

HYPOGEOUS FUNGI OCCURRENCE, DISTRIBUTION AND MYCORRHIZAL HOSTS IN GRAND TETON NATIONAL PARK AND JOHN D. ROCKEFELLER, JR. MEMORIAL PARKWAY

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♦ OBJECTIVES

The 1990 field season constituted the last of a three year study to survey the hypogeous fungi of Grand Teton National Park and the Greater Yellowstone ecosystem. The objectives were to:

1. collect and identify hypogeous fungi found in association with ectomycorrhizal tree hosts such as lodgepole pine (*Pinus contorta*), subalpine fir (*Abies lasiocarpa*), Douglas-fir (*Pseudotsuga menziesii*), quaking aspen (*Populus tremuloides*), and speckled alder (*Alnus tenuifolia*), and several species of willow (*Salix* sp.) throughout the area; and
2. to gain an initial understanding of the importance of these fungi as food for small mammals.

♦ METHODS

Both objectives were addressed by collecting sporocarps of hypogeous fungi with a handheld truffle rake several times during the growing season. Collecting sites in pure or mixed stands of the ectomycorrhizal tree hosts were located away from high visibility areas, so as not to spoil the aesthetic appeal of the area. Litter duff and soil were carefully replaced after each collection, in an attempt to minimize disturbance of the soil. Each collection was photographed, described in detail, and dried in the field with silica gel for additional study.

♦ RESULTS

Since the inception of the study in 1988, several new records for Grand Teton National Park have been found (Miller 1989, McKnight 1982, McKnight et al. 1990), as well as one or two probable undescribed species.

The following hypogeous fungi and associated hosts were reported during 1990:

Engelmann spruce

Gautieria monticola (Harkn.) Harkn.

Subalpine fir

Thaxterogaster pingue (Zeller) Singer & Smith

Mixed spruce-fir

Geopora cooperi Harkn.

Leucogaster rubescens Zeller & Dodge

Lodgepole pine

Brauniellula nanceyae Smith

Endogone lactiflua Berk. & Broome

Rhizopogon ochraceorubens A. H. Smith

Rhizopogon rubescens var. *rileyi* Smith

Rhizopogon subcaerulescens A. H. Smith

Willow

Hymenogaster sp.

Tuber sp.

Alder

Alpova diplophloeus (Zeller & Dodge) Trappe & Smith

◆ CONCLUSIONS

Adequate moisture is a prerequisite for fungal fruiting, even for hypogeous fungi which may be adapted to more arid environments. The field seasons of 1988 and 1989 were extremely dry in the northwest corner of Wyoming but even so, many collections of hypogeous fungi were made, with a number of new records for the area. The 1990 field season had only slightly more precipitation and several more records

and perhaps two new species were collected. A study such as this could potentially be continued for a lifetime, with new fungi being found nearly every year. Collecting will be continued in the Greater Yellowstone area, as time and precipitation permit with the purpose of uncovering new species and new records.

◆ LITERATURE CITED

- McKnight, K. H. 1982. Check-list of mushrooms and other fungi of Grand Teton and Yellowstone National Park. Moran, Wyoming, UW-NPS Research Center. 21 pp.
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- Miller, S. L. 1989. Hypogeous fungi occurrence, distribution and mycorrhizal hosts in Grand Teton National Park and John D. Rockefeller, Jr. Memorial Parkway. Ann. Rept. UW-NPS Res. Cent. 12:107-108.