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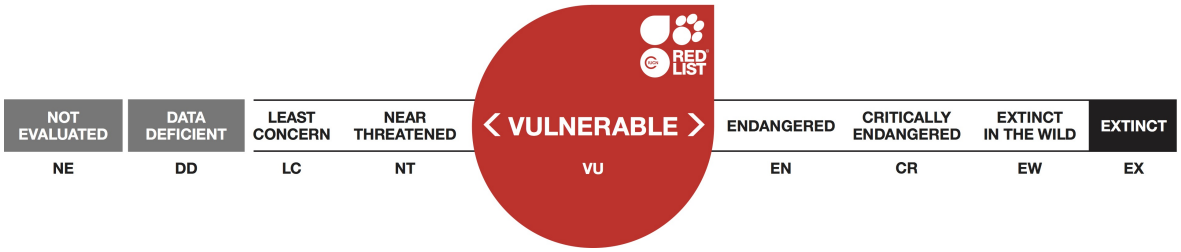
Scope: Global
Language: English

Entoloma griseocyaneum, Felted Pinkgill

Assessment by: Jordal, J.



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Fungi	Basidiomycota	Agaricomycetes	Agaricales	Entolomataceae

Taxon Name: *Entoloma griseocyaneum* (Fr.) P. Kumm.

Synonym(s):

- *Agaricus griseocyaneus* Fr.

Common Name(s):

- English: Felted Pinkgill
- French: Entolome Gris Cyan

Taxonomic Source(s):

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

Taxonomic Notes:

Entoloma griseocyaneum (Fr.) P. Kumm. is described from Sweden where a neotype is designated (Noordeloos 1992). The taxonomic status of GBIF occurrences in North America is doubtful and not included here; one ITS sequence labelled *E. griseocyaneum* from North America turns out to be a separate species (Bálint Dima pers. comm.). There is hardly any evidence of European *Entoloma* species occurring in North America (M. Noordeloos pers. comm.). Collections without blue colours are described as *E. scabropellis* (Noordeloos 1992), but sequencing shows that these are also *E. griseocyaneum* (Bálint Dima pers. comm.).

Assessment Information

Red List Category & Criteria: Vulnerable A2c+3c+4c ver 3.1

Year Published: 2019

Date Assessed: March 27, 2019

Justification:

Entoloma griseocyaneum is a species of seminatural grassland in Europe and Russia, up to subalpine areas. The habitats are declining due to changing agricultural practices, development projects, and pollution (airborne nitrogen deposition). Over the distribution range we assume a total habitat and population decline of 30-50% over the past 50 years, probably near 50% (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. GBIF lists more than 2300 occurrences. The species is assumed to have a population of more than 20,000 mature individuals. At a global scale (i.e. Europe and Russia) the population decline is assumed to be on average >30% in 50 years (past, present and future). The species meets the threshold for VU (A2c+3c+4c).

Geographic Range

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Range Description:

The species is with certainty mainly known from Europe, where it occurs in many countries from the lowlands up to subalpine areas (see also GBIF 2019), especially in the northwestern part (UK and Scandinavia). The eastern limit is uncertain due to lack of data but there are sequenced records from the Russian far east.

Country Occurrence:

Native: Austria; Denmark; Estonia; Finland; France; Germany; Ireland; Italy; Netherlands; Norway; Poland; Russian Federation; Slovenia; Spain; Sweden; Switzerland; United Kingdom

