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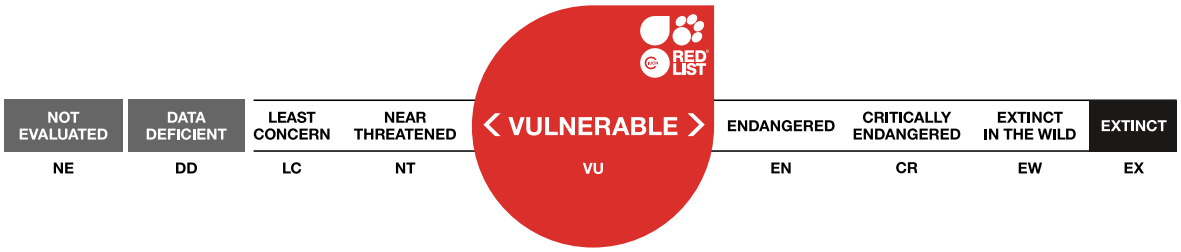
Chaenothecopsis oregana, Resin Whiskers

Assessment by: Paquette, H. & Chandler, A.



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Fungi	Ascomycota	Eurotiomycetes	Mycocalicales	Mycocaliciaceae

Scientific Name: *Chaenothecopsis oregana* Rikkinen

Synonym(s):

- *Chaenothecopsis zebrina* Rikkinen & Tuovila

Common Name(s):

- English: Resin Whiskers

Taxonomic Notes:

This species was questioned by Tuovila *et al.* (2011) due to the type specimen being a mixed collection. They elected to discard the original epithet (*oregana*) and instead described two new species from the holotype material (*Chaenothecopsis diabolica* and *C. zebrina*). Later, it was found that this was nomenclaturally inaccurate, and Tuovila *et al.* (2012) reinstated *C. oregana*, with *C. zebrina* as a synonym. *C. diabolica* remains a distinct species (Tuovila *et al.* 2012).

Assessment Information

Red List Category & Criteria: Vulnerable D1 ver 3.1

Year Published: 2020

Date Assessed: August 17, 2020

Justification:

Globally, there are estimated to be c.500 mature individuals of *Chaenothecopsis oregana* (extrapolating from 38 recorded collections at 12 locations). It occurs in old coniferous forest stands, which are limited and fragmented. Due to its reliance on mature coniferous forests, it is potentially at risk of ongoing decline due to the continued decline and fragmentation of mature coniferous forests occurring globally (Potapov *et al.* 2008). Lichens and allied fungi are slow growing and for this reason loss and fragmentation of habitat, especially for the proposed species, directly influences the resilience of the existing populations and can result in irreversible declines. This species is currently assessed as Vulnerable, given its small population size, but could potentially be uplisted in future.

Geographic Range

Range Description:

Chaenothecopsis oregana is common in the North American Pacific north-west (Oregon and Washington states; Rikkinen 2003a). It was recently reported from western (Alberta; Haughland *et al.* 2016), central (Ontario; McMullin *et al.* unpublished data) and eastern (Quebec; Paquette *et al.* 2019) provinces of Canada, and is known in Europe from single collections in Spain, Sweden and Switzerland (Tuovila *et al.* 2011). In Switzerland, the exact coordinates could not be confirmed as they indicate a location in France

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in the publication that identifies this occurrence.

Country Occurrence:

Native, Extant (resident): Canada (Alberta, Ontario); Spain; Sweden; Switzerland; United States (Oregon, Washington)

Population

Globally, there are 38 known occurrences at 12 locations (Rikkinen 2003b, Gröner 2010, Haughland *et al.* 2016, Paquette *et al.* 2019, CNALH 2020). This species is known from throughout Europe and North America, but it is rarely collected. For example, the most recent report was the first record in eastern North America from the Acadian Forest Ecoregion (Paquette *et al.* 2019) despite focused, long-term studies in the area (Selva 2003, 2010, 2013, 2014). Incorporating potential additional sites (up to 50 potential sites), and with the potential for there to be c.10 mature individuals per site, the total population size is estimated at 500 mature individuals. There is a suspected decline in the overall population size due to widespread threats throughout its range, including logging, forest fires, mining, and development (Potapov *et al.* 2008).

