

Heritage Rank Status Factors

Elcode NFSM000177
Gname RUSSULA MUSTELINA

Gcomname

Number of Occurrences

U = Unknown

Comments Number of occurrences in Europe are yet to be determined. No searchable databases from North America report collections of *R. mustelina*. One collection cited in Thiers (1997) and one in Grund (1965); Thiers indicates that the species is widely distributed in California in the Sierra Nevada and the Yuba Pass and Mount Shasta areas.

Number of Occurrences with Good Viability

U = Unknown what number of occurrences with good viability

Comments Number of occurrences in Europe are yet to be determined. No searchable databases from North America report collections of *R. mustelina*. One collection cited in Thiers (1997) and one in Grund (1965); *R. mustelina* was also included on a collections list cited in Mycena News (1999)

Population Size

U = Unknown

Comments Genets of ectomycorrhizal fungi cannot be delimited without DNA sampling.

Range Extent

H = > 2,500,000 km² (greater than 1,000,000 square miles)

Comments *Russula mustelina* Fries is widespread in European montane habitats from the mediterranean subalpine to the northern part of Europe (Sarnari 1998; Romagnesi 1967). In North America, Grund (1965) identified a single specimen from Washington; Thiers (1997) listed the species from California as widely distributed in the Sierra Nevada, and common in the Yuba Pass and Mt Shasta areas.

Area of Occupancy

U = Unknown

LU = Unknown

Comments Can only extrapolate area of occupancy from fruitbodies as underground vegetative organism may produce many fruitbodies over a larger area. This species has unknown biological and ecological requirements that determine how and when ectomycorrhizal associations are formed with *Abies* spp. mycorrhizal partners. Assume a maximum of 100 acres per known occurrence. Number of occurrences in Europe is unknown and no searchable databases list North American collections of *R. mustelina*. One collection cited in Thiers (1997) and one in Grund (1965), and another unverified report from California is cited in the Mycena News (1999).

Long-term Trend in Population Size, Extent of Occurrence, Area of Occupancy, and/or Number or Condition of Occurrences

Comments Number of occurrences in Europe is unknown. No searchable databases from North America report collections of *R. mustelina*. One collection cited in Thiers (1997) and one in Grund (1965). An unconfirmed report of the species is cited in a 1999 Mycena News (newsletter of the Mycological Society of San Francisco). No occurrences are included in the ISMS 2002 database.

Short-term Trend in Population Size, Extent of Occurrence, Area of Occupancy, and/or Number or Condition of Occurrences

Comments Number of occurrences in Europe is unknown, although the species appears as "near threatened" on the Finnish Red List but said to be making "a comeback" in the Czech Republic (Jankovsky 2002) since pollution has eased. No searchable databases cite North American collections of the species which is cited only in Thiers (1997) and Grund (1965). No occurrences are included in the ISMS 2002 database.

Threats

U = Unknown. The available information is not sufficient to assign degree of threat as above. (Severity, scope, and immediacy are all unknown, or mostly [two of three] unknown or not assessed [null].)

Scope Unknown Severity Unknown Immediacy Unknown

Comments Data on the extra-North American communities is not known, although *R. mustelina* is listed as "Near Threatened" on the Finnish Red List (11-18-02) and making a "comeback" in the Czech Republic (Jankovsky 2002). Within the northern spotted owl region, only one historical site from 1965 (WA) is identified and no occurrences are reported in the ISMS 2002 database.

Number of Appropriately Protected and Managed Occurrences

A = None. No occurrences appropriately protected and managed

Comments Data on the extra-North American communities is not known. Within the northern spotted owl region, only one historical site from 1965 is identified; no occurrences are reported in the ISMS 2002 database.

Intrinsic Vulnerability

B = Moderately Vulnerable. Species exhibits moderate age of maturity, frequency of reproduction, and/or fecundity such that populations generally tend to recover from decreases in abundance over a period of several years (on the order of 5-20 years or 2-5 generations); or species has moderate dispersal capability such that extirpated populations generally become reestablished through natural recolonization (unaided by humans). Ecological community occurrences may be susceptible to changes in composition and structure but tend to recover through natural processes given reasonable time (10-100 years).

Comments The health of any mycorrhizal species is tied to the health of its symbiotic partner, in this case believed to be *Abies*. Thus any activity or natural event that threatens the health of the tree or forest will threaten the fungus. Jankovsky (2002) suggests that pollution has had a negative impact upon ectomycorrhizal fungi in general and notes that pollution controls and other factor may have contributed to the reappearance of the species in Czech Republic forests.

Environmental Specificity

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

C = Moderate. Generalist or community with some key requirements scarce.

Comments Precise biological requirements are not known; the species exhibits a preference for high elevation conifer forests, where it may be common, according to Samari (1998), Thiers (1997), and Romagnesi (1967).

Other Considerations

Additional research is needed, including contacting Dr. Dennis Desjardin, curator of the Thiers Memorial Herbarium at San Francisco State University to verify California sites.

Edition 11/18/2002 **Edauthor** Lorelei L Norvell

Grank G4 **Grank Date** 11/18/2002

Reasons

Widespread in European montane habitats from the mediterranean subalpine to the northern part of Europe (Sarnari 1998; Romagnesi 1967). The species does not appear to be threatened in Europe except in Finland where it is cited as "near threatened". In North America, Grund (1965) identified a single specimen from Washington. There have been no further collections of anything resembling *R. mustelina* in Washington, but Dr. Joe Ammirati of the University of Washington and Ben Woo, Washington *Russula* specialist, should be contacted to see whether they consider the species to exist in Washington. Thiers (1997) reported the species from California as "widely distributed in the Sierra Nevada, common in the Yuba Pass area and in the Mt Shasta area." A collection from the area was noted in *Mycena News* in 1999. The fact that no collections have yet been confirmed in the ISMS 2002 database is problematic. The species appears relatively common in Europe and in certain areas in California.

BCD Sources

New Sources

Thiers. 1997. *Agaricales of California: Russulaceae: Russula*. Mad River Press. ALSO Grund. 1965. ALSO A survey of the genus *Russula* occurring in Washington state. University of Washington PhD dissertation. ALSO Sarnari. 1998. *Monografia illustrata del Genere Russula in Europa. Tomo Primo*. [in Italian]. ALSO Romagnesi. 1967. *Les Russules d'Europe et d'Afrique du nord*. [in French]. ALSO *Mycena News* (11-18-02) <http://www.mssf.org/mnews/9911mn.pdf> ALSO Jankovsky and others 2002. *Journal of Forest Science* 48, 2002 (2): 70-79. ALSO Finnish Red List (11-18-02): <http://www.vyh.fi/eng/environ/naturcon/threat/2000/plant/agarics.htm>