

Clavaria zollingeri, Violet Coral

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Taxonomy

Kingdom	Phylum	Class	Order	Family
Fungi	Basidiomycota	Agaricomycetes	Agaricales	Clavariaceae

Taxon Name: *Clavaria zollingeri* Lév.

Common Name(s):

- English: Violet Coral
- French: Clavaire de Zollinger

Taxonomic Source(s):

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

Taxonomic Notes:

In GBIF (2019), Eurasian, American and Australian collections are treated as one species. This is probably not true, as there are indications that different parts of the world have different species.

This assessment is for *Clavaria zollingeri* sensu European authors. The type is from Java, however it is considered here that occurrences in Australasia and the Americas are a different species to that found in Europe. It has been proposed that this taxon has a new name.

The identity of *Clavulina amethystina* ss. auct. is unclear, but this name is sometimes probably used about European *Clavaria zollingeri*.

Assessment Information

Red List Category & Criteria: Vulnerable A2c+3c+4c [ver 3.1](#)

Year Published: 2019

Date Assessed: March 27, 2019

Justification:

Clavaria zollingeri is rare and strongly confined to semi-natural grasslands. 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). These habitats are declining and getting bad quality due to changing agricultural practices, development projects and pollution (airborne nitrogen deposition). GBIF lists about 1100 occurrences in areas where the species is assumed to occur. The species is assumed to have a population of more than 20,000 mature individuals, and the species is therefore assessed under Criterion A. In Europe, the habitat loss and population decline is assumed to be 30-50% in 50 years (past, present and future) (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. This decline in habitat is ongoing and expected to continue over the next 50 years. The species meets the threshold for VU (A2c+3c+4c) in Europe, which is also assumed

to be the total area of the species.

Geographic Range

Range Description:

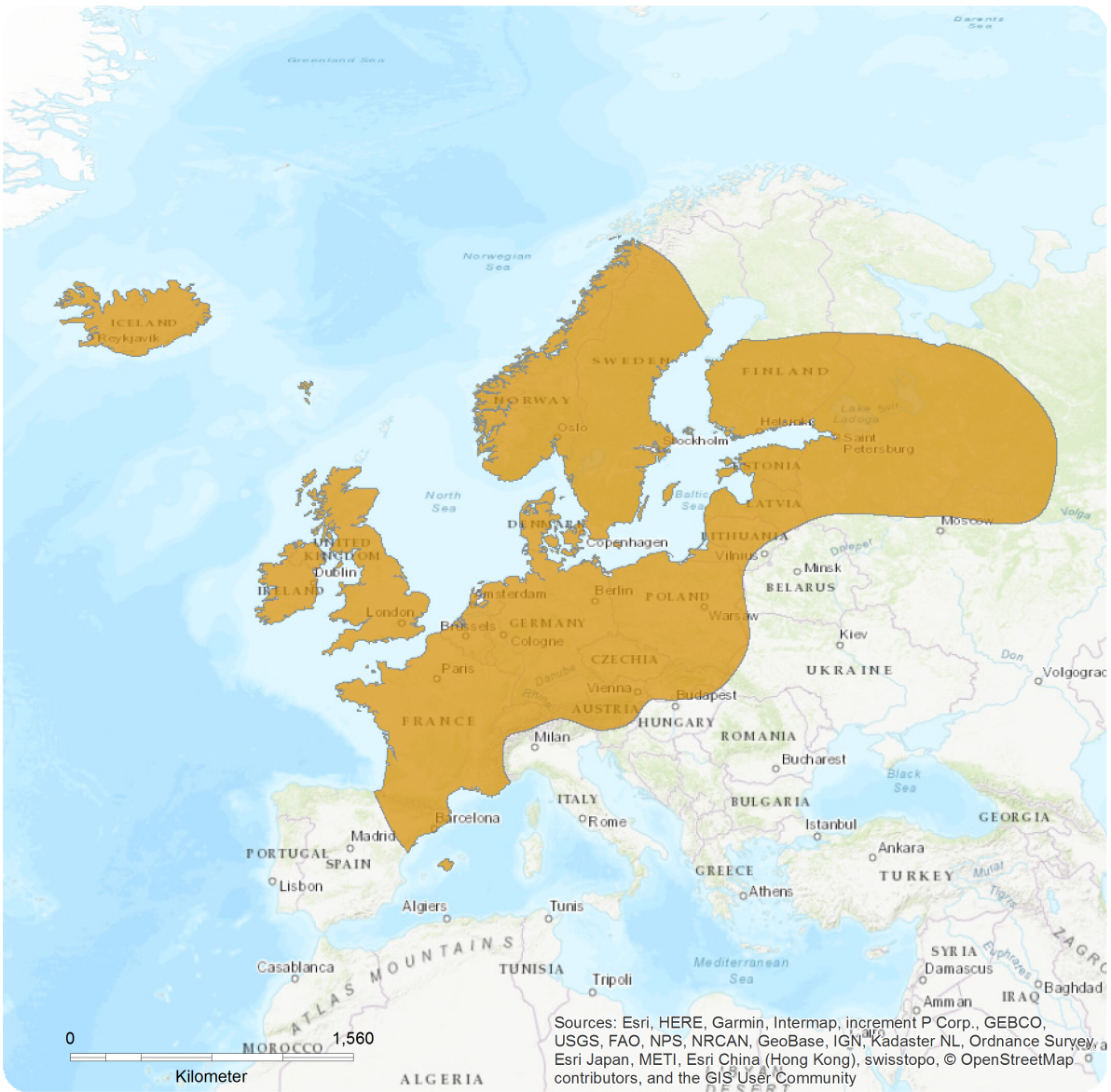
GBIF-data from Asia, North America and Australia are excluded as probably other species. Our species occurs in most European countries as shown on the map. It occurs from lowland up to subalpine areas (1450 m asl in Switzerland).

