Cooke (Fungi)





Cooperative National Park

RESOURCES STUDIES UNIT

University of California
Davis, California 95616

Western Region
National Park Service
Department of the Interior
San Francisco, Ca . 94102

LASSEN VOLCANIC NATIONAL PARK
Research Library

COOPERATIVE NATIONAL PARK RESOURCES STUDIES UNIT

University of California at Davis

Institute of Ecology

Davis, California 95616

Charles van Riper III — Unit Director

Christine Schonewald-Cox — Unit Coordinator/NPS

Peter J. Richerson — Unit Coordinator/UC

Technical Report No. 21
Fungi of Lassen Volcanic National Park

BY Wm. Bridge Cooke

November 1985

Final Report to National Park Service

Contribution Number CPSU/UCD 080/03

Lassen Volcanic National Park
Mineral, California 96063

LASSEN VOLCANIC NATIONAL PARK
Research Library

INTRODUCTION

My involvement with Lassen Volcanic National Park started with a brief visit in July 1942. I did not return to the Park until after World War II when I was involved with graduate studies at the State College of Washington. In the early summer of 1948 my wife and I carried out a "Cascade hopping" project in which we tried to compare the early season high elevation fungi of all the readily accessible Cascade peaks: Lassen, Shasta, Mazama, Sisters, Hood, Adams, St. Helens, Rainier, and Baker. Later we returned with stab thermometers to determine soil temperatures at and near snowbanks on some of these peaks and passes across mountains where we had earlier seen mushroom-type fungus fruit bodies growing (Cooke 1955).

Subsequent to 1948, summers were spent in Mount Shasta and Lassen in an effort to complete a floristic and fungal survey. In 1976 we chose October for the study of autumn species which had, up to that time, been neglected, in that prior to 1974 all of our trips had been made in July and August. Depending on snow conditions, these earlier collections gave us a fairly good idea of those fungal species fruiting during and following snow melt, and during the dry summer months. In late August and early September, 1974, we visited the park after early rains in mid-August and found that there were some fungi we had not previously found. In the late summer of 1975 this observation was confirmed. During the first two weeks of October, 1976, we found a number of additional fleshy and hypogaeous fungi.

The results of these trips, and brief visits in succeeding years, are included in the following report, an annotated, systematized list of the fungi we and others have found in Lassen Volcanic National Park. However, the list is neither complete nor final.

LASSEN VOLCANIC NATIONAL PARK
Research Library

STUDY AREA

Much of the material reported herein was collected within the boundaries of Lassen Volcanic National Park. However, because of the geographic position of the Park it has been necessary for some adjustments to be made. For instance, to reach Butte Lake from points in the Park, it is necessary to follow SR-44 in Lassen National Forest along a route north of the Park boundary, going through Old Station en route. Specimens collected at certain points along this route, and along SR-89 where it parallels SR-44 from Old Station to the West Entrance to the Park, are included. The Headquarters of the Park is located in Mineral, along SR-36, near the south boundary of the Park. For a variety of reasons fungi collected in the Mineral area are included in this report. It may be of interest to note that several of the home owners keep their woodland lawns well irrigated throughout the summer. Therefore, fungi growing in the soil and on decaying wood and litter in these areas are not dependent on normal rainfall for water supplies necessary for fruiting so that erratic fruiting patterns may become evident.

Areas that I have visited which lie within the wilderness areas of the Park include the trail from Cold Boiling Lake to Crumbaugh Lake and Mount Conard, most of the Brokeoff Mountain Trail, the upper portion of the Manzanita Creek Trail to Crescent Cliffs, most of the trail from Terrace Lake through Paradise Meadows to Hat Lake, the trail from Shadow Lake to near Summit Lake, part of the trail from Summit Lake to Echo Lake, Grassy Swale, the trail from King Creek Meadows to near Drakesbad, the trail from the edge of Drakesbad Meadows to the Devil's Kitchen, the trail from Juniper Lake to Mount Harkness, and the trail from Lower Twin Lake to Cinder Cone.

FUNGUS ACTIVITIES

Fungi are organisms which possess no chlorophyll or chemosynthetic pigments, therefore no pigments through which they can produce food supplies. Their assimilative bodies are usually colorless and are rarely seen. They obtain their food by decomposing organic matter or by parasitizing living plants or animals, and absorbing the products of this decomposition process through the walls of the cells of the mycelium. Their reproductive units, spores, are produced in or on organized fruit bodies, usually, and these may assume interesting shapes and may be variously colored.

The most obvious fungi are represented by fruit bodies which we call mushrooms or toadstools, puffballs or brackets (conks). On, or in, the gills, tubes, spines, or smooth surfaces on the under side of the cap are produced the many thousands of spores which, when the proper conditions for growth occur, reproduce the mycelium on which the fruit bodies are borne. In Lassen Volcanic National Park there are two principal seasons in which these fruit bodies are produced. In between these seasons the mycelium growing in the ground, wood, or plant, probably stores up enough nourishment so that when the autumn rains come, or the snow melts in the spring, the fruit bodies can be produced quickly. For this process water is required and as soon as it is available the fruit bodies are developed from buds, which probably have already been formed. As soon as snow comes in the autumn and covers them, or as snow melt water dries up in the spring or early summer, these delicate fleshy fruit bodies dry up and disappear. Usually, one type of mushroom fruits in the spring, another in the autumn. Probably a number of kinds are edible and for fleshy fungi information about edibility is given in the literature. However, since several common

species are poisonous, it is best not to consider gourmet possibilities.

One kind of fungus alone can cause a serious disease or death of a plant be it a one-celled green algae or, more rarely, a tree in a forest. However, one kind of fungus alone is not responsible for the complete decay of a single leaf, piece of herbage, or a single log of any kind of wood. One kind of fungus can attack one kind of substratum, another requires a different source of nutrient. One cannot feed on a log until another has caused a kind of decay which releases component elements or ions from it. If we start with a healthy tree we can watch the gradual death of the tree and the disintegration of its component parts. It must be remembered that after a tree falls space is yielded for the rapid development of new plants whose seeds have been waiting for an opportunity to germinate. This takes place while the old wood is being eliminated, that is, while it is being returned to the soil in the form of nutrients available to the new generation of plants occupying the new bare area.

The healthy tree may have a number of fungi associated with it. On the surface of the roots are the molds of the rhizosphere. These fungi use various exudates and dead cells which are sloughed off the root surface. There is a possibility that they may help to prevent attack by root disease organisms. In the root-hair cells, and around them, ectotrophic mycorrhizae produced by mushroom-producing, false-truffle-producing, and other fungi may be abundant. These structures help the tree in obtaining some of its important nutrients from the soil. On the bark of branches, in addition to mold-type fungi, the small fruit bodies of the pink Aleurodiscus grantii, and other harmless or insignificantly harmful fungi may be noted from time to time.

Large, medium, and small mushrooms are not the only types of fungus fruit bodies which can be found in the Park. There are conks of wood decay

fungi, cup-fungi, mildews, molds, rusts, coral fungi, lichens, puffballs, truffles and false truffles, among others. To obtain some idea of how these types fit into the general picture of the fungus biota in the Lassen National Park area I will consider the biological groups known to be present in the Park. Finally, an annotated systematic list of species identified to date and those reported by others from the Park will be presented.

Plant Pathogens

Leaves of the red fir (Abies magnifica) may be parasitized by the rust fungus Pucciniastrum goeppertianum, whose life cycle must be completed on the nearby blueberry (Vaccinium nivictum) bushes. A needle cast disease may have developed on the needles of Jeffry Pine which either merely kills and removes (casts off) the leaf as in Lophodermium pinastri, or causes the tree to produce distorted witch's brooms, as in Elytroderma deformans. These are rather minor upsets except when they are sufficiently severe to kill the tree or significantly reduce its timber-producing potential. The last named fungus may stunt the tree so that it may never be good for timber production. The branch which dies from the effects of a smothering fungus, Herpotrichia juniperi on firs or hemlock, or H. coulteri on pines, or some other diseases, or which is broken from the tree by some accident, may leave an unhealed scar, an infection court, through which the mycelium of wood decay fungi may enter the wood. Spores from conks occurring on other trees in the area are usually air-borne and some may land on the wound. Of these some may be able to germinate and the resulting hyphae grow into the cells leading to the heartwood of the tree. Here the fungus grows through the heartwood producing a brown rot if it uses the cellulose and leaves the lignin, or a white rot if it uses the lignin and leaves the

cellulose fibers. This action eventually weakens the tree. Some species are more active in the crown of the tree, others (Fomitopsis pinicola), the trunk, and still others (Ganoderma oregonense) the base. Some species (Echinodontium tinctorium) even fruit on the trunk of the standing tree, but fruit bodies (conks) of some species whose action is evident have not yet been reported from the Park. Eventually the tree is weakened to the extent that a summer wind or a winter storm fells it. This is not to be confused with windfalls produced by heavy storm winds such as those of October 12, 1962.

Forest Pathology

The practicing forest pathologist, the person who is familiar with tree diseases and their effects on the economic value of standing timber, is not one of the more enthusiastic supporters of the National Parks Idea. He hates to see a stand of overmature timber in which there are trees that harbor the spore-producing bodies of fungi which cause various types of tree diseases. He would love to get into such an area and remove the diseased trees, the older trees which are potential victims of disease, and the young stands in which the trees are too closely crowded together thus producing organisms which could infect even younger timber in well-managed neighboring forests. Of course, such comments apply only to living standing timber. In the best managed, perpetual-yield-type forests, or even in the poorest managed forests, the ground is littered with dead wood of many kinds, much as in the litter-strewn National Parks or nature preserve, which is a reservoir of a wide variety of fungi, and such concepts apply only to ideal situations which may be found in the best managed demonstration forests.

As to the actual amounts of damage caused by these fungi, a few of the groups and species may be mentioned in particular. The brown-felt or smothering fungi cause little damage in the forest. They occur at high elevations where the snow cover lasts for prolonged periods of time. Rarely will a single small tree be covered; usually these fungi attack only one or several small branches. If the fungus occurs in high mountain forest nurseries, it can have serious effects.

Elytroderma deformans is a so-called needle cast fungus which also produces witches' brooms on trees in young stands. In Lassen Park it has been seen only on Jeffrey pine. Infected trees may die, but if they live they may live for long periods of time producing little or no appreciable growth, but forming a reservoir of infection. In this way the fungus may seriously affect the Jeffrey pine crop both inside and outside the Park.

A number of organisms from myctrophies of various types on the roots of various trees. A variety of bacteria and fungi live in the rhizosphere of trees. This is the area where the tree root meets the soil and in which the tree exudes waste products of metabolism which become the foods of these bacteria and fungi. Usually they cause no damage although some species may tend to be able to enter the root tissues and produce wilts. Some bacteria may form nodules on the roots of legumes, and others on the roots of such plants as alder (Alnus tenuifolia), and buck brush (Purshia tridentata). These nodulations are shelters for those species of bacteria which fix free nitrogen from the atmosphere making it available to the plant and other plants on the site after the nodulated plants die. A large number of fungi, especially those species which produce mushroom-type, or false-truffle-type fruit bodies, form mycorrhizae with the roots of coniferous trees. These are beneficial to both the fungus which derives some of its nutrients from the tree, and to the tree which obtains certain

nutrients through the activities of the fungus. Other types of mycorrhiza-producing fungi are associated with plants in the heath (Ericaceae), orchid (Orchidaceae), cypress (Cupressaceae) and other families found in the Park. None of these fungi are normally harmful to the higher plants with which they live in harmony.

There is a large number of foliage diseases, not only of the coniferous trees, but also of the broad-leaved trees, shrubs, herbs, and grasses. Of greatest importance in the economic life of the forest are the rusts and the needle-cast fungi. Rusts are not common; and except for the Elytroderma mentioned above, neither are needle-cast fungi. The chickweed rust, Melampsorella caryophyllacearum, produces witches' brooms on the Red Fir, and has a tendency to stunt the tree because of the use of wood-building chemicals for production of the distorted branch system which has a peculiar odor, much like that of a stinkhorn fungus. Occasionally the lodgepole pine has a knot-like development on the trunk or branches. This is produced by a rust fungus causing a hypertrophy of the stem tissues. The firs are rarely found to have leaves on occasional branches on which little orange or whitish cups are found. This is the aecial stage of the rust fungus which completes its life cycle on the dwarf blueberry in mountain meadows. In neither of these cases is extensive damage to trees in the Park noted, but epidemics of such diseases could be serious in heavily cropped forests. Usually the rust fungi do not kill their host.

Among the more important fungi of the forest are those which cause rots and decays of living standing timber. The 1949 Yearbook of Agriculture gives the annual loss to the North American forest industries through wood rots as 1.5 billion board feet with a $10 million value of the cull as stumpage or $47 million value of the cull as logs. The heartwood of all

trees is dead wood tissue and the most serious damage is caused to this tissue. The fungus spore enters the tree through an infection court, a wound in the wood, or the stub end of a dead branch. The fungus spore germinates and the hyphae grow in toward the heartwood which is reached eventually and constitutes the food of the fungus. With the destruction of the heartwood the strength of the tree is lost and it can fall more easily during a wind storm. After the death and fall of the tree the fungus rotting the heartwood can penetrate the sapwood which is now dead. In addition, other fungi can penetrate the sapwood and produce decays peculiar to that type of wood. Some fungi use the lignin in the wood, others use the cellulose, a few can use both, but a single wood decay cannot rot away the whole tree. There are secondary types of decay fungi which use the substances the primary wood rots cannot or do not. Eventually, with the help of insects, protozoans and bacteria, the fungi will remove most of the tissues of the tree leaving a space for additional tree seedlings to germinate and develop, keeping the forest in an ever continual state of development.

Among the white rot producers in Lassen Park are several of the less important species, if one estimates importance by the number of times the sporophores or conks of the fungi have been noted. Ganoderma applanatum, the artist's or picture conk, has been found in Warner Valley and near Mineral on logs of Abies concolor. It produces a white mottled rot in timber but has been observed only on fallen logs. Phellinus igniarius, the false tinder conk, produces a white trunk rot in Salix lemmonii, and Populus trichocarpa. On the first it was found on standing trees, on the second on a recently fallen trunk. Conks of Phellinus tremulae, presumably a white-rot-producing fungus, fruit only on mature standing aspen trees. In the park these species are of little importance. Ganoderma oregonense,

the Oregon or giant lacquered conk, has been found twice in higher elevations but can be expected more often. It is reported to cause a soft spongy white rot but has always been collected on stumps showing signs of brown stringy rot. Cryptoporus volvatus, which usually girdles the tree by living in the cambium or growing area of the trunk between the wood and the bark, has been found on several kinds of conifers in the Park. After the death of the tree it may produce a superficial soft greyish rot of conifer slash and dead trees. Phellinus nigrolimitatus produces a white pocket rot in down timber, mostly on Mountain Hemlock. Trichaptum abietinum produces a pitted sapwood rot of conifers. It has been found on most of the conifers in the Park. Bjerkandera adusta has been found on Populus trichocarpa wood in Warner Valley. It produces a white mottled rot mostly in the sapwood.

Among the brown rot producers are some of the more important decay producers in the Park. The commonest of those observed is Fomitopsis pinicola, the red belt conk which forms a brown cubical rot in heartwood and sapwood mostly of firs. Its conks are usually common but malformed possibly because of the long winters and dry summers. Probably much of the brown rot in the Park, especially in older trees, has been produced by the activity of this fungus. Occasionally, conks of three other brown rot producing fungi are found. Laetiporus sulphureus, chicken-of-the-woods or sulphur conk, has been found on a red fir snag at Lower Twin Lake and at Dersch Meadows; Agaricum officinale has been found on a fallen log and a standing lodgepole pine near King Creek Meadows; and Echinodontium tinctorium has been found on several silver fir trees near the Warner Valley campground. A fungus which is always associated with conifer slash and cut logs is Gleophyllum sepiarium which forms a brown pocket rot in

wood which it infects. Two other decay fungi found typically in alpine or subalpine areas in the western states are represented in Lassen Park. These are Tyromyces leucosponia and Aurantioporellus alboluteus. Both fruit when their host logs are under the winter snow-pack. The fruit bodies of the latter are usually eaten by small beetles within three weeks of the melting of the snow. In the higher elevations of the western mountains, in the National Parks and possibly in the National Forests and elsewhere, road guards, bumpers, and other structures designed to make roadsides and parking lots safer, untreated logs of native conifers are used as they are available. These logs are quickly rotted away by Tyromyces leucospongia. Otherwise the fungus causes no significant economic losses. Unprotected timbers used in building construction are subject to decay by the dry rot fungus Serpula lacrimans. The wild form of this species has been found occasionally on logs of conifers in the Park, as well as on logs in a log cabin built directly on the ground near Summit Lake.

Wood Decay

A log may lie on the ground for several years without showing signs of becoming rotted; in the meantime the fungi already living in the heartwood are continuing their activities and those which may have been introduced under the bark by bark beetles, such as the cambium rot (Cryptoporus volvatus), are starting to have their effect. Additional species, such as Trichaptum abietinum attack the newly dead sapwood; while Guepiniopsis alpinus, Mycena lilacifolia, and Hydnotria variiformis grow in the already dead heartwood, although the Hydnotria may fruit here as a matter of convenience since it is probably mycorrhizal with nearly tree roots, and Collybia bakerensis grows on dead bark. Additional species produce conks

(Aurantioporellus alboluteus, Tyromyces leucospongia) or fruiting effusions (Corticium, Peniophora, Poria spp. and segregates of these genera) on the decaying wood. Many different kinds of fruiting devices can be observed depending on the different kinds of fungi which are using the wood as food and decaying it. Several kinds of mushrooms, (Mycena overholtsii, Galerina autumnalis, Pholiota bridgii) prefer this habitat and will fruit especially around snow as it melts, irrigates the wood, and keeps the humidity of the air high, or in wet rotting logs. As the decay process continues, the wood gets more and more rotten and still other kinds of fungi, such as the mushroom Mycena griseoviride, are able to grow and to fruit in this rot. No measurements of water quantity or its movement from melting snow have been made, but apparently percolation is rapid enough to prevent ponding of water and thus drowning of fungal mycelium, thus allowing the fruiting process to continue until the source of water is eliminated.

In the meantime, the twigs and branches are attacked by other fungi, little cup mushrooms (Trichoscyphella arida, Lachnellula agassizii, L. chrysophthalma) whose yellow discs are very colorful when wet by a summer shower, or jelly fungi (Dacrymyces punctiformis, Guepiniopsis alpinus) which come to freshness quickly when moistened; and a wide variety of slash rot fungi. So the old wood is removed and the new forest develops in place of the old.

Among other plants on which fungi grow may be mentioned both the mountain manzanita (Arctostaphylos nevadensis) and the green manzanita (A. patula) on whose dead stems is frequently found the brown effused fruit bodies of Aleurodiscus diffissus. The red blight caused by Exobasidium vaccinii of stems and leaves of both species of manzanita, lends spectacular color to the chaparral, while the witch's brooms of bitter cherry (Prunus emarginata) caused by Taphrina flectens, cause unsightly

distortions of branches on its host. Even the rein orchis (Habenaria leucostachys) of wet meadows is host to a rust, the Aecidium graebneianum state of Puccinia praegracilis, and the marsh marigold is host to Fabraea Fousseaueana. As the snow melts in subalpine snow pockets it uncovers culms of Parry's rush (Juncus parryi) on which are the black pustules of Bifusella acuminata, and even on the outer perianth segments of last year's flowers may be found the cushions of Bricooke sepalorum.

Snow Bank Fungi

At higher elevations, precipitation in the form of snow starts relatively early in the year and the resulting snow stays on the ground for long peiods of time. Even before the snow starts to fall, temperatures have declined in the soil and rotting wood because of shorter days and generally colder weather in late autumn. Such conditions have encouraged the development of a number of fungus species which have become adapted to the colder environment. These are cryophilic (cold loving), at least in part.

Among these cryophilic fungi are two parasites of conifers. Herpotrichia juniperina on firs, hemlock, and incense cedar, and H. coulteri on pines, produce most of their growth and fruit on needle-covered branch tips while these are under the snow. Apparently they require outside moisture and high degrees of relative humidity. They form brown felt-like growths which cover the needles and prevent them from performing their photosynthetic functions after the snow has melted.

A number of fleshy fungi fruit around melting snow. Hygrophorus goetzii mushrooms are found in these locations and some fruit bodies are found growing up in the snow. Lyophyllum montanum fruits on the moist duff at the edge of melting snow. Plectania nannefeldtii (or Paxina nigrella)

grows attached to rotting sticks a few inches from melting snow. Mycena overholtsii fruits on decaying wood as the snow is melting and fresh fruit bodies are found only on wood still being irrigated by melting snow water. At the edge of melting snow banks or on piles of rotting wood still wet from melting snow water Mycena griseoviride is found. The orange cup (Caloscypha fulgens) is common on soil irrigated by melting snow and sometimes is very abundant. A variety of other fungi is also found near melting snow. In many cases it may not be easy to decide whether these fungi actually require the combination of habitat factors found near melting snow, or merely tolerate them.

Soil Fungi

The soil is a living community of fungi, bacteria, algae, protozoans, worms, other burrowing animals, and other small animals of varying sorts, and plant roots, embedded in a matrix formed of gravel, sand, silt, and clay particles as well as humic materials formed from decaying litter materials. Each of the kinds of organisms living in the soil has its own particular part to play in the formation, development, and maturing activities of a soil. The mineral portion of the soil is derived from the rock of the area. In Lassen Park the parent material is andesitic and basaltic lava. As this rock decomposes it forms a sand, coarse or fine or dustlike depending on various factors of age and deterioration. Leaves fall to the ground, roots die, and fungi use these bits of organic matter as nutrients. The acid the molds secrete, as well as that secreted by the lichens on the face of the rock, and the root-hairs penetrating everything, help to decompose the larger rock fragments, as well as the smaller. The fungus cells use what they can of the leaf and root tissues and what is left by the other organisms of the soil. The remains of this activity are

attacked by other fungi until all that is left are humic acids which decompose slowly. We know little of how humic acids are decomposed, but it is suspected that certain types of fungi which produce mushroom-type fruit bodies, as well as types which do not, may be involved.

All cells must be bathed in water. This does not mean that the soil in which they live must be water logged, but it must be moist so that the relative humidity in the air spaces which are abundant in the soil is at or near 100 percent. When the soil starts to dry out several weeks after the snow has melted, then the fungi must develop resting cells and go into a resting stage until enough moisture comes again for their growth to continue. At high elevations this means that many fungi must grow at relatively low temperatures and this is especially true of the brown felt or smothering fungi, and snowbank fungi, at least in the northern hemisphere. It has been found that at high elevations and high latitudes there are fewer bacteria than fungi, proportionately, than at lower elevations and more southerly latitudes where temperatures are usually higher.

A very small amount of work has been done to determine some members of the soil populations in the Park. Two areas in particular were chosen for study. In the first the water and lake shore soils at Emerald Lake and Lake Helen were used. Unfortunately, the soils which were collected were stored in a refrigerator for five years before they were processed. But even then 12 species or species-groups of fungi were recovered (Table 1). In the second, ten samples of relatively dry soils were obtained in the Manzanita Lake area. These were processed within a few weeks of the time of collection and yielded a total of 50 species or species-groups (Table 2). Three of these samples were taken in the Visitor Center area, one from

soil around the bottom of a garbage or litter can, one from soil at the center of visitor congregation, and one from a well irrigated lawn in front of the Ranger's stone house. Six samples were taken from the then new campground, three from a campsite in the chaparral, and three from a campsite under a Jeffrey Pine tree. Of each set of three one came from the front of the stove, one from the more used area under the table, and one from the tent area. The tenth sample was taken fron an undisturbed area under pine in the chaparral across the access road from the "A" loop exit area. Obviously, I was interested in determining the effects of visitor use on the fungus populations, as well as adding species to the list of fungi of the Park.

Unfortunately, one set of samples, taken without replication and during the first year of operation of the campground, did not yield a great deal of information. However, it may be estimated that soil fungi tend to increase as human use of an area increases as long as that use leads to an increase of organic matter of any type of the soil.

Because of the wide variety of habitats available for fungi in Lassen Volcanic National Park, and because of the number of species found in neighboring regions, it is estimated that possibly more than 750 species of fungi occur in the Park. Up to now about 80% of this number (600) have been identified, but only all or parts of 103 days of 15 weeks have been spent in field work in the Park during 23 different years by the writer. During this time more than 3598 collections have been made of which more than half have been identified. In addition, brief seasonal visits have been made by others, especially the late Dr. Lee Bonar, University of California, Berkeley, resulting in additions to the list. Dr. Donald Kowalski, Chico State University, has listed 53 species of slime molds or Myomycetes from the Park. As other trips are made to the Park, with more

time available to study additional areas in other seasons, and with the completion of identification of material already collected, additions will be made to the following list.

FUNGAL SPECIES LIST

The frequency of observation of the species listed is indicated by collection numbers, in the case of records that I have made, or by references to collections made by others. In neither case is there an indication that a species was sighted once or many times. Any frequency data would be incomplete because over-abundant collecting would overtax the facilities of my herbarium and of the herbaria of my correspondents, and incontinent collecting would possibly tax unnecessarily the supply of material available in the Park. The observed frequency of occurrence of more common species is roughly indicated in a few cases.

The dates of collection of a species are listed here, in an attempt to partially establish the phenology of the species. However, phenology will vary for each species as the dates of the seasons vary with the snowpack and other meterological phenomena. While complete phenologic data may be available for certain species in certain years, not enough collections or observations of a species are available over a period of time in the same season or the same locality for a complete presentation of this point for each species. The phenology of a species goes beyond the mere collection of mature material, but, where available, notes will be given.

Constancy of species is indicated only by the series of years listed under the dates of collection. These data are not complete since all species were not collected in all years although in many cases fruit bodies were present.

Data concerning abundance (based on subjective determinations) are given for each species based on the following indices:

I. Very Abundant

II. Abundant

III. Common

IV. Rare

V. Very rare

These indices in Roman numerals will be supplemented by a series of indices in capital letters. One or more combinations of the above numerals and the letters listed below will appear with each species.

A. On coniferous substrata, wood or needles.

B. On broadleaf substrata, wood or leaves.

C. On herbaceous substrata.

D. On soil, humus, duff, or litter.

E. On animals or insects.

F. On other fungi.

G. On dung.

If adventitious species exist in the Park it is as a result of reaching the area with an adventitious host. Wind-blown spores, or spores carried by other means, may not necessarily produce adventitious species if a species can become established at a certain station or on a certain substrate or host. This observation, of course, is based on the hypothesis that all species adaptable to a certain set of environmental conditions can eventually be found in many, if not all, of the stations with these conditions. The presence of Aspergillis niger in the fumaroles once used as garbage incinerators in the summit crater of Lassen Peak, may indicate the presence of adventitious species for it is not certain that this fungus can survive throughout the year at this elevation where freezing temperatures may occur throughout part of each day of the year.

Specific geographic distribution will be considered in connection with only a few of the species listed. Most distributions will be indicated in a general or an incomplete manner since Saccardo's Sylloge Fungorum, and

most monographs consulted for this information, list it in a general manner rather than in specific terms. "Widespread" is not as inclusive as "cosmopolitan"; "North America", "United States", "western states", etc., may include two or more states or provinces. It is not intended that any general designation of location be used to indicate the widespread occurence of a species within the area so designated.

Further information is added for most species such as the more important vascular plants associated with the listed collections, usually in the union or storey in which the host or substrate occurs. In many cases only the principal forest trees are listed.

For fleshy fungi the edibility, or lack of it, is given primarily according to Lincoff (1981), but sometimes supplemented by information from other sources (McKenny & Stuntz, 1971; Miller 1972; Smith, 1975; Smith & Weber, 1980; and Thiers, 1975). Herbaria in which specimens of fungi have been deposited are indicated by conventional symbols. These include: Herbarium of the University of California Berkeley (UC), including specimens collected or obtained by Bonar, Morse, Parks, and others, and from which the exsiccatum set "California Fungi" was issued; Mycological Herbarium of the State University of San Francisco (SUSF), including specimens collected by Thiers, Flowers and Kowalski; the Arthur Rust Herbarium, Purdue University, Lafayette, Indiana (AH) including specimens of rusts collected by pathologists visiting the area; the Commonwealth Mycological Institute (CMI), Kew, England, including specimens sent for identification. The symbol WBC refers to specimens collected by Wm. Bridge and Vivian G. Cooke and deposited in herbaria of the University of California, Berkeley, the Dept. of Plant Pathology, Washington State University, Pullman (WSP), Miami University, Oxford, Ohio (MU), and others.

WBC collections include specimens sent by Lester D. Bodine, Harold Stanley, and James Richardson.

The system of classification used in the following list follows that suggested by Ainsworth (1973). However, there are slight modifications where I have thought appropriate.

Myxomycota

Myxomycetes

Ceratiomyxomycetidae

Ceratiomyxales

Ceratiomyxaceae

Ceratiomyxa fruticulosa (Mueller) Macbride

Found on rotting wood of Abies concolor in the Sunflower Flats area.

Collections: 34077 (7-4-63); also reported by D. T. Kowalski.

Abundance: III, A.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Cosmopolitan.

Myxogasteromycetidae

Physarales

Physaraceae

Fuligo intermedia Macbride

A fruiting mass about 25 cm in diameter was found on conifer duff and stones in the Summit Lake area, 6700 Ft.

Collection: 34967 (7-3-65); also reported by D. T. Kowalski.

Abundance: IV, D.

Associates: Abies magnifica, Pinus contorta var. murrayana.

Distribution: Africa, Pakistan, North America.

Fuligo septica (Linnaeus) Weber

Found on conifer duff in the Sunflower Flats area, 6000 ft. A large yellow plasmodium (blob) which probably belonged to this species was found on a pine log in the Manzanita Lake Campground, 6000 ft. Also in the Butte Lake area.

Collection: 34912 (7-2-65), 49433 (8-29-74), 50746 (9-10-75).

Abundance: III, A, D.

Associates: Abies concolor, Pinus jeffreyi, Pinus contorta var. murrayana.

Distribution: Cosmopolitan.

Leocarpus fragilis (Dickson) Rostkovius

Found on conifer wood in the Sunflower Flats area.

Collection: 34916 (7-2-65); Also reported by D. T. Kowalski.

Abundance: III, A.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Cosmopolitan.

Physarum alpinum (A. & G. Lister) G. Lister

Physarum auripigmentum G. W. Martin

Physarum leucopus Link

Collections: Reported by D. T. Kowalski

Didymiaceae

Diderma lyallii (Massee) Macbride

Found on an old leaf of Allium validum in a meadow along the Brokeoff Mountain Trail, 7500 ft.

Collection: 33482 (8-14-62).

Abundance: V, D.

Associates: Meadow forbs and grasses.

Distribution: Sweden, Central Europe, Chile, Western North America.

Diderma niveum (Rostafinsky) Macbride

Two specimens which had matured poorly are assigned doubtfully to this species. They were collected on conifer wood along the trail to Boiling Springs Lake in Warner Valley, and on Abies magnifica bark along the Manzanita Creek road. Identifiable material was found in the Sunflower Flats area on conifer wood, and on Abies magnifica bark in the Summit Lake area. 6-7000 ft.

Collections: 34923 (7-2-65), 34977 (7-3-65), 37101 (7-9-66), 38741 (8-13-67); also reported by D. T. Kowalski.

Abundance: III, A.

Associates: Abies concolor, Abies magnifica, Pinus contorta var. murrayana, Pinus jeffreyi.

Distribution: Europe, Michigan, Colorado, Nevada, Alaska south to California.

Diderma deplanatum Fries

Diderma globosum Persoon

Diderma subcaeruleum Kowalski

Diderma trevelyani (Greville) Fries

Collections: Reported by D. T. Kowalski

Didymium dubium Rostafinsky

Collections: Reported by D. T. Kowalski

Lepidoderma carestianum (Rabenhorst) Rostafinski

Collections: Reported by D. T. Kowalski

Lepidoderma chailletii Rostafinski

Found on a branch of Tsuga mertensiana three feet above the ground along the Brokeoff Mountain Trail, 7500 feet.

Collections: 33481 (8-14-62); also reported by D. T. Kowalski.

Abundance: III, A.

Associates: Abies magnifica, Tsuga mertensiana.

Distribution: Central Europe, Great Britain, Oregon, California.

Liceales

Liceaceae

Licea castanea Lister

Licea minimum Fries

Licea pusilla Schrader

Collections: Reported by D. T. Kowalski

Reticulariaceae

Enteridium olivaceum Ehrenberg

Collections: Reported by D. T. Kowalski

Reticularia lycoperdon Bulliard

Collections: Reported by D. T. Kowalski

Lycogala epidendrum (Linnaeus) Fries

Found on rotting wood of Abies concolor and Pinus jeffreyi in the Sunflower Flats area, 6000 feet.

Collections: 34061 (7-4-63), 34914 (7-2-65).

Abundance: III, A.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Cosmopolitan.

Cribrariaceae

Cribraria argillacea (Persoon) Persoon

Young material, assignable to this species by D. T. Kowalski, was found on rotting Abies wood in the Boiling Springs Lake area, Warner Valley, 5900 feet.

Collections: 37108 (7-9-66); also reported by D. T. Kowalski.

Abundance: III, A.

Associates: Abies concolor, Calocedrus decurrens.

Distribution: Europe, South Africa, North America.

Cribraria macrocarpa Schrader

Found on rotting conifer wood in the Sunflower Flats area.

Collection: 34934 (7-2-65).

Abundance: IV, A.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Europe, Chile, Colombia, Pakistan, Japan, North America.

Trichiales

Trichiaceae

Arcyria versicolor Phillips

On conifer wood, trail to Boiling Springs Lake, Warner Valley; on Tsuga mertensiana along the trail to Terrace Lake from Summit Highway.

Collections: 37080 (7-9-66), 38698 (8-11-67); also reported by D. T. Kowalski.

Abundance: III, A.

Associates: Abies concolor, Abies magnifica, Pinus jeffreyi.

Distribution: Southeastern Europe, Japan, Western North America.

Hemitrichia montana (Morgan) Macbride

On conifer wood at Sunflower Flats.

Collections: 34953 (7-3-65); also reported by D. T. Kowalski.

Abundance: III, A.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Switzerland, Colorado, Washington, California.

Hemitrichia abietina (Wiegand) G. Lister

Collection: Reported by D. T. Kowalski.

Oligonema schweinitzii (Berkeley) Martin

Collection: Reported by D. T. Kowalski.

Trichia affinis de Bary

Trichia contorta (Ditmars) Rostafinsky

Trichia favoginea (Batsch) Persoon

Trichia pusilla (Hedwig) Martin

Trichia varia (Persoon) Persoon

Collections: Reported by D. T. Kowalski

Dianemaceae

Calomyxa metallica (Berkeley) Lister

Dianema aggregatum Kowalski

Dianema andersoni Morgan

Dianema corticatum Lister

Margarita metallica (Berkeley) G. W. Martin

Collections: Reported by D. T. Kowalski.

Stemonitomycetidae

Stemonitales

Stemonitaceae

Comatricha sp.

Old material was collected in the Summit Lake area on old wood.

Collection: 34960 (7-3-65).

Comatricha nigra (Persoon) Schroeter

On conifer wood in the Summit Lake area.

Collection: 34955 (7-3-75).

Abundance: IV, A.

Associates: Abies magnifica, Pinus contorta var. murrayana.

Distribution: Cosmopolitan.

Comatricha ?nodulifera Wollman & Alexopoulos

Found on wood of Tsuga mertensiana, on the trail to Terrace Lake.

Collection: 42886 (7-30-70), identified by M. L. Farr.

Abundance: V, A.

Associates: Tsuga mertensiana.

Distribution: Texas.

Comatricha suksdorfii Ellis & Everhart

Comatricha pacifica Macbride in Peck & Gilbert

On Abies concolor wood along the trail to Devil's Kitchen, Warner Valley, and on rotten conifer wood in the Sunflower Flats area.

Collections: 34917 (7-2-65), 37076 (7-9-66).

Abundance: IV, A.

Associates: Abies concolor, Pinus jeffreyi, Calocedrus decurrens.

Distribution: Switzerland, Ontario, Western North America,

Comatricha flaccida (Lister) Morgan

Comatricha typhoides (Bulliard) Rostafinsky

Collections: Reported by D. T. Kowalski.

Enerthenema papillatum (Persoon) Rostafinsky

Collections: Reported by D. T. Kowalski.

Lamproderma arcyrioides (Sommerfeldt) Rostafinski

Lamproderma biasperosporum Kowalski

Lamproderma carestiae (Cesati & de Notaris) Meylan

Lamproderma ferrugineum Kowalski

Collections: Reported by D. T. Kowalski.

Stemonitis axifera (Bulliard) Macbride

Found on conifer wood in the Sunflower Flats area.

Collection: 34926 (7-2-65)

Abundance: IV, A.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Cosmopolitan.

Stemonitis fusca Roth

Stemonitis hyperopta Meylan

Collections: Reported by D. T. Kowalski.

Eumycota

Mastigomycotina

No species in this subdivision have been reported from the Park to date. Species with motile spores can be expected in any clear water lake or stream in the park.

Zygomycotina

Zygomycetes

Mucorales

Mucoraceae

Mucor spp.

A number of isolates of species assignable to this genus have been recovered from samples of water and of shore sediments at the water line from Lake Helen; and from soil samples from near a litter receptical at the Visitor Center at Manzanita Lake, from soil under a well-used bench near the Visitor Center; from soil in an undisturbed area adjacent to the Manzanita Lake Campground; from soil near the stove and in the tent area in a site in chaparral in the Campground; and from soil near the table, the stove, and in the tent area in a campsite under a Jeffrey pine tree in the Campground at Manzanita Lake.

Mucor fragilis Bainer

Isolated from soil samples taken from near a litter can at the Manzanita Lake Visitor Center; from a lawn in front of the Ranger's residence near the Visitor's Center; and from near a table in a campsite in chaparral at the Manzanita Lake Campground.

Date: 7-8-63.

Abundance: III, D.

Associates: Pinus jeffreyi, Ceanothus velutinus, Arctostaphylos patula.

Distribution: Cosmopolitan.

Rhizopus spp.

Isolated from soil samples taken in an undisturbed location near the Manzanita Lake Campground; from near a table, near the stove, and in

the tent area, in a campsite in chaparral; and from near a table in a campsite under a Jeffrey pine tree in the Manzanita Lake Campground.

Syzgites megalocarpa Ehrenberg : Fries

Observed on old fleshy fungus fruit bodies (mushrooms).

Distribution: Europe, North America.

Mortierellaceae

Mortierella sp.

Isolated from a soil sample from the tent area in a campsite under a Jeffrey pine tree in the Manzanita Lake Campground.

Endogonaceae

Endogone lactiflua Berkeley & Broome

Found in soil under conifers along the Mt. Harkness Trail. The receptacle was white and fleshy and was produced by an organism which forms a mycorrhizal association with the host plant.

Collection: 42797 (7-27-40), identified by J. M. Trappe.

Abundance: V, D.

Associates: Abies magnifica

Distribution: Europe, New England, California.

Ascomycotina

Hemiascomycetes

Taphrinales

Taphrinaceae

Taphrina castanopsidis Jenkins

Forming yellow blisters on evergreen leaves of Chrysolepis sempervirens on the hill beside the Matteson's home at Mineral, Tehama Co.

Collection: 39239 (7-2-68).

Abundance: V, B.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Calaveras, Tehama, and Siskiyou Counties, CA, Linn County, Oregon.

Taphrina flectans Mix

on Prunus emarginata

Forming witches' brooms on the bitter cherry. The brooms bear leaves which are yellowed and thicker than normal; these diseased leaves and branches die before the healthy ones. Found along the Summit Highway below Sunflower Flat, and near the Hot Rock.

Collection: 34215 (7-7-63) (with H. Stanley), 50725 (9-10-75).

Abundance: IV, B.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Western North America.

Taphrina occidentalis Ray

on Alnus tenuifolia

Causing an elongation and distortion of infected scales of female cones of alder trees and bushes throughout the Park.

Collections: 16672 (7-1-42), California Fungi 836, 26668 (7-1-50), 29589 (7-2-54), 30915 (8-18-57), 34099 (7-5-63), 34999 (7-4-65), 37098 (7-9-66), 45586 (7-12-72).

