

# California Status Factors

**Elcode** NBMUS54010  
**Gname** ORTHODONTIUM GRACILE  
**Gcomname** MOSS

## Number of Occurrences

C = 21- 80

**Comments** The ISMS database contains 38 records representing about 29 sites, all but one of which are from California. Many redwood forests have not been systematically surveyed for this species, and the number of estimated occurrences is probably significantly underestimated.

## Number of Occurrences with Good Viability

C = Few (4-12) occurrences with good viability

**Comments** Estimated at least 10 occurrences in California with good viability. The long-term viability of this species seems to be improving since much second-growth redwood stands have been purchased since 1992 and added to either state or federal parks, local conservation water districts, etc. where timber harvest is significantly restricted or prohibited.

## Population Size

E = 2,500-10,000 individuals

**Comments** Estimated 5000 individuals in California. Many redwood forests have not been systematically surveyed for this species, and the number of estimated individuals is probably significantly underestimated.

## Range Extent

F = 20,000-200,000 km<sup>2</sup> (about 8,000-80,000 square miles)

**Comments** Estimated range is 15,000 square miles in California. Restricted in California to the redwood belt from Del Norte, Humboldt, Mendocino, Monterey, San Mateo, Santa Cruz, and Sonoma counties. Not recorded from Marin County, but probably there also.

## Area of Occupancy

B = 0.4-4 km<sup>2</sup> (about 100-1,000 acres)

LB = 4-40 km (about 2.5-25 miles)

**Comments** Estimated area of occupancy is 100 acres in California.

## Long-term Trend in Population Size, Extent of Occurrence, Area of Occupancy, and/or Number or Condition of Occurrences

D = Moderate Decline (decline of 25-50%)

**Comments** Long-term moderate decline of 25-50%. Logging of redwoods, particularly along stream terraces, probably reduced historic populations of *O. gracile*.

## Short-term Trend in Population Size, Extent of Occurrence, Area of Occupancy, and/or Number or Condition of Occurrences

E = Stable. Population, range, area occupied, and/or number or condition of occurrences unchanged or remaining within  $\pm 10\%$  fluctuation

**Comments** Short-term trend is stable, as logging of old-growth redwoods has diminished and some stands are protected. Competition from weedy *Orthodontium lineare* is not a factor in the Pacific Northwest, because it is not present.

## Threats

G = Slightly threatened. Threats, while recognizable, are of low severity, or affecting only a small portion of the population, occurrences, or area. Ecological community occurrences may be altered in minor parts of range or degree of alteration falls within the natural variation of the type.

Scope Low Severity Low Immediacy Low

**Comments** Slightly threatened. Logging of old-growth redwood has diminished, but still persists in places. Norris (1987) reported that *O. gracile* was more abundant in old-growth redwood forest than in 100-year-old second-growth, indicating that the former provides more favorable habitat, and that logging may have caused some declines.

## Number of Appropriately Protected and Managed Occurrences

C = Several (4-12) occurrences appropriately protected and managed

**Comments** At least 9 protected occurrences in California, all in redwood reserves.

## Intrinsic Vulnerability

B = Moderately Vulnerable. Species exhibits moderate age of maturity, frequency of reproduction, and/or fecundity such that populations generally tend to recover from decreases in abundance over a period of several years (on the order of 5-20 years or 2-5 generations); or species has moderate dispersal capability such that extirpated populations generally become reestablished through natural recolonization (unaided by humans). Ecological community occurrences may be susceptible to changes in composition and structure but tend to recover through natural processes given reasonable time (10-100 years).

**Comments** Moderately vulnerable. Plants are small and fragile, but reproduce readily by spores and fragmentation of gametophytes.

## Environmental Specificity

B = Narrow. Specialist or community with key requirements common.

**Comments** Narrow environmental specificity. In California it is restricted to the redwood belt, where it grows on rotten wood, the bark of living redwood trees, and sometimes on charred wood or below gaping wounds in trees. Norris (1987) reported that it was more abundant in old-growth redwood forest than in 100-year-old second-growth, indicating that old-growth provides optimal habitat for this species.

## Other Considerations

*Orthodontium gracile* has been confused with the very similar *Orthodontium pellucens* that occurs in similar habitat and is difficult to distinguish when sterile. Recent critical review of California specimens by Dan Norris has shown *O. gracile* to be more common and widespread than *O. pellucens*.

**Edition** 2/20/2003 **Edauthor** John A. Christy and Judith Harpel

**Grank** S2S3 **Grank Date** 1/13/2003

## Greasons

About 29 occurrences known in California. Estimated at least 10 occurrences in California with good viability. Estimated 5000 individuals in California. Estimated range is 15,000 square miles in California. Estimated area of occupancy is 100 acres in California. Long-term moderate decline of 25-50%. Short-term trend is stable. Slightly threatened. At least 9 protected occurrences in California, Moderately vulnerable. Narrow environmental specificity.

## BCD Sources

Sharp, Aaron J. et. al. 1994: The Moss Flora of Mexico. Buck, William R., Thomas Wm.Wayt, Daniel F. Thomas, editors.

Christy, J.A. & D.H. Wagner. 1996. Guide for the identification of rare, threatened or sensitive bryophytes in the range of the northern spotted owl, western Washington, western Oregon, and northwestern California. USDI Bureau of Land Management. 200 pp.

## New Sources

USDA Forest Service, USDI Bureau of Land Management, USDI Fish and Wildlife Service. 2002. Interagency Species Management System [ISMS] database. Portland, Oregon.

Norris, D.H. 1987. Long-term results of cutting on the bryophytes of the Sequoia sempervirens forest in northern California. Symp. Biol. Hungarica 35: 467-473.

Shevock, J.R. 2002. Personal communication. Expert on moss flora of California. Associate Regional Director for Resources, Partnerships and Science, National Park Service, Oakland. <Jim\_Shevock@nps.gov>