Country Occurrence:

Native: Austria; Czechia; Denmark; Estonia; Faroe Islands; Finland; France; Germany; Iceland; Ireland; Latvia; Lithuania; Netherlands; Norway; Poland; Russian Federation; Slovakia; Spain; Sweden; Switzerland; United Kingdom

Distribution Map

Clavaria zollingeri

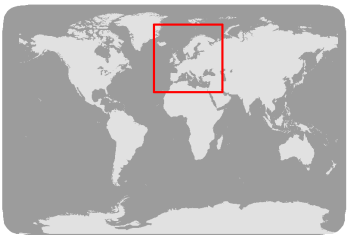


Range

Extant (resident)

Compiled by:

IUCN



The boundaries and names shown and the designations used on this map do not imply any official endorsement, acceptance or opinion by IUCN.



Population

According to GBIF (2019) there are about 1100 occurrences from Europe. Many of these are probably duplicates from the same localities, but the database also lacks much information, so the number of known localities in Europe is assumed to be more than 1000. Seminatural grasslands are strongly declining. Based on available information on trends in seminatural grasslands, Griffith *et al.* (2013) estimated a habitat loss of 90% over the last 75 years for the CHEG-fungi (grassland fungi of Clavariaceae, *Hygrocybe* s.l., *Entoloma* and Geoglossaceae) as a whole in Western Europe. 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. Over the whole distribution range we assume a minimum habitat loss and population decline of 30-50% over the last 50 years, while the seminatural grasslands of north European lowlands could have declined more than 50% over the same period. As the habitat quality of seminatural grasslands is also declining, population decline could be higher, and this strengthens the assumption of a population decline near 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.

Current Population Trend: Decreasing

Habitat and Ecology (see Appendix for additional information)

The species is an indicator of old unfertilised grasslands, growing in mycologically rich but nutrient-poor semi-natural grasslands, often on acid soil. Habitat preferences are that the grass sward is usually short, moss rich and poor in nutrients (Mitchell 2000). In Czechia there are actually more collections from lawns in old parks and gardens than in pastures or grasslands (Daniel Dvořák pers. comm.). In Norway, the habitat specificity has been quantified: N=235; 87.7% in seminatural grasslands, and 11.1% in rich forests (Jordal *et al.* 2016), and similar patterns are found in many other European countries. The nutrient strategy is unknown but it could have some kind of biotrophy or mycorrhiza, like waxcaps (Griffith 2004).

Systems: Terrestrial

Use and Trade

The species is not known to be used.

Threats (see Appendix for additional information)

Habitat destruction and abandonment 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. Modern cultivation methods are important threats like use of fertilizers, pesticides and ploughing. Also in some places the use of the areas is changing, with the construction of roads, industrial areas, settlements etc. Airborne nitrogen deposition is another significant threat. Decline is expected to continue, as at least the areas of seminatural grasslands are of little economic importance in modern agriculture. Most CHEG grasslands (see Population) are among

types assessed as VU, EN or CR in the EU Red List of habitats (Janssen *et al.* 2016). In the urban environment, the application of lawn fertilisers, fungicides and moss killers can also affect the species (Mitchel 2000). According to NATURA 2000 reports (Calaciura and Spinelli 2008), pressure on grassland habitats is steadily increasing, mainly due to abandonment or change in use.

Conservation Actions (see Appendix for additional information)

Some of the grasslands are already protected by law as Natural monuments, Natural reserves etc. Some of the grassland fungal species are assessed as threatened on national Red Lists or protected by law. In some countries this is a conservation priority species (cf. Mitchel 2000). The main focus is to maintain the number of viable populations of this species. 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 exists in many countries to maintain extensive agricultural areas, and should be extended to larger areas than today.

Research is needed into its ecological requirements and trophic form. Management plans are needed. Habitat trends should be monitored. Despite the importance of this conspicuous species in many inventory and biodiversity research projects, very little is still known about its taxonomy. More molecular and taxonomical investigation is necessary to know which species are present and where.

Credits

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Appendix

Habitats

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

Habitat	Season	Suitability	Major Importance?
1. Forest -> 1.4. Forest - Temperate	-	Marginal	-
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	-	-	-
1. Residential & commercial development -> 1.3. Tourism & recreation areas	Ongoing	-	-	-
2. Agriculture & aquaculture -> 2.1. Annual & perennial non-timber crops -> 2.1.3. Agro-industry farming	Ongoing	-	-	-
2. Agriculture & aquaculture -> 2.3. Livestock farming & ranching -> 2.3.3. Agro-industry grazing, ranching or farming	Ongoing	-	-	-
9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.1. Nutrient loads	Ongoing	-	-	-
9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.3. Herbicides and pesticides	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
1. Land/water protection -> 1.2. Resource & habitat protection
2. Land/water management -> 2.1. Site/area management

Conservation Actions Needed
2. Land/water management -> 2.3. Habitat & natural process restoration
4. Education & awareness -> 4.3. Awareness & communications
6. Livelihood, economic & other incentives -> 6.4. Conservation payments

Research Needed

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

Research Needed
1. Research -> 1.1. Taxonomy
1. Research -> 1.2. Population size, distribution & trends
1. Research -> 1.3. Life history & ecology
1. Research -> 1.5. Threats
3. Monitoring -> 3.1. Population trends
3. Monitoring -> 3.4. Habitat trends

Additional Data Fields

Distribution
Upper elevation limit (m): 1450
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes
Generation Length (years): 17

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