Abundance: I, B.

Associates: Alnus tenuifolia, Salix spp., herbs of alder thickets.

Distribution: Western North America.

Taphrina populi-salicis Mix

Found on leaves of Willow (Salix laevigata) at Mineral, Tehama Co.

Collection: E. P. Meinicke (9-10-11), cited by A. J. Mix (1947).

Abundance: V, B.

Associates: Willows, meadow herbs and grasses.

Distribution: British Columbia, Washington, Oregon, California.

Plectomycetes

Eurotiales

Eurotiaceae

Eupenicillium lasseni Paden

Isolated, together with its anamorph Penicillium lasseni Paden, by an alcohol technique from soil from a mixed conifer stand at about 1200 M between Morgan Springs and Deer Creek Pass, Lassen National Forest, Tehama Co.

Collection: JWP 69-26 (1969), TYPE strain.

Abundance: V, D.

Associates: Abies concolor and other conifers.

Distribution: Tehama Co., CA, known only from the type locality.

Loculoascomyetes

Myriangiales

Schizothyriaceae

Chaetoplaca sp.

on Sambucus caerulea

Found in the Mineral area.

Collection: 60783B-4 (10-9-81), identified by M.E. Barr

Abundance: V, B.

Associates: Herbs and shrubs of a gravel borrow pit.

Dothideales

Dothideaceae

Mycosphaerella janus (Berkeley & Curtis) Petrak

Dothidella janus (Berkeley & Curtis) von Hoehnel

Dothidella castanopsidis Dearness

Anamorph: Asteromella castanicola (Ellis & Everhart) Petrak

on Chrysolepis sempervirens

Commonly causing a leaf spot of host shrubs in the chaparral in the Manzanita Lake area, and on a shrub at Matteson's, Mineral, Tehama Co.

Collections: 26666 (7-1-50), 42764 (7-26-70), 50673 (9-9-75).

Abundance: II, B.

Associates: Ceanothus velutinus, Arctostaphylos patula.

Distribution: Florida, Texas, Nevada, New Mexico, Washington, Oregon, California.

Mycosphaerella tassiana (de Notaris) Johansen

Found on dead stems of Lupinus obtusilobus along the Summit Trail; and on dead leaves of Carex eurycarpa along the Shadow Lake Trail below the Summit Highway.

Collections: 29529 (7-1-54), 37163 (7-11-66).

Abundance: III, C.

Associates: Pinus albicaulis, Tsuga mertensiana.

Distribution: On more than 51 monocot and 58 dicot hosts, panarctic.

Mycosphaerella tassiana var. arctica (Rostrup) Barr

on Veratrum californicum

Found on dead stems along the Bumpass Hell-Cold Boiling Lake Trail.

Collections: 37170 (7-12-66), Identified by M. E. Barr.

Abundance: V, C.

Associates: Forbs and grasses of wet areas.

Distribution: Widespread, Arctic-Alpine.

Pseudosphaeriaceae

Leptosphaeruclina hyperborea (Fckl.) Barr

on Arctostaphylos nevadensis

Found at about 8000 ft. along the Brokeoff Mountain Trail.

Collection: 42854 (7-29-70), identified by M.E. Barr.

Abundance: V, B.

Associates: Arctostaphylos nevadensis, Pinus albicaulis.

Distribution: Artic-Alpine, North America and Europe.

Herpotrichiella sp.

on Arctostaphylos patula

Found along the Manzanita Creek Trail.

Collection: 45611 (7-13-72), identified by M.E. Barr.

Abundance: V, B.

on Populus trichocarpa

Found along Manzanita Lake.

Collection: 39384 (7-21-84), Identified by M.E. Barr.

Abundance: V, B.

Associates: Lake shore trees, and seral chaparral.

Chaetothyriales

Herpotrichiellaceae

Berlesiella sp.

Found along the Manzanita Creek trail on Arctostaphylos patula, and near Drakesbad along Warner Creek on Populus trichocarpa.

Collections: 39384 (7-12-68), 45611 (7-13-72).

Lophiostomataceae

Lophiostoma caulium (Fr.) Ces. & de Not. Var. Caulium

on Haplopappus bloomeri

Found at about 8000 ft. along the Brokeoff Mountain Trail.

Collection: 42862 (7-29-70), identified by M.E. Barr.

Abundance: V, B.

Associates: Plants of the timberline region.

Distribution: Europe, North America

Lophiostoma caulium var. congregatum (Harkness) Chesters & Bell

Found on Chrysothamnus nauseosus var. occidentalis on top of Mt. Conard.

Collection: 45531 (7-10-72).

Abundance: V, B.

Associates: Arctostaphylos nevadensis, Holodiscus microphyllus

Distribution: California.

Pleosporaceae

Bricookea sepalorum (Vleugel) Barr

Metasphaeria sepalorum Vleugel

Leptosphaeria sepalorum (Vleugel) Lind

on Juncus parryi

Forming patches of grey tissue on the outer surface of old flowers of the host in subalpine and snow-bowl areas along the Summit Trail.

Collections: 25567 (8-27-49), 29530 (7-1-54).

Abundance: III, C.

Associates: Abies magnifica, Tsuga mertensiana, Pinus albicaulis.

Distribution: On at least three species of Juncus, and 1 of Luzula in Iceland, Spitzbergen, Swedish Lappland, Sweden, Wyoming, Washington, Oregon, California.

Massarina sp.

on Sambucus caerulea

Found on dead canes on shrubs in gravel borrow pit along SR-36 near Mineral.

Collection: 60783B-2 (10-9-81), Identified by M.E. Barr.

Abundance: V, B.

Associates: Sambucus caerulea and other borrow pit plants.

Didymosphaeria minutella Penzig & Saccardo

on Carex spectabilis

Found on litter along the Brokeoff Mountain Trail.

Collection: 42855 (7-29-70), identified by E. Mueller.

Abundance: V, C.

Associates: Forbs and grasses of spring areas.

Distribution: Java.

Herpotrichia coulteri (Peck) Bose

Neopeckia coulteri Peck

on Pinus albicaulis

Found along the Summit Trail and in the Eagle Peak area, as a smothering fungus on needles and branch tips, apparently formed while the branches are buried in the winter snowpack.

Collections: 29525 (7-1-54), 42810 (7-28-70), 50773 (9-11-75).

on Pinus contorta var. murrayana

Found at Summit Lake.

Collections: 34973 (7-8-34); Lee Bonar, distributed as California Fungi No. 654 (7-3-65).

on Pinus jeffreyi

Found at Sulphur Works, and at an unstated location.

Collections: 29533 (7-2-54), E. E. Morse (1928).

on Pinus monticola

Found at Summit Lake.

Collection: Lee Bonar (7-8-34), Distributed as California Fungi No. 486.

Abundance: II, A.

Associates: All conifers in the Park.

Distribution: Europe, Western North America, California.

Herpotrichia juniperi (Duby) Petrak

Herpotrichia nigra Hartig

Found in the Park forming brown webs on needles and branches which were covered with snow wherever snow stands long enough to permit development of the fungus.

on Abies concolor

Location not specified.

Collector: E. E. Morse (1928).

on Abies magnifica

Along the King Creek Falls Trail; Paradise Meadows area.

Collections: 29532 (7-1-54), 49425 (8-29-74).

on Calocedrus decurrens

Along the trail to Boiling Springs Lake, Warner Valley.

Collection: 37096 (7-9-66).

on Tsuga mertensiana

Along the Terrace Lake Trail.

Collection: 42895 (7-30-70).

Abundance: II, A.

Associates: All conifer species in the Park.

Distribution: Europe, Norway, Sweden, Swedish Lappland, Greenland, Iceland, North America.

Leptosphaeria sp.

on Carex arthrostachys

Collected on dead leaves in Conard Meadows.

Collector: H. Stanley (8-28-72).

Abundance: V, C.

Associates: Meadow forbs and grasses.

Leptosphaeria galiorum (Roberge & Desmazières) Cesati & de Notaris

Leptosphaeria aparines (Fuckel) Saccardo

on Lupinus sp.

Found on dead herbage along the Manzanita Creek trail.

Collection: 42756 (7-20-70), identified by E. Mueller.

Abundance: V, C.

Associates: Forbs of mixed conifer association.

Distribution: Europe.

Leptosphaeria macrospora (Fckl.) Thuem.

on Lupinus sp.

Found on dead stems along the Manzanita Creek Trail.

Collection: 42754 (7-26-70).

Abundance: V, C.

Associates: Abies magnifica.

Distribution: Temperate Europe and North America.

Leptosphaeria maculans (Desmaziéres) Cesati & de Notaris

Leptosphaeria sowerbyi (Fuckel) Saccardo

on Lupinus sp.

Found on dead herbage in the Summit Lake area.

Collection: 50571 (9-7-75).

Abundance: V, C.

Associates: Forbs of the Abies magnifica association.

Distribution: Europe.

Leptosphaeria vagans Karsten

On old herbage of (1) sedges. (Carex sp.) on the east slope of Diamond Peak, and on old herbage of (2) Sitanion jubatum on the shore of Butte Lake.

Collection: (1) Lee Bonar, distributed as California Fungi No. 1167 (7-11-62).

Collection: (2) Lee Bonar, distributed as California Fungi No. 1168 (7-10-62).

Abundance: IV, C.

Associates: Herbs and grasses of wet and dry meadows.

Distribution: Panarctic.

Kirchsteiniothelia aethilops (Berk. & Curt.) Hawksworth

Michrothelia incrustans (Ell. & Ev.) Hughes

on Populus tremuloides

Found in the aspen grove above Paradise Meadow

Collection: 42925 (7-30-70), identified by M. E. Barr.

Abundance: V, B.

Associates: Populus tremuloides.

Distribution: Widespread, temperate regions.

Mycomicrothelia macularis (Massalongo) Keissler

on Holodiscus microphyllus.

Found on the top of Mount Conard.

Collection: 45528 (7-10-72).

Abundance: V, B.

Associates: Arctostaphylos nevadensis, Chrysothamnus nauseosus var. occidentalis.

Distribution: Europe, California.

Nodulosphaera erythrospora (Riess) L. Holm

on Sambucus caeruleus

Found on dead canes of shrubs in a gravel borrow pit along SR-36 near Mineral.

Collection: 60783B-3 (10-9-81), identified by M. E. Barr.

Abundance: V, D.

Associates: Sambucus caerulea and other plants of borrow pits.

Distribution: Widespread, on many hosts.

Nodulosphaeria octoseptata (Wehmeyer) Holm

on Veratrum californicum

Found on overwintered stems along the Bumpass Hell-Cold Boiling Lake Trail.

Collection: 37170 (7-12-66), identified by M. E. Barr.

Abundance: V, C.

Associates: Forbs and grasses of wet places.

Distribution: Wyoming, California mountains.

Phaeosphaeria caricinella (Karsten) O. Eriksson

on Carex spectabilis

Found on dead herbage along the Brokeoff Mountain Trail.

Collection: 45528 (7-30-70), identified by E. Mueller.

Abundance: V, C.

Associates: Forbs of spring areas.

Distribution: Scattered in Northern Europe and North America

Phaeosphaeria insignis (Karsten) L. Holm.

on Carex spectabilis

Found on dead herbage along the Brokeoff Mountain Trail.

Collection: 42855 (7-30-70), identified by E. Mueller.

Abundance: V, C.

Associates: Forbs of spring areas.

Distribution: Scattered in Northern Europe and North America.

Pleospora sp.

On old stems of Wyethia mollis near Crumbaugh Lake.

Collection: H. Stanley (8-28-72).

Associates: Forbs of open meadows.

Pleospora gigaspora Karsten

on Carex spectabilis

Found on dead herbage along the Brokeoff Mountain Trail.

Collection: 42855 (7-30-70), identified by E. Mueller.

Abundance: V, C.

Associates: Forbs of streamside areas.

Distribution: France, Sweden, Lappland.

Pleospora magnifica Peck

on Lupinus ornatus

Found in the Eagle Peak area, 8500-9000 ft.

Collection: 42805 (7-28-70), identified by M. E. Barr.

Abundance: V, C.

Associates: Herbs and shrubs of alpine areas.

Distribution: Described from Utah.

Pleospora permunda (M. C. Cooke) Wehmeyer

On overwintered stems of herbs of the parsley family.

Collection: 33483A (8-14-62).

Abundance: IV, C.

Associates: Meadows herbs and grasses.

Distribution: Europe, Asia, southern South America, western North America.

Pleospora nr. pluriseptata Wehmeyer

on Lupinus ornatus

Found in the Eagle Peak area, 8500-9000 ft.

Collection: 42805 (7-28-70), identified by M. E. Barr.

Abundance: V, C.

Associates: Herbs and shrubs of alpine areas.

Distribution: Described from Mt. Rainier National Park, Washington.

Pleospora richtophensis Ellis & Everhart

on Monardella odoratissima

The stems of various plants are decayed by fungi like this which are found fruiting on them after the snow melts and before they are completely decomposed. King Creek Meadows area.

Collection: 29534 (7-2-54).

Abundance: IV, C.

Associates: Herbs and grasses of dry meadows.

Distribution: Iran, Spain, western North America.

Pleospora tragacanthae Rabenhorst

Found once on previous year's leaves of Phlox diffusa near Lower Twin Lake.

Collection: Gillett 77 (7-15-52).

Abundance: V, C.

Associates: Pinus contorta var. murrayana.

Distribution: Europe, Greenland, Tierra del Fuego, western North America.

Teichospora pomiformis Karsten

Several species of wood decay fungi attack the woody stems of shrubs like Haplopappus bloomeri. This species produces minute apple-like fruit bodies which are really double walled perithecioids, on the dead wood of old branches. This material was found along the Summit Trail.

Collection: 29526 (7-1-54).

Abundance: V, B.

Associates: Haplopappus bloomeri, Pinus albicaulis.

Distribution: Finland, California.

Trematosphaeria heterospora (de Notaris) Winter

Fruiting on dead stems of Lupinus obtusilobus found along the lower part of the Summit Trail.

Collection: 29527 (7-1-54).

Abundance: V, C.

Associates: Pinus albicaulis.

Distribution: Italy, California.

Sporormiaceae

Sporormia intermedia Auerswald

Found on cow manure near Hat Lake.

Collection: 30396 (7-22-56).

Abundance: V, G.

Associates: Salix spp., Populus tremuloides.

Distribution: Widespread.

Hysteriales

Hysteriaceae

Glyphium elatum (Greville) Zogg

on *Populus trichocarpa*

Found on trees along Manzanita Lake.

Collection: 39384 (7-12-68), identified by M. E. Barr.

Abundance: V, B.

Associates: *Populus trichocarpa*, *Salix* spp.

Distribution: Europe, West Coast of North America

Lophium elatum Greville

Found along the Manzanita Creek Trail on *Arcotostaphylos patula*.

Collection: 39384 (7-12-68).

Abundance: V, B.

Associates: *Arctostaphylos patula*, *Ceanothus velutinus*.

Distribution: Europe, North America.

Hysterographium mori (Schw.) Rehm in Zogg

Ostreola sp.

on *Pinus albicaulis*

Found in the Eagle Peak area at about 8500 ft.

Collection: 42804 (7-28-70), identified by M. E. Barr.

Abundance: V, A.

Associates: *Pinus albicaulis*.

Distribution: Western alpine regions.

Pyrenomycetes

Erysiphales

Erysiphaceae

Erysiphe cichoracearum DC. ex Mérat

on Phacelia mutabilis

Found in open meadows on Battle Creek Meadows Ranch, Mineral, Tehama Co.

Collections: 49393 (8-28-74), 54371 (10-30-76).

Abundance: IV, C.

Associates: Meadow forbs and grasses.

on Mimulus guttatus

Found in the Mineral Home Owners' water supply spring, Mineral.

Collection: 53552 (10-11-76).

Abundance: V, C.

Associates: Forbs of the spring area.

Distribution: Cosmopolitan, Tehama Co.

Erysiphe graminis DC.

On Trisetum spicatum

Observed along the Brokeoff Mountain Trail at about 8,000 ft.

Collection: 53550 (10-11-76).

Abundance: V, C.

Associates: Marginal streamside forbs and grasses.

Distribution: Cosmopolitan.

Microsphaera alni DC. ex Winter.

on Quercus lobata

Found on a small tree in the Bruners' yard, Mineral.

Collection: 54135A (10-25-76).

Abundance: V, B.

Associates: Pinus jeffreyi, Abies concolor.

Distribution: Widespread.

Spaeriales

Amphisphaeriaceae

Apiosporella mimuli Wehmeyer

One of the several kinds of decay-producing fungi growing on dead stems of plants. Found on dead stems of Allium validum, the alpine onion, in King Creek Meadows.

Collection: 26663A (7-1-50).

Abundance: V, C.

Associates: Forbs and grasses of meadows.

Distribution: Wyoming, Mt. Shasta.

Exarmidium diaphanum (Eke. & Ell.) Barr & Boise

on Phyllodoce breweri

Found in the Eagle Peak area at about 8500 ft.

Collection: 42812 (7-28-70), identified by M. E. Barr.

Abundance: V, B.

Associates: Herbs and shrubs of the alpine area.

Distribution: Scattered in North America

Hymenopleella sp.

on Ceanothus velutinus

Found along the Loomis Peak Trail.

Collection: 30904 (8-17-57), identified by M. E. Barr.

Abundance: V, B.

Associates: Ceanothus velutinus, Arctostaphylos patula.

Physalospora abietina Prillieux & Delacrois

Found once on needles of Abies concolor while still attached to the tree, east shore of Manzanita Lake.

Collection: Lee Bonar (7-10-62), identified by J. W. Groves.

Abundance: V, A.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: France, California.

Coronophoraceae

Nitschkia grevillei (Rehm) Nannefeldt

on Alnus tenuifolia

Found in the Paradise Meadows area.

Collection: 30404A (7-22-56), identified by M. E. Barr.

Abundance: V, B.

Associates: Shrubs of the banks of Hat Creek.

Distribution: Widespread, temperate Europe, Asia, North and South America.

Diatrypaceae

Diatrypella discoides M. C. Cooke & Peck var. alni M. C. Cooke

Found on dead branches of Alnus tenuifolia along Reflection Lake Manzanita Lake, and in the Kings Creek Meadow area.

Collections: 34161 (7-7-63), 35073 (7-6-65), 39357 (7-11-68), identified by M. E. Barr.

Abundance: IV, B.

Associates: Abies concolor, Salix spp., Alnus tenuifolia, Abies magnifica, and Tsuga mertensiana.

Distribution: New York, Carolina, California.

Diatrypella rimosa Shear

Found in the King Creek Meadows area on wood of Tsuga mertensiana.

Collections: 39357 (7-11-68).

Abundance: V, A.

Associates: Abies magnifica, Tsuga mertensiana.

Distribution: Europe, eastern North America, California.

Hypomycetaceae

Hypomyces aurantius (Persoon : Fries) Tulasne

This genus contains a number of fungi which attack and grow on the fruit bodies of other fungi. This species was found on a large conk of Laetiporus sulphureus, the sulphur polypore or chicken of the woods, which had developed the previous season on Abies magnifica near Twin Lakes, and on a conk of this polypore on A. magnifica near Summit Lake. Although immature it was readily identified by C. T. Rogerson. Also found on an old unidentified polypore in the Sunflower Flats area, and on Tyromyces leucospongia.

Collections: 34076 (7-4-63), 35038 (7-5-65), 53408 (10-10-76), 54237 (10-28-76).

Abundance: IV, F.

Associates: Abies concolor, A. magnifica, Pinus jeffreyi, P. contorta var. murrayana.

Distribution: Europe, Cuba, North America.

Ophiostomataceae

Ceratocystis ?pilifera (Fries) C. Moreau

On wood of *Populus tremuloides* in a small grove on an outcrop above Paradise Meadows.

Collections: 42931 (7-30-70), identified by J. R. Dixon.

Abundance: V, D.

Associates: *Salix* spp., *Populus tremuloides*.

Distribution: Europe, North America.

Sordariaceae

Coniochaeta sp., immature.

on *Holodiscus microphyllus*

Found on top of Mount Conard.

Collection: 45528 (7-10-72), identified by M. E. Barr.

Coniochaeta ligniaria (Greville) Massee

on *Sambucus caerulea*

Found in a gravel borrow pit along SR-36 near Mineral.

Collection: 60783B-1 (10-9-81), identified by M. E. Barr.

Abundance: V, B.

Associates: *Sambucus caerulea* and other borrow pit plants.

Distribution: Widespread.

Rosellinia ovalis (Ellis) Saccardo

(*Coniochaeta*)

on *Populus trichocarpa*

Found along Warner Creek near the Campground

Collection: 37115 (7-10-66), identified by M. E. Barr.

Abundance: V, B.

Associates: Alnus tenuifolia, Populus trichocarpa, Salix spp.

Distribution: Western and some eastern North America.

Coniochaeta pulveracea (Ehrenb. : Fr.) Munk

Found at Paradise Meadows on Alnus tenuifolia and Populus trichocarpa.

Collections: 30404A (7-22-56), 42928 (7-30-71), identified by M. E. Barr.

Abundance: IV, B.

Associates: Alnus tenuifolia, Populus trichocarpa, Salix spp.

Distribution: Europe, North America.

Lasiosphaeria caudata (Fuckel) Saccardo

on Populus tremuloides

Found on wood in the Butte Lake area.

Collection: 53196 (10-7-76), identified by J. H. Haines.

Abundance: V, B.

Associates: Populus tremuloides, Pinus contorta var. murrayana.

Distribution: Europe, North America.

Xylariaceae

Hypoxylon sp.

Found on rotting wood.

Collection: 34158 (7-7-63).

Hypoxylon mediterraneum (de Notaris) J. H. Miller

on Ceanothus velutinus

Occurring on dead stems where this shrub is smothered by new groves of Abies concolor and other forest trees.

Collections: 34059 (7-4-63), 34910 (7-2-65).

Abundance: III, B.

Associates: Arctostaphylos patula, Abies concolor.

Distribution: Widespread, United States.

Discomycetes

Phacidiales

Rhytismataeae

Bifusella acuminate (Ellis & Everhart) Bonar & W. B. Cooke

on Juncus parryi

Found commonly on dead culms in snow pockets in subalpine areas, and near King Creek Meadows, and Summit Lake

Collections: 26654A, 26659 (7-1-50), 26985 (9-26-50).

on Carex breweri

Collector: L. Bodine (Sept. 1972).

Abundance: III, C.

Associates: Juncus parryi, Carex breweri, snow pocket herbs

Distribution: on Juncus in Colorado: on Juncus parryi on most of the Cascade peaks, Mt. Shasta.

Colpoma crispa (Persoon : Fries) Saccardo

Clithris crispa (Persoon) Rehm

This fungus grows on dead wood of Abies magnifica, Tsuga mertensiana and Populus trichocarpa on which it forms blackened areas on which the inconspicuous boat-shaped fruit bodies are produced. Collected along the King creek Trail, at Summit Lake and at Manzanita Lake.

Collection: 30420 (7-22-56), 34981 (7-3-65), 37190 (7-14-66), 39387 (7-12-68), L. Bodine (Sept. 1972).

Abundance: III, A.

Associates: Abies magnifica, Tsuga mertensiana, Alnus tenuifolia, Populus trichocarpa, Salix sp.

Distribution: Europe, Western North America.

Davisomycella medusa (Dearness) Darker

Hypodermella medusa Dearness

or Pinus jeffreyi

A needle cast fungus found by Lee Bonar at Manzanita Lake.

Collection: Lee Bonar (8-18-49), distributed in California Fungi No. 778.

Abundance: V, A.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Colorado, northern California.

Elytroderma deformans (Weir) Darker

on Pinus jeffreyi

In addition to being a needle-cast fungus, one which causes the evergreen conifer to lose its leaves prematurely, this fungus causes a type of deformation called "witches' broom." It produces an obvious disease in some Jeffrey pines in the Manzanita Lake area. See Childs, 1968.

Collections: 30024 (8-18-49); Lee Bonar, distributed in California Fungi No. 769.

Abundance: Abies Concolor, Pinus jeffreyi.

Distribution: Ontario, Western North America, Georgia.

Gloniella lapponica Karsten

on Arctostaphylos nevadensis

Small black boat-shaped fruit bodies of this fungus are found occasionally on blackened twigs of the host along the Summit Trail.

Collection: 26640 (7-1-50).

Abundance: V, B.

Associates: Pinus albicaulis, Tsuga mertensiana.

Distribution: Lapland, Mt. Shasta.

Hypoderma tunicatum Ellis & Everhart

on Arctostaphylos nevadensis

Found along the King Creek - Devil's Kitchen Trail.

Collection: 45560 (7-11-72).

Abundance: V, B.

Associates: Abies magnifica.

Distribution: Western North America.

Lirula abietis-concoloris (Mayr ex Dearness) Darker

on Abies concolor

Reported from LAVO by Darker, 1967.

Lophodermium decorum Darker

on Abies concolor

Found on needles of silver fir not far from the south boundary of the Park, 4.4 miles south of the Elam Creek bridge near SR-32, Lassen National Forest.

Collection: Lee Bonar (8-22-54), distributed as California Fungi No. 901.

Abundance: V, A.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Montana, Oregon, California.

Logphodermium pinastri (Schroeter ex Hooker) Chevalier

on Pinus monticola

Found on fallen needles of trees between Lower Twin Lake and Butte Lake.

Collection: 35040 (7-5-56).

on Pinus jeffreyi

Found on fallen needles in Manzanita Lake area.

Collections: 34057 (7-4-63), 45612 (7-13-72).

Abundance; III, A.

Assocaites: Abies concolor, Pinus jeffreyi, Pinus monticola.

Distribution: Europe, India, North America.

Phacidiaceae

Hypoderma tunicatum Ellis & Everhart

(Sporomega)

on Arctostaphylos nevadensis

Found at about 8000 ft. along the Brokeoff Mountain Trail.

Collection: 42854 (7-29-70), identified by M. E. Barr.

Abundance: V, B.

Associates: Timberline plants.

Distribution: Washington, California.

Cryptomycina pteridis (Rebentisch : Fries) von Hoehnel

Anamorph: Gloeosporium pteridis Harkness

on Pteridium aquilinum var. pubescens

Found at Paradise Meadows.

Collection: 42933 (7-30-70).

Abundance: V, C.

Associates: Abies concolor, Pinus contorta var. murrayana

Distribution: Siberia, Europe, North America.

Heoltiales

Hemiphacidiaceae

Sarcotrochila balsameae (Davis) Bonar

Stegopezizella balsameae (Davis) Sydow

on Abies concolor

Found on living needles in groves in the north portion of the Park five miles south of Manzanita Lake along the Summit Highway.

Collector: Lee Bonar (7-30-53, 8-21-54).

Abundance: IV, A.

Associates: Abies concolor, Pinus contorta var. murrayana.

Distribution: Ontario, Wisconsin, Oregon, California.

Dermateaceae

Calloria oleosa (Ellis) Saccardo

Tiny orange cups are formed on dead stems of a member of the parsley family along the Brokeoff Mountain Trail.

Collection: 33483.

Abundance: V, C.

Associates: Herbs and grasses of stream-side meadows.

Distribution: California.

Cenangium aureum Ellis & Everhart

on Ceanothus velutinus

Found on dead branches along the Manzanita Creek trail, 6500 ft.

Collection: 30903 (8-17-59).

Abundance: V, B.

Associates: Arctostaphylos patula, Ceanothus velutinus.

Distribution: California.

Chlorociboria sp.

Several species in this genus stain the wood on which they grow green.

on Arctostaphylos nevadensis

Green stained wood was found on top of Mt. Conard, 8200 ft.

Collection: 45530 (7-10-72).

on Populus tremuloides

Green stained wood has been found in the aspen grove above Paradise Meadows.

Collection: 42931 (7-30-70).

Fabraea rousseauana Saccardo & Bommer

Found on leaves of Caltha biflora in a mountain meadow.

Collection: Lee Bonar (7-8-34).

Abundance: V, C.

Associates: Meadow herbs and grasses.

Distribution: Belgium, California.

Haglundia perelegans Nannfeldt

on Arctostaphylos patula.

Found on manzanita wood along the Manzanita Creek trail.

Collection: 45611 (5-13-62).

Abundance: V, B.

Associates: Arctostaphylos patula, Ceanothus velutinus.

Distribution: California.

Mollisia cinerea (Batsch : Fries) Karsten

One of the less conspicuous cup fungi in the Park is this species which forms small grey cups on wet rotting wood. Found on rotting Abies magnifica wood in the Winter Sports area, on Ceanothus cordulatus near Mineral, and on Populus tremuloides near the Hot Rock.

Collection: 26605 (7-1-60), 53142 (10-6-76), 54418 (10-31-76).

Abundance: III, A, B.

Associates: Abies magnifica, Alnus tenuifolia, Populus tremuloides, Salix sp.

Distribution: Widespread.

Mollisia piceae (Persoon) Quélet

On dead attached needles of Abies concolor, along the east shore of Manzanita Lake.

Collection: Lee Bonar (7-10-62), identified by J. W. Groves.

Abundance: A, A.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: California.

Tapesia mollisioides (Schweinitz) Saccardo

on Salix sp.

Found at Juniper Lake Campground.

Collection: 53059 (10-5-76), identified by J. H. Haines.

Abundance: V, B.

Associates: Salix spp., Pinus contorta var. murrayana.

Distribution: New England to Ohio and South Carolina, California.

Hyaloscyphaceae

Dasyscyphus sp.

Immature material of this fungus was found on rotting wood.

Collection: 41268 (8-18-69).

Dasyscyphus bicolor (Bulliard ex Mérat) Fuckel var. bicolor

This little cup fungus with a white hairy surface and a yellow disc occurs occasionally on dead twigs of most kinds of broad-leaved shrubs and trees.

on Alnus tenuifolia

Found on dead twigs on the Brokeoff Mountain Trail, along the Paradise Meadows Trail, at Battle Creek Meadows Ranch, and above Cabin 17 at the Lassen Volcanic National Park Headquarters area, Mineral.

Collections: 30410 (7-27-56), 33487 (8-14-62), 34199, 34200, 34417 (7-7-63), 45583 (7-12-72), 49369 (8-28-74), 52947, 52948, 53950 (10-3-76), 53158 (10-6-76), 53479A, 53547 (10-11-76), many identified by J. H. Haines.

on Arctostaphylos patula

Found on dead twigs in the Reflection Lake area.

Collection: 35076 (7-6-65), identified by R. P. Korf.

on Ceanothus velutinus

Found on dead twigs at Sunflower Flat.

Collection: 34054, 34063, 34064, 34068 (7-4-63), 39296 (7-8-68).

On Populus tremuloides

Found on dead twigs in the aspen grove above Hat Lake.

Collection: 34193 (7-7-63).

on Salix sp.

Found on dead twigs on a shrub at Bruners' Place, Mineral.

Collection: 60802 (10-7-81).

Abundance: III, B.

Associates: Most conifers and broadleaved woody plants.

Distribution: Widespread, California.

Dasyscyphus crystallinus (Fuckel) Saccardo

on Quercus vaccinifolia

Found in the Devil's Kitchen area.

Collection: 53355 (10-8-76), identified by J. H. Haines.

Abundance: V, B.

Associates: Quercus vaccinifolia, Ledum glandulosum var. californicum.

Distribution: Europe, California.

Dasyscyphus serinellus (Quélet) Saccardo

on Tsuga mertensiana

Tiny yellow cups occur on needles in the litter in moist pockets along the Terrace Lake Trail.

Collection: 39327 (7-10-68).

Abundance; V, D.

Associates: Abies magnifica, Tsuga mertensiana.

Distribution: Europe, Mt. Shasta.

Dasyscyphus succineus (Phillips) Saccardo

on Ceanothus velutinus

Small olive yellow cups have been found on twigs at Sunflower Flats.

Collection: 34072 (7-4-63).

Abundance: V, B.

Associates: Arctostaphylos patula, Ceanothus velutinus.

Distribution: Colorado, Utah, Mt. Shasta.

Dasyscyphus virgineus S. F. Gray

on Alnus tenifolia

Small white cups have been found on twigs in the vicinity of Boiling Springs Lake, Warner Valley, along the Brokeoff Mountain Trail, and above Cabin 17 in the LAVO Headquarters area, Mineral.

Collection: 37094 (7-9-66), 52941 (10-3-76), 53546A (10-11-76), in part identified by J. H. Haines.

on Chrysolepis sempervirens

Found on twigs along the Bumpass Hell to Cold Boiling lake Trail.

Collection: 54277 (10-29-76), identified by J. H. Haines.

on Populus tremuloides

Found on twigs in the aspen grove above Hat Lake.

Collection: 42934 (7-30-70), identified by J. H. Haines.

Abundance: III, B.

Associates: Most conifers and broad-leaved shrubs in the Park.

Distribution: Widespread.

Hyaloscypha stevensonii (Berkeley & Broome) Nannfeldt

on Abies concolor

Found along the Summit Road near the Hot Rock, and in Battle Creek Meadows Ranch, Mineral.

Collections: 52997 (10-4-76), 53147 (10-6-76), identified by J. H. Haines.

on Tsuga mertensiana

Found near the head of the Terrace Lake Trail.

Collection: 61907 (9-12-83), identified by J. H. Haines.

Abundance: IV, A.

Associates: Abies concolor, Pinus jeffreyi, Pinus contorta var. murrayana, Tsuga mertensiana.

Distribution: Western North America.

Hyalopeziza subgen. Unguicularia sp.

on Calocedrus decurrens

Found on twigs along the creek above Cabin 17, LAVO Headquarters, Mineral.

Collection: 52940 (10-3-76).

Lachnellula agassizii (Berkeley & Curtis) Dennis

Dasyscypha agassizii (Berkeley & Curtis) Saccardo

Growing on bark, twigs, and wood of Abies magnifica, Tsuga mertensiana, and Pinus contorta var. murrayana, and probably other conifers, this white cup fungus with a bright yellow disc is found occasionally. It is inconspicuous when dry and folded up. It has been found in the Winter Sports area, Paradise Meadows, King Creek Meadows, along the Summit Trail, and in the Hot Rock area.

Collections: 26620, 26626 (7-1-50), 30306 (7-22-56), 34135, 34148A, 34155 (7-6-63), 40714 (7-10-75).

Abundance: III, A.

Associates: Abies magnifica, Pinus albicaulis, P. contorta var murrayana, Tsuga mertensiana.

Distribution: New England, Wisconsin, California, Mt. Shasta.

Lachnellula arida (Phillips) Dennis

Dasyscpha arida (Phillips) Saccardo

This is one of the commoner cup fungi which grow on dead twigs and wood of conifers in the Park. When fresh or wet its dark yellow disc is very showy for it occurs in large numbers. When dry only its brown, hairy, and rather inconspicuous outer surface is all that can be seen.

on Abies concolor

Found in the Sunflower Flats area.

Collection: 34928 (7-7-65).

on Abies magnifica

Found in the Sifford Lakes area, along the Brokeoff Mountain Trail, and elsewhere in the Park.

Collections: 30418 (7-11-34), Lee Bonar distributed in California Fungi No. 442 (7-12-42), 45567 (7-22-56), 45585 (7-11-72).

on Pinus albicaulis

Found near the upper limit of tree growth on the Summit Trail, 9000 ft.

Collection: 26637 (7-1-50).

on Pinus contorta var. murrayana

Found near the aspen grove near the Hot Rock.

Collection: 50711 (9-10-75).

On Tsuga mertensiana

Found near the upper limit of growth of this species on the Summit Trail and in the Eagle Peak area, 8700-9000 feet.

Collection: 26632 (7-1-50), 42807 (7-28-70).

Associates: Most of the conifers in the Park.

Distribution: Western North America, Mt. Shasta.

Lachnellula chrysophthalma (Persoon : Fries) Karsten

on Abies magnifica

A white hairy cup fungus with a yellow disc found only on conifer wood; found near Bumpass Hell.

Collection: 29557 (7-2-54).

on Pinus albicaulis

Found along the Summit Trail.

Collection: 26641 (7-1-50).

Abundance: IV, A.

Associates: Abies magnifica, Pinus albicaulis, Tsuga mertensiana.

Distribution: Europe, North America, Mt. Shasta.

Lachnellula subtilissima (M.C. Cooke) Dennis

on Tsuga mertensiana

Found along Terrace Lake Trail.

Collection: 59029 (7-1-80).

Abundance: V, A.

Associates: Abies magnifica, Tsuga mertensiana.

Distribution: Western North America.

Trichopezizella reiliana var. macrospora (Raitvir) Haines

on Populus tremuloides

Small white cups were found on dead aspen twigs in the aspen grove above Hat Lake.

Collection: 42935 (7-30-70), identified by J. H. Haines.

on Veratrum californicum var. caudatum

Found at 7500 feet by J. H. Haines, Specht and W. C. Denison.

Collection: J. H. Haines 538 (NYS) (7-23-67).

Abundance: IV, B, C.

Associates: Populus tremuloides; forbs of wet meadows.

Leotiaceae

Bisporella citrina (Hedw. : Fr.) Korf & Carpenter

on Populus tremuloides

Found on rotting wood in the aspen grove near the Hot Rock, near the Mineral Home Owners' water supply spring, and in the Battle Creek Meadows Ranch at Mineral.

Collection: 50712 (9-10-75), 53131 (10-6-76), 54328, 54358 (10-30-76).

Abundance: III, B.

Associates: Populus tremuloides.

Distribution: Widespread.

Crocicreas cyathoideum (Bull. : Mérat) S. E. Carpenter var. cacaliae (Persoon : Fries) S. E. Carpenter

on Artemisia douglasiana

Found along the Summit Highway at about 7500 feet.

Collection: 59101 (7-29-80), identified by J. H. Haines.

on Sambucus glauca

Found in the Mineral area.

Collection: 60784 (10-9-81).

Abundance: IV, B, C.

Associates: Abies concolor, A. magnifica, Pinus jeffreyi.

Distribution: Tunisia, Europe, Canary Islands, New York, Alaska, Colorado, Utah, California.

Crocicreas nigrofuscum (Rehm) S. E. Carpenter var. nigrofuscum

on Heracleum lanatum

Found in a meadow along the Manzanita Creek trail.

Collection: 42729 (7-26-70), identified by J. H. Haines.

Abundance: V, C.

Associates: Forbs and Grasses of meadows.

Distribution: Austria, Colorado, Utah.

Hymenoscyphus calyculus (Sow. : Fr.) Phillips

on Alnus tenuifolia

Found on twigs along the Brokeoff Mountain Trail, and along the creek above Cabin 17 at the LAVO Headquarters area, Mineral.

Collections: 52961 (10-8-76), 53546 (10-11-76), identified by J. H. Haines.

On Salix pseudocordatus

Found along the trail to King Creek Falls.

Collection: 54236 (10-28-76).

Abundance: IV, B.

Associates: Species of Alnus and Salix.

Distribution: Europe, North America.

Perrotia flammea (Albertini & Schweinitz : Fries) Boulder

on Alnus tenuifolia

Found along the Manzanita Lake Trail.

Collection: 53164 (10-6-76), identified by J. H. Haines.

on Salix sp.

Found in the Butte Lake area.

Collection: 53194 (10-7-76), identified by J. H. Haines.

Abundance: IV, B.

Associates: Alnus tenuifolia and species of Salix.

Distribution: Europe, California.

Phialea ampla Ellis & Everhart

Helotium amplum (Ellis & Everhart) Seaver

on Salix sp.

Found on bases of dead willow stems in the Juniper Lake Campground area.

Collection: 53057, 53058 (10-5-76), identified by J. H. Haines

Abundance: V, B.

Associates; Salix spp., Pinus contorta var. murrayana.

Distribution: Washington.

Tapesia mollisioidws (Schweinitz) Saccardo

on Alnus tenuifolis

Found on branches along a creek above Cabin 17, LAVO Headquarters area, Mineral.

Collection: 52949, 52977 (10-3-76), identified by J. H. Haines.

Abundance: V, B.

Associates: Alnus tenuifolia, Salix spp.

Distribution: Eastern United States.

Tympanis laricina (Fuckel) Saccardo

on Abies concolor

Found near the base of the old Shasta View Trail.

Collection: 34928 (7-2-65), identified by M. E. Barr.

Abundance: V, A.

Associates: Abies concolor, Pinus ponderosa

Distribution: Austria, Ontario, New Hampshire, Massachusetts, Idaho.

