THE ELLEN TRUEBLOOD SYMPOSIUM

HIGHLIGHTING IDAHO'S RARE FUNGI AND LICHENS

SPONSORED BY THE IDAHO NATIVE PLANT SOCIETY
FEBRUARY 13, 1997

WITH ASSISTANCE FROM

DOI Bureau of Land Management, Idaho Power Company,
USDA Forest Service, Idaho Fish and Game Conservation Data Center

EDITORS

Roger Rosentreter
Bureau of Land Management, Idaho State Office

Ann DeBolt
Bureau of Land Management, Lower Snake River District

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Ellen Trueblood: A History of an Early Idaho Mycologist

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Ellen Trueblood was born on August 1, 1911, in Boise, Idaho, the daughter of Carl Cyrus Hinkson and Rosella Blunk Hinkson. She grew up in Boise, graduating from Cole Elementary School and Boise High School.

Ellen began work as a reporter for the Caldwell News-Tribune in 1929. During the next ten years, she also worked as society editor and special reporter for the Nampa Free Press, and as a reporter for the Boise Capital News.

While she was working for the Capital News, she met Ted Trueblood, an outdoor writer and reporter. Since Ellen was already an accomplished hunter, angler and photographer, it was a natural match. Ellen and Ted were given a wedding shower at the Dewey Palace Hotel in Nampa on July 5, 1939, and were married the next day at Cascade. A summer-long honeymoon in the Salmon River Primitive Area, which later became the Frank Church River of No Return Wilderness Area, was the foundation for a lifelong interest in the study, enjoyment and conservation of nature.

Ellen began studying fungi in the 1950s. With a few college classes and years of self-education, plus study under the nationally prominent mycologist, Dr. Alexander Smith, she became the leading authority on fungi of southern Idaho, eastern Oregon and northern Nevada.

Ellen also knew plants and took classes from Dr. Harold M. Tucker at the College of Idaho in the late 1960s. She made more than 6,500 collections over 30 years, including more than 30 new species that carry the scientific names *Hygrophorus ellenae* and *Leccinum trubloodii*, the latter being first collected by husband Ted on July 22, 1964 on Black Mountain.

Ellen and Ted were a great team. She photographed the mushrooms and he provided darkroom services. Family was an important part of her life and I am grateful to her son Jack for providing me with several of Ellen's papers and his personal recollections. One paper she wrote was about mushrooming in

the Owyhee Mountains with grandson John. The ecology and cycle of mushrooms are artfully woven into the story.

Ellen's collections are housed at the University of Michigan Herbarium in Ann Arbor, Albertson College of Idaho, and Virginia Polytechnic Institute in Blacksburg. She donated her extensive collection of fungi photographs and books to Boise State University, where she taught classes in mushroom identification in 1975. In one of her papers, dated December 1972, and titled "Fungi of Owyhee County," she writes of finding a *Calvatia booniana*, named in honor of the College of Idaho's founder, Dr. William Judson Boone. "It ranges in size from eight to 24 inches in diameter and from three to 12 inches high. One we found fresh after an all-night June rain weighed 11.5 pounds."

Ellen worked with numerous professionals and collected with Dr. Marcia Wicklow-Howard. She was good friends with Dr. Alexander Smith and his wife, Helen. Dr. Smith was the director of the University of Michigan herbarium. She apparently named *Calvatia packardae*, found near Dickshooter Creek, after Dr. Patricia L. Packard. Ellen always had her eyes open for a new species. She discovered *Calvatia impolita* behind a juniper while obeying the call of nature. The professional who confirmed the species was somewhat aghast, but recovered enough to accept the name of the species. Ellen was always honest in documenting her collections!

Her favorite mushroom and her specialty was the bird's nest mushrooms, the *Nidularia*.

Ellen joined the North American Mycological Association (NAMA) in 1960 and later served as the Western vice-president. She founded the Southern Idaho Mycological Association (SIMA) in 1975, while making a call from a phone booth. In 1982 she received the NAMA Award for "Contributions to Amateur Mycology" and in 1984 was honored by SIMA for "Years of Outstanding Contributions to the Mycology of Idaho." Her research was published in the United States and Europe.

Her knowledge of mushrooms was well-known and widely respected, even among non-mycologists. One day at 3 a.m., she received a call from a hospital. Six people had eaten poisonous mushrooms and they needed her help to identify the mushrooms so that the physicians would know what antidote to use. Ellen performed the analysis and found out the mushrooms were not only poisonous, but that they had decayed. It was a tough job, but she correctly identified the mushrooms, the proper medicine was given, and all of the

people survived.

Pat Packard and Ellen were best of friends and often spent holidays together. Ted gave Pat's brother-in-law, Claire Conley, his start with "Field and Stream" magazine.

Pat found a huge variety of a lupine, *Lupinus polyphyllus*, on the sand dunes south of Vale, Oregon, but could never catch it in bloom. Year after year, arriving earlier each time, she tried to get there for the bloom, but was always too late. Ellen went in April one year and made a wonderful collection, but the professionals still haven't determined exactly what the species is.

When a new species was confirmed, she enjoyed further study of it by photos and investigating stages of maturity, and determining the range of the species.

