

Heritage Rank Status Factors

Elcode NLCAL00004
Gname CALICIUM VIRIDE
Gcomname frog stubble

Number of Occurrences

E = >300

Comments Number of known occurrences worldwide is probably > 1000 (including many historic); Number of known occurrences in North America is probably ca. 300 ; Number of known occurrences in California = 6+; Number of known occurrences in Oregon = 29+; Number of known occurrences in Washington = ca. 8+; Number of known occurrences in British Columbia = 67+. Rikkinen (2003?) reports on 32 locations from the region. Although the number of extant occurrences worldwide is unknown, the North American occurrences (collections) are recent and are mostly extant.

Number of Occurrences with Good Viability

U = Unknown what number of occurrences with good viability

Comments

Population Size

U = Unknown

Comments

Range Extent

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

Comments Global distribution "Common in most parts of Finland, Norway and Sweden; less frequent in Denmark [...] Widely distributed in cool to temperate areas of the Northern Hemisphere and southernmost South America" (Tibell 1999). Within North America, widespread in temperate and boreal regions.

Area of Occupancy

A = <0.4 km² (less than about 100 acres)

LA = <4 km (less than about 2.5 miles)

Comments Occupancy for epiphytic lichens and fungi can be difficult to estimate, particularly for calicioid species (including this species) which often occur as colonies covering only a few square centimeters on single tree trunk within a stand and then again several hundred meters away. The occupancy given above is roughly estimated as the total worldwide distribution of the species; the actual coverage of the species condensed so as to be continuous may not be much more than a few hectares.

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

C = Substantial Decline (decline of 50-75%)

Comments Most calicioid lichens and fungi inhabit aged bark or wood in sheltered locations protected from direct rain interception. This species is highly restricted to the bark of old trees; in the Pacific Northwest of North America, most known occurrences are on conifers > 200 years old, with occasional occurrences on younger trees (e.g. 150 years old) southward toward the Klamath region and Sierra-Nevada (Peterson unpublished data). Removal of old forests in North America and through the rest of the species' distribution has undoubtedly had severe impacts on the number of populations, population sizes, and average dispersal distance necessary to colonize new substrates.

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 With advances in conservation, the removal of old-growth forests throughout the species range is slowing, but has not stopped.

Threats

B = Moderate and imminent threat. Threat is moderate to severe and imminent for a significant proportion (20-60%) of the population, occurrences, or area. Ecological community occurrences are directly impacted over a moderate area, either causing irreversible damage or requiring a long-term recovery.

Scope	Moderate	Severity	High	Immediacy	High
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Comments Worldwide, the species has gone through drastic declines since pre-industrial times. The Pacific Northwest, due to logging, has been no exception. However, the rate of loss in the Pacific Northwest has slowed. Although little is known about the reproductive and dispersal biology of this species, it is thought that the species can overcome some habitat fragmentation and, at this point, is secure from extirpation or extinction. However, given the strong old-growth association of this species, it should not be ignored in conservation actions.

Number of Appropriately Protected and Managed Occurrences

E = Very many (>40) occurrences appropriately protected and managed

Comments

Intrinsic Vulnerability

A = Highly Vulnerable. Species is slow to mature, reproduces infrequently, and/or has low fecundity such that populations are very slow (> 20 years or 5 generations) to recover from decreases in abundance; or species has low dispersal capability such that extirpated populations are unlikely to become reestablished through natural recolonization (unaided by humans). Ecological community occurrences are highly susceptible to changes in composition and structure that rarely if ever are reversed through natural processes even over substantial time periods (> 100 years).

Comments Given high vulnerability rank because it will not return to a forest for a century or more after a stand-initiating disturbance. Although the species is limited to substrates that are very slow to develop and the maturation time required between colonization and reproduction is unknown, the species does demonstrate a remarkable ability to disperse to appropriate substrates once they are available, even when those substrates are rather isolated. This may be due to use of a dispersal vector such as birds or arthropods which target similar habitats.

Environmental Specificity

A = Very Narrow. Specialist or community with key requirements scarce.

Comments

Other Considerations

NRANK - N4. Recommend BC rank is S4.

Edition 2/20/2003 **Edauthor** Eric B. Peterson

Grank G4G5 **Grank Date** 12/5/2002

Reasons

This species is common in most parts of Finland, Norway and Sweden and also occurs in cool to temperate areas of the Northern Hemisphere, South America and North America. Although, the distribution and population sizes of this species are large enough to qualify for G5, the significant decline of the species since pre-industrial times may justify reducing the rank slightly to G4G5.

BCD Sources

New Sources

ISMS (Interagency Species Management System). 5 August, 2002.

Peterson, E. B. (Search of personal herbarium on 1 November, 2002) Address: Nevada Natural Heritage Program, 1550 E. College Parkway, Carson City, NV

Peterson, E. B. & McCune, B. 2000. Environmental Relations of Calicioid Lichens and Fungi in a Temperate Landscape. In: Peterson, E. B. Analysis and prediction of patterns in lichen communities over the western Oregon landscape. Ph.D. dissertation, Oregon State University, Corvallis, OR.

Rikkinen, J. 2003. Calicioid lichens and fungi in the forests and woodlands of western Oregon. *Annales Botanici Fennici* (accepted, should come out in the first volume of 2003).

Selva, S., 7 November 2002. Personal communication. Address: Division of Natural and Behavioral Sciences, University of Maine at Fort Kent, Fort Kent, ME.

Tibell, L. 1975. The Caliciales of boreal North America. *Symbolae Botanicae Upsalienses* 21(2): 1-128.

Tibell, L. 1999. Caliciales. *Nordic Lichen Flora* 1: 20-93.