Tympanis spermatiospora (Nylander) Nylander

on Populus tremuloides

Found on dead branches in the Paradise Meadows aspen grove.

Collection: 42932 (7-30-70), identified by M. E. Barr.

Abundance: V, A.

Associates: Populus tremuloides

Distribution: Widely distributed in Europe, North America.

Uncertain Position

Didymella delphinii Earle

(Didymolepta)

on Arnica sp.

Found on overwintered stems along the Brokeoff Mountain Trail.

Collection: 35000 (7-4-65), identified by M. E. Barr.

Abundance: V, C.

Associates: Meadow forbs and grasses.

Distribution: Western North America, alpine.

Apiosporella mimuli Weymeyer

(Didymolepta)

Found on overwintered herbage of Veratrum californicum and Senecio triangularis along the Bumpass Hell-Cold Boiling Lake Trail.

Collections: 37170, 37172 (7-12-66), identified by M. E. Barr.

Abundance: IV, C.

Associates: Forbs and grasses of wet places.

Distribution: Western North America, alpine.

Platyspora pentamera (Karsten) Wehmeyer

Graphyllium cf. pentamera (Karst.) Barr

on Wyethia mollis

Found along the Bumpass Hell-Cold Boiling Lake Trail.

Collection: 37166 (7-12-66), identified by M. E. Barr.

Abundance: V, D.

Associates: Plants of open dry meadows.

Distribution: Widespread, mostly western North America.

Rhytidiella barayani Funk & Zalensky

on Populus tremuloides

Found in the aspen grove at Paradise Meadows.

Collections: 42925, 42928 (7-30-70), identified by M. E. Barr.

Abundance: V, B.

Associates: Populus tremuloides

Distribution: Western North America in the mountains.

Strickeria solitaria (Ellis) O. Kuntze

Found on dead stems of Haplopappus bloomeri along the Manzanita

Creek Trail, and on Symphoricarpos vaccinioides on the Brokeoff Mountain Trail.

Collections: 42757 (7-26-70), 42865 (7-29-70), identified by M. E. Barr.

Abundance: IV, B.

Associates: Symphoricarpos vaccinioides, Arctostaphylos nevadensis.

Distribution: Western North America in the mountains.

Pezizales

Ascobolaceae

Saccobolus violascens Boudier

This small cup fungus was found on cow dung near Hat Lake.

Collection: 30396 (7-2-56).

Abundance: V, G.

Associates: Salix spp., Alnus tenuifolia.

Distribution: Europe, North America.

Thelebolus stercorius Tode

Thelebolus nanus Heimerl

Ryparobium monascus Mouton

Found on deer dropings at King Creek Meadows.

Collection: 32566 (TRTC 39172, CUP 47730) (7-12-61), identified and cited by J. W. Kimbrough, 1966.

Abundance: V, G.

Associates: Fungi of dung.

Distribution: Europe, New York, California.

Helvellaceae

Discina ancilis (Persoon) Saccardo

One of the few cup fungi associated with important wood decay problems is this large species which fruits on the ground or on wood in late stages of decay almost buried in the ground. Found once between Hat Lake and Paradise Meadows.

Collection: 30409 (7-22-56).

Abundance: V, A, D.

Associates: Abies magnifica, Pinus contorta var., murrayana.

Edibility: Edible with caution.

Distribution: Europe, North America.

Disciotis venosa (Persoon) Boudier

This is a large brown cup fungus whose surface is veined more or less distinctly. Specimens found occurred on moist soil near melting snowbanks. The cups had opened so that they were lying flat on the ground. In the process they had become regularly lobed, much like a four-lobed shamrock, although they were brown in color. Near trail near Shadow Lake and in the vicinity of King Creek Meadows.

Collections: 39328 (7-10-68), 39355 (7-11-68), 49342 (8-27-74).

Abundance: IV, D.

Associates: Abies magnifica, Tsuga mertensiana.

Edibility: Edible with caution.

Distribution: Europe, North America.

Helvella californica Phillips

The California lorchel is the largest Discomycete found to date in the Park. It fruits on the ground or on wet decayed wood. It is one of

the "saddle" fungi, and has been called the "brain" fungus because of its convoluted surface. Edibility of this species is unknown to the writer. Some species of Helvella are reported to be edible, others have geographic strains known to be poisonous, or at least toxic, to some who have eaten them. Found along the Warner Valley Trail to Devil's Kitchen.

Collections: 37077 (7-8-34); Lee Bonar (7-9-66); and a second specimen in the Herbarium of the University of California at Berkeley.

Abundance: IV, D.

Associates: Abies concolor, Calocedrus decurrens, Pinus jeffreyi.

Edibility: Unknown.

Distribution: Nevada, Oregon, California.

Helvella caroliniana (Bosc) Nees

Found once in the Park along the Brokeoff Mountain Trail.

Collection: 35018 (7-4-65).

Abundance: V, D.

Associates: Abies magnifica.

Edibility: Possibly poisonous.

Distribution: North America.

Helvella lacunosa Afz. : Fr.

Common and occasionally abundant on woodland lawns throughout the Mineral area, and occurring along the trail to Devil's Kitchen.

Collections: 52829, 52834, 52909 (10-1-76), 52953 (10-3-76), 53303 (10-4-76), 53562 (10-12-76), 54332, 54381, 54382 (10-1-76), 55112A, 55127 (10-2-77), 55172, 55193 (10-7-77), 60641 (10-6-81), 60694, 60732 (10-7-81), 61501 (10-20-82); some identifications confirmed by K. H. McKnight.

Abundance: II, D.

Associates: Abies concolor, Abies magnifica, Calocedrus decurrens, Pinus jeffreyi.

Edibility: Doubtful, but eaten by some.

Distribution: Europe, New York to British Columbia and south to Mexico.

Helvella villosa (O. Kuntze) Dissing & Nannfeldt

Found on the ground in the Lassen National Forest Fire Station area near Mineral.

Collection: 52830 (10-1-76).

Abundance: V, D.

Associates: Abies concolor, Calcedrus decurrens, Pinus jeffreyi.

Edibility: Unknown.

Distribution: Europe, Michigan, California.

Gyromitra infula Schaeff : Fries

Helvella infula (Schaeffer) Fries

Found on soil near rotting logs and on rotting logs of Pinus contorta var. murrayana near the edge of Drakesbad Meadow, and in woods along SR-36 east of Mineral.

Collections: 53278, 53279 (10-8-76); L. Bodine (9-29-69, Spring 1981).

Abundance: III, D.

Associates: Abies concolor, Pinus contorta var. murrayana.

Edibility: Poisonous.

Distribution: Europe, Maine to British Columbia and California.

Morchellaceae

Morchella angusticeps Peck

This slender stemmed morel, or sponge mushroom, has been found at least once in the Park. The problem of records of morels is reticence on the part of collectors who prefer not to discuss or disclose the locations of these tasty mushrooms.

Collection: A Park naturalist sent a specimen to Miss E. E. Morse, now in the Herbarium of the University of California, Berkeley (Autumn, 1933).

Abundance: V, D.

Associates: Unknown, specific location not stated.

Edibility: Choice.

Distribution: Europe, North America.

Morchella crassipes (Ventennant) Persoon

A half dozen large specimens which had dried in place were found on litter and conifer duff in a fir grove near Sunflower flats.

Collection: 39297 (7-8-68).

Associates: Abies concolor.

Edibility: Choice.

Distribution: Europe, North America.

Morchella esculenta Persoon : St. Amans

This common morel has been found in the vicinity of Manzanita Lake and along the fire road which follows the old immigrant trail near the foundation of a cabin near Badger Flat. In a trail a large specimen 13 cm tall with a stipe 6 cm in diameter was also found.

Collections: 35052 (7-5-65); L. Bodine, H. Stanley.

Abundance: IV, D.

Assocaites: Pinus contorta var. murrayana, and others.

Edibility: Choice.

Distribution: Europe, North America.

Pezizaceae

Peziza griseorosea Gerard

Found on soil in the Mineral Home Owners Water Supply Spring area.

Collection: 53554 (10-11-76).

Abundance: V, D.

Associates: Forbs, grasses and shrubs of spring area.

Edibility: Unknown.

Distribution: New York, Connecticut, Wisconsin, Virginia.

Peziza repanda Persoon

Found on sandy soil along the Butte Lake shore.

Collection: 61557 (9-21-82).

Abundance: V, D.

Associates: Soil fungi of lake shore sands.

Distribution: Europe, New York to Iowa and Maryland, western United States.

Peziza sylvestris (Boudier) Saccardo & Trotter

Found once on the ground in the woods in an unspecified location in the park.

Collection: Sent to E. E. Morse, Herbarium, University of California, Berkeley (1928).

Associates: Unknown.

Edibility: Unknown.

Distribution: Europe, North America.

Sarcosphaera crassa (Santi ex Steudl) Pouzar

Sarcosphaera eximia (Durieu & Léveillé) Maire

Sarcosphaera amplissima (Fries) Kanouse

Sarcosphaera coronaria (Jacquin) Schroeter

Although this large cup fungus can be expected in conifer woods fairly frequently, it has been found once along the Brokeoff Mountain Trail, and once in the chaparral near the Manzanita Lake Campground, until the spring of 1965 when it was abundant in the Sunflower Flats area. It was again abundant in the Abies concolor grove in this area in July, 1968, and on July 3, 1977, L. Bodine and J. W. Schulz found large specimens about 500 feet west of marker 60. It has also been found under Tsuga mertensiana. The fruit bodies develop just under the surface of the soil and then open up by splitting into a number of star-like rays, the "crown" of one specific epithet. The flesh is brittle and is translucent, being colored a delicate amethyst with greenish tints. Other colors may develop, or these may intensify on being bruised. The flesh becomes discolored by adhering particles of dust and dirt.

Collections: 33490 (8-14-62), 34134 (7-5-63), 34907 (7-2-65), 37089 (7-9-66), 39298 (7-8-68); L. Bodine (7-3-77).

Abundance: III, D.

Associates: Abies concolor, A. magnifica, Pinus jeffreyi, Tsuga mertensiana.

Edibility: Edible with caution.

Distribution: Europe, North Africa, North America.

Pyronemataceae

Caloscypha fulgens Boudier

Probably the showiest of the spring cup fungi is this species

which produces medium sized dark yellow to orange cups on litter and duff in conifer woods. It stains green when bruised or in age. In most years it is found in scattered groups while the gound is still moist from melting snow. In early July, 1965, it was exceedingly common throughout the Park. Those of its relatives which have been tested are edible; however, because it would take a large number of cups to provide a good serving, it has not been tested to my knowledge. Found in the Winter Sports area, Crumbaugh Lake, the Brokeoff Mountain Trail, and observed elsewhere.

Collections: 26614 (7-1-50), 29562 (7-2-54), 30414 (7-22-56), 34985 (7-3-65), 34994 (7-4-65), 35044 (7-5-65), 38728 (8-12-69), 45523 (7-10-72), 45588 (7-12-72).

Abundance: I, D.

Associates: Abies magnifica, Tsuga mertensiana.

Edibility: Unknown.

Distribution: Europe, North America.

Cheilymenia theleboloides (Albertini & Schweinitz) Boudier

A very small cup fungus which fruits on deer dropings and cow dung. This material was found at Hat lake.

Collection: 30396 (7-2-56).

Abundance: V, G.

Associates: Other fungi of dung.

Distribution: Europe, North America.

Ostospora leucoloma Hedwig

On soil in the Juniper Lake Area.

Collection: 41269 (8-18-69).

Abundance: V, D.

Associates: Salix spp., Abies concolor, Pinus contorta var. murrayana.

Distribution: Europe, North America.

Otidea alutacea (Fries) Bresadola var. Macrospora Kanouse

On stump and rotten wood of aspen, in a grove near the Hot Rock.

Collection: 50715 (9-10-75).

Abundance: V, B.

Associates: Populus tremuloides, Pinus contorta var. murrayana.

Edibility: Unknown.

Distribution: United States.

Scutellinia scutellata (Linnaeus ex St. Amans) Lambotte

This little scarlet cup fungus fruits on water soaked wood and soil. The red cup is bordered with a row of black hairs. Found near a fir log and on Salix wood in the former Manzanita Lake Headquarters area, and at Juniper Lake.

Collections: 34108 (7-5-63), 41267 (8-18-69), 49292 (8-26-74).

Abundance: IV, D.

Associates: Salix spp., Alnus tenuifolia, Abies concolor, Pinus jeffreyi.

Distribution: Europe, North America.

Sarcosomataceae

Plectania nannfeldtii Korf

Paxina nigrella Seaver

The black cups of this fungus are pushed up above the litter and duff on which they are produced after the snow melts by long black stipes. Found occasionally throughout the Park in conifer woods where snowbanks

linger, including the Winter Sports area.

Collections: 26618 (7-1-50), 29556 (7-2-54), 34975 (7-3-65), 39329 (7-10-68).

Abundance: III, D.

Associates: Abies magnifica, Tsuga merensiana.

Edibility: Unknown.

Distribution: Colorado, Cascade Mountains of Oregon and Washington, Mt. Shasta.

Tuberales

Tuberaceae

Geopora cooperi f. gilkeyae Burdsall

Collected once under Abies concolor in the Manzanita Lake area. This is a large white truffle-like fungus which fruits underground.

Collection: 49303 (8-26-74), identified by J. M. Trappe.

Abundance: V, D.

Associate: Abies concolor.

Edibility: Unknown.

Distribution: Oregon, California.

Hydnotria variiformis Gilkey

This is a little white truffle which fruits in or under rotting wood. Apparently the ancestral fruit body started to grow like a cup mushroom, which some specimens resemble, but became contorted and distorted because of the crowded position in the rotting wood or soil. Edibility is unknown since few specimens are found at a time and these are kept by some for study. The fungus has been found at high elevations or just below timberline.

Collections: 37192, 37194 (7-11-66), 42831 (7-28-70), 49335 (8-27-74), 50782, 50783 (9-9-75).

Abundance: IV, D.

Associates: Abies magnifica, Tsuga mertensiana.

Edibility: Unknown.

Distribution: Wyoming, Oregon, California.

Tuber sp.

Collected once near Mineral on the ground under mixed conifer litter.

Collector: L. Bodine (8-27-42).

Edibility: Unknown.

Deuteromycotina

Sphaeropsidaceae

Asteromella lupini (Ellis & Everhart) Petrak

Phyllosticta ferax Ellis & Everhart

Found on leaves of Lupinus sp. and of L. sellulus Kellogg var. artulus (Jepson) Eastwood along the Manzanita Creek Trail, and in Crumbaugh Meadows.

Collections: 42767 (7-26-79), H. Stanley (8-28-72).

Abundance: IV, C.

Associates: Abies concolor, A. magnifica, Pinus ponderosa.

Distribution: On more than 4 species of Lupinus in western North America.

Asteromella monardellae (W. B. Cooke) Petrak

Phyllosticta monardellae W. B. Cooke

Found on leaves of Monardella odoratissima, the pennyroyal, near Crumbaugh Lake.

Collection: H. Stanley (8-28-72).

Abundance: V, C.

Associates: Herbs of dry meadows.

Distribution: Mt. Shasta.

Coniothyrium arctostaphylli (Vize) Tassi

Found on leaves of the green manzanita, Arctostaphylos patula, in the Manzanita lake area. Along the Brokeoff Mountain Trail leaves of entire branches of the mountain manzanita (Arctostaphylos nevadensis) may be killed by this species.

Collections: 30909, 30910 (8-18-57), Lee Bonar in California Fungi 1133 (7-10-62).

Abundance: IV, B.

Associates: Ceanothus velutinus, Pinus albicaulis, Tsuga mertensiana.

Distribution: California.

Coniothyrium pentstemonis Earle

on Pentstemon davidsonii

Found in the Eagle Peak area above 8500 ft. in the alpine habitat.

Collection: 42816 (7-28-70), identified by M. E. Barr.

Abundance: V, C.

Associates: Alpine herbs and shrubs

Distribution: Colorado, California.

Cryptostictis arbuti (Bonar) Zeller

Small dark spots on the leaves of the green manzanita, Arctostaphylos patula, are produced by this fungus. Found on leaves in chaparral near Manzanita Lake.

Collection: 26667 (7-1-50).

Abundance: V, B.

Associates: Arctostaphylos patula, Ceanothus velutinus.

Distribution: Oregon, California, Mt. Shasta.

Cylindrosporium veratrinum Saccardo & Winter

This is a second fungus which produces blackened spots on leaves of Veratrum californicum. Found along the trail to Boiling Springs lake, the Mt. Harkness Trail, and the Brokeoff Mountain Trail.

Collections: 37086 (7-9-66), 42775 (7-27-70), 42875 (7-29-70).

Abundance: III, C.

Associates: Forbs and grasses of wet meadows.

Distribution: Switzerland, Mt. Shasta.

Diplodia veratri Earle

Found on dead stems of the mountain hellebore, Veratrum californicum, with other fungi causing their decay, King Creek Meadows, Brokeoff Mountain Trail.

Collections: 26660 (7-1-50), 35012 (7-4-65).

Abundance: IV, C.

Associates: Abies magnifica, Tsuga mertensiana.

Distribution: Western North America.

Dothiorella sp.

Found on the tree of Pinus albicaulis growing on Brokeoff Mountain at the highest elevation of any tree, at about 9200 ft.

Collection: 42866 (7-29-70), identified by M. E. Barr.

Abundance: V, A.

Hendersonia lupini M. C. Cooke & Harkness

on Lupinus ornatus

Found in the Eagle Peak area above 8500 ft.

Collection: 42805 (7-28-70), identified by M. E. Barr.

Abundance: V, C.

Associates: Herbs and shrubs of the alpine area.

Distribution: California

Hendersonia sp.

Found on dead stems of Lupinus obtusilobus along the Summit Trail.

Collection: 29529 (7-1-54).

Heteropatella umbilicata (Persoon : Fries) Jaap

on Veratrum californicum

Found on overwintered stems along the Bumpass Hell - Cold Boiling Lake Trail.

Collection: 37170 (7-12-66), identified by M. E. Barr.

Abundance: V, C.

Associates: Plants of wet places.

Distribution: Widespread.

Marssonina castagnei (Desmaziers & Montagne) Magnus

Partially defoliating trees of Populus tremuloides at the Bodine Place, near Mineral, and at Butte Lake.

Collection: 60681 (10-8-81), 61576 (9-21-82).

Abundance: III, B.

Associate: Populus tremuloides

Distribution: Widespread, Mineral.

Melanconium sp.

An unidentified species assigned to this genus was found on needles of Abies concolor on the east shore of Manzanita Lake in association with Mollisia piceae.

Collection: Lee Bonar (7-10-62), identified by J.W. Groves.

Phoma spp.

Isolated from shore sediment with iron oxide at Emerald Lake; and from soils near a litter can at Manzanita Lake Visitor Center, from soil around a bench near the Manzanita Lake Ranger Station, and from soil near the stove area in a campsite in the Manzanita Lake Campground.

Date: 8-18-57, 7-8-63.

Several species of Phoma, a species of Chaetomella, and Pyrenochaeta terrestris have been isolated from soil samples. Some species assigned to these genera usually have been identified on the basis of the flowering plant on which they are usually found and on which they produce leaf and stem diseases. It is not easy, or even practical, at present, to assign the isolated strains to a species.

Phyllosticta melanoplaca de Thuemem

Large black spots on living leaves of Veratrum californicum are caused by this fungus which produces small flask-shaped pycnidia in the blackened spots: Brokeoff Mountain Trail, Crumbaugh Meadows.

Collection: 33473 (8-14-62); Lee Bonar (1934); H. Stanley (8-28-72).

Abundance: III, C.

Associates: Forbs and grasses of stream sides and wet meadows.

Distribution: Siberia, Europe, California, Mt. Shasta.

Phymatospora berkeleyi Saccardo

This is another of the fungi which decomposes dead stems of various types of flowering plants during the year after the plant has blossomed. Found on Lupinus obtusilobus near the upper limits of plant growth along the Summit Trail.

Collection: 29529 (7-1-54).

Abundance: V, C.

Associates: Pinus albicaulis.

Distribution: Western United States.

Pyrenochaeta terrestris (Hansen) Gorenz, J.C. Walker & Larson

Isolated from a soil sample from near a bench near the Manzanita Lake Ranger Station.

Date: 7-8-63.

Abundance: V, D.

Associates: Pinus jeffreyi.

Distribution: Widespread.

Septoria lunelliana Saccardo

Found on senescent leaves of Carex fracta, Manzanita Creek Trail.

Collection: 42766 (7-26-70).

Abundance: V, C.

Associates: Streamside and meadow forbs and grasses.

Distribution: North Dakota, Mt. Shasta.

Septoria wyethiae Harkness

Found on Wyethia mollis on open hillsides above Sulphur Works.

Collection: 54959 (old material) (9-30-77).

Abundance: V, C.

Associates: Forbs and grasses of open meadows.

Distribution: California.

Sphaeronemella helvellae Karsten

on Helvella lacunosa

Found in the Lassen National Forest Fire Guard Station area.

Collection: 52828 (10-1-76), identified by K. H. McKnight.

Abundance: V, F.

Associates: Soil fungi, Helvella lacunosa.

Distribution: Finland, North America.

Blastomycetes

Cryptococcales

Cryptococaceae

Candida sp.

Isolated from water from Emerald Lake.

Date: 8-18-57.

Candida pseudotropicalis (Castellani) Basgal

Isolated from soil around a litter can at the Manzanita Lake Visitor Center.

Date: 7-8-63.

Abundance: V, D.

Associates: Yeasts and filamentous fungi of soil.

Distribution: Europe, North America.

Cryptococcus albidus (Saito) Skinner var. diffluens (Zack) Phaff & Fell

Isolated from soil near a litter can at the Manzanita Lake Visitor Center.

Date: 7-8-63.

Abundance: V, D.

Associates: Yeasts and filamentous fungi of soil.

Distribution: Europe, North America.

Phodotorula spp.

Isolated from water from Lake Helen, and from Emerald Lake; from soil samples from the vicinity of a bench near the Manzanita Lake Ranger Station, from the lawn near that Ranger Station; and from the Manzanita Lake Campground from an undisturbed area under pine and chaparral, from areas near a stove and in a tent area in a camp site in chaparral, and from areas near a table, the stove, and a tent area in a camp site under Pinus jeffreyi.

Dates: 8-18-57, 7-8-63.

Hyphomycetes

Acrodictys sp.

Found on a branch of Populus tremuloides in the aspen grove near Paradise Meadows.

Collection: 42928 (7-30-70), identified by M. E. Barr.

Abundance: V, C.

Associates: Populus tremuloides.

Alternaria alternata (Fries) Keissler

Isolated from soil samples from near a litter can at the Manzanita Lake Visitor Center, a bench near the Manzanita Lake Ranger Station; from an undisturbed area under Pinus jeffreyi and chaparral; and from soils from a table area, stove area, and tent area in a campsite in chaparral, and from a tent area in a campsite under Pinus jeffreyi, in the Manzanita lake Campground.

Date: 7-8-63.

Abundnace: III, D.

Associates: Pinus jeffryi, Arctostaphylos patula, Ceanothus velutinus.

Distribution: Cosmopolitan.

Arthrinium cuspidatum (M. C. Cooke & Harkness) von Hoehnel

Found on dead culms of Juncus balticus var. montanus near Manzanita Lake, in a small meadow near the Chaos Jumbles.

Collections: 38680 (8-10-67), 39388 (7-12-68), 42743 (7-25-70).

Abundance: IV, C.

Associates: Juncus balticus var. montanus.

Distribution: Denmark, England, Western North America.

Aspergillus flavus Link : Link

Isolated from soil samples from the Manzanita Lake Campground, from a tent area in a campsite in chaparral, and a table area under Pinus jeffreyi.

Date: 7-8-63.

Abundance: IV, D.

Associates: Pinus jeffreyi, Arctostaphylos patula, Ceanothus velutinus.

Distribution: Cosmopolitan.

Aspergillus fumigatus Fresenius

Isolated from soil samples from summit fumaroles.

Date: 7-21-56.

Abundance: V, D.

Associates: Aspergillus niger.

Distribution: Cosmopolitan.

Aspergillus glaucus Group

On an incompletely dried conk of Inonotus dryadeus shipped from Mineral to Cincinnati.

Collection: 41457 (9-29-69).

Abundance: V, F.

Associates: Other molds.

Distribution: Cosmopolitan, Mineral.

Aspergillus nidulans (Eidam) Winter

Isolated from a soil sample from a stove area in a chaparral campsite in the Manzanita Lake Campground.

Date: 7-8-63.

Abundance: V, D.

Associates: Arctostaphylos patula, Ceanothus velutinus.

Distribution: Cosmopolitan.

Aspergillus niger van Tieghem

Many kinds of molds are present in decaying materials and the soil, but it is usually not possible to see them as they appear in nature. Instead, we take a sample of the soil, or other material, to the laboratory, mix it with special nutrients in a semisolid gelatinous material called agar, and observe the colonies of molds which develop. Using this technique it was found that this species of mold, with several others including species of Penicillium and Mucor, was common in the soil found around fumaroles, especially the one used for a garbage incinerator, on the west rim of the summit crater complex. Also isolated from soil samples taken from near the litter can at the Manzanita Lake Visitor Center; and in the Manzanita Lake Campground at a table area, a stove area, and a tent area in a chaparral campsite; a table area and a tent area at a campsite under Pinus jeffreyi; and in an undisturbed area under Pinus jeffreyi and chaparral.

Dates: 7-21-56, 7-8-63.

Abundance: II, D.

Associates: Organisms of the fumaroles; Pinus jeffreyi, Arctostaphylos patula, Ceanothus velutinus.

Distirubiton: Cosmopolitan.

Aspergillus ochraceus Wilhelm

Isolated from a soil sample from the lawn at the Manzanita Lake Ranger Station; and from a tent area in a campsite in chaparral in the Manzanita Lake Campground.

Date: 7-8-63.

Abundance: IV, D.

Associates: Lawn grasses; Arctostaphylos patula, Ceanothus velutinus.

Distribution: Cosmopolitan.

Aspergillus sydowii (Bainier & Sartory) Thom & Church

Isolated from a soil sample from near the litter can at the Manzanita Lake Visitor Center; from water, bottom sediments, sediments at the water's edge, and from moist soil near Lake Helen; and from shore sediment with iron oxide on Emerald Lake. Also found on imperfectly dried conk of Inonotus dryadeus shipped from Mineral to Cincinnati.

Collection: 41548 (8-18-57, 7-8-63, 9-29-69).

Abundance: III, D.

Associates: Organisms in lake water and sediments, molds on conks, Pinus jeffreyi.

Distribution: Cosmopolitan.

Aureobasidium pullulans (deBary) Arnaud

Isolated from a soil sample collected at a bench near the Manzanita Lake Ranger Station, from the lawn at the Ranger Station; from the Manzanita lake Campground from an undisturbed area under Pinus jeffreyi and chaparral, from a table area and a tent area in a chaparral campsite, from a table area, a stove area, and a tent area in a campsite under Pinus jeffreyi, and from shore sediment with iron oxide at Emerald Lake.

Dates: 8-18-57, 7-8-63.

Abundance: II, D.

Associates: Organisms in lake shore sediments; Pinus jeffreyi, Arctostaphytos patula, Ceanothus velutinus.

Distribution: Cosmopolitan.

Bahusakala cookei M. B. Ellis

Found as a black mold occurring on branches of Salix sp., Manzanita Lake District Ranger's office area; on hardwood sticks, Hat Lake area, and along the trail to Paradise Meadows.

Collection: 34107 (7-5-63), identified by M. B. Ellis as "sp.", and a portion deposited in the herbarium of the Commonwealth Mycological Institute, Kew, England as CMI-165357; 59027 (7-28-80), identified by J. L. Crane, 30404 (7-22-56).

Abundance: IV, B.

Associates: Alnus tenuifolia, Salix spp.

Distribution: Mt. Shasta.

Botryotrichum sp.

Isolated from soil samples collected near the litter can at the Manzanita Lake Visitor Center, a bench near the Ranger Station, undisturbed soil under Pinus jeffreyi and chaparral near the Manzanita Lake Campground, near a table and a stove in a chaparral campsite, and near a stove in a campsite under Pinus jeffreyi.

Date: 7-8-63.

Botrytis cinerea Persoon : Fries

One of the commoner molds on decaying stems of Veratrum californicum.

Collection: 26604 (7-1-50).

Abundance: IV, C.

Associates: Forbs and grasses of wet meadows.

Distribution: Cosmopolitan.

Cephalosporium spp.

Isolated from soils collected in a tent area in a chaparral campsite, and from a stove area in a campsite under Pinus jeffreyi at Manzanita Lake Campground.

Date: 7-8-63.

Cladobtryum sp.

Collected on litter under Pinus jeffreyi and Abies concolor in the Sunflower Flats area.

Collection: 34058, identified by M. B. Ellis, CMI-165356.

Cladobotryum mycophilum (Oudemans), W. Gams & Hozzenans

on Russula rosacea

Found in the woodland lawn at Mrs. Adams' Place, Mineral.

Collection: 60724 (10-7-81), identified by C. T. Rogerson.

Abundance: V, F.

Associates: Russula rosacea and other fleshy fruited fungi.

on Tricholomopsis rutilans

Found in the aspen grove at Butte Lake.

Collection: 61588 (9-21-82), identified by C. T. Rogerson.

Abundance: V, F.

Associates: Other fleshy fungi in area.

Distribution: Widespread.

Cladobotryum variospermum (Link) Hughes

Didmyocladium ternatum (Bonorden) Saccardo

Diplocladium majus Bonorden

Found on fruit bodies of various fungi including species of Polyporus, Mycena, and Russula nigrescens, in the Sunflower Flats area,

along the Mt. Harkness Trail, along the Bumpass Hell-Cold Boiling Lake Trail, and in the LAVO Headquarters area near Mineral.

Collections: 30476a, 34082 (7-4-63), 42778, 42786 (7-27-70), 52756 (9-30-76), 54271 (10-29-76), identified by C. T. Rogerson.

Abundance: III, F.

Associates: Abies concolor, A. magnifica, Pinus jeffreyi.

Distribution: Widespread.

Cladosporium spp.

Isolated from soil samples collected at a bench near the Manzanita Lake Ranger Station, from the lawn of that Ranger Station, from undisturbed soil under Pinus jeffreyi and manzanita near the Manzanita Lake Campground, and from a table area, and a tent area in the campground.

Date: 7-8-63.

Cladosporium cladosporioides (Fresenius) deVries

Isolated from a sample of water from Lake Helen, and from soil samples in the Manzanita Lake area: from soil near a litter can at the Manzanita Lake Visitor Center, from near a bench near the Ranger Station, from the lawn at the Ranger Station, and from most samples taken in the Campground.

Dates: 8-18-57, 7-38-63.

Abundance: II, D.

Associates: Organisms in lake water, Pinus jeffreyi, Arctostaphylos patula, Ceanothus velutinus.

Distribution: Cosmopolitan.

Cladosporium herbarum Persoon ex Fries

Collected on discarded orange peel at 10,000 feet on the Lassen Peak Summit Trail, on dead leaves of Bromus sp. and Carex spectabilis at Crumbaugh Lake, and on Helvella lacunosa in the Mineral area.

Collections: 29513 (7-1-54), 52831 (10-1-76), H. Stanley (8-28-72).

Associates: Forbs and grasses of meadows.

Distribution: Cosmopolitan.

Costantinella terrestris (Link : Persoon) Hughes

Found on rotting wood of Abies concolor in the Sunflower Flats area.

Collection: 34937 (7-2-65).

Abundance: V, A.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Widespread.

Curvularia geniculata (Tracy & Earle) Boedijn

Isolated from soil samples collected near a litter can at the Manzanita Lake Visitor Center, and from the lawn at the Ranger Station.

Date: 7-8-63.

Abundance: IV, D.

Associates: Pinus jeffreyi, lawn grasses.

Distribution: North and Central America.

Curvularia lunata (Wakker) Boedijn

Isolated from soil samples collected in the Manzanita Lake Campground: in table, stove, and tent areas in a chaparral campsite, and in stove, and tent areas in a campsite under Pinus jeffreyi.

Date: 7-8-63.

Abundance: III, D.

Associates: Pinus jeffreyi, Arctostaphylos patula, Ceanothus velutinus.

Distribution: Cosmopolitan.

Dendryphium atrum Corda

Found as a black mold on twigs of Salix sp. at Summit Lake.

Collection: 26664 (7-1-50).

Abundance: V, B.

Associates: Salix spp.

Distribution: Europe, North America.

Diplococcium spicatum Grove

Found on conifer wood in the Sunflower Flats area.

Collection: 34927A-B (7-2-65), Identified by M. B. Ellis, CMI-165370.

Abundance: V, A.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Great Britain.

Epicoccum purpurascens Ehrenberg ex Schlechtendahl

Isolated from soil samples collected near a litter can at the Manzanita Lake Visitor Center, near a bench near the Ranger Station, and in a tent area in a campsite under Pinus jeffreyi in the Manzanita Lake Campground.

Date: 7-8-63.

Abundance: III, F.

Associates: Pinus jeffreyi, Arctostaphylos patula, Ceanothus velutinus.

Distribution: Cosmopolitan.

Epochnium isthomorphum Saccardo

The stems of shrubs of rabbit brush, Chrysothamnus nauseosus var. occidentalis, become blackened with this fungus when it attacks a shrub. This is found occasionally on host shrubs in the Manzanita Lake area.

Collections: 26669 (7-1-50), 34156 (7-7-63), 39390 (7-18-68).

Abundance: IV, B.

Associates: Arctostaphylos patula, Ceanothus velutinus.

Distribution: Washington, California, Mt. Shasta.

Fusarium dimerum Penzig in Saccardo

Isolated from a soil sample collected near a litter can at the Manzanita Lake Visitor Center.

Date: 7-8-63.

Abundance: V, D.

Associates: Pinus jeffreyi.

Distribution: Widespread.

Fusarium oxysporum Schlechtendahl emen. Snyder & Hansen pro parte

Isolated from soil samples collected near a litter can at the Manzanita Lake Visitor Center, and from soil in the Manzanita Lake Campground at a chaparral campsite in a table and a stove area, and at a stove area under Pinus jeffreyi.

Date: 7-8-63.

Abundance: IV, D.

Associates: Pinus jeffreyi, Arctostaphylos patula, Ceanothus velutinus.

Distribution: Cosmopolitan.

Gilmaniella humicola Barron

Isolated from soil samples from near a litter can at the Manzanita Lake Visitor Center, from near a bench at the Ranger Station, and from soil in the Ranger Station lawn.

Date: 7-8-63.

Abundance: IV, D.

Associates: Pinus jeffreyi; lawn grasses.

Distribution: North America.

Gliocladium deliquescens Sopp

Isolated from soil in a stove area in a chaparral campsite in the Manzanita Lake Campground.

Date: 7-8-63.

Abundance: V, D.

Associates: Arctostaphylos patula, Ceanothus velutinus.

Distribution: Europe, North America.

Gliocladium fimbriatum Gilman & Abbott

Isolated from soil in the lawn at the Manzanita Lake Ranger Station.

Date: 7-8-63.

Abundance: V, D.

Associates: Grasses in lawn, Pinus jeffreyi.

Distribution: Asia, North America.

Humicola grisea Traaen

Isolated from soil in a table area in a chaparral campsite in the Manzanita Lake Campground.

Date: 7-8-63.

Abundance: V, D.

Associates: Arctostaphylos patula, Ceanothus velutinus.

Distribution: England, North America.

Kmetia corticola W. B. Cooke

Found on bark of Abies magnifica in the Winter Sports area below the Sulphur Works.

Collection: 26627 TYPE (7-1-50).

Abundance: V, A.

Associates: Abies magnifica.

Distribution: Lassen Volcanic National Park.

Monilia sitophila (Montagne) Saccardo

Isolated from a soil sample taken near a table in a campsite under Pinus jeffreyi in the Manzanita Lake Campground.

Date: 7-8-63.

Abundance: V, D.

Associates: Pinus jeffreyi.

Distribution: Cosmopolitan.

Monodictys levis (Wiltshire) Hughes

Isolated from water and sediment in Emerald Lake; and from soil samples taken near a litter can at the Manzanita Lake Visitor Center, and from soil samples taken in the Manzanita Lake Campground in a tent area in a chaparral campsite, and in a table area in a campsite under a Jeffrey pine.

Date: 8-18-57, 7-7-63.

Abundance: IV, D.

Associates: Pinus jeffreyi, Arctostaphylos patula, Ceanothus velutinus.

Distribution: Europe, California.

Mycogone calospora (Karsten) von Hoehnel

Found on an old "Clavaria" at Sunflower Flats.

Collection: 30302 (7-8-63), identified by C. T. Rogerson.

Abundance: V, F.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Europe, North America.

Mycogone cervina Ditmars

on Helvella lacunosa

Found in the area of the Lassen National Forest Mineral Guard Station, and at Mrs. Adams' Place near Mineral.

Collections: 52777 (10-1-76), 60691 (10-8-81), 61529 (9-20-82), identified by C. T. Rogerson.

Abundance: IV, F.

Associates: Abies concolor, Calocedrus decurrens, Pinus jeffreyi.

Distribution: Widespread.

Oidiodendron truncatum Barron

Found on rotting wood of Abies magnifica along the Mt. Harkness Trail.

Collection: 42794 (7-27-70), identified by M. B. Ellis, CMI 165403.

Abundance: V, A.

Associates: Abies magnifica.

Distribution: North America.

Oidium sp. state of

Erysiphe sp.

on Dahlia versicolor

Found on cultivated plants at the Mineral store, Mineral.

Erysiphe polygoni

on Trifolium pratense

Found on plants in the vicinity of the Bodine Place near Mineral.

Collections: 53560 (10-12-76), 54203 (10-27-76).

Paciloмyces varioti Bainier

Isolated from a soil sample from a table area in a chaparral campsite at Manzanita Lake Campground.

Date: 7-8-63.

Abundance: V, D.

Associates: Arctostaphylos patula, Caenothus velutinus.

Distribution: Cosmopolitan.

Penicillium spp.

Found on an improperly dried specimen of Inonotus dryadeus shipped from Mineral to Cincinnati, and on specimens of Suillus sp. with a Mucor sp. Isolated from all but water samples from Lake Helen, from all samples from Emerald Lake, and from all soil samples from Manzanita Lake area.

Collections: 41549 (8-18-57, 7-8-63, 9-29-69), 52848 (10-1-76).

Penicillium canescens Sopp

Isolated from soil taken from near a litter can at the Manzanita Lake Visitor Center.

Date: 7-8-63.

Abundance: V, D.

Associate: Pinus jeffreyi.

Distribution: Widespread but occasional.

Penicillium chrysogenum Thom

Isolated from lake bottom soil about 10 feet from the shore and from moist soil about 10 feet from the lake shore at Lake Helen, and from a soil sample taken at a bench near the Manzanita Lake Ranger Station.

Date: 8-18-57, 7-8-63.

Abundance: IV, D.

Associates: Lake shore forbs, grasses and sedges; Pinus jeffreyi.

Distribution: Widespread.

Penicillium clavigerum Demelius

Isolated from a soil sample from the Manzanita Lake area.

Date: 7-8-63.

Abundance: V, D.

Associates: Pinus jeffreyi.

Distribution: Widespread but infrequent.

Penicillium crustosum Thom

Isolated from a sample of soil from a tent area in a chaparral campsite at the Manzanita Lake Campground.

Date: 7-8-63.

Abundance: V, D.

Associates: Arvctostaphylos patula, Ceanothus velutinus.

Distribution: Widespread.

Penicillium janthinellum Biourge

Isolated from all soil samples collected at Lake Helen, from Emerald Lake water, and from soil near a stove in a chaparral campsite in the Manzanita Lake Campground.

Dates: 8-18-57, 7-8-63.

Abundance: IV, D.

Associates: Lake water and soil species, Arctostaphylos patula, Ceanothus velutinus.

Distribution: Cosmopolitan.

Penicillium lasseni Paden

Isolated by an alcohol technique from soil from a mixed conifer stand at about 1200 m between Morgan Springs and Deer Creek Pass, Lassen National Forest, Tehama Co.

Date: 1969.

Abundance: V, D.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Tehama Co., California.

