

Heritage Rank Status Factors

Elcode NBMUS54010
Gname ORTHODONTIUM GRACILE
Gcomname MOSS

Number of Occurrences

E = >300

Comments Estimated more than 300 occurrences worldwide. There are no records in either the University of Alberta database or that of the New York Botanical Garden. The ISMS database contains 38 records representing about 29 sites. One of these is from Oregon and the rest are from California, but 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

E = Many (41-125) occurrences with good viability

Comments Estimated 75 occurrences worldwide with good viability.

Population Size

F = 10,000-100,000 individuals

Comments Estimated 10,000-15,000 individuals worldwide.

Range Extent

H = > 2,500,000 km² (greater than 1,000,000 square miles)

Comments Estimated range greater than 1,000,000 square miles worldwide. Distribution bipolar. Reported from Mexico (Oaxaca, Puebla, Jalisco), Guatemala, Chile, Colombia, Venezuela, Bolivia, Peru, United States (Oregon, California), Great Britain, western Europe, Central Africa, Australia.

Area of Occupancy

B = 0.4-4 km² (about 100-1,000 acres)

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

Comments Estimated area of occupancy is 1000 acres worldwide.

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 Moderate long-term decline estimated at 25-50%. In United Kingdom and western Europe, it is thought to be declining because of competition by weedy *Orthodontium lineare* introduced from the Southern Hemisphere. Norris (1987) reported that it was more abundant in old-growth redwood forest than in 100-year-old second-growth, indicating that the former provides better habitat and that it may have diminished with logging.

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

D = Declining. Decline of 10-30% in population, range, area occupied, and/or number or condition of occurrences

Comments Short-term decline of 10-30%. Roading, logging and slash burning destroy habitat for up to 50 years, until plants from adjacent stands repopulate sites.

Threats

E = Localized substantial threat. Threat is moderate to severe for a small but significant proportion of the population, occurrences, or area. Ecological community occurrences are directly impacted over a small area, or in a small portion of their range, but threats require a long-term recovery.

Scope Low Severity Moderate Immediacy High

Comments Localized substantial threat. In United Kingdom and western Europe, it is thought to be declining because of competition by weedy *Orthodontium lineare* introduced from the Southern Hemisphere. Listed as vulnerable on British Red List and threatened throughout Europe. Norris (1987) reported that it was more abundant in old-growth redwood forest than in 100-year-old second-growth, indicating that it has diminished with logging. Status in Southern Hemisphere unknown.

Number of Appropriately Protected and Managed Occurrences

D = Many (13-40) occurrences appropriately protected and managed

Comments Estimated 13-40 protected occurrences worldwide. At least 10 protected in California and Oregon, 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. Substrate preference differs in different parts of range. In United Kingdom, it grows mainly on damp, vertical, shaded acid rock faces, particularly sandstone, and sometimes in rock crevices. In France it occurs on peaty or sandy soils at the bases of trees and more rarely on rotting wood. In Oregon and California it grows on rotten wood, bark of living redwood trees, and sometimes on charred wood or below gaping wounds in trees, and is confined to redwood groves near the Pacific Ocean. 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

NRANK - N2N3. Populations in United Kingdom and western Europe are thought to be in decline. Listed as vulnerable on British Red List and threatened throughout Europe. Records from Oregon and California have been confused with the very similar *Orthodontium pellucens* that occurs in similar habitat and is difficult to distinguish when sterile. Ranked S1 in Oregon.

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

Grank G5 **Grank Date** 1/13/2003

Greasons

Estimated more than 300 occurrences worldwide, but populations in United Kingdom and western Europe are thought to be in decline. Estimated 75 occurrences worldwide with good viability. Estimated 10,000-15,000 individuals worldwide. Estimated range greater than 1,000,000 square miles worldwide. Estimated area of occupancy 1000 acres worldwide. Moderate long-term decline estimated at 25-50%, short-term decline of 10-30%. Localized substantial threat. Estimated 13-40 protected occurrences worldwide. Moderately vulnerable. Narrow environmental spcecificity.

BCD Sources

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