Taxonomy and Ecology of Ectomycorrhizal Macrofungi in the Vicinity of Grand Teton and Yellowstone National Parks

Kent H. McKnight  
*Brigham Young University*

Meinhard M. Moser  
*Leopold-Franzens-Universitat Innsbruck*

Follow this and additional works at: [http://repository.uwyo.edu/uwnpsrc_reports](http://repository.uwyo.edu/uwnpsrc_reports)

**Recommended Citation**
McKnight, Kent H. and Moser, Meinhard M. (1993) "Taxonomy and Ecology of Ectomycorrhizal Macrofungi in the Vicinity of Grand Teton and Yellowstone National Parks," *University of Wyoming National Park Service Research Center Annual Report*: Vol. 17, Article 12. Available at: [http://repository.uwyo.edu/uwnpsrc_reports/vol17/iss1/12](http://repository.uwyo.edu/uwnpsrc_reports/vol17/iss1/12)

This Grand Teton National Park Report is brought to you for free and open access by Wyoming Scholars Repository. It has been accepted for inclusion in University of Wyoming National Park Service Research Center Annual Report by an authorized editor of Wyoming Scholars Repository. For more information, please contact scholcom@uwyo.edu.
OBJECTIVES

The long-term objectives of this study are (1) to determine which species of higher fungi grow in forest, range, and pasturelands in and around Grand Teton and Yellowstone National Parks; (2) to gain a better understanding of the role of fungi in the ecosystem; (3) to prepare descriptions, keys, and illustrations for as many species as possible; and (4) to compare the fungal communities of this area with those of similar vegetation types in Europe. Fieldwork in the 1991 and 1993 seasons concentrated on the mushroom genus *Cortinarius* Fries, although other macrofungi are studied when permitted by time and availability of specimens.

METHODS

Standard methods of collecting, processing, and annotating specimens are used throughout the continuing studies. Specimens collected in the areas outside the National Parks by each investigator are deposited at the herbarium of his sponsoring institution. Where material is adequate, replicate specimens are deposited at the herbarium of Yellowstone National Park (YELLO) along with specimens collected within the parks. Following the 1991 summer field studies, Moser examined types and other significant collections of Smith, Kauffman, and others at the University of Michigan. Laboratory and herbarium study continues on previous collections from the study area, both at Innsbruck and in Utah.

RESULTS

There was a significant increase in the inventory of mushroom species known from the study area (McKnight, K. H., 1982, McKnight, Moser, et al., 1989). These are mostly from study of the 1991 collections, but some are from collections of earlier years as well. Although the two species which we specifically sought in 1993 did not appear, the unexpectedly prolific fungus fruiting during the very brief field studies of 1993 enabled us to contribute to our objective of improving our files of illustrations, descriptive data, phenology, and species distribution. The forty-one species and subspecific taxa added to the inventory are listed below. Fifteen previously undescribed taxa designated in this list as "sp. nov." are in manuscript or in the publication process.

- *Chrysomphalina chrysophylla* (Fries)
- *Clavariadelphus pistillaris* (Fries) Donk
- *Cortinarius atroalbus* Moser sp. nov.
- *cephalixoides* Moser & Thiers sp. nov.
- *elegantior* Fries var. *americanus* Moser &
Among the more interesting new species is Cortinarius aurora (Fig. 1) which was placed in a new subsection, aurantiovelati, of the Cortinarius subgenus Phlegmacium on account of its orange universal veil. Some of the species reported have alpine and higher subalpine forms noticeably different from the lower elevation forms, e. g. C. umbilicatus karsten = C. adalberti Favre ex Moser (Fig. 4, see McKnight, et. al., 1989), C. hinnuleus Fries (Fig. 6), C. stenospermus Lamoure (Fig. 3, C. subtorvus Lamoure (Fig. 5). On the other hand, Cortinarius atroalbus Moser (Fig. 8) is one of the most striking species, readily identifiable in the field and known only from the alpine zone under dwarf willow, whereas its variety nigripes Moser (Fig. 7) is found at slightly lower elevations under shrubby willows.

Following the western field studies in 1991 Moser visited the herbarium at the University of Michigan in Ann Arbor, Michigan where he studied collections, including types, of A. H. Smith, C. H. Kauffman, and others deposited there. He also made some collections of his own in that vicinity. With data obtained in these and previous studies he confirmed misidentifications by American mycologists for a number of European species and verified synonymy which he had suspected for some of our
Cortinarius stenospermus Lam.

Cortinarius umbilicatus Kästner alpigenus Mos.

Cortinarius subtorvus Lam.

Cortinarius hinnulesus Fr. var. favreanus Bon.

Cortinarius atroalbus Mos.

Cortinarius atroalbus Mos. var. nigripes Mos.
Wyoming species. This is an extremely important contribution to American mycology, as it resolves some very difficult nomenclatural problems. Some of these involve common species in the western American flora, e.g. *Cortinarius umidicola* Kauffman (Fig. 2), *C. umbilicatus* Karsten (Fig. 4).

**NOMENCLATURAL NOTES:**

*Cortinarius alnetorum* Velenovsky = *C. glandiclor* Fries. var. curtus Fries ss. A. H. Smith.  
*Cortinarius aureofulvus* Mos. = *C. cedretorum* R. Maire ss. A. H. Smith  
*Cortinarius badiovinasceus* Moser = *C. nigrellus* Peck var. occidentalis A. H. Smith  
*Cortinarius croceus* J. Schaeffer = *Cortinarius malicorius* Fries sensu A. H. Smith et. al.  
*Cortinarius fuscoperonatus* Kühner = *Hydrocybe tigrina* Moser nomen inval., non Johns  
*Cortinarius incisus* Fries = *C. impolitus* Kauffman  
*Cortinarius pseudopraestans* Moser & Ammirati = *C. pseudobalteatus* Blatto nom. subnud.  
*Cortinarius pusillus* Moeller = *C. inops* Favre  
*Cortinarius renidens* Fries = *Gymnopilus terrestris* Hesler  
*Cortinarius umbilicatus* Karsten = *C. adalberti* Favre ex Moser = *C. depressus* Fries ss. Brandrud et al., = *C. paterioformis* (Fries) Ricken, = *C. nigrelloides* Kauffman nom. nud.  
*Cortinarius umidicola* Kauffman forma coeruleus Moser & Ammirati = *C. canabarbra* Moser, = *C. plumiger* Fr. ss. Kauffman

**REFERENCES**