Penicillium lilacinum Thom

Isolated from soil samples from a tent area in a chaparral campsite, and from a table area in a campsite under Pinus jeffreyi at the Manzanita Lake Campground.

Date: 7-8-63.

Abundance: IV, D.

Associates: Pinus jeffreyi, Arctostaphylos patula, Ceanothus velutinus.

Distribution: Cosmopolitan.

Penicillium martensii Biourge

Isolated from a soil sample from a stove area in a chaparral campsite in the Manzanita Lake Campground.

Date: 7-8-63.

Abundance: V, D.

Associates: Arctostaphylos patula, Ceanothus velutinus.

Distribution: Worldwide.

Penicillium nigricans (Bainier) Thom

Isolated from soil samples from near the litter can at the Manzanita Lake Visitor Center, from an undisturbed area under Pinus jeffreyi and chaparral near the Manzanita Lake Campground; and from a table area, a tent area, and a stove area in a chaparral campsite, and from a table area in a campsite from under Pinus jeffreyi.

Date: 7-8-63.

Abundance: III, D.

Associates: Pinus jeffreyi, Arctostaphylos patula, Ceanothus velutinus.

Distribution: Widespread.

Penicillium thomii Maire

Isolated from soil samples from an undisturbed area under Pinus jeffreyi and chaparral near the Manzanita Lake Campground, from a tent area, a stove area and a table area in a chaparral campsite, and from a tent area, and a table area in a campsite under Pinus jeffreyi.

Date: 7-8-63.

Abundance: III, D.

Associates: Pinus jeffreyi, Arctostaphylos patula, Ceanothus velutinus.

Distribution: Widespread.

Penicillium waksmanii Zaleski

Isolated from a soil sample from near the litter can at the Manzanita Lake Visitor Center.

Date: 7-8-63.

Abundance: V, D.

Associates: Pinus jeffreyi.

Distribution: Widespread.

Phaeosclera dematiodes Sigler, Tsuneda & Carmichael

Found on a hardwood stick near the Mineral Home Owners' Water Supply Spring, about 5,000 ft.

Collection: 50552 (9-6-75), identified by J. L. Crane.

Abundance: V, B.

Associates: Alnus tenuifolia, Salix spp.

Distribution: Alberta.

Phialophora sp.

Isolated from water and from shore sediments collected at Lake Helen.

Date: 8-18-57.

Polydesmus (nr.) sp.

Found on Arctostaphylos patula, base of Shasta View Trail.

Collection: 34911 (7-2-65), identified by M. B. Ellis, CMI-165367.

Ramularia lappulae J. J. Davis

Occasional leaves on occasional plants of Hackelia floribunda in the vicinity of Cold Boiling Lake were found diseased by this fungus.

Collection: 37102 (7-9-66).

Abundance: V, D.

Associates: Abies magnifica, Tsuga mertensiana.

Distribution: Wisconsin.

Ramularia lupini J. J. Davis

on Lupinus polyphyllus var. superbus

Found in moist areas in Conard Meadows.

Collection: H. Stanley (8-28-72).

Abundance: V, C.

Associates: Forbs and grasses of moist meadows.

Distribution: Texas, Wisconsin, Washington, California.

Ramularia pusilla Unger

Ovularia pusilla (Unger) Saccardo & D. Saccardo.

Bonar found leaves of the grass Glyceria elata parasitized by this fungus.

Collection: Lee Bonar (1934).

Abundance: V, C.

Associates: Meadow forbs and grasses.

Distribution: Washington, California.

Rhinocladiella mansonii (Castellani) Schol-Schwarz

Isolated from soil collected near the litter can at the Manzanita Lake Visitor Center, from soil near a bench near the Ranger Station, from soil in a table area in a campsite in chaparral, and from a table area in a campsite under Pinus jeffreyi in the Manzanita Lake Campground.

Date: 7-8-63.

Abundance: IV, D.

Associates: Pinus jeffreyi, Arctostaphylos patula, Ceanothus velutinus.

Distribution: Cosmopolitan.

Scolecotrichum graminis Fuckel

The leaf spot producing fungus has been found on Sitanion hystrix on the Paradise Meadow Trail.

Collection: 34214 (7-7-63).

Abundance: V, C.

Associates: Grasses and forbs in open dry woods.

Distribution: On many grasses in Europe, North America.

Sepedonium chrysospermum Bulliard : Fries

This golden yellow mold occasionally parasitizes some kinds of mushrooms, most commonly species of Boletus and Suillus as well as certain hypogaeous fungi. Found in the Sulphur Works area, along the trail to King Creek Falls, in the Big Juniper area along SR-44, and in the Lassen National Forest Mineral Fire Guard Station area, and in the BCMR area, Mineral.

Collections: 29559 (7-2-54), 59522 (9-6-75), 53231 (10-7-76).

Abundance: V, F.

Associates: Abies magnifica, Pinus ponderosa, Abies concolor.

Distribution: Siberia, Europe, North America.

Sporidesmium larvatum M. C. Cooke & Ellis

Found on conifer wood in the Sunflower Flats area.

Collection: 349267A-a (7-2-65), identified by M. B. Ellis, CMI-165370, 52994 (10-4-76), 61527 (9-20-82).

Abundance: V, A.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: North America.

Stemphylium sp.

Isolated from soil near the litter can at the Manzanita Lake Visitor Center, and from soil in the lawn at the Manzanita Lake Ranger Station.

Date: 7-8-63.

Stigmina pedunculata (Ellis & Everhart) M. B. Ellis

on Sambucas caerulea

Found on dead canes on shrubs in a gravel borrow pit along SR-36 near Mineral.

Collection: 60783B-5 (10-9-81), identified by M. E. Barr.

Abundance: V, B.

Associates: Sambucas caerulea and plants of borrow pits.

Distribution: Western United States.

Taeniolella sp.

Found as a black mold on dead branches of Alnus tenuifolia.

Collection: 35006 (7-4-65), identified by M. B. Ellis, CMI-165371.

Trichoderma harzianum Rifai

On an imperfectly dried fruit body of Inonotus dryadeus shipped from Mineral to Cincinnati.

Collection: 41546 (9-26-69).

Abundance: V, F.

Associates: Other molds on this conk.

Distribution: Widespread.

Trichoderma polysporum (Link) Hughes

Specimens of Columnocystis abietinus have been found covered with this mold which forms white to cream colored cottony growths on this fungus.

Collections: 37146 (7-11-66), 38709 (8-11-67), 42885 (7-30-70), 53518 (10-11-76).

Abundance: IV, F.

Associates: Abies magnifica, Tsuga mertensiana.

Distribution: Widespread.

Trichoderma viride Persoon ex Fries sensu latissimo

This is one of the molds isolated from summit fumaroles. It has also been found on a species of Thelephora. Isolated from wet soil near a boulder 100 ft. below the summit of Lassen Peak, from mineralized soil at a summit fumarole, from soil in the fumarole once used to burn garbage, from moist soil under Pinus albicaulis near upper timberline, from moist soil near Tsuga mertensiana at about 9,000 ft., from soil and duff in open areas in an Abies magnifica forest, from soil in a wet sedge meadow at Cold Boiling Lake, from bottom soil in a pool at Cold Boiling Lake, and from surface scum in a seepage area in Cold Boiling Lake. Isolated from all soil samples collected in the Manzanita Lake area including the Campground.

Collections: 34919 (7-21-56, 7-8-63, 7-2-65).

Abundance: I, D, F.

Associates: Most forest, meadow, and chaparral plants in the Park.

Distribution: Cosmopolitan.

Trichothecium roseum Link : Fries

This is a pink mold which is sometimes found on various kinds of litter and organic debris as well as wood of old logs, usually after the snow melts.

Collections: 26603 (7-1-50), 29569 (7-2-54), 30397 (7-22-56), 34959 (7-3-75), 42900 (7-30-70), 45494 (7-29-72), 49328 (8-27-74).

Abundance: III, A, D.

Associates: Conifer trees throughout the Park.

Distribution: Cosmopolitan.

Ulocladium botrytis Preuss

Isolated from a soil sample collected near the litter can at the Manzanita Lake Visitor Center.

Date: 7-8-63.

Abundance: V, D.

Associates: Pinus jeffreyi.

Distribution: United States.

Mycelia Sterilia

Cenococcum graniforme (Sow.) Ferdinsen & Winge

Reported in the literature by J. M. Trappe (1964).

Abundance: Probably greater than IV.

Associates: All woody plants in the Park.

Distribution: World wide as a mycorrhiza former.

It may be of interest to note that a specimen of Caloscypha fulgens (38733) was infected with sterile mycelium. The only clue to its possible identity was the presence of clamp connnections indicating that the mycelium belonged to a Basidimycete.

A specimen of Thelephora 38679, had a white growth which was found to be a species of Streptomyces.

Basidiomycotina

Teliomycetes

Ustilaginales

Ustilaginaceae

Anthracoidea sp.

on Carex sp.

Found in the Butte Lake area near the lake shore.

Collection: 50770 (9-10-75), identified by D. B. O. Savile.

Abundance: V, C.

Associates: Lake shore forbs and grasses.

Anthracoidea attratae (Savile) Kukkonen

on Carex spectabilis

Collected on the shore of Emerald Lake and at another location in the Park.

Collection: Lee Bonar (8-19-49), distributed as California Fungi No. 862, L. Bodine (Sept. 1972).

Abundance: IV, C.

Associates: Meadow and streamside forbs, grasses and sedges.

Distribution: British Columbia, Washington, California.

Anthracoidea heterospora (B. Lindeb.) Kukkonen

on Carex aquatilis

Found in the area of the Summit Lake Ranger Station.

Collection: 42745 (7-25-70), identified by D. B. O. Savile.

Abundance: V, C.

Associates: Moist meadow forbs and grasses.

Distribution: Northern Europe, California.

Anthracoidea ?misandrae Kukkonen

on Carex physocarpa Presl

Found in the Emerald Lake - Soda Lake area.

Collection: L. Bodine and M. K. Stanley (8-12-72); identified by D. B. O. Savile.

Abundance: V, C.

Associates: Forbs, grasses and sedges of moist meadows.

Distribution: California.

Anthracoidea verrucosa (Savile) Nannfeldt

on Carex ?multicostata Mackenzie

Found along the Brokeoff Mountain Trail.

Collection: 50602 (9-7-75), identified by D. B. O. Savile.

on Carex ?pachystachya

Found along the Brokeoff Mountain Trail.

Collection: 50602 (9-7-75), identified by D. B. O. Savile.

on Carex subfusca

Found in the Mineral area.

Collection: 52774 (10-1-76), identified by D. B. O. Savile.

Abundance: III, C.

Associates: Forbs and grasses of moist areas.

Distribution: North America, California.

Anthracoidea spp. as Cintractia caricis (Persoon) Magnus

on Carex fracta

Found on plants near Hat Lake.

Collection: 30407 (7-22-56).

on Carex luzulaefolia

Found on the shore of Emerald Lake.

Collection: Lee Bonar (8-19-49), distributed as California Fungi 760, 862.

on Carex spp.

Found in streamside meadows along the Brokeoff Mountain Trail.

Collection: 30919, 30920 (8-18-57).

Abundance: IV, C.

Associates: Forbs and grasses of wet and dry meadows.

Distribution: On at least 50 species of Carex wherever it grows.

Sphacelotheca hydropiperis (Schumacher) de Bary

Sphacelotheca inflorescentiae (Trelease) Maire

on Polygonum bistortoides

Found in a "large wet alpine" meadow near Lassan Volcanic National Park Headquarters at Mineral, Tehama Co., 5,000 ft.

Collector: P. M. Halisky (6-10-63).

Abundance: V, C.

Associates: Meadow herbs and grasses.

Distribution: Widespread in north temperate regions, California.

Ustilago bullata Berkeley

on Bromus carinatus

Occasional on this host throughout the Park; Crumbaugh Lake area.

The seed of the grass is replaced by a mass of black smut spores.

Collections: 30918 (8-18-57), 33474 (8-14-62); H. Stanley (8-28-72).

on Bromus polyanthus (B. marginatus)

Found once in the Hat Lake area, in Crumbaugh Meadows, and along the Brokeoff Mountain Trail.

Collections: 30412 (7-22-56), 50601 (8-28-72), 50802 (9-7-75), H. Stanley (9-11-75).

Abundance: I, C.

Associates: Forbs and grasses of wet and dry meadows.

Distribution: On at least 20 species of Bromus in Europe, Asia, Australia, South America, District of Columbia, western North America.

Ustilago shastense Zundel

on Polygonum shastense

Found on occasional plants along the lower part of the Summit Trail. Parts of the flowers usually anthers, are infected and instead of white or pink or red flowers or fruits, the flowers are turned a dull rose or brownish color with the smut spores in the infected organs.

Collections: 25566 (8-22-49), 29683 (9-26-50).

Abundance: IV, B.

Associates: Forbs, grasses and shrubs of subalpine fell fields.

Distribution: Mount Shasta, (Lassen Peak).

Ustilago spegazzini Hirschhorn var. agrestis (Sydow) G.W. Fisher & Hirschhorn

The wild rye and squirreltail grasses are parasitized by this smut fungus. The fungus sterilizes the plant, preventing it from producing flowers. It produces black spores on stems under leaf sheaths.

on Elymus glaucus

Found once at the foot of the Brokeoff Mountain Trail.

Collection: 33477 (8-14-62).

on Sitanion hystrix

Collected throughout the range of the host in the Park; Brokeoff Mountain trail, trail between Bumpass Mountain and Cold Boiling Lake.

Collections: 30408 (7-22-56), 30916 (8-18-57), 33476 (8-19-60), 38739 (8-14-62), 50603 (8-12-69), 50801 (9-7-75); J. T. Howell (9-11-75, identified by Lee Bonar, Herbarium, University of California, Berkeley.

on Stipa californica

Collected on the Terrace Lake - Paradise Meadow Trail where several plants were parasitized.

Collection: 62280 (9-14-84).

Abundance: III, C.

Associates: Abies magnifica, Tsuga mertensiana.

Distribution: On at least 22 grass hosts in Europe, Asia, North Africa, North and South America.

Ustilago striaeformis (Westendorp) Niessl

on Sitanion histrix

Found on several plants at a parking area at the foot of the Brokeoff Mountain Trail.

Collections: 33475, 33476A (8-14-62).

Abundance: IV, C.

Associate: Abies magnifica.

Distribution: On many species of grasses in Europe, North America.

Uredinales

Melampsoraceae

Cronartium coleosporioides (Dietel & Holway) Arthur

on Pinus contorta var. murrayana

Occasional on trees in the Warner Valley at Drakesbad where blister galls are formed on the trees.

Collections: 37068, 37092 (7-9-66).

Abundance: IV, A.

Associates: Abies concolor, Pinus contorta var. murrayana.

Distribution: Central and South America, western North America.

Melampsora epitea Thuemen

Melampsora ribesii-purpurea Klebahn

on Salix ?lasiandra

Found once on one infected shrub near Hat Lake.

Collection: 49446 (8-29-74), identified by G. C. Cummins.

Abundance: V, B.

Associates: Salix spp., Alnus tenuifolia.

Distribution: On a number of species of Salix in Europe, western North America.

Melampsorella caryophyllacearum Schroeter

Melampsorella cerastii (Persoon) Schroeter

on Abies magnifica

Witches' brooms caused by this fungus have been noted on trees in the King Creek Meadow area, and in Warner Valley. An odor like that of the stinkhorn fungus usually accompanies this fungus. Needles on such brooms are covered with rust pustules and usually turn yellow and die prematurely.

Collections: 37125 (7-1-66), 50797 (9-11-75).

Abundance: IV, A.

Associates: Abies magnifica.

Distribution: Europe, Siberia, Japan, North America.

Pucciniastrum goeppertianum (Kuehn) Klebahn

on Abies magnifica.

This rust, as is true of many others, requires two kinds of plants on which to grow to complete its life cycle. Both stages have been found in the Park. The aecial cups were found on needles of Abies magnifica near Jakey Lake, while the telial stage has been found, on Vaccinium nivictum at Summit Lake. On dwarf blueberry bushes the fungus grows in the epidermal cells of the stems, swelling them and causing the minute shrub to produce witches' brooms with greatly thickened bark on the elongated branches. Found once on Red Fir at Jakey Lake.

Collection: P. E. Schulz (9-26-52), identified by Lee Bonar (University of California, Berkeley, Herbarium.)

on Vaccinium nivictum

Forming witches' brooms on small shrubs at Summit lake

Collections: 34118 (7-5-63), 35042 (7-5-65, 7-10-66), 50617 (9-8-75).

Abundance: IV, B.

Associates: Abies magnifica, Pinus contorta var. murrayana.

Distribution: On at least 12 species of Vaccinium and several conifers in Europe, Japan, Mexico, North America.

Pucciniaceae

Phragmidium ivesiae Sydow

on Potentilla sp.

A specimen was collected at Mineral, Tehama Co.

Collection: W. H. Long (1911), deposited in the Arthur Rust Herbarium, Purdue University (AH-8400).

Abundance: V, C.

Associates: Meadow forbs and grasses.

Distribution: On at least 24 rosaceous species west of the Mississippi in Canada and the United States, Tehama Co., Calif.

Puccinia amphisilusa Dietel & Holway

on Polygonum newberryi

Reported for LAVO but specimens have not been seen.

Puccinia balsamorhizae Peck

On Wyethis mollis

Occasional on leaves of plants in the Cold Boiling Lake area.

Collection: 50804 (9-11-75).

Abundance: V, C.

Associates: Forbs and grasses of dry meadows.

Distribution: Montana to British Columbia, south to Colorado and California.

Puccinia caricis (Schumacher) Schroeter

on Carex ?lemmonii

Found once at Crumbaugh Lake.

Collection: H. Stanley (8-28-72).

on Carex multicosta

Found once along the Boiling Springs Lake Trail, Warner Valley.

Collection: 37103 (7-9-66).

on Carex nebraskensis

Found once at Mineral.

Collection: Mrs. J. Clemens (7-30-20) (Arthur Herbarium No. 46133).

on Carex specifica

Collected on the Shadow Lake Trail.

Collection: 37164 (7-11-64).

on Urtica gracilis var. holoserica

Collected once on nettles at Drakesbad.

Collection: H. E. Parks, filed in the herbarium, University of California, Berkeley.

Date: None given.

This rust, which completes its life cycle on two different kinds of host, sedges and nettles, may be found on other sedges in the Park.

Abundance: IV, C.

Associates: Forbs and grasses of wet and dry meadows.

Distribution: On over 100 species of sedges, and on several nettles and gooseberries in temperate Europe, Asia, Japan, New Zealand, North America.

Puccinia calcitrapae DeCandolle

Puccinia cirsii Lasch

on Cirsium douglasii var. canescens (C. breweri)

Found on Brewer's Thistle in a wet meadow at Drakesbad.

Collection: 37087 (7-9-66), identified by J. A. Parmelee.

Abundance: V, C.

Associates: Meadow forbs and grasses.

Distribution: Widespread on Cirsium.

Puccinia harknessii Vize

Dicaeoma harknessii (Vize) O. Kuntze

On Stephanomeria lactucina

Collected on plants near Mineral, Tehama Co.

Collection: W. H. Long (9-12-11) (Arthur Herbarium 34738, 34739).

Abundance: V, C.

Associates: Meadow forbs and grasses.

Distribution: On at least 12 cichoraceous species in the western United States.

Puccinia heucherae (Schweinitz) Dietel

on Mitella pentandra

Collected at Drakesbad, Plumas Co.

Collection: J. T. Howell (7-12-60), identified by Lee Bonar, Herbarium, University of California, Berkeley.

Abundance: V, C.

Associates: Meadow forbs and grasses.

Distribution: On at least 45 saxifragaceous hosts in Europe, eastern Asia, Japan, North America,.

Puccinia hieracii (Schumacher) Martius

Bullaria hieracii (Schumacker) Arthur

on Hieracium albiflorum

Found on leaves of most plants of the host in a colony in an opening in fir woods along the trail from Drakesbad to the Devil's Kitchen in 1966, but not observed on that host colony in 1975 or 1976.

Collection: 37078 (7-9-66).

on Hieracium sp.

Found at Mineral, Tehama Co.

Collection: W. H. Long (9-12-11) (Arthur Herbarium 38366).

Abundance: IV, C.

Associates: Abies concolor, Calacedrus decurrens, Pinus jeffreyi.

Distribution: On at least 60 cichoraceous species in Europe, Asia, Japan, Africa, Australia, New Zealand, South, Central, and North America.

Puccinia menthae Persoon

Dicaeoma monardellae (Dudley & Thompson) Arthur

on Monardella odoratissima spp. pallida

Found once at Mineral, Tehama Co.

Collection: W. H. Long (Sept. 1911) (Arthur Herbarium 33248, 33249).

Abundance: V, C.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: On at least 50 labiates in Europe, Africa, Asia, Japan, North and South America.

Puccinia mcclatchiana Dietel & Holway

on Scirpus microcarpus

Found in a wet spring area in Warner Valley.

Collection: 50704 (9-9-75).

Abundance: V, C.

Associates: Forbs and grasses of wet areas.

Distribution: Nova Scotia to British Columbia, south to Massachusetts and California.

Puccinia monoica (Peck) Arthur

on Arabis platysperma

Most of the host plants observed in the vicinity of the Warner Valley Campground were parasitized by this rust which forces the development of the bract below the flower, sterilizing the plant. Also found at Hat lake.

Collection: 37071 (7-9-66), 42940 (7-30-70).

Abundance: IV, C.

Associates: Abies concolor, Salix spp.

Distribution: On at least 26 cruciferous species in western United States, British Columbia.

Puccinia mutabilis Ellis & Galloway

on Allium campanulatum

Leaves of a few plants along the Brokeoff Mountain Trail were found to carry the brown pustules of this fungus.

Collection: 33478 (8-14-62).

Abundance: V, C.

Associates: Abies magnifica.

Distribution: Western United States.

Puccinia pimpinellae (Strauss) Roehling

Dicaeoma pimpinellae (Strauss) O. Kuntze

on Osmorhiza occidentalis

Found once near Mineral, Tehama Co.

Collection: W. H. Long (Sept. 1911) (Arthur Berbarium 32302).

Abundance: V, C.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: On at least 14 umbelliferous species in Europe, Algeria, Asia Minor, India, Japan, North America.

Puccinia plumbariae Peck

Allodus galiae (Peck) Orton

on Micrasteris gracilis

Found once at Mineral, Tehama Co.

Collection: G. B. Posey (7-31-20) (Arthur Herbarium 36164).

Abundance: V, C.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Asia, South America, western North America.

Puccinia praegracilis Arthur

Aecidium graebnerianum Hennings

on Habenaria (?leucostachys)

Found once at Drakesbad on the rein orchis. It forms yellow aecial pustules on leaves. The alternate host is a species of Agrostis, a grass not yet found in the park.

Collection: H. E. & S. T. Parks 3327 (June 1928), identified by Lee Bonar (Herbarium, University of California, Berkeley).

Abundance: V, C.

Associates: Meadow forbs and grasses.

Distribution: Southern Alaska to Southern California.

Puccinia pulverulenta Grevill

Puccinia gayophyti Arthur

Puccinia vagans de Candolle var. gayophyti Arthur

on Gayophytum sp.

Occasionally many plants in colonies of species of Gayophytum carry the small dark brown pustules of this rust fungus. Found along the Manzanita Creek Trail, and in the vicinity of Hat Lake.

Collections: 30411 (7-22-56), 42765 (7-26-70).

Abundance: IV, D.

Associates: Arctostaphylos patula, Ceanothus velutinus, Abies concolor, Salix spp.

Distribution: On at least 7 species of Gayophytum in western North America.

Puccinia violae (Schumacher) de Candolle

Dicaeoma violae (Schumacher) O. Kuntze

on Viola sp.

Found near Mineral, Tehama Co.

Collection: W. H. Long (Sept. 1911) (Arthur Herbarium 32007, 32011).

Abundance: V, C.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Cosmopolitan.

Uromyces intricatus M. C. Cooke

on Eriogonum nudum

This rust forms clusters of brown or rust colored pustules on

leaves of the host plant which become discolored. Found in the Hat Lake area.

Collection: 42941 (7-30-70).

on Eriogonum latifolium spp. nudum

Found along the King Creek Falls Trail.

Collection: 54263 (10-28-76).

on Erigonum umbellatum

Collected in the King Creek Cascades area.

Collection: 29572 (7-2-54).

Abundance: IV, C.

Associates: Abies magnifica, Pinus contorta var. murrayana.

Distribution: On at least 43 polygonaceous species in western North America.

Uromyces junci-effusi Sydow

on Juncus howellii Hermann

Collected once in the Park, probably at Summit Lake.

Collection: Bailey 2883 (8-27-48) (Arthur Herbarium 56481).

Abundance: V, C.

Associates: Abies magnifica, Pinus contorta var. murrayana.

Distribution: North America.

Uromyces spragueae Harkness

on Calyptridium umbellatum

Occasional plants in sandy openings in Warner Valley and along the Manzanita Creek Trail are heavily parasitized by this rust.

Collection: 37104 (7-9-66), 42770 (7-26-70).

Abundance: IV, C.

Associates: Abies concolor, Pinus jeffreyi, plants of dry meadows.

Distribution: On 3 species of Calyptridium in Wyoming, Oregon, California.

Heterobasidiomycetes

Dacrymycetales

Dacrymycetaceae

Dacrymyces sp.

Conidial material of a small yellow jelly fungus was found once on rotting confier wood in the Hat Creek area.

Collection: 34201 (7-7-63).

Dacrymyces punctiformis Neuhoff

Found occasionally on rotting wood on which it forms small yellow gelatinous pustular fruit bodies. These dry to tiny flecks of yellow which are hardly noticeable. Found along the Summit Trail, and near Jackson Springs, Tehama Co., SR-89, 6,000 ft.

Collection: K. Wells 458-3 (5-31-59) (Univ. of Calif. Herbarium No. M-201357), 34141 (7-6-63).

Abundance: IV, A.

Associates: Abies concolor, Pinus albicaulis, Tsuga mertensiana.

Distribution: Widespread, California.

Guepiniopsis alpinus (Tracy & Earle) Breafield

Found on rotting conifer wood as a bright yellow gelatinous fungus which occasionally fruits in great abundance and then colors the wood on which it grows with its own color. When dry, and in dry weather, it is scarcely noticeable. It is very noticeable on wood irrigated by

melting snow.

On conifer wood.

Collections: 29536 (7-2-54), 37153 (7-11-66), 38699 (8-11-67), 42781 (7-27-70), 42820 (7-28-70), 42884 (7-30-70).

on Abies magnifica

Collections: 26616, 26662 (7-1-50), 34970 (7-3-65), 49326 (8-27-74).

on Tsuga mertensiana

Collections: 26638 (7-1-50), 34129 (7-5-63), 45499 (7-9-72), 49420 (8-29-74), 50772 (9-11-75), 61909 (9-12-83), 62271 (9-14-84).

Abundance: I, A.

Associates: Abies magnifica, Pinus albicaulis, P. monticola, Tsuga mertensiana.

Distribtuion: Western North America.

Guepiniopsis torta (Fries) Patouillard

on Pinus contorta var. murrayana

Found in the Butte Lake area.

Collection: 50740 (9-10-75), identified by L. L. Kennedy.

Abundance: V, A.

Associates: Pinus contorta var. murrayana, Populus tremuloides.

Distribution: Europe, northeastern United States, Colorado, California.

Tremellales

Tremellaceae

Pseudohydnum gelatinosum (Fries) Karsten

Found inside a rotting log of Abies concolor at Sunflower Flat, and above Cabin 17 at the LAVO Headquarters area, Mineral, and along the trail to Devil's Kitchen; also found in an Abies magnifica log along the north shore of Juniper Lake.

Collections: 34937 (7-2-65), 52968 (10-5-76), 53094 (10-3-76), 55033 (10-1-77).

Abundance: IV, A.

Associates: Abies concolor, A. magnifica, Pinus jeffreyi.

Edibility: Edible (when found in quantity and good size).

Distribution: Cosmopolitan on coniferous substrata.

Tulasnellales

Tulasnellaceae

Tulasnella sp.

Immature material of a species assignable to this genus was found once on rotting conifer wood in the Summit Lake area.

Collection: 34969 (7-3-65), identified by A. E. Liberta.

Tulasnella violacea Johan-Olsen

This species forms a thin pinkish to lilac colored film over the surface of conifer wood and sticks. It was found once in the Summit Lake area.

Collection: 34978 (7-3-65), identified by A. E. Liberta.

Abundance: V, A.

Associates: Abies Magnifica, Pinus contorta var. murrayana.

Distribution: Europe, Western North American.

Homobasidiomycetes

Exobasidiales

Exobasidiaceae

Exobasidium vaccinii (Fuckel) Woronin

Many species of shrubs in the heath family are parasitized by this fungus. In Lassen Volcanic National Park, both species of Arctostaphylos, the manzanita, sometimes suffer severe damage because of this fungus. It infects young branches and causes the leaves to turn bright red. Naturally, these branch tips are killed. It has been found rarely at Manzanita Lake on A. patula, and in several years abundantly on A. nevadensis along the upper part of the Brokeoff Mountain Trail, as well as at Paradise Meadows and along the Manzanita Creek Trail.

On Arctostaphylos patula

Collection: Lee Bonar (8-21-54), distributed as California Fungi No. 890.

On Arctostaphylos nevadensis

Collections: 33479 (8-14-62), 37110 (7-9-66), 42763 (7-26-70), 49443 (8-29-74), 50604 (9-7-75), 53115 (10-5-76).

Abundance: III, B.

Associates: Arctosstaphylos patula, Ceanothus velutinus, Abies magnifica, Tsuga mertensiana.

Aphylophorales

Corticiaceae

Several specimens of Corticium, Peniophora, and their segregate genera, have been collected on rotting wood and branches of various conifer

and hardwood trees and shrubs in the Park. Many of these cannot be identified to species, or even to genus, because of lack of mature spore-producing structure, and spores.

Amphinema byssoides (Persoon : Fries) J. Eriksson

Found on rotting conifer wood at Sunflower Flats.

Collection: 34932 (7-2-65), identified by H. H. Burdsall, Jr.

Abundance: V, A.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Western North America.

Athelia spp.

Specimens assigned to this genus without going to species because fruiting material was not adequate for additional study, were obtained from dead sticks of Populus tremuloides near Hat lake, and rotting wood of conifers at Sunflower Flats.

Collections: 34192 (7-7-63), 34932 (7-2-65), identified by A. E. Liberta.

Athelia bombacina Persoon

on Populus tremuloides

Found on rotting wood in the Hat Creek area.

Collection: 34191 (7-7-63), identified by H. H. Burdsall, Jr.

Abundance: V, B.

Associates: Populus tremuloides

Distribution: Scandinavia, North America.

Athelia galzinii (Bourdot) Donk

Collected on unidentified conifer wood, and on wood of Tsuga mertensiana, near the Shadow Lake Trail, and in the King Creek Meadow area.

Collections: 37152 (7-11-66), 38702 (8-11-67), 39344 (7-11-68), identified by A. E. Liberta.

Abundance: IV, A.

Associates: Abies magnifica, Tsuga mertensiana.

Distribution: Sweden, Denmark, California.

Athelia raunkiaeri M. P. Christiansen

Found on Abies magnifica wood in the Hat Lake area.

Collection: 34181 (7-7-63), identified by A. E. Liberta.

Abundance: V, A.

Associates: Abies magnifica, Pinus contorta var. murrayana.

Distribution: Denmark, California.

Botryobasidium subcoronatum (von Hoehnel & Litschauer) Donk

Found on Abies concolor bark at Sunflower Flats.

Collection: 34920 (7-2-65), identified by H. H. Burdsall, Jr.

Abundance: V, A.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Europe, North America.

Byssocorticium atrovirens Bondartsev & Singer ex Singer

Found on rotting wood in the King Creek Meadows area, 7500 ft.

Collection: 39352 (7-10-68), identified by A. E. Liberta.

Abundance: V, A.

Associates: Abies mangifica, Tsuga mertensiana.

Distribution: Europe, California.

Cylindrobasidium corrugum (Burt) J. Ginns

Coniphora corruge Burt

Corticium carruge Burt in herb.

On wood of conifer including Abies magnifica and Tsuga mertensiana and bark of Pinus contorta var. murrayana at Paradise Meadows, near the Terrace-Paradise-Hat Lakes Trail, along the Brokeoff Mountain Trail, and on conifer wood near Reflection Lake. This species may also fruit on soil and rocks, apparently wandering from the wood in which it matured.

Collections: 38703 (8-11-67), 39392 (7-13-68), 45500 (7-9-72), 45582 (7-12-72), 50774 (9-11-75).

Abundance: III, A.

Associates: Abies concolor, A. magnifica, Pinus contorta var. murrayana, P. jeffrey, Tsuga mertensiana.

Distribution: Washington, Arizona, California.

Gloecystidiellum lividum (Bresadola) Donk

Found on Abies magnifica wood along the Brokeoff Mountain Trail.

Collection: 35013 (7-4-65), identified by H. H. Burdsall, Jr.

Abundance: V, A.

Associates: Abies magnifica, Tsuga mertensiana

Distribution. North America.

Hyphodontia pallidula (Bresadola) J. Eriksson

Found on Abies concolor wood at Sunflower Flats.

Collection: 34074 (7-4-63), identified by A. E. Liberta.

Abundance: V, A.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Sweden, California.

Laeticorticium roseum (Fries) Donk

Found on Tsuga mertensiana on Bumpass Mountain.

Collection: 50775 (9-11-75).

Abundance: V, A.

Associates: Abies magnifica, Tsuga mertensiana.

Distribution: Northern Europe, North America.

Leptosporomyces mundus (Jackson & Deardon) Jülich

Found on bark of Tsuga mertensiana along the Shadow Lake Trail.

Collection: 37152 (7-11-66), identified by H. H. Burdsall, Jr.

Abundance: V, A.

Associates: Abies magnifica, Tsuga mertensiana.

Distribution: North America.

Pellicularia sp.

On rotting wood of Abies concolor at Sunflower Flats, 6,000 ft.

Collection: 39351 (7-11-68), identified by A. E. Liberta.

Pellicularia subcoronata Liberta

On rotting wood of Abies concolor at Sunflower Flats.

Collections: 34920, 34921 (7-2-65), identified by A. E. Liberta.

Abundance: IV, A.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: California.

Peniophora spp.

On rotting conifer wood in the King Creek Meadows area, Summit Lake, and Sunflower Flats.

Collections: 34909 (7-2-65), 34982 (7-3-65), 39349 (7-11-68).

Peniophora filamentosa (Berkeley & Curtis) Burt

On rotting conifer wood at Sunflower Flats.

Collections: 34935 (7-2-65), 39318 (7-8-68).

Abundance: IV, A.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: North America, California.

Peniophora incarnata (Persoon : Fries) Karsten

On dead branches of Arctostaphylos patula in the Sunflower Flats area.

Collection: 34909 (7-2-65).

Abundance: IV, B.

Associates: Arctostaphylos patula, Ceanothus velutinus.

Distribution: Europe, Japan, North America.

Peniphora laeta (Fries) Donk

on Amelanchier pallida

Found in woods on the Battle Creek Meadows Ranch, Mineral.

Collection: 60762 (10-8-81), identified by H. H. Burdsall, Jr.

Abundance: V, B.

Associates: Abies concolor, Calocedrus decurrens, Pinus jeffreyi.

Distribution: Scandinavis, North America.

Peniophora violaceo-livida (Sommerfeldt) Massee (North American form).

On rotting wood of Abies magnifica in the Summit Lake area.

Collection: 34982 (7-3-65), identified by A. E. Liberta.

Abundance: V, A.

Associates: Abies magnifica, Pinus contorta, var. murrayana.

Distribution: North America, California.

Scytinostroma sp.

Material assigned to this genus was collected on dead wood of Populus tremuloides in a grove above Hat Lake.

Collection: 37129 (7-11-66), identified by A. E. Liberta.

Sistotrema cf. brinkmannii (Bresadola) J. Eriksson

On conk of Fomitopsis pinicola near shore of Juniper Lake.

Collection: 53085 (10-5-76).

Abundance: V, F.

Associates: Abies magnifica, Pinus contorta var. murrayana.

Distribution: North America.

Trechispora farinacea (Persoon : Fries) Liberta

Found on wood of Tsuga mertensiana at Shadow Lake.

Collection: 37157 (7-11-64), identified by A. E. Liberta.

Abundance: V, A.

Associates: Abies magnifica, Tsuga mertensiana.

Distribution: Europe, North America, California.

Trechispora fastidiosus (Persoon ex Fries) Liberta

Found on Tsuga mertensiana along the Shadow Lake Trail.

Collection: 37157 (7-11-66), identified by H. H. Burdsall, Jr.

Abundance: V, A.

Associates: Abies magnifica, Tsuga mertensiana.

Distribution: North America.

Note: On occasion two different species are picked up in one collection.

Trechispora mollusca (Persoon : Fries) Liberta

Trechispora candidissima (Schweinitz) Bondartsev & Singer

This fungus, which looks like a Poria because of the porose hymenial surface, appears to be more closely related to species of corticioid fungi. It has been collected on conifer wood in the vicinity of the Hot Rock, on Abies magnifica wood in the Hat Lake area, and on Pinus jefferyi wood in Battle Creek Meadows Ranch at Mineral.

Collections: 34180 (7-7-63), 53146 (10-6-76), 60766 (10-8-81).

Abundance: IV, A.

Associates: Abies concolor, A. magnifica, Calocedrus decurrens, Pinus jeffreyi.

Distribution: North America.

Trechispora vaga (Fries) Liberta

On rotting wood of Abies concolor at Sunflower Flats.

Collections: 34060, 34062 (7-4-63), identified by A. E. Liberta.

Abundance: IV, A.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Europe, North America.

Tubulicrinis chaetophoras (Hoehnel) Donk

on Populus tremuloides

Found in the aspen grove near the Hot Rock on rotting wood.

Collection: 53131 (10-6-76).

Abundance: V, B.

Associates: Populus tremuloides, Pinus contorta var. murrayana.

Distribution: Northern Europe, North America, California.

Xenasma filicina (Bourdot) M. P. Christiansen

On rotting wood, including that of Abies magnifica, at Paradise Meadows, and in the King Creek Meadows area.

Collections: 34182, 34198 (7-7-63), 37135 (7-11-66), identified by A. E. Liberta.

Abundance: IV, A.

Associates: Abies magnifica, Tsuga mertensiana.

Distribution: Europe, North America.

Meruliaceae

Ceraceomerulius albostramineus (Torrend) Ginns

Found on rotting conifer wood in the Sunflower Flats area, on Abies magnifica wood in the vicinity of the Sulphur Works, on the Mt. Harkness Trail, on conifer wood along the north shore of Juniper Lake, along the Boiling Springs Lake Trail in Warner Valley, and above Cabin 17 in the LAVO Headquarters area.

Collections: 26606 (7-1-50), 6-765 (10-8-61), 38681 (8-10-67), 39317 (7-8-68), 42782, 42784 (7-27-70), 49283 (8-25-74), 52968, 52976 (10-3-76), 53090 (10-5-76), 55005, 55012 (10-1-77), some identifications of which were made by J. H. Ginns, Jr.

Abundance: III, A.

Associates: Most conifers in the Park.

Distribution: Europe, North America.

Merulius sp.

On rotting wood in the Butte Lake area.

Collection: 50749A (9-10-76).

Abundance: V, A.

Associates: Populus tremuloides, Pinus contorta var. murrayana.

Merulius tremellosus Fries

Found on rotting wood of Abies concolor on the trail to Boiling Springs Lake, Warner Valley.

Collection: 37106 (7-9-66).

Abundance: Abies concolor, Calocedrus decurrens, Pinus contorta var. murrayana.

Distribution: Northern Hemisphere.

Phlebia albida Fries

On the under side of conifer logs, especially of Abies concolor, A. magnifica, and Tsuga mertensiana, is occasionally a fruit body of this fungus. The lower surface of the resupinate structure is covered with folds in the form of tooth-like projections which become ridges radiating out from many centers. Rather than purely white the color may range from cream to pale resinous brown. The entire fruit body is fastened tightly to the log in the manner called resupinate, that is, there are no reflexed margins. Sometimes one of these sheets of tissue may be as much as 10 feet (300 cm.) long and cover almost the entire underside of the log.