Current Population Trend: Decreasing

Habitat and Ecology **(see Appendix for additional information)**

Chaenothecopsis oregana grows on the exudate (resin) of old em style="font-family: Georgia, serif;">Abies, em style="font-family: Georgia, serif;">Picea,em style="font-family: Georgia, serif;"> and *Tsuga* species (Rikkinen 2003b). Old-growth coniferous forests, this species' obligate habitat, are at risk of decline due to forest fire, industrial activities, and other human-driven disturbances (Potapov *et al.* 2008, Bradshaw *et al.* 2009).

Systems: Terrestrial

Use and Trade

Specimen collecting may be a threat to this species.

Threats **(see Appendix for additional information)**

The primary threat to this species is the decline of old-growth, coniferous forests due to numerous forces including logging, urban development, and land clearing for industrial development. Logging removes the species' obligate microhabitat (i.e. old, *Abies*, *Picea* and *Tsuga* with exposed, aging resin), which has a very long recovery period. Additionally, specimen collecting may be a threat to this species.

Conservation Actions **(see Appendix for additional information)**

The most important conservation action needed for *Chaenothecopsis oregana* is protection of mature coniferous forests to preserve its habitat. Additional required conservation actions include research and monitoring of populations, raising awareness of its presence with local land managers, and assigning the species legal protected status in the countries where it occurs.

Credits

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External Resources

For Supplementary Material, and for Images and External Links to Additional Information, please see the Red List website.

Appendix

Habitats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Habitat	Season	Suitability	Major Importance?
1. Forest -> 1.1. Forest - Boreal	Resident	Suitable	Yes
1. Forest -> 1.4. Forest - Temperate	-	Suitable	-

Plant Growth Forms

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Plant Growth Form
E. Epiphyte
LC. Lichen
M. Fungus

Use and Trade

(http://www.iucnredlist.org/technical-documents/classification-schemes)

End Use	Local	National	International
Sport hunting/specimen collecting	No	Yes	No

Threats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Threat	Timing	Scope	Severity	Impact Score
1. Residential & commercial development -> 1.1. Housing & urban areas	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 2. Species Stresses -> 2.1. Species mortality		
1. Residential & commercial development -> 1.2. Commercial & industrial areas	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 2. Species Stresses -> 2.1. Species mortality		
5. Biological resource use -> 5.2. Gathering terrestrial plants -> 5.2.1. Intentional use (species is the target)	Ongoing	Unknown	Unknown	Unknown
	Stresses:	2. Species Stresses -> 2.1. Species mortality		

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5. Biological resource use -> 5.3. Logging & wood harvesting -> 5.3.4. Unintentional effects: (large scale) [harvest]	Ongoing	Unknown	Slow, significant declines	Unknown
	Stresses:	1. Ecosystem stresses -> 1.1. Ecosystem conversion 1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality		

Conservation Actions in Place

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Action in Place
In-place research and monitoring
Action Recovery Plan: No
Systematic monitoring scheme: No
In-place land/water protection
Conservation sites identified: No
Occurs in at least one protected area: Yes

Conservation Actions Needed

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Action Needed
1. Land/water protection -> 1.2. Resource & habitat protection
4. Education & awareness -> 4.3. Awareness & communications
5. Law & policy -> 5.1. Legislation -> 5.1.2. National level

Research Needed

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Research Needed
1. Research -> 1.2. Population size, distribution & trends
1. Research -> 1.3. Life history & ecology
1. Research -> 1.5. Threats
1. Research -> 1.6. Actions
3. Monitoring -> 3.1. Population trends

Additional Data Fields

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Distribution
Continuing decline in area of occupancy (AOO): Unknown
Extreme fluctuations in area of occupancy (AOO): No
Estimated extent of occurrence (EOO) (km²): 16324353
Continuing decline in extent of occurrence (EOO): Unknown
Extreme fluctuations in extent of occurrence (EOO): No
Continuing decline in number of locations: Unknown
Extreme fluctuations in the number of locations: No
Population
Number of mature individuals: 500
Continuing decline of mature individuals: Unknown
Extreme fluctuations: No
Population severely fragmented: Unknown
Continuing decline in subpopulations: Unknown
Extreme fluctuations in subpopulations: No
All individuals in one subpopulation: No
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes

The IUCN Red List Partnership

The IUCN Red List of Threatened Species™ is produced and managed by the IUCN Global Species Programme, the IUCN Species Survival Commission (SSC) and The IUCN Red List Partnership.

The IUCN Red List Partners are: Arizona State University; BirdLife International; Botanic Gardens Conservation International; Conservation International; NatureServe; Royal Botanic Gardens, Kew; Sapienza University of Rome; Texas A&M University; and Zoological Society of London.