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Cuphophyllus canescens

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Taxonomy

Kingdom	Phylum	Class	Order	Family
Fungi	Basidiomycota	Agaricomycetes	Agaricales	Hygrophoraceae

Taxon Name: Cuphophyllus canescens (A.H. Sm. & Hesler) Bon

Synonym(s):

- Camarophyllus canescens (A.H. Sm. & Hesler) Singer
- Hygrocybe canescens (A.H. Sm. & Hesler) P.D. Orton
- Hygrophorus canescens A.H. Sm. & Hesler

Regional Assessments:

• Europe

Taxonomic Source(s):

Index Fungorum Partnership. 2019. Index Fungorum. Available at: http://www.indexfungorum.org.

Taxonomic Notes:

Cuphophyllus is a genus separate from *Hygrocybe s.str.*, and *C. canescens* (A.H. Sm. & Hesler) Bon clearly belongs here (Lodge *et al.* 2013). *C. canescens* from N Europe and N America seem to be conspecific based on molecular data (Ellen Larsson, Sweden, unpublished); the type is from N America. The taxonomic status of one GBIF occurrence in Japan and one in New Zealand is uncertain; these could be other taxa and will not be further treated here.

Assessment Information

Red List Category & Criteria:	Vulnerable A2c+3c+4c <u>ver 3.1</u>		
Year Published:	2019		
Date Assessed:	March 26, 2019		

Justification:

Cuphophyllus canescens is a rare waxcap fungus in north western Europe and north eastern North America. The largest population is assumed to be in Europe, where it grows in old seminatural grasslands, a habitat which is strongly declining due to changing agricultural practices, development projects and pollution. Griffith *et al.* (2013) estimated a habitat loss of 90% over the last 75 years for the CHEG-fungi (grassland fungi of the groups Clavariaceae, *Hygrocybe s.l., Entoloma* and Geoglossaceae) as a whole in Western Europe (i.e. loss in seminatural grasslands, based on available information). According to the Food and Agriculture Organization of the United Nations (FAO), the area of grasslands in the EU declined by 12.8% over 13 years (1990-2003). Also other sources point to a habitat loss in seminatural grasslands of roughly 1% per year in Europe over a longer time, although the data quality is not always very good. The decline in Europe is assumed to be more than 50% over the last 50 years because it grows in coast/lowland areas where the habitat loss has been very high (approximately three generations: one generation is assumed to be about 17 years). Habitat quality has also become impaired and the decline in population size over this time could be even higher because of this, strengthening the

assumption of >50% population decline. This decline in habitat is ongoing and expected to continue. In northeastern North America the species occurs at least partly in forests where habitat loss is expected to be lower. GBIF lists totally 93 occurrences. There are about 50 known localities in Northern Europe (Norway: 18, Sweden: 15-20, UK: 12) and ca. 20 in North America. This species meets the threshold for EN (A2c+3c+4c) for European populations. At a global scale the decline is assumed to be less, on the average 30-50% in 50 years (past, present and future). The species meets the IUCN criteria for VU (A2c+3c+4c).

Geographic Range

Range Description:

Cuphophyllus canescens is distributed in north western Europe and north eastern America with its largest population in lowland/coastal parts of NW Europe (an oceanic distribution - mild winters and humid climate). GBIF (2019) lists 93 occurrences from north Europe (UK, Sweden, Norway) and northeast North America. There are about 50 known localities in Northern Europe (Norway: 18, Sweden: 12-15, UK: 12) and ca. 20 in North America (eastern USA, eastern Canada).

Country Occurrence:

Native: Canada; Norway; Sweden; United Kingdom; United States

Distribution Map

Cuphophyllus canescens



Range

Extant (resident)

Compiled by: IUCN





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Population

In total less than 70 localities are known (GBIF 2019), about 50 in Europe and ca. 20 in N America. Seminatural grasslands are strongly declining. Griffith et al. (2013) estimated a habitat loss of 90% over the last 75 years for the CHEG-fungi (grassland fungi of the groups Clavariaceae, Hygrocybe s.l., Entoloma and Geoglossaceae) as a whole in Western Europe (i.e. loss in seminatural grasslands, based on available information). According to the Food and Agriculture Organization of the United Nations (FAO 2006), the area of grasslands in the EU declined by 12.8% over 13 years (1990-2003). In Sweden and Norway a decline of at least 50% is assumed the last 50 years for this species (http://artfakta.artdatabanken.se/taxon/794; https://www.artsdatabanken.no/Rodliste), especially because the species grows in lowland/coastal habitats. An assumption of an average habitat loss in European localities of at least 1% per year is therefore suggested for the recent past, thus at least 50% over the last 50 years for European populations. The habitat quality of seminatural grasslands is also declining, strengthening the assumption of a population decline above 50%. More than 75% of the grasslands habitats are in an unfavourable conservation status, according to draft data provided by Member States under Article 17 of the Habitats Directive (http://ec.europa. eu/environment/nature/knowledge/ rep habitats/index en.htm#csa). This trend is ongoing and expected to continue in the future. The trend in North America is uncertain due to lack of data, but even if there is no decline in forest habitat and therefore population in this region during the last 50 years, if over two thirds of the global population is Europe (as suggested by GBIF data) then the global population decline over the last 50 years can be suspected to be exceed 30%.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