On unidentified conifer wood: at King Creek Meadows, in the Sulphur Works area, the Sunflower Flats area, and along the Mt. Harkness Trail.

Collections: 29565 (7-2-54), 34915 (7-2-65), 42795 (7-27-70), 45563 (7-11-72).

on Abies concolor along the trail to Boiling Springs Lake.

Collections: 37107 (7-9-66).

on Abies magnifica at the Winter Sports area, and in the Summit Lake area.

Collections: 26613 (7-1-50), 34964 (7-3-65).

on Tsuga mertensiana at King Creek Meadows, and Crumbaugh Lake.

Collections: 34134 (7-6-63), 37191 (7-14-66), 39350 (7-11-68), 45520 (7-10-72), 50584 (9-7-75), 50618 (9-8-75), 50771 (9-11-75), 61910 (9-12-83).

Abundance: III, A.

Associates: Most conifers in the Park.

Distribution: Europe, North America.

Plicatura nivea (Fries) Karsten

on Alnus tenuifolia

Found along a creek above the LAVO Headquarters area, Mineral.

Collection: 52974 (10-3-76).

Abundance: V, B.

Associates: species of Alnus and Salix.

Distribution: Siberia, northern Europe, North America.

Coniophoraceae

Coniophora olivacea (Fries : Persoon) Karsten

Found on Abies magnifica wood along the Manzanita Creek Trail, the Mt. Harkness Trail, and the King Creek Falls, Trail.

Collections: 42758 (7-26-70), 42785 (7-27-70), 54234 (10-28-76), identified by J. H. Ginns, Jr.

Abundance: IV, A.

Associates: Abies magnifica.

Distribution: Circumboreal in North Temperate Zone, South Africa, New Zealand.

Serpula himantioides (Fries) Bondartsew ex Parmasto

Found on wood of Tsuga mertensiana at King Creek Meadows.

Collection: 34133 (7-6-63), identified by J. H. Ginna, Jr.

Abundance: V, A.

Associates: Abies magnifica, Tsuga mertensiana.

Distribution: Europe, North America.

Serpula lacrimans (Persoon : Fries) Karsten var. lacrimans

Found fruiting on conifer logs forming the walls of a shed and the foundation of a cabin at the Summit Lake Ranger Station. This is one of the common "dry-rot" fungi of structural timber. Because of the habitat it is doubtful if this specimen should be considered distinct from the following variety.

Collection: 39334 (7-10-68).

Abundance: V, A.

Associates: Abies magnifica, Pinus contorta var. murrayana.

Distribution: Europe, North America.

Serpula lacrimans var. shastensis (Harmsen) Ginns & Weresub

Merulius lacrimans var. shastensis Harmsen

Serpula lacrimans var. himantioides (Fries) W. B. Cooke

This fungus grows on such conifer logs as those of Abies magnifica and Tsuga mertensiana. It forms large resupinate patches of bright yellow-brown, nearly gelatinous or almost fleshy tissue which becomes parchment-like when dry. The hymenium on the under surface is formed on a network of veins which make it appear somewhat like a section of a honeycomb. This is probably a "wild" phase of the fungus listed above, a common cause of dry-rot of buildings and structural timbers. Based largely on cultural studies and material from Denmark, Lassen Volcanic National Park, and Mount Shasta, Harmsen (1954), has suggested that the two

varieties, himantioides and shastensis are distinct species. James H. Ginns, Jr., at the Biosystematics Research Institute, Canada Department of Agriculture, recognizes S. himantioides as a distinct species, and has used M. lacrimans var. shastensis in recent identifications.

on Abies magnifica along the upper King Creek Trail, in the Sulphur Works area, along the Paradise Meadows Trail, along the Brokeoff Mountain Trail, along the trail to Boiling Springs Lake, and along the Shadow Lake Trail.

Collections: 29560 (7-2-54), 30401 (7-22-56), 35008, 35009, 35010 (7-4-65), 37082 (7-9-66), 37147 (7-11-66), 42908 (7-30-70), 45488 (7-9-72), 49408 (8-29-74), 50575 (9-7-75).

on Tsuga mertensiana along the upper Terrace Lake Trail.

Collections: 42908 (7-30-70), 45501 (7-9-72), 49409 (8-29-74).

Abundance: III, A.

Associates: Abies magnifica, Tsuga mertensiana.

Distribution: Eastern North America, Wyoming, Washington, California, Mt. Shasta.

Porothelaceae

Cyphellopsis anomala (Hoffmann : Fries) Donk

Found on old wood of Salix lasiandra in the thicket behind the Ranger Station at Manzanita Lake, and on dead branches of Populus trichocarpa at Reflection Lake. The fungus fruits as a large colony of small brown cups on the under side of wood or sticks. The cups are brown and hairy and a layer of similar hairs occurs on the wood.

Collections: 34106 (7-7-63), 39382 (7-12-68), 53060 (10-5-76), 53160 (10-6-76).

Abundance: IV, B.

Associates: Alnus tenuifolia, Populus trichocarpa, Salix spp.

Distribution: Europe, North America.

Lachnella eruciformis (Fries) W. B. Cooke

On twigs of Salix sp. in the Hat Lake area.

Collection: 34170 (7-7-63).

Abundance: V, B.

Associates: Salix spp.

Distribution: Europe, Asia Minor, Western North America.

Solenia candida Persoon

Found on rotting conifer wood in the Sunflower Flats area.

Collection: 34930 (7-2-65).

Abundance: V, A.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Europe, North America.

Schizophyllaceae

Schizophyllum commune Fries

The little split-gilled mushroom was found on Salix twigs in the Manzanita Lake area.

Collections: 34104 (7-5-63), 34422 (7-2-65).

Abundance: IV, B.

Associates: Salix spp., Alnus tenuifolia.

Distribution: Cosmopolitan.

Stereaceae

Aleurodiscus grantii Lloyd

Aleurodiscus amorphus (Persoon per Purt : Fries) Schroeter in Cohn sensu Lemke

Aleurodiscus amorphus (Persoon) Rabenhorst ex M. C. Cooke

on Abies concolor

Small pink cup-like fruit bodies, which may become confluent, are formed on the under side of twigs and branches where the host is found in the Nobles Immigrant Pass area, and throughout the Mineral area.

Collections: 30018 (7-30-55), 60782 (10-8-81), 60793 (10-9-81), the last two identified by J. Ginns.

Abundance: III, A.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Washington, California.

Aleurodiscus diffisus (Saccardo) Burt

on Arctostaphylos patula

Dead branches of the green manzanita are occasionally rotted by this fungus which produces brown effuse fruit bodies on them. Found in the Reflection Lake area and near the King Creek Cascades.

Collections: 29538 (7-2-54), 35075 (7-6-65), 49293 (8-26-74).

on Arctostaphylos nevadensis

Found on dead branches on the Bumpass Mountain trail, and along the north shore of Juniper Lake.

Collections: 50778 (9-11-75), 53087 (10-5-76).

Abundance: IV, B.

Associates: Arctostaphylos patula, A. nevadensis, Ceanothus velutinus.

Distribution: Only on ericaceous hosts, Manchuria, Siberia, Oregon, Mt. Shasta.

Columnocystis abietinus (Persoon : Fries) Pouzar

Stereum rugisporum (Ellis & Everhart) Burt

On the ends and sides of pieces of conifer logs this fungus forms small to large masses of brackets projecting from brown, smooth tissue. The under surface, where the spores are produced on a smooth hyenium, is smooth and purplish brown when fresh. The upper surface is covered with a brown, felt-like tissue which may be zoned. These zones may indicate seasons of growth, a new zone being added each growing season, not necessarily each year since the fruit body is usually annual.

On old conifer logs, King Creek Meadows, Shadow Lake Trail, Terrace Lake Trail.

Collections: 34137 (7-6-63), 37142 (7-11-64), 38708 (8-11-67).

on Abies concolor, along the lower parts of the Manzanita Creek Trail.

Collection: 30902 (7-18-57).

on Abies magnifica, along the Manzanita Creek Trail, 7,200 ft., and along the Brokeoff Mountain Trail.

Collections: 42750 (7-26-70), 50579 (9-7-75).

on Pinus contorta var. murrayana in the King Creek Meadows area.

Collection: 49324 (8-27-74).

on Pinus monticola between Summit Lake and Echo Lake.

Collections: 34120 (7-5-63).

on Tsuga mertensiana along the upper part of the Terrace Lake Trail, King Creek Meadows, Brokeoff Mountain Trail, Bumpass Mountain Trail.

Collections: 29564 (7-2-54), 30398 (7-22-56), 33484 (8-14-62), 39325 (7-10-68), 42906 (7-28-70), 42839 (7-30-70), 45487 (7-9-72).

Abundance: III, A.

Associates: Most conifers in the Park.

Distribution: Western North America.

Stereum hirsutum (Willdenow : Fries) S. F. Gray

Found on dead branches of broad leaved trees and shrubs. On the alder it is found on dead stubs left when cutting trails through thickets.

on Alnus tenuifolia, trail to Boiling Springs Lake, Warner Valley, Lily Pond Trail, Hat Lake area, around Manzanita lake, and Brokeoff Mountain Trail.

Collections: 34157, 34186 (7-7-63), 35005 (7-4-65), 37099 (7-9-66), 39383 (7-12-68), 45584 (7-12-72), 49368 (8-28-74).

on Arctostaphylos patula, around Reflection Lake and Manzanita Lake, and in the Mineral Area.

Collections: 35074 (7-6-65), 39380 (7-12-68), 52778 (10-1-76), 52951 (10-3-76).

on Populus tremuloides above Hat Lake.

Collections: 34190 (7-7-63), 37130 (7-11-66).

on Populus trichocarpa around Manzanita Lake.

Collections: 39379, 39385 (7-12-68).

on Salix sp. around Manzanita Lake.

Collection: 34115.

Abundance: III, B.

Associates: Most woody plants in the Park.

Distribution: Widespread.

Note: Some of the reported collections were determined by, or confirmed by, A. L. Welden.

Stereum sanguinolentum (Albertini & Schweintiz : Fries) Fries

The "bleeding" fungus fruits on dead branches of Alnus tenuifolia which it may have killed. Reflection Lake Trail.

Collection: 35077 (7-6-65).

Abundance: V, B.

Associates: Alnus tenuifolis, Salix spp.

Distribution: Europe, North America.

Thelephoraceae

Thelephora sp.

Found once on conifer wood at Sunflower Flats.

Collection: 34919 (7-2-65).

Thelephora terrestris Ehrenberg : Fries

Found surrounding young trees of Pinus contorta var. murrayana at the ground line in the Nobles Immigrant Pass area.

Collection: 38678, 39670 (8-10-67).

Abundance: V, A.

Associates: Abies concolor, Pinus contorta var. murrayana.

Distribution: Europe, North America.

Sarcodon imbricatum (Linnaeus : Fries) P. Karsten.

Found on the ground along the trail between Bumpass Hell and Cold Boiling Lake, in the Battle Creek Meadows Ranch bog area near Mineral, and in the Bruner's Place at Mineral.

Collections: 54275, 54298 (10-29-76), 54375 (10-30-76), 54405 (10-31-76).

Abundance: IV, D.

Associates: Abies concolor, A. magnifica, Pinus jeffreyi.

Edibility: Edible but not recommended.

Distribution: Widespread.

Tomentella (Amaurodon) chlorina (Massee) G. H. Cunningham

Found on a myxomycete on conifer wood in woods at Battle Creek Meadows Ranch near Mineral, Tehama Co.

Collection: 53011 (10-4-76), identified by M. J. Larsen.

Abundance: V, A.

Associates: Abies concolor, Calocedrus decurrens, Pinus jeffreyi.

Distribution: New Zealand, Tasmania, Tunisia, Europe, British Columbia, New York, New Mexico, Arizona, Idaho.

Hymenochaetaceae

Hymenochaete arida (Karsten) Saccardo

Found on dead branch bases of Ceanothus velutinus in situ in an area where the silver fir, Abies concolor, was crowding out the chaparral. The fungus produces a yellow stain in the wood. Sunflower Flats.

Collection: 34069 (7-4-63).

Abundance: V, B.

Associates: Arctostaphylos patula, Abies concolor, Pinus jeffreyi.

Distribution: Finland, Sweden, Vermont, New York, South Carolina, Michigan, California.

Hymenochaete tabacina (Sowerby : Fries) Léveillé

on Alnus tenuifolia

Found at the Mineral Home Owners' Water Supply Spring, Tehama Co.

Collection: 50533 (9-6-75).

Abundance: V, B.

Associates: Species of Alnus and Salix.

Distribution: Europe, North America, Tehama Co.

Gomphaceae

Gomphus bonarii (Morse) Singer

On or in soil under litter and duff, sometimes pushing up through this layer so that the tops and sometimes the whole fruit body can be seen. Found throughout the Mineral area, at Sunflower Flats, the north shore of Juniper Lake, Nobles Immigrant Pass area, Upper Warner Campground, Devil's Kitchen Trail, the Summit Lake area, along the Terrace-Paradise-Hat Lakes Trail, the lower part of the Brokeoff Mountain Trail, and the trail between Bumpass Hell and Cold Boiling Lake.

Collections: 34450 (7-2-65), 50533 (9-6-75), 50614 (9-8-75), 50669 (9-9-75), 50808 (9-11-75), 52791, 52844, 52886 (10-1-76), 53113 (10-5-76), 53180 (10-6-76), 53255, 53284 (10-1-76), 53465 (10-10-76), 53504, 53506, 53510 (10-11-76), 54165 (9-27-77), 54531 (9-27-77), 54531, 54569 (10-30-76), 54909 (9-27-77), 54979 (9-30-77), 55017 (10-1-77), 55041 (10-2-77), 60607 (10-6-81), 60731 (10-7-81), 61512 (9-20-82), 62046 (10-12-83).

Abundance: II, D.

Associates: Abies Concolor, A. Magnifica, Calocedrus decurrens, Pinus jeffreyi, Tsuga mertensiana.

Distribution: Western United States.

Ramaria sp.

Scattered in dead conifer log along SR-44 near LAVO between Manzanita Lake and Butte Lake.

Collection: H. D. Thiers 36370 (SUSF) (9-5-76).

Ramaria formosa (Fries) Quélet

Found under firs along the Brokeoff Mountain Trail, under hemlocks near King Creek Meadows, in cinder fields near Cinder Cone, and under firs near Crumbaugh Lake. The fungus was fruiting mostly underground, with only the top of a large fleshy coral-like fruit body showing through the needles in the litter and duff on the ground.

Collections: 35021 (7-4-65), 38730 (8-12-69), 45521 (7-10-72), 45575 (7-12-72).

Abundance: IV, D.

Associates: Abies magnifica, Tsuga mertensiana, Pinus contorta var. murrayana.

Edibility: Poisonous.

Distribution: Europe, North America.

Hydnaceae

"Hydnum" sp.

Found on the ground along the Terrace-Paradise-Hat Lakes Trail.

Collection: 53414 (10-10-76).

Note: While this collection was immature, its hymenium was borne on teeth on the under side of the cap. Most such species are now assigned to other familes and the position of this collection is uncertain.

Hydnum repandum Linnaeus : Fries

Found on the ground near the Mineral Home Owners' water supply spring.

Collection: 54331 (10-30-76).

Abundance: V, D.

Associates: Abies concolor, Pinus jeffreyi, Alnus tenuifolia, Salix spp.

Edibility: Choice.

Distribution: Widespread.

Echinodontiaceae

Echinodontium tinctorium (Ellis & Everhart) Ellis & Everhart

on Abies concolor

Large conks or brackets of this Indian paint fungus have been found on standing and fallen logs of white fir in the Warner Valley Campground area and at Sunflower Flat.

Collection: 37121 (7-10-66), 39308 (7-8-68).

Abundance: IV, A.

Associates: Abies concolor, Pinus jeffreyi, P. contorta var. murrayana.

Distribution: Western North America.

Auriscalpiaceae

Lentinellus montanus O. K. Miller

On rotting conifer wood along the Brokeoff Mountain Trail, on rotting Tsuga mertensiana wood at Crumbaugh Lake, and on rotting conifer wood at the Battle Creek Meadows Ranch, Mineral.

Collections: 38734 (8-12-67), 42762 (7-26-70), 42852 (7-29-70), 45336 (7-10-72), 53019 (10-4-76), 60597 (10-5-81).

Abundance: IV, A.

Associates: Abies concolor, A. magnifica, Pinus jeffreyi, Tsuga mertensiana.

Edibility: Unknown but probably too leathery.

Distribution: Western North America.

Phellinaceae

Coltricia cinnamomea (Jacquin : Fries) Murrill

On soil along SR-44 near the Butte Lake turnoff, Lassen Co.

Collection: H. D. Thiers 12936 (SUSF) (7-3-65).

Abundance: V, D.

Associates: Mosses, soil organisms.

Distribution: Widespread, Lassen Co.

Coltricia perennis (Linnaeus : Fries) S. F. Gray

This little brown polypore looks like a mushroom growing on the ground, usually among mosses. It has been found in moist places under firs and alders. It is rather woody and is not edible. Brokeoff Mountain Trail, Trail to King Creek Falls, Juniper Lake, Terrace Lake Trail, Summit Lake, Bumpass Hell to Cold Boiling Lake Trail, and the Mineral area.

Collections: 30914 (8-18-57), 33494 (8-14-62), 37195 (7-14-66), 38726 (8-12-67), 41270 (8-18-69), 42857 (7-29-70),

45592 (7-12-72), 49412 (8-29-74), 50570, 50580 (9-7-74), 50616 (9-8-75), 50669 (9-9-75), 52836 (10-1-76), 54304 (7-12-72).

Abundance: III, D.

Associates: Alnus tenuifolia, Abies magnifica, Tsuga mertensiana, mosses.

Distribution: Widespread.

Inonotus dryadeus (Persoon : Fries) Murrill

Found once on Pinus ponderosa at Mineral; a specimen from the base of a dead Abies concolor obtained by E. E. Morse, was sent to L. O. Overholts (Loo 13163).

Collection: L. Bodine (WBC 41545) (9-29-69); E. E. Morse, Loo 13163 (?1928).

Abundance: IV, A.

Associates: Abies concolor, Pinus ponderosa.

Distribution: Europe, North America.

Phellinus ferreus (Persoon) Bourdot & Galzin

Relatively thin brown fruit bodies adhere closely to the under side of conifer logs. On logs of Abies magnifica and Tsuga mertensiana large masses of sterile brown felt may be found which are occasionally associated with the thin brown fruit bodies of this fungus. Brokeoff Mountain Trail, Terrace Lake Trail.

Collections: 33485 (8-14-62), 38710 (8-11-67), 45508 (7-9-72).

Abundance: IV, A.

Associates: Abies magnifica, Tsuga mertensiana.

Distribution: Europe, North America.

Phellinus ferrugineo-fuscus (Karsten) Bourdot & Galzin

on decaying wood of Abies magnifica in the King Creek Meadows area,

Collection: 34136 (7-6-63).

Abundance: V, A.

Associates: Abies magnifica, Tsuga mertensiana.

Distribution: Europe, North America.

Phellinus igniarius (Linnaeus : Fries) Quélet

The false tinder conk grows on various kinds of hardwood trees and shrubs. Larger typical conks have been found on willow along Manzanita Lake, and on cottonwood along Warner Creek near the Campground. Smaller conks once assigned to a variety are now assigned to P. tremulae and are common on aspen.

on Populus trichocarpa

Collection: 37113 (7-10-66).

on Salix sp.

Collections: 34105 (7-5-63), 35072 (7-6-65), 45482 (7-9-72).

Abundance: III, B.

Associates: Alnus tenuifolia, Populus trichocarpa, Salix spp.

Distribution: Widespread.

Phellinus nigrolimitatus (Romell) Bourdot & Galzin

Developing in or under old logs, some of which have lain on the ground so long the depressions have formed under them, are fruit bodies of this fungus. They produce deep layers of tubes which are added to seasonally, or year after year, and which may have a black line separating the tubes from the thin context. The fruit body usually appears resupinate, although a narrow, bracket-like pileus may be formed.

on Tsuga mertensiana throughout its range in the Park.

Collections: 29568 (7-2-54), 30416 (5-22-56), 35002 (7-4-65), 37144 (7-11-66), 37196 (7-14-66), 38707 (8-11-67), 39330 (7-10-68), 39341 (7-11-68), 42814 (7-28-70), 42922 (7-30-70), 45495 (7-9-72), 49332 (8-27-74), 49417 (8-29-74), 54287 (10-29-76), 61906 (9-12-83).

Abundance: III, A.

Associates: Abies magnifica, Tsuga mertensiana.

Distribution: Europe, North America.

Phellinus tremulae (Bondartsev) Bondartsev & Boriss, in Bondartsev

Fomes igniarius var. populinus Neuman

on Populus tremuloides

Common on aspen in groves above Hat Lake, near the Hot Rock, in the Mineral area on Battle Creek Meadows Ranch, and at Butte Lake.

Collection: E. E. Morse (UC) (1928), 26665 (7-1-50), 37126 (7-11-66), 38694 (8-11-67), 42936 (7-30-70), 50708 (9-10-75), 60788 (10-9-81), D. Showers (SUSF) (9-28-75), 61567 (9-21-82).

Abundance: III, B.

Associates: Populus tremuloides, Pinus contorta var. murrayana.

Distribution: Widespread on aspen.

Bondarzewiaceae

Bondarzewia montana (Quélet) Singer

Found on conifer wood buried in the ground in the vicinity of the Lassen National Forest Fire Guard Station near Mineral, and at Mrs. Adams' Place at Mineral. On a stump of Abies concolor.

Collections: 52792 (10-1-76), 60715 (10-7-81), 62237 (9-13-84).

Abundance: IV, A.

Associates: Abies concolor, Calocedrus decurrens, Pinus jeffreyi.

Distribution: Europe, North America.

Ganodermataceae

Ganoderma applanatum (Persoon ex Wallroth) Patouillard

A large specimen of the artist's conk or picture conk was found on a log of Pinus jeffreyi along the trail (6,000 ft.) above Drakesbad to Devil's Kitchen. A second one was found on a log of Abies concolor in a mixed conifer forest at the edge of the meadows on Battle Creek Meadows Ranch near Mineral (5,000 ft.). The latter conk measured 73 x 33 x 10 cm in 1974, and 79 x 34 x 11 cm in 1975.

Collections: 37120 (7-10-66), 49379 (8-28-74), 50568A (9-6-75), 52771 (10-1-76), 52996 (10-4-76), 53561 (10-12-76), 54356 (10-30-76), 55014 (10-1-77).

Abundance: Abies concolor, Calocedrus decurrens, Pinus lambertiana, P. jeffreyi.

Distribution: Cosmopolitan.

Ganoderma lucidum (Leyss : Fries) Karsten

Found on a snag of Pinus jeffreyi standing in Sunflower Flats, 6000 ft., and on buried conifer wood in a forest on Battle Creek Meadows Ranch near Mineral.

Collections: 39309 (7-8-68), 49356 (8-28-74), 50567 (9-6-75).

Abundance: IV, A.

Associates: Abies concolor, Pinus jeffreyi, P. lambertiana.

Distribution: Widespread.

Ganoderma oregonense Murrill

On rotting wood, stumps, or at the base of living trees of Abies concolor, A. magnifica, and Tsuga mertensiana, the large fruit bodies of the Oregon lacquered conk are found occasionally, although evidence of the decay produced by the fungus is observed more frequently. Among the larger fungus fruit bodies found in the park are representatives of this species. It is rivaled in size only by fruit bodies of G. applanatum and Laetiporus sulphureus. Fruit bodies of this fungus were found on two fir stumps along a lane at Summit Lake after the end of the 1950 season. The largest conk found was along the Brokeoff Mountain Trail in the summer of 1962. It measured 21 x 14 x 6 inches (52.5 x 35 x 15 cm). Another conk was found on an Abies concolor stump on the slope above the Matteson's cottage above Mineral in 1974. The fruit body is usually annual, it develops a thick red varnished or lacquered crust behind the growing edge, and after its growth in the season in which it was developed it may be quickly eaten by beetles and may be parasitized by other fungi. Also found at Battle Creek Meadows Ranch.

Collections: 26978, 26979 (9-26-50), 33480 (8-14-62), 41276 (8-18-69), 49280A (8-25-74), 50567 (9-6-75), 50576 (9-7-75).

Abundance: IV, A.

Associates: Abies concolor, A. magnifica, Pinus jeffreyi, Tsuga mertensiana.

Distribution: Western North America.

Heterobasidion annosum (Fries) Brefeld

Although the conks of this fungus have been found on rotting wood of Abies concolor and A. magnifica, it is usually found as a serious root decay fungus as on the base of a tree of Pinus contorta var. murrayana at

Butte Lake. In culture this fungus produces an unusual imperfect spore state setting it apart from other species usually placed in the genus Fomitopsis. Also found at King Creek meadows, Battle Creek Meadows Ranch. Because the minute wart-like projections on its basidiospores are amyloid, this genus has been assigned to the Bondarzewiaceae.

Collections: 34144 (7-6-63), 49356 (8-28-74), 50564 (9-6-75), 60873 (9-21-82).

Abundance: IV, A.

Associates: Abies concolor, A. magnifica, Calocedrus decurrens, Pinus lambertiana, Tsuga mertensiana, Pinus contorta var. murrayana.

Distribution: Northern Hemisphere.

Agaricum officinale (Villars : Fries) Donk

Laricifomes officinales (Villars : Fries) Kotlaba & Pouzar

Relatively small conks of this fungus have been found on rotting conifer logs, possibly of fir, at Mineral, in the Blowdown area and in the Summit Lake area. Others were found on logs of Tsuga mertensiana and of Abies concolor. A large conk was found on Pinus contorta var. murrayana at King Creek Meadows. The large content of "polyporic acid" gives it the name "quinine conk," and once made it useful for pharmaceutical purposes. It is no longer in demand for this use, to my knowledge.

Collections: 34984 (7-3-65), 39349 (7-11-68), 45519 (7-10-72), 49280 (8-25-74), 49304 (8-26-74), 54963, 54967 (9-30-77).

Abundance: IV, A.

Associates: Abies concolor, A. magnifica, Pinus contorta var. murrayana, Pinus jeffreyi, P. ponderosa, Tsuga mertensiana.

Distribution: Europe, Western North America.

Polyporaceae

Aurantioporellus alboluteus (Ellis & Everhart) Murrill

This fungus produces medium to large fruit bodies on the lower and under side of logs of Abies magnifica and Tsuga mertensiana, and possibly of other conifers near snowbanks. The tubes in which the spores are produced are among the larger found in the pore fungi. Above the tubes is a mass of spongy tissue which forms a sort of pileus on an otherwise resupinate fruit body. The fruit body is reddish-orange in color, bordered with white. After the snow melts it is soon eaten by small beetles and is not easy to preserve. It is soft, spongy, and a beautiful species which, partly because of its purple color in KOH has been placed in Hapalopilus.

Collections: 26655 (5-1-50), 30400 (7-22-56), 34122 (7-5-63) 34968 (7-3-65), 42877 (7-30-70), 49416 (8-29-74), 54206 (10-28-76), 61987 (9-12-83).

Abundance: III, A.

Associates: Abies magnifica, Pinus albicaulis, Tsuga mertensiana.

Distribution: Czechoslovakia, New York, western North America.

Bjerkandera adusta (Willdenow : Fries) Karsten.

This was found fruiting on a stump of Populus trichocarpa along Warner Creek. Trees damaged by beavers are quickly invaded by fungi like this.

Collection: 37097 (7-9-66).

Abundance: V, B.

Associates: Populus trichocarpa, Salix sp.

Distribution: Widespread.

Coriolus versicolor (Linnaeus : Fries) Quélet

on Calocedrus decurrens

Found on the Adams' and Bruner's Places, Mineral, Tehama Co.

Collection: 55218 (10-4-77).

Abundance: V, A.

Associates: Abies concolor, Calocedrus decurrens, Pinus jeffreyi.

Distribution: Cosmopolitan.

Cryptoporus volvatus (Peck) Shear

Cryptoporus volvatus (Peck) Hubbard

This fungus fruits on the bark and wood of standing of recently fallen trees of Abies concolor, A. magnifica, Pinus contorta var. murrayana, and probably other conifers in the Park. Small beetles carry the spores from one fruit body to the bark of another tree, burrow into the bark, crawl around the inner bark which they eat, and in their tunnels or the cambium this fungus then develops. The fungus apparently grows faster than the beetles work and eventually girdles and kills the tree. During the time it lives in the tree it produces fruit bodies in the spring. These may be eaten by other insects or may last until the next spring. It is said that the fruit bodies of this fungus are eaten in Asia. It is rather tough and has resinous odor although a recent Russian paper described the odor as like that of vodka.

Collections: 29566 (7-2-54), 30393 (7-22-56), 33486 (8-14-62), 34961 (7-3-65), 35046 (7-5-65), 37187 (7-14-66), 38723 (8-12-67), 42783 (7-27-70), 49423 (8-29-74), 50562 (9-6-75), 50619 (9-8-75), 50665 (9-9-75), 50738 (9-10-75), 50777 (9-11-75), 53563 (10-12-76), 54930 (9-28-77); E. E. Morse (1928) (L00 13242).

Abundance: I, A.

Associates: All conifers in the Park.

Distribution: Siberia, Japan, North America.

Fomitopsis cajanderi (Karsten) Karsten

Found on decaying conifer wood at King Creek Meadows, along the Devil's Kitchen Trail in Warner Valley, and at Battle Creek Meadows Ranch, Mineral.

Collections: 53292 (7-6-63), 53377 (10-9-76), 34144A (10-9-76).

Abundance: IV, A.

Associates: Abies concolor, A. magnifica, Calocedrus decurrens, Pinus jeffreyi.

Distribution: Widespread.

Fomitopsis pinicola (Swartz : Fries) Karsten

Conks, brackets, or fruit bodies produced by this fungus are found on dead logs of most of the conifers in the park, and in the Mineral area, including Abies concolor, A. magnifica, Pinus jeffreyi, and Tsuga mertensiana. It is also found on Populus tremuloides. The type of rot it produced can be determined easily so that the occurrence can be told without the conk. This is a brown cubical rot. It is a fungus which produces perennial fruit bodies to which layers of new growth are added each season or year of growth. In typical specimens a red resinous varnish-like substance is produced just behind the rapidly growing edge, giving it the name "red belt conk." This is not to be confused with the red lacquer of the Ganodermas mentioned above. Fruit bodies may be distorted as a result of position or conditions of growth.

Collections: 29570 (7-2-54), 30036 (7-30-55), 30395 (7-22-56), 34671 (7-4-63), 37088 (7-9-66), 39339 (7-11-68), 49364 (8-28-

74), 49418 (8-29-74), 50563 (9-6-75), 50733 (9-10-75), 54300 (10-29-76), 54352 (10-30-76), 54968 (9-30-77), L. Bodine (7-1-65), H. C. Thiers 12903 (Sept. 1969).

Abundance: L, A, B.

Associates: Abies concolor, A. magnifica Pinus jeffreyi, P. contorta var. murrayana, Tsuga mertensiana.

Distribution: Temperate Regions.

Gloeophyllum sepiarium (Wulfen : Fries) Karsten

This brown polypore with gills rather than tubes on the under side has been found on decaying conifer wood and slash in the Mineral area on Battle Creek Meadows Ranch, in the Summit Lake area, along the King Creek Falls Trail and the Cold Boiling Lake Trail.

Collections: 34957 (7-3-65), 52999 (10-4-76), 54230 (10-28-76), 54348 (10-30-76), 60769, 60770, 60774 (10-1-77).

Abundance: IV, A.

Associates: Abies concolor, A. magnifica, Calocedrus decurrens, Pinus contorta var. murrayana, P. jeffreyi, Tsuga mertensiana.

Distribution: North temperate regions.

Ischnoderma resinosa (Schrader : Fries) Karsten

A conk of this fungus was found on an Abies concolor log on the trail from Manzanita Lake to Loomis Creek. It was also found on Abies magnifica logs along the trail above Cold Boiling Lake and as high as trees grow along the trail over Bumpass Mountain. This fungus forms large, subfleshy conks which are very watery at first, and last only one season. Also found at Summit Lake, and at the Mineral Home Owners' Water Supply Spring area..pa

Collections: 30901 (8-17-57), 54286 (10-29-76), 54326 (10-30-76), 54974 (9-30-77).

Abundance: IV, A.

Associates: Abies concolor, A. magnifica, Pinus jeffreyi, Tsuga mertensiana.

Distribution: Northern Hemisphere.

Laetiporus sulphureus (Bulliard : Fries) Bondartsev & Singer

A large mass of the previous year's growth of this fungus was found on a snag of Abies magnifica near Lower Twin Lake in the early part of July, 1965. Also found in Dersch Meadows, and in the Bruner's and Mrs. Adams' Places in Mineral on conifers, and on a stump of Quercus kelloggii not far from the Mineral Home Owners' water supply spring near Mineral. When fresh the fungus is fleshy and bright sulphur yellow with an orange-red upper surface. In this condition it is edible. After overwintering it turns chalky white. In the latter condition, when it is parasitized by Hypomyces aurantius the stroma of the parasite colors it red.

Collection: 35038A (7-5-65), 52907 (10-1-76), 53407 (10-10-76), 54273 (10-29-76), 54326 (10-30-76).

Abundance: IV, A, B.

Associates: Abies magnifica, Pinus contorta var. murrayana, Abies concolor, Pinus jeffreyi.

Edibility: Choice, especially young portions of brackets.

Distribution: Cosmopolitan.

Phaeolus schweinitzii (Fries) Patouillard

Found on a stump of Pinus ponderosa at Mineral and on a pine log in the Battle Creek Meadows Ranch; on a stump of Pinus contorta var. murrayana at Drakesbad, and on Abies concolor along the Pipeline Road above

Guernsey Creek near SR-36, on the Battle Creek Meadows Ranch, near Mineral, at the Warner Valley Campground, and at Butte Lake.

Collections: 34942 (7-2-65), 45570 (7-11-72), 50519 (9-6-75), 50682 (9-9-75), 53260 (10-8-76), 53378 (10-9-76), 55217 (10-4-77), 60771 (10-8-81), L. Bodine (May 1970) (WBC 42624), 61589 (9-21-82).

Abundance: III, A.

Associates: Abies concolor, Calocedrus decurrens, Pinus contorta var. murrayana, P. jeffreyi, P. ponderosa.

Distribution: Europe, North America.

Polyporus badius (S. F. Gray) Schweinitz

Polyporus picipes Fr.

On decaying wood of hardwood shrubs and Populus tremuloides. Found in woods behind Drakesbad, along a creek above the LAVO Headquarters area at Mineral, and in an aspen grove near the Hot Rock. Specimens obtained by E. E. Morse on aspen in LAVO were sent to L. O. Overholts and filed as P. picipes and P. varius.

Collections: 51710 (9-10-75), 52960 (10-3-76), 53235 (10-8-76), E. E. Morse (Aug. 1982) (L00 13192, 15677).

Abundance: IV, B.

Associates: Alnus tenuifolia Salix spp., Populus tremuloides.

Distribution: Widespread in North America.

Polyporus melanopus Fries

Found on rotting Populus tremuloides and on unidentified rotting wood in the Park, and in Battle Creek Meadows Ranch and the Mineral area.

Collections: 53379 (10-9-76), 54908 (9-27-77), 55137 (10-3-77); H.

D. Thiers 12710 (6-23-65) (SUSF), D. Showers (9-29-75) (SUSF).

Abundance: IV, A, A.

Associates: Populus tremuloides, Alnus tenuifolia, Salix spp.

Distribution: Widespread.

Polyporus squamosus Hudson : Fries

Found on dead wood in a willow grove near the Manzanita Lake Ranger Station were small mushroom-like fruit bodies of this species; a large specimen was found on Populus tremuloides at Butte Lake.

Collections: 38695 (8-1-67), 50742 (9-10-75).

Abundance: IV, B.

Associates: Salix spp., Populus tremuloides, Pinus contorta var. murrayana.

Edibility: Edible (especially when young).

Distribution: Northern Hemisphere.

Polyporus varius Fries

Polyporus elegans Bulliard : Fries

Medium sized woody mushroom-like growths are produced by this fungus on wood of Salix spp. and Alnus tenuifolia in the Manzanita Lake, Reflection Lake, and Sulphur Works areas on unidentified wood at site 40 along the Summit Highway, on the Battle Creek Meadow Ranch, near the Mineral Home Owners' water supply spring near Mineral, and in the Mineral area.

Collections: 29571 (7-2-54), 34102 (7-5-63), 39391 (6-25-65), 50555 (7-13-68), 52987 (9-6-75), 54357 (10-4-76), H. D. Thiers 12762 (10-30-76) (SUSF), 61508 (9-20-82).

on Populus tremuloides

Collection: E. E. Morse (Probably 1928), deposited in Herbatium L00-13192.

Abundance: III, B.

Associates: Alnus tenuifolia, Salix spp., Populus tremuloides.

Distribution: Europe, North America.

Pyrofomes demidoffii (Léveillé) Kotlaba & Pouzar

Pyropolyporus juniperi (von Schrenck) Murrill

on Juniperus occidentalis

Found on living trees near the Big Juniper near Summit Lake along SR-44, Lassen National Forest, near the Butte Lake turnoff.

Collections: 53221 (10-7-76), 54957 (9-28-77).

Abundance: IV, A.

Associates: Juniperus occidentalis, Pinus ponderosa.

Distribution: Northern Europe, North America.

Trichaptum abietinum (Fries) Ryvarden

Hirschioporus abietinus (Fries) Donk

This fungus is a common cause of sapwood rot in conifers. In many dry mountain habitats it does not produce typical fruit bodies. This is true of those specimens found on Abies magnifica in the Park. In 1968 and later more typical specimens were found on Tsuga mertensiana. Typical fruit bodies have been found on Abies concolor at Butte Lake, in the Warner Valley, in the Mineral area and in Battle Creek Meadows Ranch. It forms large masses of small, thin, light colored brackets which may have a purplish tinge.

Collections: 26643 (7-1-50), 29563 (7-2-54), 34119 (7-5-63), 35001 (7-4-65), 37148 (7-11-66), 38700 (8-11-67), 39342 (7-

11-68), 42848 (7-29-70), 45504, 45506 (7-9-72), 49322 (8-27-74), 50582 (9-7-75), 50666, 50681 (9-9-75), 53003 (10-4-76), 55007 (10-1-77), 55055 (10-2-77), 60789 (10-9-81), H. Stanley (8-28-72).

Abundance: I, A.

Associates: Most conifers in the Park.

Distribution: On conifers in the Northern Hemisphere.

Trichaptum laricinus (Karsten) Ryvarden

Found on Pinus jeffreyi in the Nobles' Immigrant Pass area, as well as on Abies concolor and A. magnifica in the Summit Lake area, in the Blow Down above Summit Lake, and along the Boiling Springs Lake Trail in Warner Valley.

Collections: 49310 (8-26-74), 54962, 54965, 54972, 54973 (9-10-77), 55003 (10-10-77).

Abundance: IV, A.

Associates: Abies concolor, Pinus jeffreyi, P. lambertiana, Abies magnifica.

Distribution: Europe, North America.

Tyromyces amarus (Hedgcock) Lowe

Polyporus amarus Hedgcock

on Calocedrus decurrens

Found on a tree near SR-44 a mile east of Old Station. The fungus attacks the heartwood of this species producing the condition known as "pecky cedar," rendering incense cedar wood useless for most lumber purposes. Since the fungus has been found this close to the Park, and since most incense cedars harvested have been infected, it may be assumed

that the fungus occurs in at least some of the Park's population of this tree species. Also observed on this host on hills above Mineral.

Collection: 53234 (10-7-76).

Abundance: V, A.

Associates: Abies concolor, Calocedrus decurrens, Pinus ponderosa.

Distribution: Oregon, California.

Tyromyces caesius (Schrader : Fries) Murrill

Found once on a log of Abies magnifica. This small polypore is bluish, or turns blue when bruised. Found near the Warner Campground.

Collection: 37118 (7-10-66).

Abundance: V, A.

Associates: Abies magnifica, Pinus contorta var. murrayana.

Distribution: Europe, North America.

