

## Heritage Rank Status Factors

**Elcode** NLCAL00005  
**Gname** CHAENOTHECA CHRYSOCEPHALA  
**Gcomname** canary whiskers

### 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 > 300 (808 collections in northeastern North America, Selva personal communication) ; Number of known occurrences in California = ca. 1+; Number of known occurrences in Oregon = 21+; Number of known occurrences in Washington = 1+; Number of known occurrences in British Columbia = 28+. Rikkinen (2003?) reports on 30 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

F = Very many (>125) occurrences with good viability

**Comments**

### Population Size

U = Unknown

**Comments**

### Range Extent

H = > 2,500,000 km<sup>2</sup> (greater than 1,000,000 square miles)

**Comments** Global distribution "Comon over large parts of Finland, Norway and Sweden. Rare in Denmark [...] This species has a very wide distribution in cool temperate to temperate areas of both hemispheres (Eurasia, North America, Africa, Australasia, and Central and South America)" (Tibell 1999). Within North America, widespread in temperate and boreal regions.

### 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** 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 is probably less than 1 square kilometer.

### 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 fairly restricted to the bark of older trees, though somewhat less aged than most calicioids require. In the Pacific Northwest of North America, it occurs most frequently on late-successional trees (ca 100 - 200 years old) and tends to give way to other calicioid species on trees > 200 years. (Peterson 2000, Peterson unpublished data, Peterson & McCune 2000). 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. As younger stands in the Pacific Northwest that are now removed from logging pressures age, this species has the potential to be the first calicioid to show significant recovery in the region.

### **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.

<b>Scope</b>	Moderate	<b>Severity</b>	High	<b>Immediacy</b>	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. The association with late-successional (100 years +) trees as well as old-growth, suggests that if the current late-successional reserves are maintained in the Pacific Northwest, this species may be poised for a come-back.

### **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**

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

## 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 lichen species has a circumpolar boreal distribution. In North America it is known from coniferous forests in New England west to Oregon and south to California, Arizona and Mexico. It grows on bark and exposed roots of conifers and sometimes on conifer wood (Thomson 1997). 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.