I. MICROFUNGI FROM SELENIFEROUS SOILS

In a previous investigation (States, MS Thesis, U. of Wyo., 1966) the seleniferous soils of the Spread Creek anticline, 1.5 miles east of the Elk Ranch reservoir were surveyed for the principal microfungal species. The influence of the element selenium on the composition of the fungal population was found to be distinctive when results were compared to a similar analysis of fungi in a nearby non-seleniferous soil. Several species isolated exhibited the capacity to reduce selenate and selenite to amorphous elemental selenium and volatile selenium compounds in agar culture.

The toxicity of the element selenium to plants and animals has been intensively studied but its relationship to microbial activity in soils is little known. The discovery of reduction and volatilization of selenium by fungi presented some important aspects for further study.

Microfungal investigations of the same soils were initiated this summer with the following objectives:

a. Isolation and identification of soil microfungi capable of metabolizing selenium. These fungi were sought in areas where selenium was most concentrated: in soil near the surface of seleniferous, parent shales, and in the rhizosphere of selenium accumulator plants such as Astragalus bisulcatus. Soil samples were taken at the 1, 3, 12, 24, and 36 inch levels along the root systems of A. bisulcatus and in soil levels lacking these roots. Seleniferous shales were encountered at the 36 and occasionally the 46 inch levels.

b. Analysis of the vegetative body of A. bisulcatus for closely associated microfungi. There exists the possibility that fungi associated with the roots of this plant may facilitate the uptake of selenium. Entire plants in various stages of development were collected during the summer. Since seeds and pods are known to contain high concentrations of selenium, they were harvested to be used in growth experiments, experiments involving the development of the plants from seeds in the presence or absence of microfungi and growth of fungi on extracts prepared from the seeds.

The field work was completed in August and the laboratory experiments are presently underway. The results of the project will be reported at a later date.
II. WOOD DECAY POLYPORES OF GRAND TETON NATIONAL PARK

A collection of wood decay bracket fungi (Polyporaceae) was made in the coniferous and mixed coniferous deciduous forests of the Park. The primary purpose of the foray was to augment the collections of species in the Polyporaceae present in the cryptogamic herbarium at the University of Wyoming. A list of the fungi encountered and identified is included here. The number of species reported is probably only a small portion of the polypores which occur in the Park. The dry weather which prevailed during the summer was not conducive for the development of fruiting bodies, especially those produced annually. Collections were made between May 15 and August 17, 1970. Several polypores produce fruiting bodies in late summer, at a time when no collections were made. Some fungi found have not been identified.

CHECK-LIST

Gloeophyllum (Lenzites) saepiarium-(Fr.) Karsten. The fungus most destructive to coniferous wood in North America. Found in abundance throughout the Park on dead, usually fallen lodgepole pine in exposed sites. Occasionally on spruce and fir in exposed sites. Distinctive in having lamellae or gills on which the reproductive units are borne.

Gloeophyllum (Trametes) odoratum(Overh.) Imazeki. Found on lodgepole pine, especially on burned or charred wood of this species. Therefore, it can be found in exposed sites of the forest which has been burned over.


Fomes pini (Thore ex. Fr.) Karst. On spruce at high elevations and sites on the dead wood shaded by the canopy. New record.

Fomes nigrolimitatus (Rom.) Egeland. Common on undersurfaces of fallen spruce.

Fomes annosus (Fr.) Cooke. Rare. At base of spruce. One collection.

Fomes pinicola (Swartz ex. Fr.) Cooke. Common on large, dead and downed spruce and occasionally lodgepole pine.

Fomes ignarius (Fr.) Overh. On the branch scars of standing aspen and occasionally large alder and willow that has been downed.

Fomes applanatus (Pers. ex Wallr.) Gill. Common on dead cottonwood and aspen especially in moist sites along waterways. Possibly new record.

Polyporus adustus-Willd. ex Fr. On dead cottonwood and aspen in moist bottom-land. Forms annual fruitbodies in late summer.
Polyporus abietinus-Dicks. ex Fr. Very common on downed pine, spruce, and fir. Characterized by violet or purplish pore surface.

Polyporus pargamenus Fries. Very common on dead deciduous trees. Similar to P. abietinus but is not found on coniferous trees and has larger and more pubescent fruitbodies.

Polyporus alboleuteus Ell. & Ev. Common on undersurfaces of spruce and fir logs. Distinguished by its large pores and deep orange-red coloration.

Polyporus leucospongia-Cooke and Harkness. On old logs or stumps of spruce and fir at high elevations. Spongy white upper surface.

Polyporus subchartaceus (Murr.) Overh. Similar to P. pargamenus in habitat and morphology. May be one and the same species.


Polyporus lapponicus Rom. On dead wood of spruce and fir in moist habitats.

Polyporus elegans Bull. ex Fr. Stipitate fruitbody on alder. Common.

Polyporus varius Fries. Similar to P. elegans and can be confused.

Trametes hispida Bagl. Very common on downed cottonwood especially in driftwood and fallen trees along the Snake river.

Trametes sepium Berk. On piled pine fence posts in field near Jackson Lake dam.

Trametes serialis Fries. Similar to T. sepium. Common on dead lodgepole pine logs.

Trametes mollis-(Sommf.) Fr. Occasional on pine and spruce logs.

Polyporus volvatus. Common in occurrence through the Park on the bases of standing lodgepole pine that have been killed by the bark beetles. This species is characterized by a thick rounded margin which extends downward and backward forming a veil-like covering over the pore surface. The fruitbody is therefore globose or compressed globose in shape and yellowish in color. It may be that this species will be an important agent in downing the many trees attacked and killed by beetles.

Note: Members of the genus Poria were collected but have not been identified as yet.

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