Tyromyces johnstonii (Murrill) Ryvarden

Tyromyces johnstonii Murrill

A small white resupinate polypore, this species has been found on wood of Tsuga mertensiana in subalpine areas.

Collection: 39345 (7-11-68), 45497 (7-9-72), 49415 (8-29-74).

Abundance: IV, A.

Associates; Abies magnifica, Tsuga mertensiana.

Distribution: California.

Tyromyces leucospongia (M. C. Cooke & Harkness) Bondartsev & Singer

Spongiporus leucospongia (M. C. Cooke & Harkness) Murrill

Whenever conifer wood is found lying on the ground, especially where it has been buried under the snow for most of the winter, this fungus is found. It forms white spongy fruit bodies, with hard pore-bearing

areas, on the sides and ends of logs of Abies magnifica, Pinus contorta var. murrayana, P. monticola, and Tsuga mertensiana. This fungus can be very troublesome on logs which are used as bumpers or markers in parking lots and along roadways, since it relatively quickly rots them, rendering them useless.

Collections: 26625, 26653 (7-1-50), 29561 (7-2-54), 30403, 30413 (7-22-56), 30912 (8-18-57), 34051 (7-4-63), 34121, 34126, 34127 (7-5-63), 34146, 34154 (7-6-63), 35050 (7-5-65), 37070 (7-9-66), 37123 (7-10-66), 37141 (7-11-66), 37186 (7-14-65), 38701 (8-11-67), 39331 (7-10-68), 39343 (7-11-68), 42792 (7-27-70), 42828, 42829, 42830 (7-28-70), 42846, 42914 (7-30-70), 45490 (7-9-72), 45568 (7-11-72), 45593 (7-12-72), 49325 (8-27-74), 49422 (8-29-74), 50776 (9-11-75), 53433 (10-10-76), 54208 (10-28-76), 61914 (9-12-83), 62257 (9-14-84).

Abundance: I, A.

Associates: All conifers of montane and subalpine regions, LAVO.

Distribution: Western North America.

Wolfiporia extensa (Peck) Ginns

Poria cocos Wolf

Fungus material collected on a log of Tsuga mertensiana along the Terrace Lake Trail has been identified as sclerotial material of this species.

Collections: 45501 (7-9-72), identified by J. H. Ginns, Jr.

Abundance: V, A.

Associates: Abies magnifica, Tsuga mertensiana.

Distribution: North America.

Agaricales

Hygrophoraceae

Hygrophorus spp.

As yet unidentified specimens of Hygrophorus species have been collected in the Mineral area and the Park.

Collections: WBC (Autumn 1967), L. Bodine (9-29-67), J. Richardson (1969, 1972, 1976), 52796, 52892 (10-1-76), 54952 (9-28-77), 54992 (9-30-77), 55198 (10-3-77).

Hygrophorus agathosmus Fries

Found on the ground in the Battle Creek Meadows Ranch at Mineral, and at the Big Juniper Near Summit Lake along SR-44, Lassen National Forest.

Collections: 53018 (10-4-76), 53227 (10-7-76).

Abundance: IV, D.

Associates: Abies concolor, Pinus jeffreyi, P. ponderosa, Calocedrus decurrens, Juniperus occidentalis.

Edibility: Edible.

Distribution: Africa, Europe, Eastern United States, Northwestern United States, California.

Hygrophorus calophyllus Karsten

Found on soil at the upper Warner Campground.

Collection: 53270 (10-8-76).

Abundance: V, D.

Associates: Abies concolor, Pinus ponderosa.

Edibility: Edible.

Distribution: Europe, Canada, Colorado, Idaho, Washington, Oregon, California.

Hygrophorus camarophyllus (Fries) Dumee

Found on the ground at the Battle Creek Meadows Ranch near Mineral.

Collection: 53020 (10-4-76).

Abundance: V, D.

Associates: Abies concolor, Pinus jeffreyi, Calocedrus decurrens.

Edibility: Edible.

Distribution: Europe, Canada, Northern United States.

Hygrophorus chrysodon (Fries) Fries

Found on the ground in woodland lawns at the LAVO Headquarters area, at the Bruner's, Mrs. Adams' and a neighbor of the Bodines' in the Mineral area, and along the lower part of the Brokeoff Mountain Trail in the Park.

Collections: 52898 (10-2-76), 52936 (10-3-76), 53525, 53526 (10-11-76), 53574 (10-13-76), 60656 (10-2-77), 60693 (10-6-81), 60741 (10-7-81), 60823 (10-9-81).

Abundance: III, D.

Associates: Grasses in lawns, Abies concolor, A. magnifica, Alnus tenuifolia.

Edibility: Edible.

Distribution: Europe, Canada, United States.

Hygrophorus erubescens (Fries) Fries var. erubescens

Found at about 7500 feet along the Brokeoff Mountain Trail.

Collection: 33510 (8-14-62).

Abundance: V, D.

Associates: Abies magnifica, Tsuga mertensiana.

Edibility: Unknown.

Distribution: Europe, North America.

Hygrophorus goetzii A. H. Smith

This beautiful pink to rose-colored mushroom grows commonly on litter and duff near melting snowbanks on most of the Cascade Peaks in alpine and subalpine areas. The cap is coated with a layer of slimy material which is thick when the mushroom is fresh, and becomes dry as the mushroom dries out in place. The mushroom may grow up through the snow when the snowbank is melting away. On September 12, 1983, this fungus was fruiting around late season snowbanks, but on September 14, 1984, no snow was left and the fungus was not seen.

Collections: 29555 (7-2-54), 34052 (7-4-63), 34132 (7-6-63), 34987 (7-3-65), 37124 (7-10-66), 38712 (8-11-67), 39322 (7-10-68), 42777 (7-27-70), 42841 (7-28-70), 42915 (7-30-70), 45513 (7-9-72), 45598 (7-12-72), 49343 (8-27-74), 61908 (9-12-83).

Abundance: I, D.

Associates: Abies magnifica, Tsuga mertensiana.

Edibility: Unknown.

Distribution: Cascade Mountains.

Hygrophorus hypothejus (Fries) Fries

Found on the ground along the King Creek Falls Trail.

Collection: 54258, 54259 (10-28-76).

Abundance: V, D.

Associates: Abies magnifica.

Edibility: Edible.

Distribution: Europe, United States.

Hygrophorus ?russula (Fries) Quélet

Found on the ground under firs along the Brokeoff Mountain Trail.

Collection: 45606 (7-10-72).

Abundance: V, D.

Associates: Abies magnifica.

Edibility: Good.

Distribution: Europe, North America.

Hygrophorus subalpinus A. H. Smith

Found along the Brokeoff Mountain Trail under firs and hemlocks.

Collections: 38729 (8-12-69), 45607 (7-12-72).

Abundance: IV, D.

Associates: Abies magnifica, Tsuga mertensiana.

Edibility: Unknown.

Distribution: Western United States.

Tricholomataceae

Armillaria albolanaripes Atkinson

Found on humus in pine woods along SR-44 near the Park, and at Mineral on the Rankin Place.

Collections: 50731 (9-10-75); H. D. Thiers 36319 (9-5-76) (SUSF).

Abundance: IV, D.

Associates: Abies concolor, Calocedrus decurrens, Pinus jeffreyi.

Edibility: Unknown.

Distribution: Pacific Northwest, Colorado, New Mexico, Northern Calififornia.

Armillaria zelleri Stuntz & A. H. Smith

King Creek Falls Trail, trail between Bumpass Hell and Cold Boiling lake, and the area of the Lassen National Forest Mineral Fire Guard Station.

Collection: 52784 (10-1-76), 54211, 54226 (10-28-76), 54299 (10-29-76).

Abundance: IV, D.

Associates: Abies concolor, A. magnifica, Calocedrus decurrens, Pinus jeffreyi.

Edibility: Edible.

Distribution: Maine, Tennessee, Pacific northwest, western Canada.

Armillariella mellea (Vahl. : Fries) Karsten

Found on the ground, usually connected with rotting wood, at Sunflower Flats, along the Terrace-Paradise-Hat Lakes Trail, along the lower part of the Brokeoff Mountain Trail, and in the Mineral area along SR-36, at the Home Owners' water supply spring, and in the Bruners' and Mrs. Adams' lawns.

Collections: 34923, 34948 (7-2-65), 54353 (10-10-76), 53500 (10-11-76), 54150 (10-26-76), 54330 (10-30-76), 55183 (10-3-77), 55219 (10-4-77), 60718 (10-7-81), 60805 (10-9-81), 61519 (9-20-82).

Abundance: III, A, D.

Associates: Conifers of the Park and Mineral area.

Edibility: Edible with caution.

Distribution: Europe, North America.

Clitocybe spp.

Found on litter and duff on the ground under Abies magnifica and Tsuga mertensiana at King Creek meadows and along the Brokeoff Mountain Trail. Also found on dead conifer wood along SR-44 near the Park.

Collections: 33504 (8-14-62), 34145 (7-6-63); identified by H. E. Bigelow; H. D. Thiers 36315 (9-5-76) (SUSF).

Clitocybe albirhiza Biegelow and A. H. Smith

Found on and under Abies concolor duff at Manzanita Lake and Sunflower Flats.

Collections: 34085 (7-4-63), 35078 (7-5-65), identified by H. E. Bigelow.

Abundance: IV, A.

Associates: Abies concolor, Pinus jeffreyi.

Edibility: Unknown.

Distribution: Western United States.

Collybia sp.

Found once at Sunflower Flats. Also found along the Devil's Kitchen Trail, in the Mineral area, at the Juniper Lake Campground, along Juniper Lake, and in the Butte Lake area.

Collection: 34093 (7-4-63), identified by H. E. Bigelow, 50698 (9-9-75), 52858 (10-1-76), 52933 (10-3-76), 53036 (10-4-76), 53054, 53112 (10-5-76), 53287 (10-8-76), 54985 (9-30-77), 61593 (9-21-82), 61913 (9-12-83).

Collybia bakerensis A. H. Smith

This small mushroom, produced on conifer bark, is found occasionally near stumps and logs of Abies concolor, A. magnifica, and

Tsuga mertensiana where moisture is retained long after the snow melts. The stipes are pinkish to reddish while the caps are white and only one or two centimeters across. It was first found on Mt. Baker and has since been found on Mt. Shasta and in Lassen Volcanic National Park.

Collections: 26648 (7-1-50), 34089 (7-4-63), 34205 (7-7-63), 34940 (7-3-65), 37156 (7-11-67), 39360 (7-11-68), 42796 (7-22-72), 42894 (7-30-72), 49421 (8-29-74).

Abundance: II, A.

Associates: Abies concolor, A. magnifica, Tsuga mertensiana.

Edibility: Unknown, too small.

Distribution: Washington, California.

Collybia dryophila (Bulliard : Fries) Kummer

Found on litter along a creek above Cabin 17 at the LAVO Headquarters.

Collection: 52915 (10-3-76).

Associates: Alnus tenuifolia, Salix spp.

Abundance: V, D.

Edibility: Edible.

Distribution: Europe, North America.

Cystoderma fallax A. H. Smith & Singer.

Found on the ground under conifers at edge of woodland lawns in the vicinity of the Lassen National Forest Mineral Fire Guard Station, and in the Bruners' Place at Mineral.

Collections: 52804 (10-1-76), 60657 (10-6-81), 60824, 60825 (10-9-81).

Abundance: IV, D.

Associates: Abies concolor, Pinus jeffreyi.

Edibility: Unknown.

Distribution: Great Lakes area, Pacific Northwest.

Hohenbuehelia petaloides (Bulliard : Fries) Schulzer von Muggenberg

Found on a dead log of Abies concolor along SR-44 near the Park, and on wood at Mrs. Adams' place near Mineral.

Collections: 60743 (9-5-76); H. D. Thiers 36316 (10-7-81) (SUSF).

Abundance: IV, D.

Associates: Abies concolor, Calocedrus decurrens, Pinus jeffreyi.

Edibility: Edible.

Distribution: Europe, northeastern North America, Colorado, California.

Laccaria laccata (Scopoli : Fries) Berkeley & Broome

Small specimens were found in a small moist meadow in a fir grove near the Chaos Jumbles at Nobles' Immigrant Pass. Also found at Summit Lake.

Collections: 38691 (8-10-67), 49309 (8-26-74), 50634 (9-8-75), 53185 (10-6-76).

Abundance: IV, D.

Associates: Abies concolor, Pinus contorta mar murrayana, meadow plants.

Edibility: Good, with caution.

Distribution: Europe, North America.

Lentinus lepideus (Fries : Fries) Fries

Found once on conifer wood in the area of the Lassen National Forest Fire Guard Stations near Mineral.

Collection: 52767 (10-1-76).

Abundance: V, A.

Associates: Abies concolor, Calocedrus decurrens, Pinus jeffreyi.

Edibility: Edible.

Distribution: Europe, North America.

Lentinus ponderosus O. K. Miller

On rotting conifer wood sometimes buried in the ground, including Pinus contorta var. murrayana, along the trail from Drakesbad to Devil's Kitchen. A large specimen was collected by Ranger Naturalists in the Chaos Jumbles area near Manzanita Lake. Also found at Butte Lake, near Pole Bridge on the road to Warner Valley, and in the area of the Lassen National Forest Mineral Fire Guard Station. On a tree of Pinus monticola along the Summit Highway on the grade above the Sulphur Works, this fungus fruited on exposed heartwood.

Collections: 45573 (7-11-72), 50520 (9-6-75), 50674 (9-9-75), 54926 (9-28-77), 62256 (8-8-84), 62236 (9-12-84), Les Bodine (9-29-69, 7-31-70).

Abundance: III, A.

Associates: Abies concolor, Pinus contorta var. murrayana.

Edibility: As the preceding but considered too tough.

Distribution: Ohio, Western North America.

Leucopaxillus albissimus (Peck) Singer var. paradoxus (Costantin & Dufour) Singer and A. H. Smith forma albiformis Singer & A. H. Smith.

Found on the ground near a creek above Cabin 17 in the LAVO Headquarters area near Mineral, and in Warner Valley.

Collections: 50703 (9-9-75), 52934 (10-3-76).

Abundance: IV, D.

Associates: Abies concolor, Calocedrus decurrens, Pinus jeffreyi.

Edibility: Unpalatable, hard to digest.

Distribution: Western North America.

Leucopaxillus gentianeus (Quélet) Kotlaba

Leucopaxillus amarus (Albertini & Schweinitz) Kuehner forma amarus subforma major Singer & Smith.

Found on the ground, usually under litter and duff at Butte Lake, along the Terrace-Paradise-Hat Lakes Trail, in the Battle Creek Meadows Ranch, and at the Mineral Home Owners' water supply spring.

Collections: 53202 (10-7-76), 53280 (10-9-76), 53463 (10-10-76), 53556 (10-11-76), 54333, 54355 (10-30-76).

Abundance: III, D.

Associates: Abies concolor, A. magnifica, Calocedrus decurrens, Pinus jeffreyi, Tsuga mertensiana.

Edibility: Too bitter.

Distribution: Western North America.

Lyophyllum decastes (Fries : Fries) Singer

Found on soil usually under litter and duff in the Juniper Lake area, along the Devil's Kitchen Trail, along the Terrace-Paradise-Hat Lakes Trail, along the King Creek Falls Trail, in the Bumpass Hell-Cold Boiling Lake area, in the vicinity of the Lassen National Forest Fire Guard Station near Mineral, and in woodland lawns at the Bruners' and Mrs. Adams' Places and on Lot 81 near Mineral.

Collections: 52832 (10-1-76), 53074, 53077 (10-5-76), 53286 (10-8-76), 53437, 53464, 53469 (10-10-76), 54225 (10-28-76), 54288 (10-29-76), 54389 (10-30-76), 54484 (11-2-76), 60618 (10-6-81), 62266 (9-14-84).

Abundance: III, D.

Associates: Most conifers on the Park.

Edibility: Good, with caution.

Distribution: Europe, North America.

Lyophyllum montanum A. H. Smith

Occasionally this medium sized grey mushroom is found on fir and hemlock litter and duff at the edge of snowbanks or on moist areas irrigated by melting snow in the higher mountain forests of the Park.

Collections: 26624, 26652 (7-1-50), 33503 (8-14-62), 38714 (8-11-67), 39323 (7-10-68), 49436 (8-29-74), in part identified by H. E. Bigelow, 59086 (7-29-80).

Abundance: III, D.

Associates: Abies magnifica, Tsuga mertensiana.

Edibility: Unknown.

Distribution: California.

Marasmius sp.

Found on old litter at Mineral.

Collection: J. Richardson (Oct. 1969).

Melanoleuca sp.

Found along the Terrace Lake - Paradise Meadow Trail.

Collection: 53416 (10-10-76)

Abundance: V, D.

Associates: Abies magnifica, Tsuga mertensiana.

Melanoleuca melaleuca (Pers. : Fries) Murrill

Found on the ground in the area of the Lassen National Forest Mineral Fire Guard Station, and in the woodland lawns of the Bruners' and

Mrs. Adams.

Collections: 52845, 52859 (10-1-76), 53559 (10-11-76), 55226 (10-4-77).

Abundance: IV, D.

Associates: Abies concolor, Calocedrus decurrens, Pinus jeffreyi.

Edibility: Edible.

Distribution: Europe, North America.

Mycena spp.

Found on soil and litter and on rotten wood in the Mineral area, around Juniper Lake, in the Summit Lake area, in the Boiling Springs Lake area in Warner Valley, and along the Devil's Kitchen Trail.

Collections: 52928, 52938 (10-3-76), 52998 (10-4-76), 53099 (10-5-76), 53809 (10-8-76), 54167 (10-27-76), 54339 (10-30-76), 54226 (10-31-76), 54999, 55020 (10-1-77), 55046, 55060 (10-2-77), 55144 (10-3-77), 55225 (10-4-77).

Abundance: III, A, D.

Associaties: Trees of the lower elevations.

Mycena fibula (Fries) Kuehner

This is a small yellow mushroom (at first mistaken for a species of Gerronema or Omphalina) which fruits among mosses in meadow-like areas or in seepage areas and near springs. Specimens have been collected in a small meadow in a fir grove near the Chaos Jumbles, along springs above Paradise Meadows, in wet mossy areas under alder thickets along the Brokeoff Mountain Trail, along the Bumpass Mountain Trail, along Juniper Lake, Summit Lake, and along the Warner Valley Trail to Devil's Kitchen.

Collections: 33497 (7-12-66), 37179 (8-14-62), 41272 (8-18-69), 49308 (8-26-74), 49437 (8-29-74), 50599 (9-7-75), 50637

(9-8-75), 50692 (9-9-75), 53322 (10-8-76), 53503 (10-11-76).

Abundance: III, D.

Associates: Mosses and herbs of stream banks, meadows and springs.

Edibility: Unknown.

Distribution: Western Hemisphere.

Mycena gracilis (Quélet) Kuehner

Found on litter under Pinus ponderosa and Abies concolor at the Rankin Place near Mineral.

Collection: 61609 (9-22-82).

Abundance: IV, A.

Associaties: Abies concolor, Pinus ponderosa.

Mycena griseoviridis A. H. Smith

This is a medium sized mushroom with a bell shaped cap and white spores. The cap is greyish yellow to light brown, and the stripe is yellow becoming purplish near the base which is white woolly and sometimes occurs deep in a pile of rotten wood. It grows on piles of rotten fir and hemlock near melting snowbanks. As the moisture from the snow evaporates the mushroom dries up.

Collections: 29549 (7-2-54), 34142 (7-6-63), 34988 (7-3-65), 35023 (7-4-65), 37149 (7-11-66), 38732 (8-12-67), 39362 (8-11-68), 42901 (7-30-70), 45522 (7-10-72), 45597 (7-12-72), 49344 (8-27-74).

Abundance: II, D.

Associates: Abies magnifica, Tsuga mertensiana.

Edibility: Unknown.

Distribution: Washington, Oregon, California, Mt. Shasta.

Mycena intertexta (Berkeley & Curtis) Saccardo

Collected on rotting conifer wood along the Brokeoff Mountain Trail.

Collection: 33512 (7-4-63).

Abundance: V, A.

Associates: Abies magnific, Tsuga mertensiana.

Edibility: Unknown.

Distribution: New York, North Carolina, South Carolina, California.

Mycena lilacifolia (Peck) A. H. Smith

On very rotten logs under the bark or in spaces inside the log, this small, beautiful, delicate, lilac-colored mushroom fruits in fairly large numbers. It is so small, however, that it would take several hundred to make a good mouthful after they were cooked, if they were found to be edible. Bumpass Hell area, Sunflower Flats area, Hat Creek area, Brokeoff Mountain Trail, Shadow Lake area, Mt. Harkness Trail, Devil's Kitchen Trail.

Collections: 29552 (7-2-54), 34090 (7-4-63), 34204 (7-7-63), 34939 (7-2-65), 35024 (7-4-65), 37155 (7-11-67), 42779 (7-27-70), 42913 (7-30-70), 53344 (10-8-76), 61905 (9-12-83).

Abundance: III, A.

Associates: Abies concolor, A. magnifica, Pinus jeffreyi, Tsuga mertensiana.

Edibility: Unknown.

Distribution: North America.

Mycena overholtsii A. H. Smith & Solheim

This rather large mushroom, one of the larger Mycenas, has been found on rotting logs and stumps of Abies magnifica and Tsuga mertensiana. It remains fresh only as long as there is snow to furnish melting water to serve as an irrigant and to give humidity to prevent desication. The stipes are usually whitish and sometimes contorted. The caps are whitish gray and measure several inches across. It is found in subalpine areas in many western mountain regions.

Collections: 29553 (7-2-54), 34989 (7-3-65), 35020 (7-4-65), 37173 (7-12-66), 37185 (7-14-66), 38713 (8-11-67), 39363 (7-11-68), 42876 (7-30-70), 45514 (7-9-72), 45575 (7-11-72), 45594 (7-12-72), 49410, 49413 (8-29-74).

Abundance: III, A.

Associates: Abies magnifica, Tsuga mertensiana.

Edibility: Unknown.

Distribution: Wyoming, California, Mt. Shasta.

Mycena pura (Persoon : Fries) Kummer

Found in woodland lawn near Mineral at Mrs. Adams' Place and on Lot 81, and at the Rankin Place.

Collections: 55140 (10-3-77), 60742 (10-7-81).

Abundance: IV, D.

Associates: Grasses of woodland lawns.

Edibility: Edible with caution.

Distribution: Europe, North America, Tehama Co.

Pleurotus ostreatus Fries

Found on rotting wood at Sunflower Flats and along SR-36 near Mineral. Until spore prints form a routine part of specimen preparation,

it will not be certain whether these collections are of P. ostreatus, which has white spores, or P. sapidus, which has pale lilac spores.

Collections: 34407, 34414 (7-2-65), 54153 (10-26-76).

Abundance: IV, A.

Associates: Abies concolor, Calocedrus decurrens, Pinus jeffreyi.

Edibility: Choice.

Distribution: Europe, North America.

Resupinatus applicatus (Batsch : Fries) S. F. Gray

Found on a hardwood branch along the creek above Cabin 17, LAVO Headquarters area, Mineral.

Collection: 52971 (10-3-76).

Abundance: V, B.

Associates: Alnus tenuifolia, Salix spp.

Edibility: Unknown, probably too tough.

Distribution: Europe, North America, Tehama Co.

Tricholoma spp.

As yet unidentified specimens assigned to Tricholoma have been collected on the ground around Juniper Lake, in the Butte Lake area, the Nobles' Immigrant Pass area, the upper Warner Valley campground, along the trail to the Devil's Kitchen, along the Terrace-Paradise-Hat Lakes Trail, the lower part of the Brokeoff Mountain Trail, the King Creek Falls Trail, and in lawns and woodlands on the Battle Creek Meadows Ranch, and in woodland lawns in the Mineral area.

Collections: 52980 (10-4-76), 53103, 53104 (10-4-76), 53187 (10-6-76), 53201, 53207 (10-7-76), 53239, 53261, 53329 (10-8-76), 53396 (10-9-76), 53410 (10-10-76), 53509 (10-11-

76), 54202 (10-27-76), 54215 (10-28-76), 54464 (10-31-76), L. Bodine (9-29-69).

Associates: Most conifers in the Park.

Edibiligy: Unknown until identification is completed.

Tricholoma flavovirens (Persoon : Fries) Lund

Found on the ground along the trail to the Devil's Kitchen, and along the Terrace-Paradise-Hat Lakes Trail.

Collection: 53318 (10-8-76), 53425 (10-10-76).

Abundance: V, D.

Associates: Abies concolor, Calocedrus decurrens, Pinus ponderosa, Abies magnifica, Tsuga mertensiana.

Edibility: Good.

Distribution: Europe, North America.

Tricholoma rhizoideum A. H. Smith

This is a large grey mushroom which is almost always found around melting snow in the western mountains. It has been found once in the Park. Several other kinds of mushroom appear much like it in size, shape, and color, but these may belong to such diverse genera as Lyophyllum, Entoloma, Melaleucum, and possible others. Careful collecting over a period of several weeks as the snow melts away in more than one spring season is required before this group can be characterized satisfactorily.

Collections: 26611 (7-1-50).

Abundance: V, D.

Associates: Abies magnifica.

Edibility: Unknown.

Distribution: MacKenzie Pass, Oregon, Mt Shasta.

Tricholoma terreum (Schaeffer : Fries) Kummer

On the ground near snow or under duff and litter which is still moist, this small grey mushroom fruits in fairly large numbers. The cap has darker fibrils radiating from the center. Possibly several species may be involved in the group of collections which have accumulated over several years, and to some of which this name has been given. Also found at the Lassen National Forest Mineral Fire Guard Station, and in Mrs. Adams' woodland lawn.

Collections: 26612 (7-1-50), 29540, 29541 (7-2-74), 34083 (7-4-63), 35026, 35034, 35035, 35036 (7-4-65), 37177 (7-12-66), 45545 (7-1-72), 45605 (7-12-72), 52805 (10-1-76), 55205 (10-3-77).

Abundnace: III, D.

Associates: Abies concolor, A. magnifica, Pinus jeffreyi, Tsuga mertensiana.

Edibility: Not stated.

Distribution: Widespread.

Tricholoma vaccineum (Persoon : Fries) Karsten

On soil and rotting wood under Populus tremuloides and Pinus contorta var. murrayana at Butte Lake.

Collection: 50750 (9-10-75).

Abundance: V, D.

Associates: Populus tremuloides, Pinus contorta var. murrayana.

Edibility: Not reported to be edible.

Distribution: Europe, North America.

Tricholomopsis rutilans (Schaeffer : Fries) Singer

Found on rotting wood in the Butte Lake area, in woods in Battle Creek Meadows Ranch, Mineral, and along the Terrace-Paradise-Hat Lakes Trail.

Collections: 53007 (10-4-76), 53203 (10-7-76), 53376 (10-9-76), 61587 (9-21-82), 62284 (9-14-84).

Abundance: IV, A.

Associates: Abies concolor, Calocedrus decurrens, Pinus jeffreyi, P. contorta var. murrayana.

Edibility: Flavor too unpleasant.

Distribution: Europe, North America.

Xeromphalina campanella (Batsch : Fries) Kuehner & Maire

Found on conifer wood at Sunflower Flats, and Summit Lake.

Collections: 34443 (7-2-65), 54169, 54170 (10-27-76).

Abundance: IV, A.

Associates: Abies concolor, Pinus contorta var. murrayana, P. ponderosa.

Edibility: Unstated, but small.

Distribution: North America, Europe.

Xeromphalina cauticinalis (Fries) Kuehner

Found on rotting conifer wood in the Summit Lake area.

Collection: 54168 (10-27-76).

Abundance: V, D.

Associates: Abies concolor, Pinus monticola.

Edibility: Unknown.

Distribution: Widely distributed.

Xeromphalina kauffmanii A. H. Smith

Found on hardwood along creek above Cabin 17, LAVO Headquarters area, Mineral.

Collection: 52959 (10-3-76).

Abundance: V, D.

Associates: Abies concolor, Calocedrus decurrens.

Edibility: Unknown.

Distribution: North America.

Amanitaceae

Amanita spp.

Found in the Mineral area, and along the lower part of the Brokeoff Mountain Trail.

Collections: 52788 (10-1-76), 53533 (10-11-76).

Abundance: V, D.

Associates: Abies concolor, A. magnifica, Pinus jeffreyi.

Edibility: Unknown, possibly toxic.

Amanita gemmata (Fries) Bertillion in Dechambre var. gemmata

Specimens have been collected, frequently in montane and subalpine areas. These fruit bodies develop under the duff which they push up forming small mounds. These rarely crack open showing a bit of the cap, and the fruit bodies rarely form on the surface of litter and duff layers. The caps and stipes are pale yellow with whitish scales on the cap surface. A veil is usually found on the stipe which has an enlarged base with a weak to well developed volva. While this is a large fleshy fungus, its appearance is reminiscent of the fly amanita which is poisonous, thus it is not presently considered a safe species to test for edibitliy.

Collections: Numerous (Most years), identified by H. D. Thiers from an Ektachrome photograph.

Amanita vaginata (Bulliard : Fries) Vittadini

Specimens have been collected on the ground under conifers in the Sunflower Flats area, and in the Mineral area at the Lassen National Forest Fire Guard Station, Battle Creek Meadows Ranch, the LAVO Headquarters area, and woodland lawns of the Bruners and Mrs. Adams. While this species is considered to be edible, it is too easily confused with poisonous species of Amanita to be considered safe.

Collections: 49314 (8-26-74), 50554 (9-6-75), 52766, 52773, 52872 (10-1-76), 52906 (10-2-76), 53012 (10-4-76), 54392 (10-30-76), J. Richardson (Oct. 1969).

Abundance: III, D.

Associates: Abies concolor, Pinus jeffreyi, P. ponderosa.

Edibility: Edible, with caution.

Distribution: Europe, North America.

Lepiotaceae

Leucoagaricus naucinus (Fries) Singer

This large white mushroom has been found in the lawn of the LAVO Headquarters near Mineral, and in a woodland lawn at Mrs. Adams' Place near Mineral.

Collection: 53402 (10-10-76), 61503 (9-20-82).

Abundance: V, D.

Associates: Lawn grasses, Abies concolor, Pinus jeffreyi, Calocedrus decurrens.

Edibility: Edible, with caution.

Distribution: Europe, North America.

Lepiota sp.

Found near a creek above cabin 17 in the LAVO Headquarters housing area.

Collection: 5291B (10-3-76)

Abundance: V, D.

Associates: Alnus tenuifolia, Salix spp.

Rhodophyllaceae

Entoloma spp.

Specimens of several species assignable to this genus have been collected in the Park on conifer duff and litter, and at Mineral. Until the genus has been monographed critically, it will not be practical to complete identification of these.

Collections: J. Richardson and others (Oct. 1969, and other years).

Rhodocybe cf. nitellina (Fries) Singer

Found near a creek above cabin 17 in the LAVO headquarters housing area.

Collection: 52921A (10-3-76), tentatively identified by R. E. Halling.

Abundance: V, D.

Associates: Alnus tenuifolia, Salix spp.

Distrubution: Northern Hemisphere.

Pluteaceae

Pluteus cervinus (Schaeffer : Fries) Kummer

Specimens have been found in the Sunflower Flats area which could be assigned by sight to this species which has been used as a repository for any large grey to fawn-colored or brown mushroom with pink gills growing on rotting wood. Unfortunately the specimens were too old to survive drying and transport. This species, the deer mushroom, usually occurs on dead wood, has smooth, pink spores, and is edible. Also found in the Mineral area, along Juniper Lake, in an aspen grove near the Hot Rock, in the Butte Lake area, in Drakesbad Meadows, along the trail to the Devil's Kitchen, and along the Boiling Springs Lake Trail in Warner Valley.

Collection: 34945 (7-2-65), 52896 (10-1-76, 53025, 53028 (10-4-76), 53101 (10-5-76), 53136 (10-6-76), 53212 (10-7-76), 53247, 53314, 53317, 53334, 53337 (10-8-76), 53395 (10-9-76), 54996, 54997, 55018 (10-1-77), 55139 (10-3-77).

Abundance: V, A.

Associates: Abies concolor, Pinus jeffreyi.

Edibility: Edible.

Distribution: Widespread.

Agaricaceae

Agaricus sp.

Found on the ground in the Mineral area.

Collection: 52782 (10-1-76).

Abundance: V, D.

Associates: Lawn grasses and forbs.

Agaricus campestris Linnaeus : Fries

Found in the meadow at Drakesbad, possibly associated with old horse manure.

Collection: 53252 (10-8-76).

Abundance: V, D.

Associates: Meadow forbs and grasses.

Edibility: Choice.

Distribution: Widespread.

Strophariaceae

Naematoloma spp.

Material assignable to this genus, but not identified to species, has been found at Mineral, and in the Hat Lake area.

Collection: J. Richardson (9-29-69), 42938 (7-30-70).

Naematoloma capnoides (Fries) Karsten

Found on rotting wood at Sunflower Flats, the Upper Warner Valley Campground, along the Terrace-Paradise-Hat Lakes Trail, the Devil's Kitchen Trail, the lower part of the Brokeoff Mountain Trail, Summit Lake, and in the Mineral area at the Lassen National Forest Fire Guard Station, Battle Creek Meadows Ranch, the Bruners' and Mrs. Adams' Places, and along SR-36.

Collections: 34940 (7-2-65), 52865 (10-1-76), 52995 (10-4-76), 53262, 53298 (10-8-76), 53381, 53384 (10-9-76), 53468 (10-10-76), 53522, 53530 (10-11-76), 54135 (10-25-76), 54155 (10-26-76), 54186 (10-27-76), 60698 (10-7-81).

Abundance: III, C, D.

Associates: Abies concolor, A. magnifica, Calocedrus decurrens, Pinus contorta var. murrayana, Pinus jeffreyi.

Edibility: Good.

Distribution: Europe, North America.

Naematoloma dispersum (Fries) Kummer

Found at Sunflower Flats on conifer wood.

Collections: 34430, 34433 (7-2-65).

Abundance: V, A.

Associates: Abies concolor, Pinus jeffreyi.

Edibility: Unknown.

Distribution: Europe, Western North America.

Naematoloma fasciculare (Hudson : Fries) Karsten

Found on aspen and conifer wood throughout the collected area below 8000 feet.

Collections: 50716 (9-10-75), 52819, 52847, 58277 (10-1-76), 53001, 53013, 53021 (10-4-76), 53138 (10-6-76), 53190, 53201 (10-7-76), 53361, 53362, 53390, 53394 (10-4-76), 54204 (10-28-76), 54303 (10-29-76), 54354, 53394 (10-30-76), 55771 (10-2-77), 60604 (10-5-81), 60621, 60638 (10-6-81), 60683, 60695, 60730 (10-7-81), J. Richardson 3A, 19A (9-29-76), L. Bodine.

Abundance: II, A, B.

Associates: Populus tremuloides; all conifers below 8000 feet.

Edibility: Good (Smith), poisonous (Lincoff).

Distribution: Europe, North America.

Pholiota spp.

Several species of this genus have been found in the Park, and at Mineral. Some of these collections are being studied.

Collections: Several; L. Bodine, J. Richardson (Oct. 1969; several years).

Pholiota bridgii A. H. Smith & Hesler

Collected in large clusters on several logs of Abies magnifica along the trail below Paradise Meadows. Edbility of this brown mushroom is uncertain; the similar appearing species, Galerina autumnalis is deadly poisonous.

Collections: 49400, 49401, 49402 (8-29-74).

Abundance: V, A.

Associates: Abies magnifica, Pinus contorta var. murrayana.

Edibility: Unknown but suspect.

Distribution: Mt. Shasta.

Pholiota squarrosa-adiposa Lange

Specimens assigned to this species, one of the heart-wood growing agarics, were found in late September, indicating a possible cause of the death of the tree on whose wood it was found. On Abies concolor below Summit lake.

Collection: 26980 (9-26-50).

Abundance: V, A.

Associates: Abies concolor, Pinus contorta var. murrayana.

Edibility: Not stated by Lincoff; Smith notes that it is edible but lookalikes are poisonous: Use caution.

Psilocybe coprophila (Fries) Quélet

Found on cow manure in the Summit Lake area, Lassen National Forest, Lassen County.

Collection: 61579 (9-21-82).

Abundance: V, G.

Associates: Other dung fungi.

Edibility: Too small to consider.

Distribution: Widespread.

Stropharia sp.

Found on soil along the Brokeoff Mountain Trail, at Les Bodine's Place and the Bruners' Place at Mineral in lawns, and along Devil's Kitchen Trail.

Collections: 33514 (8-14-62), 42798 (7-27-70), 59071 (7-28-80), 55027 (10-1-77), 55074 (10-2-77), 59071 (7-28-80).

Stropharia hornemannii (Fr. : Fr.) Lund & Nannfeldt

On well irrigated fern-bed soil at the Bruners' home, Mineral.

Collection: 55163 (10-3-77).

Abundance: V, D.

Associates: Ferns and herbs of fern-bed.

Edibility: Not stated by Lincoff; not recommended by Smith.

Distribution: Europe, North America, Mineral.

Coprinaceae

Coprinus comatus Fries

Found in the Butte Lake area, at the old Childs Meadow dump along SR-36, and in the Mineral area at the Bodine and Rankin Places. Reported in the LAVO Headquarters area.

Collections: 50811 (9-11-75), 53044 (10-5-76), 54264 (10-29-76), 54424 (10-31-76, 9-28-77); J. Richardson (Oct. 1969), L. Bodine (Autumn 1972).

Abundance: III, D.

Associates: Abies concolor, Pinus jeffreyi, P. ponderosa.

Edibility: Choice.

Distribution: Widespread.

Panaeolus semiovatus (Fries) Lundell

Annellaria separate (Linnaeus : Fries) Karsten

This species, which normally fruits on horse manure, has been collected in the Park in a meadow at Drakesbad on horse manure. An early collection could have come from horse manure along a trail.

Collections: E. E. Morse (UC) (Sept. 1928); 53241 (10-8-76).

Abundance: IV, G.

Associates: Other fungi of horse manure.

Edibility: Not stated by Lincoff; Smith said: edible and good but not recommended.

Distribution: Europe, North America.

Psathyrella sp.

Found at the edge of the Battle Creek Meadows Ranch bog.

Collection: 54441 (10-31-76).

Abundance: V, D.

Associates: Trees of the Sierra mixed Conifer Forest.

Psathyrella velutina (Persoon : Fries) Singer

Found in a woodland lawn at the Rankin Place, near Mineral.

Collection: 61628 (9-22-82).

Abundance: V, D.

Associates: Abies concolor, Pinus jeffreyi.

Edibility: Edible.

Distribution: Widely distributed.

Cortinariaceae

Cortinarius spp

Specimens assignable to a number of species in this genus have been collected frequently in the Park, and at Mineral. In addition to occurring on the surface of duff and litter, some of these fruit under the duff, pushing it up and forming mounds which may or may not break open exposing the tops of the caps. Critical evaluation of most of these species must await completion of a monograph of this genus. Spore prints, knowledge of the colors of fresh materials of young and mature pilei and stipes, and of the flavor of the flesh are among important field data required for the study of these fungi.

Crepidotus spp.

Material of this small agaric has been collected on conifer wood at several locations in the Park. Species of this genus are usually small, without a stipe, so the caps are seated directly on the substratum.

Collections: 35056 (7-5-65), 59025 (7-28-80), among others.

Galerina spp.

Found on rotting wood in the Mineral area, and along the Devil's Kitchen Trail.

Collections: 52924, 52927 (10-3-76), 53310 (10-8-76), 55187 (10-3-77).

Abundance: IV, A.

Associates: Conifers of lower elevations.

Galerina autumnalis (Peck) A. H. Smith & Singer

Large clusters of this small brown mushroom are found inside rotting Abies concolor and other conifer logs in the spring. This is a very poisonous mushroom.

Collections: 34097 (7-4-63), 34209 (7-7-63), 34951, 34952 (7-2-65), 34986 (7-3-65), 37095 (7-9-66), 37114 (7-10-66).

Abundance: III, a.

Associates: Abies concolor, A. magnificia Pinus jeffreyi.

Edibility: Deadly poisonous.

Distribution: North America.

Hebeloma sp.

Collected on the ground at Mineral, and on the north shore of Juniper Lake.

Collection: J. Richardson (Oct. 1969), 53121 (10-5-76), 55087 (10-2-77).