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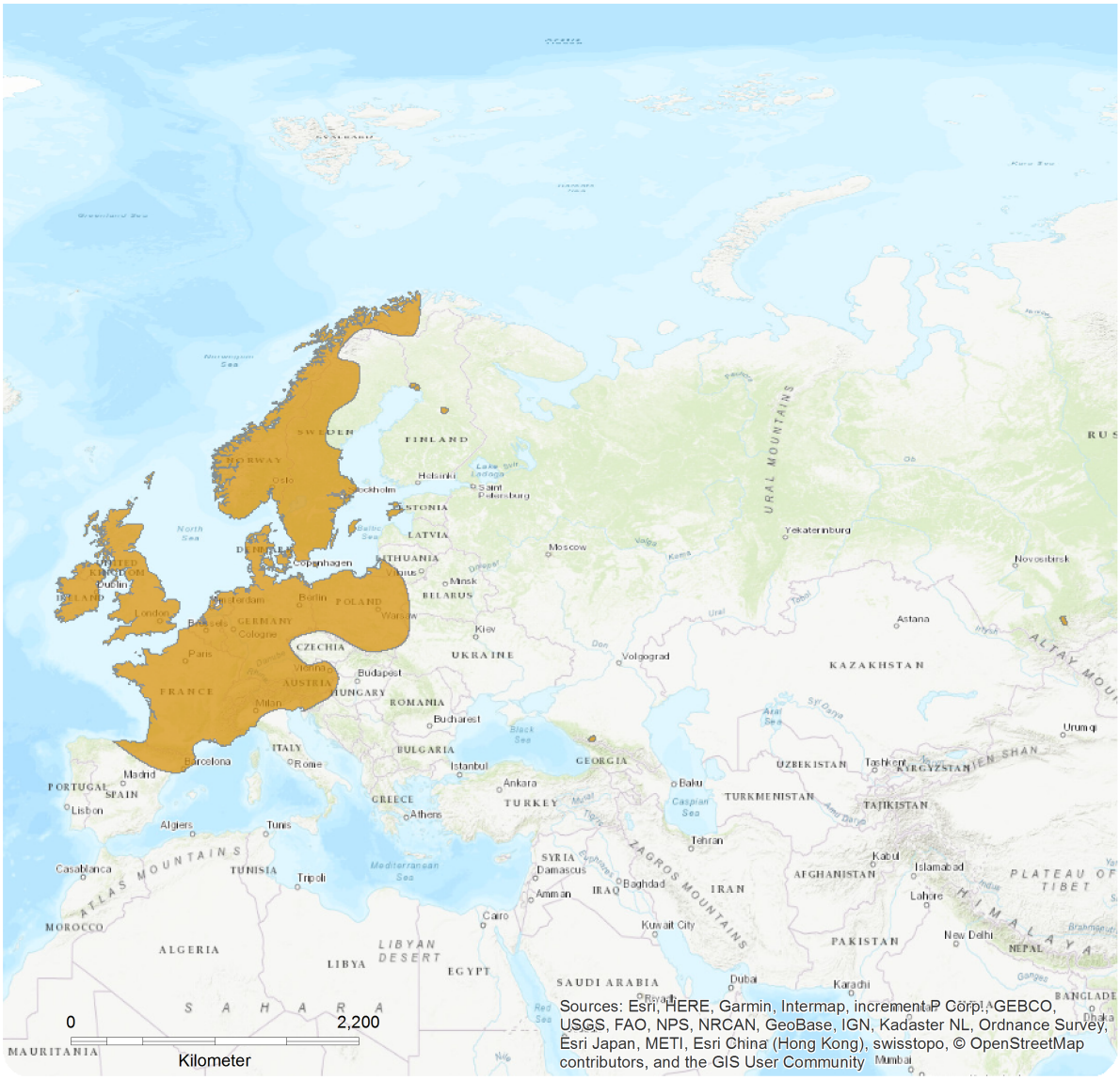
Distribution Map

Entoloma griseocyaneum

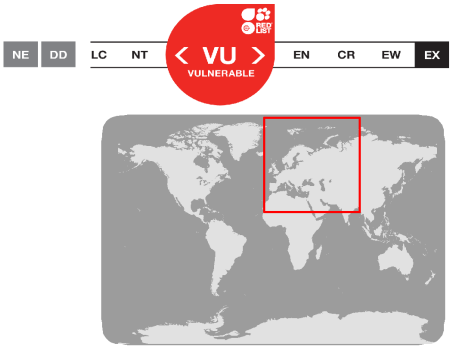


Range

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.

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Population

According to GBIF (2019) there are >2300 occurrences from Europe. 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. The habitat quality of seminatural grasslands is also declining, strengthening the population decline. More than 75% of the grasslands habitats are in an unfavourable conservation status (http://ec.europa. eu/environment/nature/knowledge/ rep_habitats/index_en.htm#csa). Over the whole distribution range we assume a total habitat loss and population decline of at least 30-50% over the last 50 years. As the habitat quality is also declining, population decline could be higher. Much of European grasslands have bad habitat quality. This trend is ongoing and expected to continue in the future.

Current Population Trend: Decreasing

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

Entoloma griseocyaneum grows in mycologically rich but nutrient-poor semi-natural grasslands, often (but not always) on calcareous soil. Semi-natural grasslands are rapidly disappearing due to changes in land use (see Threats). In Norway, most localities of the species are in semi-natural grasslands and very few in rich forests or rich fen margins (N=575: 90.1% semi-natural grasslands, 1.7% rich forests, and the rest mostly in related grassland types like unmanured parks and lawns; Jordal *et al*. 2016), and similar patterns are found in other countries. It is found from sea level up to subalpine and sometimes even alpine areas in Scandinavia and in the Alps. The nutrient strategy is unknown.

Systems: Terrestrial

Use and Trade

This species is not utilized.

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. Further modern cultivation methods like use of fertilizers, pesticides and ploughing are also threats, along with airborne nitrogen deposition. Also in some places changed land use with the construction of roads, industrial areas, settlements etc. 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).