Cuphophyllus canescens is an indicator of mycologically rich but nutrient-poor, semi-natural grassland (a member of the waxcap grassland assemblage), often on acid soil. This habitat, which may be of low conservation concern for its plant and animal diversity, is rapidly disappearing worldwide due to changes in land use (intensification of farming practice, eutrophication and increased use of fertilizers and pesticides). Airborne nitrogen deposition is another significant threat. Halbwachs *et al.* (2018) suggested that these fungi are biotrophic endophytes or possibly mycorrhizal. The fruit bodies are short-lived (weeks), but the mycelium is suspected to be longlived; >50-100 years.

In Norway and Sweden, practically all localities of the species are in grasslands, or grassy spots in oceanic *Calluna* heath (Jordal *et al.* 2016, https://www.artportalen.se). In North America, the habitat information is scarce, but according to Hesler and Smith (1963) the species grows on the ground under hemlock. Waxcaps in North America are generally found in forests or forest margins, preferably under trees which don't form ectomycorrhiza (Halbwachs *et al.* 2018), but grasslands could be an underestimated habitat due to little attention (Griffith *et al.* 2013).

Systems: Terrestrial

Use and Trade

The species is not known to be used.

Threats (see Appendix for additional information)

Habitat destruction and abandoning are the main threats to seminatural grasslands. The most important process is probably overgrowing due to ceased grazing/mowing of old seminatural grasslands as part of intensification of agriculture. Further modern cultivation methods like use of fertilizers, pesticides and ploughing are also threats. Airborne nitrogen deposition is another significant threat. Also in some places changed land use with the construction of roads, industrial areas, settlements etc. Decline is expected to continue, as the areas of seminatural grasslands are of little economic importance in modern agriculture. Most waxcap grasslands are among habitat types Red Listed as VU, EN or CR in the EU Red List of habitats (Jansen *et al.* 2016). The quality of habitats is also decreasing. More than 75% of the grasslands habitats in EU are in an unfavourable conservation status, according to draft data provided by Member States under Article 17 of the Habitats Directive.

Conservation Actions (see Appendix for additional information)

Site protection and management of habitats are very important conservation actions. The habitats should be protected against destruction due to intensification of agriculture or development plans. The maintaining of seminatural grasslands demands yearly grazing or mowing. If grazing by heavy animals destroys part of the soil, light animals like sheep should be recommended. Habitat conservation by governmental support to traditional agricultural practices is most important, this exist in many countries to maintain extensive agricultural areas, and should be extended to larger areas than today. Suggested as a 'priority species' in Norway (Jordal 2013), and from December 2018 in process towards a decision.

Further ecological research needed to clarify resource relations of waxcaps. Management plans are needed. Habitat trends should be monitored.

Credits

Assessor(s):	Jordal, J.		
Reviewer(s):	Ainsworth, A.M. & Mešić, A.		

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External Resources

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	-	Suitable	-
4. Grassland -> 4.4. Grassland - Temperate	-	Suitable	-

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	-	-	-
1. Residential & commercial development -> 1.2. Commercial & industrial areas	Ongoing	-	-	-
2. Agriculture & aquaculture -> 2.3. Livestock farming & ranching -> 2.3.3. Agro-industry grazing, ranching or farming	Ongoing	-	-	-
9. Pollution -> 9.5. Air-borne pollutants -> 9.5.1. Acid rain	Ongoing	-	-	-

Conservation Actions Needed

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

Conservation Actions Needed
1. Land/water protection -> 1.1. Site/area protection
2. Land/water management -> 2.1. Site/area management
2. Land/water management -> 2.3. Habitat & natural process restoration
6. Livelihood, economic & other incentives -> 6.4. Conservation payments

Research Needed

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

Research Needed

1. Research -> 1.3. Life history & ecology

2. Conservation Planning -> 2.2. Area-based Management Plan

Research Needed

3. Monitoring -> 3.4. Habitat trends

Additional Data Fields

Habitats and Ecology

Generation Length (years): 17

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