Abundance: IV, D.

Associates: Abies concolor, A. magnifica.

Hebeloma crustuliniforme (St. Amans) Quélet

Found on the ground in the Mineral area.

Collection: 52803 (10-1-76).

Abundance: V, D.

Associates: Abies concolor, Pinus jeffreyi.

Edibility: Poisonous.

Distribution: Widely distributed.

Hebeloma strophosum (Fries) Saccardo

Found on the ground in a woodland lawn near Mineral.

Collection: 60699 (10-7-81).

Abundance: V, D.

Associates: Abies concolor, Calocedrus decurrens, Pinus jeffreyi.

Edibility: Unknown.

Distribution: Michigan, Pacific northwest, Mineral.

Inocybe spp.

Several species of this genus of relatively small mushrooms have been found in the Park. Their identification awaits critical study.

Collections: Numerous (Most years).

Kuehneromyces alpinus

Found on a dead conifer log along SR-44 near the Park.

Collection: H. D. Thiers 36317 (SUSF) (9-5-76).

Abundance: V, A.

Associates: Abies concolor, Pinus jeffreyi.

Edibility: Unknown.

Gymnopilus spectabilis (Fries) A. H. Smith

Found on or near rotting conifer wood at the Battle Creek Meadows Ranch in woods near Mineral.

Collection: 53006 (10-4-76), 53360 (10-9-76).

Abundance: IV, A.

Associates: Abies concolor, Calocedrus decurrens, Pinus jeffreyi.

Edibility: Hallucinogenic.

Distribution: Europe, North America, Mineral area.

Rozites caperata (Fries) Karsten

Found in the Summit Lake area and along the Terrace-Paradise-Hat Lakes Trail.

Collections: 53466 (10-10-76), 54187 (10-27-76).

Abundance: IV, D.

Associates: Abies magnifica, Tsuga mertensiana, Pinus contorta var.murrayana.

Edibility: Choice.

Distribution: Europe, North America.

Hygrophoropsis aurantiacus (Wulf. : Fries) Maire

Found on soil at Sunflower Flats, Butte Lake, and on soil in Bruners' woodland lawn near Mineral.

Collections: 34432 (7-2-65), 34436 (9-12-75), 50814 (10-7-76), 53204, 60806 (10-9-81).

Abundance: IV, D.

Associates: Abies concolor, Calocedrus decurrens, Pinus jeffreyi, P. contorta var. murrayana, Populus tremuloides.

Edibility: Edible, with caution.

Distribution: Europe, North America.

Paxillus panuoides (Fries : Fries) Fries

Found on the under side of a conifer log in the King Creek picnic area, and along the area of the head of the Terrace Lake Trail. This mushroom is sessile and is usually attached by the top of the cap to the underside of rotting logs.

Collection: 42843 (7-28-70), 61899 (9-12-83).

Abundance: V, A.

Associates: Abies magnifica.

Edibility: Not stated.

Distribution: Europe, Africa, North America.

Russulaceae

Russula compacta Fries

Found in a woodland lawn near Mineral.

Collection: 62044 (11-8-83).

Abundance: V, D.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Northeastern North America, Western United States.

Lactarius deliciosus (Fries) S. F. Gray

Specimens have been collected in the Summit Lake area, Warner Valley, Drakesbad Meadows, and in the Mineral area at the Lassen National Forest Fire Guard Station, on the Battle Creek Meadows Ranch, and in woodland lawns at the Adams' and Bruners'. It is an orange mushroom with green latex whose flesh turns green when bruised or broken. As the name implies, it is reported to be delicious.

Collections: 34908 (7-2-65), 50535 (9-6-75), 50636 (9-8-75), 50670, 50700 (9-4-75), 52861 (10-1-76), 53023 (10-4-76), 53243, 53265 (10-8-76), 54322 (10-29-76), 54350, 54370 (10-30-76), 55119 (10-2-77), 55220 (10-4-77), 60617 (10-6-81), 62240 (9-13-84).

Abundance: II, D.

Associates: Most conifers of lower and intermediate elevations.

Edibility: Good.

Distribution: Europe, North America.

Russula spp.

Specimens of several species have been found in the Park and at Mineral.

Collections: Numerous, Les Bodine (Many years, 9-29-69, Autumn 1972, 1975, 1976, 1977).

Russula brevipes Peck

Russula delica Fries

Specimens of this large coarse white mushroom have been found in conifer woods along the Brokeoff Mountain Trail, in the Warner Valley, the old Childs Meadow dump, the Summit Lake area, the Kings Creek Falls Trail, and in the Mineral area in woods above the Matteson's Cottage, and in or near woodland lawns at the Bruners' and Mrs. Adams' places.

Collections: 35019 (7-4-65), 49282 (8-25-74), 50706 (9-9-75), 52790 (10-1-76), 53046 (10-5-76), 53496 (10-11-76), 54166, 54179 (10-27-76), 54244 (10-28-76), 55216 (10-4-77), 60745 (10-8-83), 62054 (10-7-83, 62048 (10-8-83).

Abundance: III, D.

Associates: Abies concolor, A. magnifica, Calocedrus decurrens, Pinus jeffreyi, Tsuga mertensiana.

Edibility: Disagreeable tasting (Lincoff); edible with special preparation (Smith 1975).

Distribution: Europe, North America.

Russula compacta Fries

Found in a woodland lawn near Mineral.

Collection: 62044 (11-8-83).

Abundance: V, C.

Associates: Abies concolor, Pinus jeffreyi

Distribution: Northeastern North America, western United States.

Russula rosacea Fries

Found on the ground in the woodland lawns in the Mineral area.

Collection: 52781, 52879 (10-1-76), 53019 (10-4-76), 54142 (10-25-76), 54198 (10-27-76), 54370 (10-30-76), 54921 (9-27-77), 55048, 55111, 55120 (10-2-77), 60724 (10-7-81).

Abundance: V, D.

Associates: Abies concolor, Pinus jeffreyi.

Edibility: Not stated.

Distribution: Europe, Western North America.

Russula purpurina Quelet & Schulzer

Found on the ground under conifers near the BCMR Bog, Mineral.

Collection: 54477 (10-31-76)

Abundance: V, D.

Associates: Sierra mixed conifer forest trees.

Edibility: Edible.

Distribution: Europe, North America.

Boletaceae

Boletus spp.

Several, as yet unidentified, species of Boletus have been collected in the Park and at Mineral. Their identification awaits critical study. The members of this family include genera such as Boletus, Leccinum, Suillus, Tylopilus and others in which spores are borne in tubes rather than on gills.

Boletus edulis Fries

Found on soil under conifer duff along the trail to Boiling Springs Lake in the Warner Valley; also under Pinus contorta var. murrayana

along SR-44 near the Butte Lake turnoff. Its common German name, Steinpilz, indicates that it is a fungus which looks like a stone, while its specific name indicates that it is edible.

Collections: H. D. Thiers 12798 (SUSF) (6-28-65), 37083 (7-9-66).

Abundance: IV, D.

Associates: Abies concolor, Calocedrus decurrens, Pinus contorta var. murrayana.

Edibility: Choice.

Distribution: Europe, North America.

Boletus abieticola Thiers

This is a large bolete with pinkish brown cap and yellow flesh which turns blue when cut or bruised, although sometimes slowly, growing in montane conifer forests under Abies concolor, and A. magnifica. Found along the Terrace Lake Trail, the Brokeoff Mountain Trail, the north shore of Juniper Lake, and at Mineral. According to Les Bodine, who ate part of a large specimen with two friends, it is a tasty, edible species.

Collections: 30911 (8-18-57), 49399 (8-29-74), D. Showers 2893 (SUSF) (9-29-75), 53102 (10-5-76).

Abundance: IV, D.

Associates: Abies concolor, A. magnifica, Pinus contorta, var. murrayana, Tsuga mertensiana.

Edibility: Reported edible.

Distribution: Mt. Shasta.

Boletus calopus Fries var. frustosus (Snell & Dick) O. K. Miller & Watling

Found under Abies magnifica below the Ski Chalet, along the King Creek Falls Trail, and along the trail between Bumpass Hell and Cold

Boiling Lake.

Collections: D. Showers 2892 (SUSF) (9-28-75), 54205 (10-28-76), 54277 (10-29-76), identified by H. D. Thiers.

Abundance: IV, D.

Associates: Abies magnifica.

Edibility: Not stated (Lincoff); bitter (Thiers).

Distribution: Idaho, California.

Boletus haemtinus Halling

In soil under Abies concolor in the Mineral area including at the Lassen National Forest Fire Guard Station.

Collections: D. Showers 2894 (SUSF) (9-29-75), 52821 (10-1-76).

Abundance: IV, D.

Associates: Abies concolor, Calocedrus decurrens, Pinus jeffreyi.

Edibility: Not stated.

Distribution: California.

Boletus mottii Thiers

Found along the lower part of the Brokeoff Mountain Trail.

Collection: 53520 (10-11-76).

Abundance: V, D.

Associates: Abies magnifica.

Edibility: Not stated.

Distribution: Nevada County, Tehama County, California.

Boletus rubripes Thiers

Found along the Bumpass Hell-Cold Boiling Lake Trail, and in the Mineral area in the Lassen National Forest Fire Guard Station area, and in the woodland lawns of Mrs. Adams, the Bruners and the Rankins.

Collections: 50524, 50549 (9-6-75), 50730 (9-10-75), 52786, 52825 (10-1-76), 54308 (10-29-76), 55178 (10-3-77).

Abundance: IV, D.

Associates: Abies concolor, A. magnifica, Calocedrus decurrens, Pinus jeffreyi.

Edibility: Not stated (Lincoff); probably too bitter (Thiers).

Distribution: Mexico, Pacific states.

Boletus zelleri Murrill

Found on the ground in the Summit Lake area, Butte Lake, Drakesbad Meadow periphery, Devil's Kitchen Trail, lower part of the Brokeoff Mountain Trail, and in the Mineral area in the Lassen National Forest Fire Guard Station area, the Battle Creek Meadows Ranch woods near Mineral, and the Bruners' woodland lawn.

Collections: 34958 (7-3-65), 52826, 52842, 52891 (10-1-76), 52990 (10-4-76), 53215, 53296 (10-8-76), 53483 (10-11-76), 53565 (10-12-76), 54190 (10-17-76), 60650 (10-6-81), 61505 (9-20-82).

Abundance: III, D.

Associates: Abies concolor, A. magnifica, Calocedrus decurrens, Pinus contorta var. murrayana, P. jeffreyi.

Edibility: Good.

Distribution: Oregon, California.

Gastroboletus amyloideus Thiers in Thiers & Trappe

Found under litter and duff along the Devil's Kitchen Trail, and the Terrace-Paradise-Hat Lakes Trail.

Collections: 53288 (10-8-76), 53443 (10-10-76).

Abundance: IV, D.

Associates: Abies concolor, A. magnifica, Calocedrus decurrens, Pinus jeffreyi.

Edibility: Undetermined.

Distribution: Amador, Sierra, Plumas, Shasta Counties, California.

Gasteroboletus subalpinus Trappe & Thiers

Found under litter and duff along the lower part of the Brokeoff Mountain Trail, and the Terrace-Paradise-Hat Lakes Trail.

Collections: 53434 (10-10-76), 53489, 53527 (10-11-76).

Abundance: IV, D.

Associates: Abies magnifica.

Edibility: Unknown.

Distribution: Calaveras, Fresno, Sierra, Tuolumne, Shasta, and Tehama counties, California.

Gasteroboletus suilloides Thiers & Trappe

On the ground along the lower part of the Brokeoff Mountain Trail, the north shore of Juniper Lake, along the Bumpass Hell-Cold Boiling Lake Trail, and in the Mineral Home owners' water supply spring area under conifer litter and duff.

Collections: 38731 (SUSF) (8-21-67), 53119 (10-5-76), 53553 (10-6-76), 54305 (10-29-76), 54343 (10-30-76).

Abundance: III, D.

Associates: Abies concolor, A. magnifica, Calocedrus decurrens, Pinus jeffreyi.

Edibility: Undetermined.

Distribution: Fresno, Inyo, Tehama, Lassen, Shasta Counties, California.

Gastroboletus turbinatus (Snell) A. H. Smith & Singer

On the ground under conifer litter and duff at the Warner Valley Campground, and along the Bumpass Hell-Cold Boiling Lake Trail.

Collections: 37117 (7-10-66) identified by A. H. Smith; 54295 (10-29-76) identified by H. D. Thiers.

Abundance: IV, D.

Associates: Abies concolor, A. magnifica, Pinus contorta var. murrayana, P. ponderosa.

Edibility: Undetermined.

Distribution: North America.

Leccinum discolor A. H. Smith, Thiers & Watling

Found along the lower part of the Brokeoff Mountain Trail.

Collections: 53481 (10-11-76), identified by H. D. Thiers.

Abundance: V, D.

Associates: Abies magnifica.

Edibility: Edible (Thiers).

Distribution: El Dorado Co., Tehama Co., California.

Leccinum insigne A. H. Smith, Thiers & Watling

On the ground under Populus tremuloides along the Badger Flat Road.

Collection: D. Showers 2890 (SUSF) (9-28-75).

Abundance: V, D.

Associates: Populus tremuloides, Pinus contorta var. murrayana.

Edibility: Good.

Distribution: Northern Sierra Nevada, southern Cascade Mountains, California.

Pulveroboletus ravenelii (Berkeley & Curtis) Murrill

Found on the ground under conifers at Summit Lake.

Collection: 34456 (7-3-65).

Abundance: V, D.

Associates: Abies magnifica, Pinus monticola.

Edibility: Edible.

Distribution: North America.

Suillus albidipes (Peck) Singer

Found on the ground under conifers at Summit Lake and near the Hot Rock.

Collections: 53148 (10-6-76), 54174, 54175 (10-27-76).

Abundance: IV, D.

Associates: Abies magnifica, Pinus contorta var. murrayana.

Edibility: Edibile (Thiers).

Distribution: North America.

Suillus brevipes (Peck) Kuntze

Found on and in soil under litter and duff under all conifers in the Park and its periphery in all areas in which collections were made.

Collections: 52780 (10-1-76), 52903, 52912, 52913 (10-3-76), 52985 (10-4-76), 53067, 53078, 53079, 53088A, 53117 (10-5-76), 53177, 53188 (10-6-76), 53229A, 53238, 53242, 53250, 53282, 53299, 53342 (10-8-76), 53374, 53393 (10-9-76), 53411, 53455 (10-10-76), 54168 (10-17-76), 54213, 54214, 54251, 54254 (10-28-76), 54278 (10-29-76), 54297, 54302, 54317, 54323 (10-29-76), 54374 (10-30-76), 61869 (9-11-83), 61879 (9-12-83), H. D. Thiers

(11-24-67), D. Showers (9-27-75).

Abundance: I, D.

Associates: All conifers in the Park.

Edibility: Good.

Distribution: Europe, North America.

Suillus brunnescens A. H. Smith & Thiers

In soil under Pinus contorta var. murrayana in Grassy Swale, along the Devil's Kitchen Trail, Summit lake, and along the King Creek Falls Trail.

Collections: 34960 (7-3-65), 53280 10-8-76), 54255 (10-28-76); D. Showers 2882 (Sept. 1975).

Abundance: IV, D.

Associates: Abies magnifica, Pinus contorta, var. murrayana, P. monticola.

Edibility: Unknown.

Distribution: Oregon.

Suillus granulatus (Fries) Kuntze

Found on the ground under conifers in the King Creek Falls area, and near Mineral at Battle Creek Meadows Ranch.

Collections: 53376 (10-9-76), 54256 (10-28-76).

Abundance: IV, D.

Associates: Abies concolor, A. magnifica.

Edibility: Good.

Distribution: Europe, United States.

Suillus lakei (Murrill) A.H. Smith & Thiers

Found on soil under Pseudotsuga menziesii in mixed conifer woods

along SR-44 near Viola.

Collection: H.D. Thiers 21700 (SUSF) (11-24-67).

Abundance: V, D.

Associate: Pseudotsuga menziesii.

Edibility: Edible and choice.

Distribution: Western United States.

Suillus pseudobrevipes A.H. Smith & Thiers

Found on the ground under lodgepole pine at Grassy Swale.

Collection: D. Showers 2876 (SUSF) (9-27-75).

Associate: Pinus contorta var. murrayana.

Edibility: Unknown.

Distribution: Idaho, Wyoming.

Suillus punctatipes (Snell & Dick) Snell & Dick

On the ground under conifers including Pinus contorta var. murrayana. Found in most areas collected in the Park and near Mineral.

Collections: 34955 (7-3-65), 53088, 53118 (10-5-76), 53420, 53426 (10-10-76), 54148 (10-26-76), 54252, 54253 (10-28-76), 54316 (10-29-76), 54402 (10-31-76); J. Richardson (Oct. 1969), D. Showers (9-27-75).

Abundance: III, D.

Associates: Abies concolor, A. magnifica, Pinus contorta var. murrayana.

Edibility: Unknown

Distribution: Washington, California.

Suillus riparius Thiers

On the ground under Pinus contorta var. murrayana at Grassy Swale, and under Pinus ponderosa at LAVO Headquarters and on the periphery of the Battle Creek Meadows Ranch bog near Mineral.

Collections: 53398 (10-9-76), 54401 (10-31-76); D. Showers 2878 (9-17-75) (SUSF).

Abundance: IV, D.

Associates: Abies concolor, Pinus contorta var. murrayana, Pinus ponderosa.

Edibility: Unknown.

Distribution: Calaveras, Fresno, Tuolumne, Shasta, Tehama Counties, California.

Suillus sibericus (Singer) Singer

Found on the ground under conifers in the Lassen National Forest Mineral Fire Guard Station area.

Collections: 52823, 52843 (10-1-76).

Abundance: IV, D.

Associates: Abies concolor, Pinus jeffreyi.

Edibility: Unknown.

Distribution: Siberia, Pacific Northwest.

Suillus subolivaceus A.H. Smith & Thiers

Found on the ground under Pinus ponderosa at the Big Juniper area near Summit Lake along SR-44 near the Butte Lake turnoff.

Collection: 53229 (10-7-76).

Abundance: V, D.

Associates: Pinus ponderosa, Juniperus occidentalis.

Edibility: Unknown.

Distribution: Washington, Oregon, California.

Suillus tomentosus (Kauffman) Singer, Snell & Dick

Collected at 7000 ft. in the Park, and in the Mineral area at the Mineral Home Owners' water supply ring, on lot 81, and at the Lassen National Forest Fire Guard Station.

Collections: 52764, 52769 (10-1-76), 53558 (10-11-76), 54201 (10-27-76), D. Kowalski 20973 (8-26-65) (SUSF).

Abundance: IV, D.

Associates: Abies concolor, A. magnifica, Pinus jeffreyi, Calocedrus decurrens.

Edibility: Edible, but with caution.

Distribution: Midwestern and western United States.

Suillus umbonatus Dick & Snell

On the ground under conifers at Grassy Swale, the Devil's Kitchen Trail, and in the Battle Creek Meadows Ranch bog area near Mineral.

Collections: 53321 (10-8-76), 54454, 54457 (10-31-76); D. Showers 2877 (9-17-75) (SUSF).

Abundance: IV, D.

Associates: Abies concolor, A. magnifica, Pinus contorta var murrayana, Pinus jeffreyi.

Edibility: Unknown.

Distribution: Northern California.

Suillus vulcanalis Thiers

This large yellow mushroom was found abundantly under Pinus jeffreyi near Cinder Cone in early July 1965. It was also found under P. jeffreyi at the Manzanita Lake Visitor Center. Also found under Pinus

ponderosa near the Butte Lake turnoff, in the Butte Lake area, and in the Mineral area in woodland lawns at the Bruner and Adam's places.

Collections: 35054 (7-5-65), 35066 (7-6-65), 53200, 53199 (10-7-76), 54372 (10-30-76); H.D. Thiers 12777 (6-27-65), 12915 (7-5-65), 12930 (7-6-65), 12931 (SUSF).

Abundance: III, D.

Associates: Abies concolor, Pinus jeffreyi, Pinus ponderosa.

Edibility: Unknown.

Distribution: Lassen Volcanic National Park, Mineral.

Tylopilus felleus (Bulliard : Fries) Karsten

This large bolete has been collected once in the Park: "Terrestrial at Mt. Lassen."

Collection: W.R. Hanna, identified by W.C. Strauser (UC 528301) (5-6-34).

Abundance: V, D.

Associates: Conifers.

Edibility: Very bitter.

Distribution: Europe, North America.

Gasteromycetes

Hymenogastrales

Rhizopogonaceae

Rhizopogon argillaceus A.H. Smith

Hypogaeous under conifers, Warner Creek Campground area.

Collection: 37116 (7-10-66), identified by J.M. Trappe.

Abundance: V, D.

Associates: Abies concolor, Pinus ponderosa, P. contorta var. murrayana.

Edibility: Unknown.

Distribution: Idaho, Oregon, California.

Rhizopogon atroviolaceus A.H. Smith

Hypogaeous under Tsuga mertensiana near the Terrace Lake Trail.

Collection: 49440 (8-29-74).

Abundance: V, D.

Associates: Tsuga mertensiana.

Edibility: Unknown.

Distribution: Idaho.

Rhizopogon rubescens (Tulasne) Tulasne (probably) var. rileyi A. H. Smith

Found at the soil surface under Abies concolor at Mrs. Degnan's Place near Mineral.

Collection: 61600 (9-22-82), identified by D. R. Hosford.

Abundance: V, D.

Associates: Abies concolor, Pinus jeffreyi.

Edibility: Unknown

Distribution: Idaho, Washington, Oregon, California.

Rhizogogon (nr.) subcaerulescens A.H. Smith

Hypogaeous under conifers along the road to Juniper Lake, Plumas County.

Collection: 41277 (8-18-69).

Abundance: V, D.

Associates: Abies concolor, Pinus ponderosa.

Edibility: Unknown.

Distribution: Idaho, Oregon, California.

Rhizopogon subcaerulescens var. subpannosus A.H. Smith

Hypogaeous under Tsuga mertensiana near the head of the Terrace Lake Trail.

Collections: 49441, 49442 (8-29-74), identified by J.M. Trappe.

Abundnace: IV, D.

Associate: Tsuga mertensiana.

Edibility: Unknown

Distribution: Idaho, Washington.

Rhizopogon subluteus nom. prov. D. R. Hosford

Found in soil under Abies magnifica along the Brokeoff Mountain Trail, and under soil at the base of Pinus ponderosa at the Mineral Fire Guard Station, Lassen National Forest.

Collections: 53529 (10-11-76), 54380 (10-30-76), identified by D. R. Hosford.

Abundance: IV, D.

Associates: Abies concolor, A. magnifica, Pinus ponderosa.

Edibility: Unknown.

Distribution: Mt. Shasta, Tehama County, California.

Rhizopogon vulgaris (Vittadini) M. Lange vel aff.

Hypogaeous in soil under conifers including Abies concolor in the Nobles" Immigrant Pass area, in woods on Battle Creek Meadows Ranch, and under Tsuga mertensiana along the upper Terrace Lake Trail.

Collections: 49312 (8-26-74), 49388 (8-28-74), 49439 (8-29-74), identified by J.M. Trappe.

Abundance: IV, D.

Associates: Abies concolor, Calocedrus decurrens, Pinus lambertiana, P. ponderosa, Tsuga mertensiana.

Edibility: Unknown.

Distribution: Europe, North America.

Truncocolumella citrina Zeller

On soil under litter and duff under mixed conifers near the Battle Creek Meadows Ranch bog.

Collection: 54452 (10-31-76), identified by J.M. Trappe.

Abundance: V, D.

Associates: Abies concolor, Calocedrus decurrens, Pinus jeffreyi.

Edibility: Unknown.

Distribution: Northwestern United States.

Secotiaceae

Endoptychum agaricioides Czerniaiev

This mushroom-like fungus whose cap never opens but encloses a purple-black mass of spores which are produced on gill-like plates arranged irregularly, has been found under duff under Abies concolor in the Sunflower Flats area and around Manzanita Lake.

Collection: 39689 (8-10-67), 39377 (7-12-68).

Abundance: IV, D.

Associates: Abies concolor, Pinus jeffreyi.

Edibility: Edible, with caution.

Distribution: Europe, North America.

Endoptychum depressum Singer & A.H. Smith

Found once under litter and duff under conifers in a mixed conifer forest on the Battle Creek Meadows Ranch near Mineral, and at

Manzanita Lake.

Collection: 49360 (8-28-74), identification by J.M. Trappe, 53144 (10-6-76).

Abundance: IV, D.

Associates: Abies concolor, Calocedrus decurrens, Pinus lambertiana, P. ponderosa.

Edibility: Unknown.

Distribution: Western United States.

Galeropsis polytrichoides (Zeller) Zeller

Found on moist ground in the Summit Lake area.

Collection: 50631 (9-8-75).

Abundance: V, D.

Associates: Forbs, grasses and mosses of damp meadow area.

Edibility: Unknown.

Distribution: Mount Shasta.

Gastroboletus spp.

Four species listed in the Boletaceae.

Nivatogastrium nubigenum (Harkness) Singer & A.H. Smith.

This fungus fruits on old wood and sticks near melting snow throughout the higher elevations in the Park. Its fruit bodies look like those of unopened mushrooms. It is not found after the snow has melted and the litter and duff have dried up, probably since squirrels like the caps as food, set them out to dry, and sometimes store them. While it is sometimes, as here, classified with the puffball-like fungi, its relationships are considered by some to be more with the mushroom-like fungi. It has lost the ability to violently discharge its spores so these

are piled up in gleba-like compartments formed by the irregularly contorted gill-like tissues on which they are produced.

Collections: 26615, 26634, 26635, 26646 (7-1-50), 29558 (7-2-54), 30392 (7-22-56), 34049 (7-4-63), 34956, 34958 (7-3-65), 35056 (7-5-65), 38711, 38727 (8-12-67), 39319 (7-10-68), 39348 (7-11-68), 42776 (7-27-70), 42840 (7-28-70), 42919 (7-30-70), 45535 (7-10-72), 45565 (7-11-72), 45591 (7-12-72), 49321 (8-27-74), 49426 (8-29-74), 59072 (7-29-80), 59091A (7-29-80).

Abundance: III, A.

Associates: Abies magnifica, Pinus monticola, Tsuga mertensiana.

Edibility: Unknown.

Distribution: Western United States.

Thaxterogaster sp.

Collected once along the Terrace Lake Trail.

Collection: 42921, identified by J.M. Trappe.

Thaxterogaster pingue (Zeller) Singer & A.H. Smith

This fungus has a similar appearance and habitat to that of Nivatogastrium nubigenum. It is frequently found late in the season in a hypogaeous habitat under litter and duff: King Creek Meadows area, Brokeoff Mountain Trail, along lower part of Summit Trail, Bumpass Hell - Cold Boiling Lake Trail, Summit Lake, King Creek Falls Trail.

Collections: 35050 (7-4-63), 34139 (7-6-63), 34956A (7-3-65), 34997 (7-4-65), 50629 (9-8-75), 50781 (9-11-75), 53485 (10-11-76), 54191 (10-27-76), 54210, 54227 (10-28-76), 54289 (10-27-76).

Abundance: III, B.

Associates: Abies magnifica, Pinus monticola, Tsuga mertensiana.

Edibility: Unknown.

Distribution: Western United States, Mt. Shasta.

Hydnangiaceae

Hydnangium "?rubescens"

Material tentatively assigned to this species was found once under duff near the base of a tree of Abies magnifica near Cold Boiling Lake.

Collection: 30014 (7-3-55).

Abundance: V, D.

Associates: Abies magnifica.

Edibility: Unknown.

Gautieriales

Gautieriaceae

Gautieria sp.

Specimens assigned to this as yet undescribed species have been found along the Brokeoff Mountain Trail.

Collection: 42867 (7-29-70).

Abundance: V, D.

Associates: Abies Magnifica, Tsuga mertensiana.

Edibility: Unknown.

Gautieria monticola Harkness

Clusters of large truffle-like fruit bodies have been found under duff under Abies concolor and A. magnifica trees, as well as trees of Tsuga mertensiana, in the Sunflower Flats area, King Creek Meadows, and the

Nobles' Immigrant Pass area. Finding the species of this genus, and of other genera of hypogaeous fungi, is like finding a hill of small potatoes under the ground. Also found at Mineral. Mr. O.K. Halladay, of the Lassen National Forest Mineral Fire Guard Station, has reported that he collects "truffles", hypogaeous fungi, commonly, and eats all kinds he finds, not realizing that more than one kind was present.

Collections: 30038 (7-31-55), 38682 (8-10-67), 45537 (7-10-72), J. Richardson (Oct. 1969).

Abundance: IV, D.

Associates: Abies concolor, A. magnifica, Pinus ponderosa, Tsuga mertensiana.

Edibility: Unknowm.

Distribution: Europe, western North America.

Asterosporales

"Asterosporaceae"

Zelleromyces sp.

Found buried in soil under Pinus ponderosa along SR-44 near the Park.

Collection: H.D. Thiers 36318 (9-5-76) (SUSF).

Abundance: V, D.

Associates: Abies concolor, Pinus ponderosa.

Edibility: Unknown.

Lycoperdales

Lycoperdaceae

Bovista californica Kreisel

Collected on soil near the shore of Hat lake.

Collection: Lee Bonar, distributed as California Fungi No. 467, as Lycoperdon pusillum (July, 1934), identified by H. Kreisel and published as a new species in Nova Hedwigia, Beiheft 25:90. 1967.

Abundance: V, D.

Associates: Salix spp.

Distribution: Lassen Volcanic National Park.

Bovista oestinoides (Bonorden) Demoulin

On the ground in the yard at Lot 81, Mineral.

Collection: 50809 (9-11-76), identified by V. Demoulin.

Abundance: V, D.

Associates: Abies concolor, Pinus contorta var. murrayana.

Distribution: Europe, North America.

Bovista pila Berkeley & Curtis

On soil in a meadow near Manzanita Creek, 7000 ft., and the Mineral area.

Collections: 42748 (7-26-70), identified by P. Ponce de Leon; 52776 (10-10-76), 61545 (9-20-82).

Abundance: IV, D.

Associates: Abies concolor, A. magnifica, Pinus jeffreyi.

Distribution: Europe, North America.

Bovista plumbea Persoon

Several puffballs, medium sized and lead grey in color, have been found on a rocky creek bottom near the Visitor Center at Manzanita Lake.

Collections: 34103 (7-5-63), 45578 (7-11-72).

Abundance: IV, D.

Associates: Abies concolor, Pinus ponderosa.

Distribution: Widespread.

Bovistella radicata (Durieu & Montagne) Patouillard

Found once in the vicinity of Manzanita Lake.

Collection: 39376 (7-12-68).

Abundance: V, D.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: North America.

Calbovista subsculpta Morse

Found on trails around Boiling Springs Lake, on Brokeoff Mountain, and at the Bodine Place near Mineral.

Collections: 37100 (7-9-66), 42861 (7-29-70), identified by P. Ponce de Leon, 61939 (9-22-83).

Abundance: IV, D.

Associates: Abies concolor, A. magnifica, Calocedrus decurrens.

Edibility: Choice.

Distribution: California.

Calvatia bovista Persoon var. hungarica (Hollos) Smarda

Found on the ground in open mixed conifer forest at Battle Creek Meadows Ranch near Mineral, and in an open meadow at Drakesbad.

Collections: 45578 (7-11-72), 49358, 49359 (8-28-74), in part identified by V. Demoulin, tentatively.

Abundance: IV, D.

Associates: Abies concolor, mixed conifers, forbs and grasses of meadows.

Edibility: Presumably edible in white flesh stage of growth.

Distribution: Europe, western United States.

Calvatia craniiformis (Schweinitz) Fries

Found on the ground at the Matteson place in Mineral.

Collection: 55039 (10-2-77).

Abundance: V, D.

Associates: Abies concolor, Pinus ponderosa.

Edibility: Choice.

Distribution: Widespread.

Calvatia fragilis (Vittadini) Morgan

Small delicate puffballs have been found in the aspen grove above Hat Lake.

Collection: 37127 (7-11-66).

Abundance: V, D.

Associates: Populus tremuloides.

Edibility: Presumably edible in the white stage.

Distribution: Europe, Texas, Michigan.

Calvatia ?lycoperdoides A.H. Smith

Found on the ground under Abies magnifica and Tsuga mertensiana along the Brokeoff Mountain Trail.

Collection: 45587 (7-12-72), tentatively identified by V. Demoulin.

Abundance: V, D.

Associates: Abies magnifica, Tsuga mertensiana.

Edibility: Presumably edible in the white stage.

Distribution: Idaho, Washington, California.

Calvatia cf. pallida A.H. Smith

On the ground along the Brokeoff Mountain Trail.

Collection: 50585 (9-7-75), identified by V. Demoulin.

Abundance: V, D.

Associates: Abies magnifica.

Edibility: Presumably edible in the white stage.

Distribution: Idaho, Washington, California.

Calvatia paradoxa A.H. Smith

Found on the ground in the Manzanita Lake area.

Collection: 42937 (7-30-70), identified by P. Ponce de Leon.

Abundance: V, D.

Associates: Abies concolor, Pinus jeffreyi.

Edibility: Presumed edible in the white stage.

Distribution: Colorado, California.

Calvatia sculpta (Harkness) Lloyd

A large puffball with large pyramidal warts on the outer surface. The mature gleba is olive green. Several large specimens have been found on gravel fill behind the service garage at the Manzanita Lake Ranger Station, and along the Brokeoff Mountain Trail. Also at Mineral. Considered edible as long as the flesh is white.

Collections: 38744 (8-12-67), 50537 (9-6-75).

Abundance: IV, D.

Associates: Salix spp., Abies concolor, A. magnifica, Pinus jeffreyi, Tsuga mertensiana.

Edibility: Edible in the white stage.

Distribution: Pacific Coast states.

Gastropila fumoga (Zeller) Ponce de Leon

This small thick-walled puffball is found occasionally in conifer woods throughout the Park. The surface is smooth and whitish. All puffballs which are white in section when young are considered edible, but to my knowledge nothing is reported about the edibility of this species.

Collections: 30037 (7-30-55), 30337 (7-31-55), 33493 (8-14-62), 34995 (7-4-65), 37132 (7-11-65), 37188 (7-14-66), 38724 (8-12-67), 39346 (7-11-68), 42744 (7-25-70), 42793 (7-27-70), 42832 (7-28-70), 42859 (7-29-70), 42917 (7-30-70), 45534 (7-10-72), 45590 (7-12-72), 49336 (8-27-74), 49428 (8-29-74), 61904 (9-12-83).

Abundance: III, D.

Associates: Most conifers in the Park.

Edibility: Presumably edible in the white stage.

Distribution: Wyoming, Pacific Coast states.

Gastropila subcretacea (Zeller) Ponce de Leon

The outer surface of this small puffball is divided into small wart-like scales which are dark tinted at their tops, the remainder of the surface being white. It is found on the ground in conifer woods.

Collections: 33491, 33492 (7-14-62), 34128 (7-3-63), 34974 (7-5-63), 34996 (7-4-66), 35049 (7-5-66), 37072 (7-9-66), 37134 (7-11-66), 37168 (7-12-66), 38725 (8-12-67), 39347 (7-11-68), 42860 (7-29-70), 45483, 45486 (7-9-72), 45533

(7-11-72), 45566 (7-12-72), 45589 (8-27-74), 49337 (8-29-74), 50578 (9-7-75).

Abundance: III, D.

Associates: All conifers occurring above 6500 feet.

Edibility: Presumably edible in the white stage.

Distribution: Oregon, California.

Lycoperdon spp., immature

Found on the ground in lawns in the Mineral area; and in the Warner Valley.

Collections: 50540, 50565, 50676 (9-6-75), 50707 (9-9-75), identified by V. Demoulin.

Abundance: IV, D.

Associates: Abies concolor, A. magnifica, Calocedrus decurrens, Pinus jeffreyi.

Edibility: Presumably edible in the white stage.

Distribution: Widespread.

Lycoperdon (nr.) coloratum Peck sensu Coker & Couch

Young puffballs assigned to this species were found in the vicinity of Manzanita Lake.

Collection: 38749 (8-13-79).

Abundance: V, D.

Associates: Abies concolor, Pinus jeffreyi.

Edibility: Presumably edible in the white stage.

Distribution: North America.

Lycoperdon lembinonis Demoulin

On the ground in Mrs. Adams' Place, Mineral.

Collection: 50538 (9-6-75), identified by V. Demoulin.

Abundance: V, D.

Associates: Abies concolor, Pinus jeffreyi.

Edibility: Presumably edible in white stage.

Distribution: Europe, North America.

Lycoperdon molle group

On the ground along the Brokeoff Mountain trail, and at Mineral in woodland lawns of Mrs. Adams, and lot 81.

Collections: 50539, 50541, 50557 (9-6-75), 50586 (9-7-75), identified by V. Demoulin.

Abundance: IV, D.

Associates: Abies concolor, A. magnifica, Calocedrus decurrens, Pinus jeffreyi.

Edibility: Presumably edible in white stage.

Lycoperdon pyriforme Schaeffer : Persoon

On the ground on buried wood in the Mineral area at Mrs. Adams' Place, and at the LAVO Headquarters.

Collections: 50542 (9-6-75), identified by V. Demoulin; 60605 (10-6-81), 60761 (10-8-81).

Abundance: IV, D, A.

Associates: Abies concolor, Pinus jeffreyi.

Edibility: Choice.

Distribution: Widespread.

Lycoperdon umbrinum Persoon : Persoon

Found on the ground at Battle Creek Meadows Ranch, Mineral.

Collection: 52989 (10-4-76), identified by V. Demoulin.

Abundance: V, D.

Associates: Trees of the Sierra Mixed Conifer Forest.

Distribution: Widespread.

Vascellum curtisii (Berkeley) Kreisel

Specimens of this species have been collected on soil in lawns at the Manzanita Lake Visitor Center, and at Mineral.

Collections: 35047 (7-5-65), 53389 (10-9-76), J. Richardson (Oct. 1969, 61533 (9-20-82).

Abundance: IV, D.

Associates: Lawn grasses.

Distribution: Europe, North America.

Vascellum pratense (Persoon : Persoon sensu Quélet) Kreisel

Vascellum lloydianum A.H. Smith

On the ground at Bruners Place, Mineral.

Collection: 50813 (9-11-75), identified by V. Demoulin.

Abundance: V, D.

Associates: Abies concolor, Pinus jeffreyi.

Edibility: Unknown.

Distribution: Europe, India, Philippines, South Africa, Australia, New Zealand, United States.

Sclerodermatales

Astraeaceae

Astraeus pteridis (Shear) Zeller

The exoperidium of this large earth-star puffball has been found in the Reflection Lake area, along the Bumpass Hell - Cold Boiling Lake

Trail, the Butte Lake area, and in the Mineral area. When young and fresh this would have looked like a medium-sized puffball. It is surrounded by a subfleshy peridium which, at maturity, becomes split into a number of rays which would open up in moist weather and close in dry weather "puffing" the spores into the air.

Collections: 35067 (7-6-65), 54315 (10-29-76), 54925 (9-28-70), 54981 (9-30-70), 61863 (9-10-83).

Abundance: IV, D.

Associates: Abies concolor, A. magnifica, Pinus contorta var. murrayana, Pinus jeffreyi.

Edibility: Inedible.

Distribution: Pacific Coast States.

Pisolithaceae

Pisolithus tinctorius (Persoon) Coker & Couch

The fruit bodies of this medium large fungus were found in the trails around Boiling Springs Lake and the Devil's Kitchen. They are like a puffball with a short thick stalk on top of which is a mass of spores arranged in small hard clusters which are like "stone-peas" from which the fungus gets its name. The specific name comes from the fact that the fruit bodies of this fungus were once used as a source of dye. These hard spore masses or peridioles break down into olive green masses of spores.

Collections: 37074, 37109 (7-9-66).

Abundance: IV, D.

Associates: Abies concolor, Calocedrus decurrens, Pinus contorta var. murrayana, Quercus vaccinifolia.

Edibility: Inedible.

Distribution: Widespread.

Sclerodermataceae

Scleroderma areolatum Ehrenberg

Scleroderma lycoperdoides Schrader

A small hard-shelled puffball found in the Park between Lower Twin Lake and Butte Lake.

Collection: 35048 (7-5-65).