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

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.

Further ecological research is needed to clarify the nutrient strategy of grassland *Entoloma* species. 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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Bibliography

Artsdatabanken. 2015. Rødliste for arter [2015 Red List of Norwegian Species online database]. Available at: https://www.artsdatabanken.no/Rodliste.

Atlas grzybów Polski. 2019. Mushrooms and Fungi of Poland: *Entoloma griseocyaneum*. Available at: https://www.grzyby.pl/gatunki/Entoloma_griseocyaneum.htm.

FinBIF. 2018. Finnish Biodiversity Information Facility/FinBIF. Finnish Museum of Natural History Luomus, Helsinki. Available at: http://tun.fi. (Accessed: 6 March 2018).

Foreningen til svampekundskabens fremme. 2019. Danmarks svampeatlas. Available at: https://svampe.databasen.org/. (Accessed: 2019).

GBIF. 2019. Global Biodiversity Information Facility (GBIF) data portal. Collection of online herbarium specimens. Available at: http://data.gbif.org.

German Mycological Society. 2019. Pilzen Deutschlands: Entoloma griseocyaneum. Available at: http://www.pilze-deutschland.de/organismen/entoloma-griseocyaneum-fr-p-kumm-1871-1.

Griffith, G.W., Gamarra, J.P., Holden, E.M., Mitchel, D., Graham, A., Evans, D.A. et al. 2013. The international conservation importance of welsh 'waxcap' grasslands. *Mycosphere* 4: 969–984.

IUCN. 2019. The IUCN Red List of Threatened Species. Version 2019-2. Available at: www.iucnredlist.org. (Accessed: 04 July 2019).

Janssen J.A.M., Rodwell J.S., García Criado M., Gubbay S., Haynes T., Nieto A., Sanders N., Landucci F., Loidi J., Ssymank A., Tahvanainen T., Valderrabano M., Acosta A., Aronsson M., Arts G., Attorre F., Bergmeier E., Bijlsma R.-J., Bioret F., Biţă-Nicolae C., Biurrun I., Calix M., Capelo J., Čarni A., Chytrý M., Dengler J., Dimopoulos P, Essl F., Gardell H., Gigante D., Giusso del Galdo G., Hájek M., Jansen F., Jansen J., Kapfer J., Mickolajczak A., Molina J.A., Molnár Z., Paternoster D., Piernik A., Poulin B., Renaux B., Schaminée J.H.J., Šumberová K., Toivonen H., Tonteri T., Tsiripidis I., Tzonev R. & Valachovič M. 2017. *European Red List of Habitats*. Publications Office of the European Union, Luxembourg.

Jordal, J.B., Evju, M., and Gaarder, G. 2016. Habitat specificity of selected grassland fungi in Norway. *Agarica* 37: 5-32.

NBN. 2019. NBN Atlas. UK National Biodiversity Network (NBN) Internet Atlas. National Biodiversity Network, Nottingham Available at: http://www.nbn.org.uk/. (Accessed: 2019).

NMV. 2019. Verspreidingsatlas Paddenstoelen. Available at: https://www.verspreidingsatlas.nl. (Accessed: 2019).

Noordeloos, M.E. 1992. *Entoloma s.l.* Giovanna Biella, Saronno, Italy.

Österreichische Mykologische Gesellschaft. 2019. Datenbank der Pilze Österreichs. Available at: http://austria.mykodata.net/Taxa_0.aspx.

SLU. ArtDatabanken. Available at: http://artfakta.artdatabanken.se.

Swiss Federal Institute for Forest, Snow and Landscape Research. 2019. SwissFungi. Available at: https://swissfungi.wsl.ch/de.html. (Accessed: 2019).

Vrščaj D., Erjavc Š., Boh A., Tratnik B., Piltaver A., Arko J., Čebulec M., Malovrh B., Vrhovnik F., Rot B., Ujčič M., Stanič I., Poler A., Soklič A., Oblak F., Kavčič Z., A.Poler S., Kaiser S., Haas H., člani GD Novo mesto -., Dolenc F., Vrhovec B., Bertosi M., Hrovatič M., Oblak V., Šerod S., Bohte T. and Stepančič S.

2019. *Karta razširjenosti za Catathelasma imperiale*. Ogris N.

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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?
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	-	-	-
4. Transportation & service corridors -> 4.1. Roads & railroads	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
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

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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
2. Conservation Planning -> 2.2. Area-based Management Plan
3. Monitoring -> 3.1. Population trends
3. Monitoring -> 3.4. Habitat trends

Additional Data Fields

Habitats and Ecology
Generation Length (years): 17

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The IUCN Red List Partnership

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