

**STATUS AND FIRST RECORD OF *CASTILLEJA PARVIFLORA*
(OROBANCHACEAE) FOR CALIFORNIA**

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ABSTRACT

A recent collection of *Castilleja parviflora* Bong. from Plumas Co., California, is documented and illustrated. This collection represents both a southward range extension and a first verified occurrence for this species in the state of California. Previous usages of the name *Castilleja parviflora* in California botanical literature are discussed and assigned to other species.

Castilleja parviflora Bong. is a wide-ranging and variable species primarily restricted to the states and provinces of the greater Pacific Northwest region. The species was originally described from the vicinity of Sitka, Alaska (Bongard 1833), and four regional varieties are presently accepted (Egger et al. 2019). The southernmost of these is var. *oreopola* (Greenm.) Ownbey, which is found from the Mt. Rainier region in Lewis and Pierce counties, Washington, southward in the Cascade Range to the Three Sisters region of central Oregon in Deschutes and Lane counties. Effective lectotypification of the basionym *Castilleja oreopola* Greenm. was published by Marion Ownbey (1959) (Fig. 1). Plants of var. *oreopola* have distally colorful bracts, usually ranging from pink to pink-purple or magenta, with occasional variants of crimson, white, or other shades, and they often form conspicuous displays in moist to fairly dry subalpine meadows (Fig. 2).

The name *Castilleja parviflora* has been included at times in the past as part of the flora of California, but these historical applications do not correspond to our present understanding of the species and are referable to other species. The name has been misapplied to variations of the widespread Californian species *C. affinis* Hook. & Arn., in the form of *C. parviflora* var. *californica* (Abrams) Zeile (1925) and *C. parviflora* var. *douglasii* (Benth.) Jeps. (1901), both of which are now regarded as synonyms of the typical form of *C. affinis*. More recently, the *Castilleja* treatment in the first edition of the Jepson Manual (Chuang & Heckard 1993) included *C. parviflora* as a repository for *C. peirsonii* Eastw., which was reduced to synonymy under *C. parviflora* in that volume. However, that synonymy has since been rejected both in the second edition of the Jepson Manual (Wetherwax et al. 2012), as well as in the recent Flora of North America (Egger et al. 2019), and *C. peirsonii* is now accepted as a full species related to but not synonymous with *C. parviflora*.

On 23 June 2015, Jim Battagin, Dana Flett, and Dana Ludington visited Aster Fen, a small wetland in the Plumas National Forest, for botanical survey work. They located an unknown *Castilleja* species with pink-purple bracts growing in the vicinity of the fen and photographed some of the plants. Subsequent efforts to match the plants with known *Castilleja* species of the region

proved unsuccessful. Battagin subsequently sent photos of the plants to Egger, who confirmed they did not match any vouchered species from California. On 28 July 2019, the three botanists and others revisited Aster Fen and obtained a few flowering specimens and additional photographs (Figs. 5-9), as well as tissue for genetic analysis. Egger was later able to verify the specimens as the first vouchered collection of true *C. parviflora* for California and to further confirm them as reasonably typical var. *oreopola*. This collection also represents a southward disjunction of about 550 kilometers for *C. parviflora* var. *oreopola*.

California. Plumas Co.: Sierra Nevada, Plumas National Forest, Bucks Lake Wilderness Area, Aster Fen, 39.95047, -121.15976, 6721 ft (2323 m), 28 Jul 2019, *Battagin et al. s.n.* (WTU). (Figs. 3-4).

Aster Fen is 1.2 acres in extent and consists of a very wet, well-developed, non-serpentine peat substrate over granitic bedrock. The fen is bordered by a band of *Alnus incana* subsp. *tenuifolia*, in turn surrounded by a mixed conifer forest mostly consisting of *Abies magnifica* and *Pinus contorta*. The *Castilleja* plants occur largely around the margins of the fen, though some plants occur throughout, except for the portions with standing water. Other plant species found in Aster Fen include *Sphagnum subsecundum*, *Philonotus fontana*, *Polygonum bistortoides*, *Drosera rotundifolia*, *Kalmia polifolia*, *Parnassia palustris*, *Vaccinium uliginosum* var. *occidentale*, *Viola macloskeyi*, *Primula tetrandra*, *Pedicularis attolens*, *Erythranthe primuloides*, *Hypericum anagalloides*, and *Oreostemma alpigenum* var. *andersonii*. *Agrostis humulis*, *Muhlenbergia filiformis*, *Carex echinate*, *Carex limosa*, *Carex luzulina*, *Carex simulata*, *Carex utriculata*, *Eleocharis quenqueflora*, *Spiranthes romanzoffiana*, *Tofieldia glutinosa*. Many of the *Castilleja* plants were associated with and possibly parasitic on the *Kalmia* or *Vaccinium* species.

The southward disjunction of this species could be attributed to dispersal by migratory birds, a mechanism hypothesized for other *Castilleja* species (Tank & Olmstead 2009). Alternatively, the Aster Fen population may be relictual from an earlier, likely recent Pleistocene cold period and maintained there by the cooling effects of the relative high elevation and mesic nature of the habitat.

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Figure 1. Lectotype (GH) of *Castilleja parviflora* var. *oreopola* from Mt. Adams, Yakima Co., Washington. The name "var. *alpina*" as applied here (not T.C. Porter 1874) is a later homonym.



Figure 2. *Castilleja parviflora* var. *oreopola*, Burroughs Mountain Trail, Mt. Rainier National Park, Pierce Co., Washington, 23 Jul 2009. Photo by Mark Egger.



Figure 3. *Castilleja parviflora* var. *oreopola*, Aster Fen, Bucks Lake Wilderness Area, Plumas Co., California, 28 Jul 2019, Battagin et al. s.n. (WTU).



Figure 4. *Castilleja parviflora* var. *oreopola*, Aster Fen, Bucks Lake Wilderness Area, Plumas Co., California, 28 Jul 2019, Battagin et al. s.n. (WTU).



Figure 5. *Castilleja parviflora* var. *oreopola*, Aster Fen, Bucks Lake Wilderness Area, Plumas Co., California, 28 Jul 2019. Photo by Jim Battagin.



Figure 6. *Castilleja parviflora* var. *oreopola*, Aster Fen, Bucks Lake Wilderness Area, Plumas Co., California, 28 Jul 2019. Photo by Jim Battagin.



Figure 7. *Castilleja parviflora* var. *oreopola*, Aster Fen, Bucks Lake Wilderness Area, Plumas Co., California, 28 Jul 2019. Photo by Jim Battagin.



Figure 8. *Castilleja parviflora* var. *oreopola*, Aster Fen, Bucks Lake Wilderness Area, Plumas Co., California, 28 Jul 2019. Photo by Jim Battagin.



Figure 9. A portion of Aster Fen, Bucks Lake Wilderness Area, Plumas Co., California, 28 Jul 2019.
Photo by Jim Battagin.