Abundance: V, D.

Associates: Pinus ponderosa.

Edibility: Inedible.

Distribution: North America, Europe.

Scleroderms hypogaeum Zeller

Found on the ground in a pine plantation planted in the old Manzanita Lake Campground, Manzanita Lake area, and near Mineral in a garden at the Bodine Place.

Collections: 38745 (8-13-67), 53233 (10-7-76), 54265 (10-29-76).

Abundance: IV, D.

Associates: Pinus jeffreyi.

Edibility: Inedible; most Sclerodermas are toxic.

Distribution: Oregon, California.

Scleroderma polyrrhizum

Found on the ground in the Battle Creek Meadows Ranch and at Mineral.

Collections: 53357 (10-9-76), 54134 (10-29-76).

Abundance: IV, D.

Associates: Abies concolor, Pinus jeffreyi, Calocedrus decurrens.

Edibility: Inedible.

Distribution: Widespread.

Sedeculaceae

Sedecula pulvinata Zeller

Collected under conifers on the Battle Creek Meadows Ranch. Mineral.

Collection: 49390 (8-28-74).

Abundance: V, D.

Associates: Abies concolor, Calocedrus decurrens, Pinus jeffreyi.

Edibility: Inedible.

Distribution: Mount Shasta.

Nidulariales

Nidulariaceae

Crucibulum laeve (Hudson trans Relham) Kambly

Crucibulum levis (DeCandolle) Kambly & Lee

Found on decaying sticks and litter in a corral area on Battle Creek Meadows Ranch, in the Lassen National Forest Mineral Fire Guard Station, at the Bodine and Bruner places, along the Devil's Kitchen Trail, the Butte Lake area, near Boiling Springs Lake, at Lot 81, Mineral, and on a cone of Pseudotsuga menziessii.

Collections: 49362 (8-28-74), 52839 (10-1-76), 53000 (10-4-76), 53061, 53100 (10-5-76), 53313 (10-8-76), 54421 (10-31-76), 54917 (9-27-77), 54935 (9-28-77), 55001, 55026 (10-2-77), 55105 (10-2-81), 60637 (10-6-81), 60780 (10-8-81), 60791, 6-801 (10-9-81), 61528 (9-20-82).

Abundance: III, A, B.

Associates: Abies concolor, A. magnifica, Calocedrus decurrens,

Pinus ponderosa.

Distribution: Cosmopolitan.

Cyathus striatus (Hudson) Willdenow : Persoon

Found on litter near Mineral.

Collection: L. Bodine (Oct. 1969).

Abundance: V, D.

Associates: Abies concolor, Pinus jeffreyi.

Distribution: Widespread.

Sphaerobolace

Sphaerobolus stellatus Tode : Persoon

Found on litter at the Bauers' Place, Mineral.

Collection: 54980 (9-30-77).

Abundance: V, D.

Associates: Abies concolor, Pinus ponderosa.

Distribution: Widespread, Mineral.

LICHENS

Three important types of lichen growth occur. Some are bushy or fruticose, like the staghorn and beard lichens; some form large leaf-like or foliose patches on rocks or bark surfaces, like the Parmelias and the dog-lichen; and others are crustose, forming small to large patches like crusts on bark and rocks. Some of these growths are very colorful, others are dull or black.

The species of lichens collected to date in the Park will be listed by the localities in which they are found. Five of these groups of species were collected on rocks, the others on fir tree branches. Except for the Gyrophora, which is foliose, the species listed from rocks are crustose. On the other hand, those from tree branches are foliose - Nephromopsis and Parmelia, or fruticose - Alectoria and Letharia.

A rock on the outer rim of the Summit crater complex near the Summit Trail is the only place on the summit where lichens have been found. Activities of vulcanism such as solfatara fumaroles, sulphur springs, and volcanic eruptions, prevent the development of lichens which are very sensitive to atmospheric pollution especially by sulphur compounds. Eruptions have occurred recently enough so that the re-colonization of rocks near the summit has not yet occurred. The following species were found on this rock.

Lecanora peltata (Ram.) Steud.
Lecanora melanophthalma (DC.) Hammond
Lecidea atro-brunnea (Ram.) Schaerer

Rock outcroppings along the Summit Trail, especially near a former rest station, support several colonies of lichens of various colors:

Acarospora oxytona (Ach.) Mass. - yellow.
Caloplaca elegans (Link) Th. Fires - cinnabar red.
Gyrophora decussata (Vill.) A. Zahlbr. - black.
Lecanora melanophthalma (DC.) Ram. - brown with black eye spot.

Rock outcroppings, boulders, and platy andesite form good habitats for lichens. Several species were found on such rocks at King Creek Cascades.

Candelariella crenulata (Wahlbr.) A. Zahl.
Lecanora gibbosa (Ach.) Nyl.
Lecanora muralis (Schreb.) Rabenh. var. diffracta (Ach.) Rabenh.
Lecanora rubina (Vill.) Ach.
Lecidea atro-brunnea (Ram.) Schaerer
Lecidea fusco-atra (L.) Ach.

A few lichens grow on smooth stones in cold running water. One species was found in King Creek below the Falls on the trail to Sifford Lakes:

Dermatocarpon miniatum (L.) Mann

Tuffa outcroppings and rocks are found in the woods between Manzanita Lake and Loomis Peak. On some of these the following species were found.

Lecanora cinerea Roehl.
Lecanora gibbosa (Ach.) Nyl.
Lecanora polytropa (Ehrh.) Rab.
Lecanora rubina (Vill.) Ach.
Lecidea atro-brunnea (Ram.) Schaerer
Lecidea fusco-atra (L.) Ach.
Lecidea plana (Lehm.) Nyl.
Rhizocarpon atro-brunnea (L.) DC.
Rhizocarpon geographicum (L.) DC.

Several foliose and fruticose species of lichens were found on the branches of Abies concolor in a grove along the highway in the Nobles' Immigrant Pass area:

Alectoria fremontii Tuck.
Alectoria jubata (L.) Ach.
Alectoria oregona Tuck.
Letharia vulpina (L.) Vainio
Nephromopsis platyphylla (Tuck.) Herre
Parmelia olivacea (L.) Ach.
Parmelia vittata (Ach.) Roehl. (material atypical

These 25 species of lichens are probably a fraction of the species which occur in the Park. Species which occur on bark of trees and shrubs have been looked for casually and found in abundance only in one area. However, an exhaustive search of the Park for the species which may occur

there must await time and opportunity. The same may be said for rock surfaces and soil areas. Where surfaces have been exposed for a long time without volcanic activity involvement, one may expect to find a number of species in addition to those listed above.

Lichens are thought by many to be important pioneers of bare rock surfaces. In many places they are the only organisms which appear to be present on bare rocks where they must withstand the intense heat of the sun and the great amounts of cold which come with winter's ice and snow. They are able to cling to the rocks because they secrete acids which eat away the rock surfaces giving tiny filaments of fungus tissue a chance to take hold and cling tightly. As more lichen material develops some dies, sand and soil-like material forms, and in such a pocket mosses and some seeds can catch hold and germinate. In this way a small plant community can start to develop.

For identification of the lichens listed above I am indebted to the late A. W. Herre. Those parts of collections which he retained are now in the Los Angeles County Museum Herbarium. My portions are in the Herbarium, Botany Dept., Miami University, Oxford, Ohio.

GAZETEER

Field Number	No. of Colls.	Date	Location
16671	1	07-03-42	South Entrance
25559-25565	7	08-22-49	Summit Trail
26603-26631	28	07-01-50	Winter Sports Area
26632-26641	10	07-01-50	South Entrance Area
26642-26652	11	07-01-50	Above King Creek Meadows
26653-26662	10	07-01-50	Between King Creek Meadows and Summit Lake
26663-26664	2	07-01-50	Between King Creek Meadows and Summit Lake
26665	1	07-01-50	Devastated Area
26666-26669	4	07-01-50	Manzanita Lake
26793	1	07-01-50	Along Hat Creek, SR-89
29513-29515	3	07-01-54	Summit
29516-29520	5	07-01-54	Summit Trail near top
29521-29530	10	07-01-50	Summit Trail near timberline
29531-29589	59	07-02-54	Trail to King Creek Falls
29590-29599	10	07-03-54	Bumpass Hell and Sulphur Works
30002-30012	11	07-30-55	Cold Boiling Lake to Summit
30013-30017	5	07-30-55	Cold Boiling Lake area
30018-30023	6	07-30-55	Emigrant Pass area
30024	1	07-30-55	Manzanita Lake Campfire area
30025-30028	4	07-30-55	Emigrant Pass area
30391-30412	22	07-22-56	Paradise Meadow to Hat Lake area
30413-30421	9	07-22-56	King Creek Falls Trail
30900	1	08-17-57	Lassen Volcanic National Park
30901-30908	8	08-17-57	Loomis Peak Trail
30909-30921	13	08-18-57	Brokeoff Mountain Trail
30922-30950	28	08-17-57	Loomis Peak Trail
32556	1	07-12-61	Above King Creek Meadows
33423-33514	92	08-14-62	Brokeoff Mountain Trail
34049-34052	4	07-04-63	Above King Creek Meadows
34053-34098	46	07-04-63	Shasta View Trail, Sunflower Flats
34099-34108	10	07-05-63	Manzanita Creek, Headquarters area
34109-34115	7	07-05-63	Manzanita Lake Trail
34116-34131	16	07-05-63	Summit Lake-Echo Lake Trail
34132-34153	22	07-06-63	King Creek Meadows
34154-34155	2	07-06-63	Summit Trail
34156	1	07-07-63	Manzanita Lake area
34157-34168	12	07-07-63	Lily Pond Trail
34169-34215	47	07-07-63	Hat Creek Area
34907-34952	46	07-02-65	Sunflower Flats
34953-34993	41	07-03-65	Summit Lake Area
34994-35037	44	07-04-65	Brokeoff Mountain Trail
35038-35065	28	07-05-65	Lower Twin Lake - Butte Lake Trail
35066-35080	15	07-06-65	Reflection Lake Area
37067-37078	12	07-09-66	Trail to Devils Kitchen
37079-37111	33	07-09-66	Trail to Boiling Springs Lake
37112-37121	10	07-10-66	Warner Creek Campground Area
37122-37124	3	07-10-66	Above King Creek Meadows
37125-37131	7	07-11-66	Aspen Grove Above Hat Lake
37132-37140	9	07-11-66	Paradise Meadows to Hat Lake Trail

Field Number	No. of Colls.	Date	Location
37141-37164	24	07-11-66	Shadow Lake Trail
37165-37183	19	07-12-66	Bumpass Hell to Cold Boiling Lake Trail
37184-37209	26	07-14-66	Trail to King Creek Falls
38678-38691	14	08-10-67	Sunflower Flats
38692-38722	31	08-11-67	Terrace-Paradise-Hat Lakes Trail
38723-38739	17	08-12-67	Brokeoff Mountain Trail
38740-38743	4	08-13-67	Manzanita Creek Trail
38744	1	08-13-67	Manzanita Lake Ranger Station
38745	1	08-13-67	Old Manzanita Lake Campground
38746-38748	3	08-14-67	New Manzanita Lake Campground Area
38749	1	08-13-67	Lassen Volcanic National Park
39239	1	07-02-68	Mineral, Matteson's Place
39296-39318	23	07-08-68	Sunflower Flats
39319-39333	15	07-10-68	Terrace-Summit Lake Trail
39334-39338	5	07-10-68	Summit Lake Ranger Station
39337-39373	35	07-11-68	King Creek Meadows Area
39374	1	07-11-68	Manzanita Lake Campground
39375	1	07-11-68	Visitor Center (Manzanita Lake)
39376-39389	14	07-13-68	Manzanita Lake Trail
39390	1	07-13-68	Manzanita Lake Area
39391-39399	9	07-13-68	Reflection Lake, Lily Pond Trail
41257-41275	19	08-18-69	Juniper Lake
41276-41277	2	08-18-69	Road to Juniper Lake
41278-41279	2	08-19-69	Mineral, Bodine Place
42743-42747	5	07-25-70	Summit Lake Ranger Station
42748-42772	25	07-26-70	Manzanita Creek Trail
42773-42797	25	07-27-70	Mt. Harkness Trail
42798	1	07-27-70	Mineral, Bodine Place
42799-42831	33	07-28-70	Eagle Peak Area
42832-42843	12	07-28-70	King Creek Picnic Area
42844-42875	32	07-29-70	Brokeoff Mountain Trail
42876-42922	47	07-30-70	Terrace-Paradise-Hat Lakes Trail
42923-42933	11	07-30-70	Paradise Meadows Aspen Grove
42034-42941	8	07-30-70	Manzanita Lake Area
45482	1	07-08-72	Manzanita Lake
45483-45485	3	07-09-72	Emigrant Pass Area
45486-45518	33	07-09-72	Terrace-Paradise-Hat Lakes Trail
45519-45557	39	07-10-72	King Creek Meadows - Mt. Conard
45558-45580	23	07-11-72	King Creek - Sifford Lakes - Devil's Kitchen - Drakesbad
45581-45610	30	07-12-72	Brokeoff Mountain Trail
45611-45618	8	07-13-72	Manzanita Creek Trail to Crescent Cliffs
49279	1	08-25-74	Mineral, Matteson Place
49280-49290	11	08-25-74	Manzanita Lake Area
49305-49319	15	08-26-74	Immigrant Pass Area
49320-49354	35	08-27-74	King Creek Meadows
49355	1	08-27-74	Mineral, Bodine Place
49356-49395	40	08-28-74	Mineral, Battle Creek Meadows Ranch
49396-49450	55	08-29-74	Terrace-Paradise-Hat Lakes Trail
50477	1	09-02-75	Mineral, Bodine Place
50518	1	09-05-75	Hat Creek Campground, LNF

Field Number	No. of Colls.	Date	Location
50519	1	09-06-75	Pipeline Road above Guernsey Creek, LNF
50520-50532	13	09-06-75	Mineral Fire Station, LNF
50533-50551	19	09-06-75	Mineral, Mrs. Adams' Place
50552-50556	5	09-06-75	Mineral Home Owners' Water Supply Spring
50557-50559	3	09-06-75	Mineral (Lot 81 [Muriel's mother's place])
50560-50568A	10	09-06-75	Mineral, Battle Creek Meadows Ranch
50569-50609	41	09-07-75	Brokeoff Mountain Trail
50610	1	09-07-75	Mineral, Rutledge Place (LAVO Hq area)
50612	1	09-08-75	Pump Station, Battle Creek Campground, LNF
50613-50615	3	09-08-75	Mineral, Lot 81
50616-50664	49	09-08-75	Summit Lake Area
50665-50668	4	09-09-75	Mineral, E. L. Hazard Place
50669-50672	4	09-09-75	Mineral, Bruner Place
50673	1	09-09-75	Mineral, Matteson Place
50674	1	09-09-75	Near Pole Bridge, Warner Valley, LNF
50675-50707	33	09-09-75	Warner Valley and Trail to Devil's Kitchen
50708-50724	17	09-10-75	Hot Rock Aspen Grove
50725	1	09-10-75	Below Sunflower Flat
50726-50727	2	09-10-75	Near Old Station
50728-50729	2	09-10-75	Big Juniper, LNF
50730-50731	2	09-10-75	Mineral, Rankin Place
50732-50770	39	09-10-75	Butte Lake Area
50771-50807	37	09-11-75	Bumpass Hell - Cold Boiling Lake Trail
50808-50810	3	09-11-75	Mineral, Lot 81
50811-50812	2	09-11-75	Mineral, Rankin Place
50813	1	09-11-75	Mineral, Rankin Place
50814-50816	3	09-12-75	Mineral, Mrs. Adams' Place
52756	1	09-30-76	Mineral, Cabin 17, LAVO Headquarters Area
52757	1	09-30-76	SR-36, Battle Creek Canyon
52758-52759	2	10-01-76	Mineral, Cabin 17, LAVO Headquarters Area
52760-52897	138	10-01-76	Mineral Fire Guard Station area, LNF
52898-52906	9	10-02-76	Mineral, LAVO Headquarters area
52907-52909	3	10-01-76	Mineral, Adams and Bruner Places by Les Bodine
52910-52912	3	10-03-76	Mineral, Lot 81
52913-52977	65	10-03-76	Creek above Cabin 17, LAVO hq area
52978	1	10-03-76	Mineral, LAVO hq area
52979-53043	65	10-04-76	Mineral, North side Battle Creek Meadows Ranch
53044-53049	6	10-05-76	Old Childs Meadow dump, Tehama Col.
53050-53069	20	10-05-76	Juniper Lake Campground area
53070-53075	6	10-05-76	East Shore Juniper Lake
53076-53084	9	10-05-76	North Shore Juniper Lake
53085-53129	45	10-05-76	North Shore Juniper Lake
53130-53155	26	10-06-76	Near Hot Rock
53156-53175	20	10-06-76	Manzanita Lake Trail
53176-53188	13	10-06-76	Noble's Immigrant Pass area
53189	1	10-07-76	Mineral, Bodine Place
53190	1	10-07-76	Summit Highway 1 mi. w. of Hot Rock
53191-53220	30	10-07-76	Butte Lake area
53221-53232	12	10-07-76	Big Juniper area, LNF
53233	1	10-07-76	Mineral, near Bodine Place
53234	1	10-07-76	1 mi. e. of Old Station, LNF

Field Number	No. of Colls.	Date	Location
53235-53239	5	10-08-76	Woods behind Drakesbad
53240-53254	15	10-08-76	Drakesbad Meadow
53255-53277	23	10-08-76	Upper Warner Valley Campground
53278	1	10-08-76	Drakesbad Meadow
53279-53353	75	10-08-76	Devil's Kitchen Trail
53354-53356	3	10-08-76	Devil's Kitchen area
53357-53385	29	10-09-76	Mineral, Battle Creek Meadows Ranch area
53386-53397	12	10-09-76	Mineral, BCMR, Starkweather's yard
53398	1	10-09-76	Mineral, LAVO hq. lawn
53399	1	10-10-76	Mineral, LAVO hq. lawn
53400-53406	7	10-10-76	LAVO Hq. area, Anderson's lawn
53407-53408	2	10-10-76	Peak Highway, Dersch Meadows
53409-53452	44	10-10-76	Paradise Meadows to Peak Highway Trail
53453-53480	28	10-10-76	Terrace-Paradise-Hat Lakes Trail
53481-53551	71	10-11-76	Lower part of Brokeoff Mountain Trail
53552-53555	4	10-11-76	Mineral Home Owners' water supply spring
53556-53557	2	10-11-76	Mineral Home Owners' area
53558-53559	2	10-11-76	Mineral, Bruner Place
53560	1	10-12-76	Mineral, Bodine Place
53571-53573	3	10-12-76	Mineral, BCMR Woods
53574	1	10-13-76	Mineral, lawn near Bodine Place
53575	1	10-13-76	Mineral, Bodine Place
53576	1	10-13-76	Old Station, Hat Creek Campground, LNF
54135-54141	7	10-25-76	Mineral, Bruner Place
54142-54143	2	10-25-76	Mineral, near Bodine Place
54144	1	10-25-76	Mineral, Bodine Place
54145-54149	5	10-26-76	Mineral, Lot 81
54150-54160	11	10-26-76	Mineral, along SR-36
54161-54195	35	10-27-76	Summit Lake area
54196-54202	7	10-27-76	Mineral, Lot 81
54203	1	10-27-76	Mineral store
54204-54263	60	10-28-76	King Creek Falls Trail
54264-54267	4	10-29-76	Mineral, Bodine Place
54268-54324	45	10-29-76	Bumpass Hell - Cold Boiling Lake - Crumbaugh Lake Trail
54325-54347	23	10-30-76	Mineral Home Owners' Water Supply Spring area
54348-54367	19	10-30-76	Mineral, BCMR Forest
54368-54399	32	10-30-76	Mineral, Bruner & Adams Places
54400	1	10-30-76	Mineral, Bodine Place
54401-54481	81	10-31-76	Mineral, BCMR Bog area
54482	1	11-02-76	Mineral, Warren Place
54483	1	11-02-76	Mineral, Bodine Place
54484	1	11-02-76	Mineral, Lot 81
54908-54921	14	09-27-77	Mineral, Lot 81
54922	1	09-27-77	Mineral, School
54923	1	09-27-77	Mineral, Lot 81
54924-54954	31	09-28-77	Butte Lake area
54955-54957	3	09-28-77	Summit Lake area, SR-44, LNF
54958	1	09-30-77	Mineral, Lot 81
54959-54960	2	09-30-77	Sulphur Works

Field Number	No. of Colls.	Date	Location
54961-54965	5	09-30-77	1962 Blowdown area
54966-54974	9	09-30-77	Summit Lake area
54975-54977	3	09-30-77	Old Childs Meadow dump, SR-36
54978-54993	16	09-30-77	Mineral, Bauer's Place
54994-55013	20	10-01-77	Boiling Lake Trail
54014-55034	21	10-01-77	Devil's Kitchen Trail
55035-55037	3	10-02-77	Mineral, Lot 81
55038-55040	3	10-02-77	Mineral, Matteson Place
55041-55047	7	10-02-77	Mineral, Gurney Place
55048-55054	7	10-02-77	Mineral, Lot 81
55055-55058	4	10-02-77	Mineral, Alexander Place
55059-55064	6	10-02-77	Mineral Fire Guard Station, LNF
55065-55072	8	10-02-77	Mineral, Bruner Place
55073-55078	6	10-02-77	Mineral, Guy Anderson's Place
55079-55097	19	10-02-77	Mineral Fire Guard Station, LNF
55098-55111	14	10-02-77	Mineral, Bodine Place
55112-55134	23	10-02-77	Mineral, Mrs. Adam's Place
55135-55140	6	10-03-77	Mineral, Lot 81
55141-55152	12	10-03-77	Mineral Fire Guard Station, LNF
55153-55162	10	10-03-77	Mineral, BCMR area
55163-55189	27	10-03-77	Mineral, Bruner's Place
55190-55211	22	10-03-77	Mineral, Mrs. Adams' Place
55212-55215	4	10-04-77	Mineral, Lot 81
55216	1	10-04-77	Mineral, Rankin Place
55217-55233	17	10-04-77	Mineral, Bruner and Adams Place
59019-59065	47	07-28-80	Terrace-Paradise-Hat Lakes Trail
59066-59067	2	07-28-80	Small lake along Peak Highway
59068-59069	2	07-28-80	Mineral Fire Guard Station, LNF
59070-59071	2	07-28-80	Mineral, Bruner Place
59072-59103	32	07-29-80	King Creek - Cold Boiling Lake Trail
59104-59107	4	07-29-80	7000' Marker, Peak Highway
59108	1	07-29-80	Mineral
59109-59114	6	07-30-80	Mineral, Bodine Place
60597-60598	2	10-05-81	Mineral, near Bodine Place
60599-60604	6	10-05-81	Marsh in LAVO Hq. area, Mineral
60605-60679	75	10-06-81	Mineral, Bruner Place
60680-60681	2	10-06-81	Mineral, Bodine Place
60682	1	10-07-81	Mineral, Orr Place
60683	1	10-07-81	Mineral, NPS-Residence C-260
60684-60757	74	10-07-81	Mineral, Mrs. Adam's Place
60758-60761	4	10-08-81	Mineral, LAVO Hq. area
60762-60781	20	10-08-81	Mineral, BCMR Woods near Starkweather House
60782	1	10-08-81	Mineral Home Owner's Water Supply Spring
60783-60784	2	10-09-81	Mineral area
60785-60791	7	10-09-81	Mineral, BCMR East of Mill Creek Road
60792-60798	7	10-09-81	Mineral, Mrs. Adams' Place
60799-60838	40	10-09-81	Mineral, Bruner Place
60839	1	10-13-81	Greyhound Station, Red Bluff, Tehama Co.

LITERATURE CITED

Anon. 1981. General Management Plan, Lassen Volcanic National Park. 71 pp.

Ainsworth, G.C. 1973. Introduction and Keys to Higher Taxa. In: The Fungi, An Advanced Treatise. Ed. G.C. Ainsworth, F.K. Sparrow and A.S. Sussman, Academic Press, New York, Vol. IV A & B, pp. 1-7.

Ainsworth, G.C. 1973. A Taxonomic Review with Keys: Ascomycetes and Fungi Imperfecti. In: The Fungi, An Advanced Treatise. Ed. G.C. Ainsworth, F.K. Sparrow and A.S. Sussman, Academic Press, New York, Vol. IV A & B, pp. 621.

Ainsworth, G.C. 1973. A Taxonomic Review with Keys: Basidiomycetes and Lower Fungi. In: The Fungi, An Advanced Treatise. Ed. G.C. Ainsworth, F.K. Sparrow and A.S. Sussman, Academic Press, New York, Vol. IV A & B, pp. 504.

Barr, M.E. 1982. Leptosphaeria sepalorum. Mycotaxon. 15:345-348.

Baxter, D.V. 1952. Pathology in Forest Practice. Ed. 2. John Wiley and Sons, New York.

Becking, J.H. 1970. Plant-endophyte symbiosis in non-leguminous plants. Plant and Soil 32:611-654.

Boyce, J.S. 1938. Forest Pathology. McGraw-Hill, New York.

Cooke, W.B. 1955. Subalpine fungi and snowbanks. Ecology 36:124-130.

Harmsen, L. 1954. De danske Merulius-arter. Bot. Tidsskr. 50:146-162.

Hedgcock, G.C. 1914. Notes on some diseases in our National Forests IV. Phytopathology 4:181-188.

Kimbrough, J.W. 1966. Studies in the Pseudoascoboleae. Can. J. Bot. 44:685-704.

Kreisel, H. 1967. Taxonomische-Pflanzengeographische Monographie der Gattung Bovista. Beihefte zur Nova Hedwigia 25:1-244, 70 fig.

Lincoff, G.H. 1981. The Audobon Society Field Guide to North American Mushrooms. A Chanticleer Press Edition, A Borzoi Book, Alfred A. Knopf, Inc., New York. 926 pp., 736 color figs.

Martin, G.W., and C.J. Alexopoulos. 1969. The Myxomycetes. The University of Iowa Press, Iowa City. Pp. 477, 40 plates.

McKenny, M., and D.E. Stuntz. 1971. The Savory Wild Mushroom. University of Washington Press, Seattle. Pp. 242, 32 color plates, 156 black and white figs.

Miller, O.K., Jr. 1972. Mushrooms of North America. Chanticleer Press, The E.P. Dutton Co., Inc., New York. Pp. 360, 294 color figs.

Mix, A.J. 1947. Some new species of Taphrina. Trans. Kansas Acad. Sci. 50:77-83.

Smith, A.H. 1975. A Field Guide to Western Mushrooms. University of Michigan Press, Ann Arbor. 280 pp., 201 color figures.

Smith, A.H., and N.S. Weber. 1980. The Mushroom Hunter's Field Guide, 3rd. Ed., University of Michigan Press, Ann Arbor, pp. 316. 282 color figs.

Thiers, H.D. 1975. California Mushrooms, a Field Guide to the Boletes. Hafner Press, A Division of the Macmillan Publishing Company, New York. 261 pp., 54 color microfiche figs.

Trappe, J.M. 1964. Mycorrhizal hosts and distribution of Cenococcum graniforme. Lloydia 27:100-106.

ACKNOWLEDGEMENTS

At first we were encouraged by Park Naturalist Ernie Schulz, and, when he moved on, by his successors Nelson, Richardson, Warren, and others, and finally, Vance. In the early 1960's shortly after the stone house at Manzanita Lake had been converted from a souvenir shop to a ranger station and naturalists' office, we got acquainted with Park Ranger Lester D. Bodine. Les became intensely interested in our work with the fungi of the Park and arranged trips for us. We would be picked up by a patrol car and taken to a trail head. After a walk of several miles we would be picked up by another patrol car. We would be returned to Manzanita Lake where the specimens would be dried on a drying rack set up in the already crowded naturalists' office, or in the theater in the Loomis Museum where work would be interrupted periodically by the Park introduction film, or in the evening by a lecture or a movie for the Park personnel. One of the patrol rangers who picked us up on occasion was seasonal ranger Harold Stanley who, with his wife Mary Kay, and their daughter Paula, occupied one of the houses in "Summertown". Later they spent a season in the log cabin at Summit Lake, and in another year Harold lived in the Ranger Station at the entrance to the new campground at Manzanita Lake. In both cases we and our drying rack were house guests, although usually we camped in the car, which had facilities for making up a car bed, in the campground.

Many trips were made in company with Lester D. Bodine and individuals and groups invited by him to accompany us in our search for Lassen fungi, including Naturalist staff personnel and other park personnel. Collections made by others are listed when they have come to my attention through herbarium specimens or isolated literature references.

Specialists who have aided in the identification of certain collections include: Drs. Margaret and Howard Bigelow, University of Massachusetts; the late Dr. Lee Bonar, University of California, Berkeley; Dr. H.H. Burdsail, Jr., Forest Pathology Laboratory, Madison, Wisconsin; Dr. G.B. Cummins, Dept. of Plant Pathology, University of Arizona, Tucson; Dr. V. Demoulin, Liege, Belgium; Mr. M.B. Ellis, Commonwealth Mycological Institute, Kew, England; Dr. J.H. Ginns, Jr., Biosystematics Research Institute, Ottawa; Dr. J.H. Haines, New York State Museum, Albany; Dr. L. Harmsen, Copenhagen, Denmark; Dr. K.A. Harrison, University of Michigan, Ann Arbor; Dr. L.L. Kennedy, University of Alberta, Edmonton; Dr. R.P. Korf, Dept. of Plant Pathology, Cornell University, Ithaca; Dr. D.T. Kowalski, Chico State University; Dr. M.J. Larsen, Forest Pathology Laboratory, Madison; Dr. A.E. Liberta, Illinois State University, Normal; Dr. J.L. Lowe, New York State College of Forestry, Syracuse; the late Dr. G.W. Martin, University of Iowa; Dr. R. Petersen, University of Tennessee, Knoxville; Dr. P. Ponce de Leon, Field Museum, Chicago; Dr. C.T. Rogerson, New York Botanical Garden; Dr. D.B.O. Savile, Biosystematics Research Institute, Ottawa; Dr. A.H. Smith, University of Michigan; Ann Arbor; Dr. H. Thiers, State University of San Francisco, Dr. J. Trappe, U.S. Forest Service Laboratories, Corvallis, Oregon; the late Dr. L.E. Wehmeyer, University of Michigan, Ann Arbor; Dr. A. L. Welden, Tulane University, New Orleans; and Dr. J.L. Crane, Illinois Natural History Survey, Urbana.

I thank C.W. Smith and C. van Riper III for their comments on the various drafts of this paper. C. Barnes, S. Lynch and S. Hillyer are to be thanked for the many hours they devoted to the final typing of this paper.

APPENDIX I

Lassen Volcanic National Park samples collected Aug. 18, 1957, plated 9-12-62.

Sources and Number of Species

Sample	Location	Habitat	Number of Species
12	Lake Helen	Water	5
13		Bottom sediment 10" in lake	5
14		Shore sediment (at water line)	6
15		Wet soil, 10' from shore	5
16		Dry soil, 100' from shore	3
17	Emerald Lake	Water	4
18		Bottom sediment in lake (10" out)	2
19		Shore sediment (at water line)	2
20		Shore sediment with iron oxide	6
21		Damp soil 10' from shore	2

Distribution of Species

Fungus Species	Sample Number									
	12	13	14	15	16	17	18	19	20	21
Aspergillus sydowii	*	*	*	*					*	
Aureobasidium pullulans									*	
Candida sp.						*				
Cladosporium cladosporioides	*									
Mucor spp.	*		*							
Penicillium spp.		*	*	*	*	*	*	*	*	*
Penicillium chrysogenum		*		*						
Penicillium janthinellum		*	*	*	*	*				
Phialophora sp.	*		*						*	
Phoma sp.									*	
Rhodotorula sp.	*					*			*	
Unidentified			*	*	*	*		*	*	*

Note: sp., and its plural spp., indicates that one or more species of the indicated category were present but not identified to species.

Note: In the case of these records only one sample was taken and processed from each of the 10 sites. Numbers of colonies recorded for each species would be meaningless since they would indicate only survivors of the technique used rather than numbers of viable spores originally present.

APPENDIX II

Lassen Volcanic National Park samples collected July 7, 1963, plated Aug. 1963

2-A. Sources and Numbers of Species and Colonies

	Sample Source (Habitats)	Number of Species	Number of Colonies per gm dry wt	pH
1	Visitor Center, garbage pail (for litter)	26	1000	5.5
2	Early Indian lecture bench	16	250	5.7
3	Lawn at Ranger's home	14	450	6.1
4	Campground, Chaparral, near table	18	565	5.6
5	near stove	20	550	6.5
6	tent area	18	750	6.3
7	Jeffrey pine, near table	17	1000	6.1
8	near stove	13	1250	7.4
9	tent area	16	750	7.3
10	Undisturbed area under pine and chaparral	14	650	7.0

2-B. Distribution of Species

Species	Habitats 1	2	3	4	5	6	7	8	9	10
Penicillium spp.	*	*	*	*	*	*	*	*	*	*
Unidentified yeasts	*	*	*	*	*	*	*	*	*	*
Unidentified molds	*	*	*	*	*	*	*	*	*	*
Trichodema viride	*	*	*	*	*	*	*	*	*	
Alternaria alternata	*	*	*	*	*			*	*	*
Cladosporium cladosporioides	*	*	*	*		*	*	*	*	*
Mucor spp.	*	*			*	*	*	*	*	*
Botryotrichum sp.	*	*			*	*		*		*
Penicillium nigricans	*			*	*	*	*			*
Epicoccum purpurascens	*	*							*	
Fusarium oxysporum	*			*	*			*		
Rhinocladiella mansonii	*	*		*			*			
Monodictys laevis	*				*	*				
Phoma spp.	*	*			*					
Mucor fragilis	*		*	*					*	
Gilmaniella humicola	*	*	*							
Curcularia geniculata	*		*							
Stemphylium sp.	*		*							
Aspergillus sydowii	*									
Candida pseudotropicalis	*									
Chaetomella sp.	*									
Cryptococcus diffluens	*									
Fusarium dimerum	*									
Penicillium canescens	*									

Species	Habitats									
	1	2	3	4	5	6	7	8	9	10
Penicillium waksmanii	*									
Ulocladium botrytis	*									
Rhodotorula spp.		*	*	*	*	*	*	*	*	*
Aureobasidium pullulans		*	*	*		*	*	*	*	*
Penicillium chrysogenum		*								
Pyrenochaeta terrestrias		*								
Aspergillus ochraceus			*			*				
Gliocladium fimbriatum			*							
Penicillium thomii				*	*	*	*		*	*
Rhizopus spp.				*	*	*	*			*
Curvularia lunata				*	*	*		*	*	
Paecilomyces varioti				*					*	
Humicola grisea				*						
Penicillium clavigerum				*						
Aspergillus niger					*	*	*		*	*
Penicillium lilacinum					*		*			
Aspergillus nidulans					*					
Gliocladium deliquescens					*					
Penicillium janthinellum					*					
Penicillium martensii					*					
Cephalosporium spp.						*		*		
Aspergillus flavus						*	*			
Penicillium crustosum						*				
Monilia sitophila							*			
Mortierella sp.									*	
Cladosorium sp.										*

Note: Valid conclusions cannot be drawn from one set of samples taken without duplication or replication.

LIST OF PUBLICATIONS OF CPSU/UCD TECHNICAL REPORTS

Technical Report No. 1 - - - June 1981

Ecology of the Black Bear in Sequoia National Park
Goldsmith, A., M. E. Walraven, D. Graber, and M. White

Technical Report No. 2 - - - September 1981 **NOT AVAILABLE**

Black Bear Behavior and Human-Bear Relationships in Yosemite National Park
Hastings, B. C., B. K. Gilbert, and D. L. Turner

Technical Report No. 3 - - - October 1981 **NOT AVAILABLE**

Historical Evaluation and Management Recommendations for Beavers at Lassen Volcanic National Park
Fellers, G. M.

Technical Report No. 4 - - - November 1981

Management Recommendations for the Removal of Introduced Perennials Along Franklin Creek, John Muir National Historic Site, Martinez, California
Davis, W. E.

Technical Report No. 5 - - - January 1982 **NOT AVAILABLE**

Ecology and Management of Black Bears in Yosemite National Park
Graber, D. M.

Technical Report No. 6 - - - January 1982

Winter Utilization and Food Habits of Pine Martens in Yosemite National Park
Hargis, C. D.

Technical Report No. 7 - - - April 1982 **NOT AVAILABLE**

Early Life History and Protection of the Tidewater Goby Eucyclogobius newberryi: (Girard) in the Rodeo Lagoon of the Golden Gate National Recreation Area
Wang, J. C. S.

Technical Report No. 8 - - - July 1982
Sensitive Plant Species of Sequoia and Kings Canyon National Parks
Norris, L. L. and D. A. Brennan

Technical Report No. 9 - - - November 1982

A Survey of Endangered Raptorial Birds in Lassen Volcanic National Park, California
Baldridge, F., P. Deitrich, and C. van Riper III

Technical Report No. 10 - - - March 1983

A Study to Assess Competition and Carrying Capacity Among the Ungulates of Point Reyes National Seashore
Elliott, H. W.

Technical Report No. 11 - - - May 1983

Investigation of Animal Hosts for Giardia spp. in California's Sierra Nevada Mountains
Suk, T. J.

Technical Report No. 12 - - - June 1983

Sierra Nevada Bighorn Sheep: History and Population Ecology
Wehausen, J. D.

Technical Report No. 13 - - - August 1983

Levels of Selected Micronutrients in Soils and Vegetation and Dietary Implications for Tule Elk at Point Reyes National Seashore
Akeson, M., L. D. Whittig, R. G. Burau, V. V. Rendig, and R. D. Meyer

Technical Report No. 14 - - - November 1983

The Ecology and Management of the Mineral King Deer Herd
Cornett, D. C., W. M. Longhurst, R. E. Hafenfeld, T. P. Hemker, and W. A. Williams

Technical Report No. 15 - - - February 1984 **NOT AVAILABLE**

On the Ecological Status of the Tidewater Goby, Eucyclogobius newberryi (Girard), in a Lagoon and Lake of the Golden Gate National Recreation Area, California
Wang, J. C. S.

Technical Report No. 16 - - - March 1984 **NOT AVAILABLE**

Management of an Endangered Species in a National Park: The Peregrine Falcon in Yosemite
Asay, C. E. and W. E. Davis

Technical Report No. 17 - - - March 1984

Update to Technical Report No. 8, Sensitive Plant Species of Sequoia and Kings Canyon National Parks
Norris, L. L.

Technical Report No. 18 - - - May 1985 **NOT AVAILABLE**

Plant Communities of the Tule Elk Range, Point Reyes National Seashore
Lathrop, K. T. and P. J. P. Gogan

Technical Report No. 19 _ _ _ May 1985

Kelp Forest Monitoring Program: A Preliminary Report on Biological Sampling Design
Davis, G. E.

Technical Report No. 20 - - - March 1985

Hydric Montane Meadows of Sequoia National Park, California: A Literature Review and Classification
Halpern, C. B.

BIANNUAL REPORTS

Biannual Report No. 1	November 1979	**NOT AVAILABLE**
Biannual Report No. 2	March 1980	
Biannual Report No. 3	September 1980	**NOT AVAILABLE**
Biannual Report No. 4	June 1981	
Biannual Report No. 5	December 1981	
Biannual Report No. 6	June 1982	
Biannual Report No. 7	December 1982	
Annual Report No. 8	December 1983	**NOT AVAILABLE**

Proceedings of the First Biennial Conference of Research in California's National Parks: University of California, Davis, California, September 9-10, 1982.

COOPERATIVE NATIONAL PARK RESOURCES STUDIES UNIT

University of California at Davis

Institute of Ecology

Davis, California 95616

Charles van Riper III — Unit Director

Christine Schonewald-Cox — Unit Coordinator/NPS

Peter J. Richerson — Unit Coordinator/UC

Technical Report No. 21
Fungi of Lassen Volcanic National Park

BY Wm. Bridge Cooke

November 1985

Final Report to National Park Service

Contribution Number CPSU/UCD 080/03

Lassen Volcanic National Park
Mineral, California 96063

LASSEN VOLCANIC NATIONAL PARK
Research Library