

Recommended Actions

CNPS: Keep *Castilleja uliginosa* as Rank 1A

CNDDDB: Keep *Castilleja uliginosa* as GXQ / SX

Revised CNPS Inventory Record

Castilleja uliginosa Eastw.

Pitkin Marsh paintbrush

Orobanchaceae

Rank 1A

Sonoma

Sebastopol (502A) 38122D7

Marshes and swamps (freshwater); elevation 240 meters.

Perennial hemiparasitic herb. Blooms June to July.

Known from two occurrences in Pitkin Marsh and Trembley's Marsh. Last known remaining plant died in 1987, despite management efforts; field surveys needed, although no access allowed by landowner after 1987. See *C. miniata* ssp. *miniata* in *TJM* (1993) and *TJM* 2. See *Leaflets of Western Botany* 3:166-117 (1942) for original description.

Literature Cited

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken (eds.). 2012. *The Jepson Manual: Vascular Plants of California* (2nd ed.). University of California Press, Berkeley and Los Angeles. 1568 pp.

Consortium of California Herbaria (CCH). 2013. Data provided by the participants of the Consortium of California Herbaria. Regents of the University of California, Berkeley. Accessed on 6 February 2013. Available online at: <http://ucjeps.berkeley.edu/consortium/>

Hickman, J.C. (ed.). 1993. The Jepson Manual: Higher Plants of California. University of California Press, Berkeley. 1400 pp.