Rare Plant Status Review: *Castilleja hololeuca*
Accept ~~Reject~~ Rank change from 1B.2 to 4.3
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Changes to the original record are in blue text

Castilleja hololeuca is a hemiparasitic, perennial herb in the Orobanchaceae added to the CNPS Inventory in 1980 and currently ranked as a CRPR 1B.2 (G3 / S3) taxon. It was nominated for a downranking to CRPR 4 in 2009 and is being evaluated for this change. The records for this species were last updated in the CNDDB in 2013, and since that time, the CNDDB has had 41 estimated occurrences (EOs) for this species with one unprocessed survey form (CNDDB 2024). All 41 EOs are presumed extant, but only one has an occurrence ranking (EO 10 which is ranked as Good (B)); the other 40 have an Unknown (U) rank.

This species is found in coastal scrub, closed-cone coniferous forest, and chaparral habitat on San Miguel, Santa Rosa, Santa Cruz, and Anacapa islands in Santa Barbara and Ventura counties. Several of the occurrences mapped in the CNDDB are large (ex. EOs 10 and 5 on Santa Cruz Island and EO 27 on San Miguel Island). Its preferred habitats are relatively abundant on these islands. The land where *C. hololeuca* occurs on San Miguel, Anacapa, and Santa Rosa islands is managed by the National Parks Service, as is the eastern quarter of Santa Cruz Island; the western 75% of Santa Cruz Island is managed by The Nature Conservancy. After the removal of many of the non-native grazing animals from these islands, it is likely that this species has become more abundant, and the threat level for this species is lower. The first conservation seed collection for this species was made on Santa Rosa Island in 2023 (Schneider 2024 pers. comm.).

A new analysis of occurrences for *C. hololeuca* was completed in August 2024. We examined new sources of georeferenced data, not yet cited in the CNDDB. These data were obtained from online searches of Calflora (2024), CCH2 (2024), and iNaturalist (2024); CNDDB staff assisted in obtaining coordinates for obscured iNaturalist records. We have obtained the following information:

1) Calflora provided three new observations. One (David Strauch io87678) mapped to CNDDB EO 51, converting that historical occurrence to a recent occurrence. Two others (Zack Abbey oe3863 and Naomi Goodman po89487) appear to be part of a new, recent occurrence for Santa Cruz Island.
2) There were four new specimen records in the CCH2. Two mapped to existing CNDDB EOs: *Jon Rebman 22592* from 4 Mar 2012 maps to existing recent CNDDB EO 10; *Guilliams 5515* from 15 Mar 2019 maps to CNDDB EO 5, converting that historical occurrence to a recent occurrence. The other two CCH2 records represent new locations: *Annie Meeder 458* from Santa Cruz Island that is

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part of a recent iNaturalist occurrence; *JC Lesage 136* that is its own new occurrence from Santa Rosa Island.

3) There were 189 iNaturalist observations for which CDFW staff obtained unobscured coordinates. Two had coordinates that did not map on land. The others fell into 43 estimated occurrences of which 18 appear to be new and not contained in the CNDDB.
4) The new data take the new number of estimated occurrences to 59 and provide recent occurrence data for 11 previously historical occurrences. The new number of historical occurrences is 28, and the number of recent occurrences is 31.
5) Of the 59 estimated occurrences, only 16 have population counts. At this time, the total number of plants documented for this species is 312. Four other occurrences mention that the plants are "uncommon," "occasional," or "scattered." Therefore, based on the data available for this analysis, the populations are not well documented.
6) Additional geospatial data were provided via email by Kathryn McEachern (USGS) and Cameron Williams (NPS) adding 10-15 EOs to the total and additional data for existing EOs.

This species appears to be stable on four of the Channel Islands within a very small area that is approximately 45 miles wide and one to seven miles long. ~~Due to the very small area of occupancy and extent, the lack of population data, and in having only one occurrence ranked Good (B), this plant does not meet the criteria for downranking to CRPR 4. In general, CRPR 1B plants have 49 or fewer EOs ranked Excellent (A) or Good (B), while CRPR 4 plants have 50 or more EOs ranked A or B.~~

Based on the available information and comments received, the rank of *Castilleja hololeuca* will be changed from CRPR 1B.2 to CRPR 4.3. Additional data provided by island botanists/managers Ken Niessen (USFWS), Cameron Williams (NPS), and Kathryn McEachern (USGS) during this review brings the total number of occurrences to approximately 55. With only one occurrence ranked as "Good" or "Excellent" in the CNDDB, *Castilleja hololeuca* has not met the general criteria for downranking based solely on number of occurrences (in general, CRPR 1B plants are known from fewer than 50 occurrences ranked "Excellent" or "Good" by the CNDDB). However, island botanists and land managers note that population numbers are increasing, new occurrences are being found, and the main threat that originally led to this taxon's endangerment and population decline (nonnative grazers) has been removed from the species' entire range. Under current conditions, its distribution and population sizes are expected to continue to increase, which for island endemics may actually decrease the total number of occurrences but increase area of occupancy. The species' entire range is on lands managed by The Nature Conservancy and the National Park Service, both of whom track special status taxa and will continue to collect data on *Castilleja hololeuca*. If populations begin to decline, or if new threats or detrimental changes in habitat quality are documented in the future, CNPS and the CNDDB may re-evaluate its status at that time.

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~~We recommend rejecting this change and retaining *Castilleja hololeuca* at rank 1B but changing its threat level to 0.3.~~

Recommended Actions

CNPS: ~~Retain~~ Change from CRPR 1B to CRPR 4; change threat rank from 0.2 to 0.3.

Threats: ~~Threatened by feral herbivores on SCZ and SRO islands; also by grazing on SRO Isl.~~ Some occurrences potentially threatened by erosion.

CNDDB: Retain as G3 /S3

Literature Cited

Calflora. 2024. Information on wild California plants for conservation, education, and appreciation. Website http://www.calflora.org/ [accessed August 2024].

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Personal Communications

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Schneider, Heather. 2024. Senior Rare Plant Conservation Scientist, Santa Barbara Botanic Garden. Email communication regarding status of *Castilleja hololeuca*. Personal communication 20 September 2024.

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