In the field, the road always gave out before she did. We botanists have a phrase that has been passed around and I now know who coined the term "the alleged road." It was Ellen. Pat described her as "a real bulldog," a useful trait for mycologists.

Of all the species she found, the one that intrigues me the most is the mushroom that grows only on cowpies in Owyhee County.

Ellen was dedicated, almost to a fault, to mycology. The following is an account from Pat Packard about a trip to the desert that took place on June 2, 1973.

Ted had driven the big old GMC as far as practical — not so very far in those days — up Dago Gulch. From there, we walked, climbed and scrambled up Mahogany Mountain's Blue Point Ridge. Ellen poked around with her podger basket (mushroom basket) while Ted and I inventoried the Owyhee County stand of yellow pine (four mature trees and 45 young stuff).

Halfway back to the rig we were crossing a bench covered with deep cheatgrass when Ellen stepped on a juniper branch that rolled with her. She stood up looking a bit white around the lips. Ted asked if she could walk and Ellen indicated she thought she could in a few minutes. He went after the rig and brought it up the stream bed and angled it around to point down stream. Ellen muttered something to the effect she thought her leg was broken, but she would just leave her boot on and did we think this was a good spot for lunch?

We had a leisurely lunch and meandered down the road, investigating promising podger sites; Ellen

did allow me to check out the ones on rough ground. About 4:00, we stopped opposite Three Finger, had beer and snacks and an in-depth discussion of salt blocks, grazing practices, crested wheatgrass, etc.

We got into Nampa a little after 6. Ellen said firmly — as firmly as Ellen ever said anything — that supper was in the fridge and we would have supper. We did, with Ellen doing the serving and me helpfully getting in the way. It was a little after 8:00 when the kitchen was cleaned up to her satisfaction — I did get to help with the dishes — and Ted took her to the hospital. They repaired the spiral skier's break in her leg and put on a heavy duty cast.

Ellen was a professional outdoors woman, and professionals are not distracted by trifles.

Ellen died May 17, 1994, in a Seattle care center after suffering from Alzheimer's disease and is greatly missed.

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The Roles of Fungi in the Forest

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Introduction

This paper is an introduction to the biology and ecology of fungi in forest ecosystems. Examples of their interactions with other organisms are given so that the reader will gain a greater appreciation of the importance of fungi. Also included is a short discussion of the utility of fungi to people. The primary objective is to answer several questions. What is special about fungi? What do fungi do in the forest? And why should we care?

Unique features of fungi

Fungi are characterized by their microscopic threadlike cells called hyphae, and by production of spores. A group of hyphae is called mycelium. Mycelium tends to be immersed in a substrate, such as soil, wood or living plant tissues, that is both the surrounding physical environment and source of nutrients for the fungus. Mycelium is usually concealed from view and often long-lived.

Most fungi produce sporocarps (mushrooms, truffles, etc.) that tend to be ephemeral, seasonal, and annually variable. In other words, mushrooms can only be found for a short time during the year, in particular seasons, depending on the species of fungus, and not necessarily every year. Nonetheless, rarely can we identify fungi without their sporocarps. These characteristics are very different than higher plants, or even lichens, which can often be found and identified through much of the year.

Ecology of fungi

In thinking about the ecology of fungi, it is important to consider several phases of life history. Various phases have different habitat requirements, occupy different physical locations, perform different functions, and experience different environmental conditions. For example, a portion of one mycelium may be in contact with root tissues, another portion inhabit the soil, and sporocarps be produced in yet another habitat, such as a rotting log. Studying the ecology and understanding the habitat needs of fungi is not a

simple task.

It is also hard to distinguish between individuals of a fungal species. Individual mycelia are concealed from view. Some individuals produce few sporocarps, others many, and sporocarps occurring close to each other may or may not be from the same mycelium. Conservation of any rare species requires an understanding of the dynamics of individuals and populations; we have much to learn if we are to apply these principles to fungi.

To many people, fungi conjure an image of decay and destruction. Although some fungi are pathogens and decomposers, they serve many other functions in the forest ecosystem. Fungi are part of a complex system that cycles matter and energy. Plants turn sunlight, water, nutrients and carbon dioxide into biomass; other organisms consume the plant tissues and cycle it back into CO_2 and nutrients. Fungi have important roles in the forest canopy and soil where plants exchange materials with the atmosphere and soil.

1) Roles of fungi in the canopy.

Fungi in the forest canopy perform several functions. Bacteria are the only organisms capable of fixing atmospheric nitrogen, and some canopy lichens host these nitrogen-fixing bacteria. It is estimated that 10% of the nitrogen input to old growth Douglas-fir stands comes from such lichens. Most long-lived plants have fungi within their leaves known as leaf endophytes. Leaf endophytes occupy the interior spaces of leaves, but are not inside plant cells, and are normally present in healthy plant tissues. These endophytes can produce antibiotics or other substances that make leaves unpalatable to insects. Endophytic fungi may also deter pathogenic fungi.

Some fungi grow over the surface of leaves or twigs as epiphytes. Epiphytic fungi may deter pathogens and leaf-grazing insects. Another role for these fungi is in canopy food webs, where they serve as food for various organisms, particularly small arthropods. There are many defoliating insects in the forest, their populations held in check by predatory insects. Old growth forests have many times more predatory insects than do plantations, probably because of the abundance of small arthropods that the predators feed upon. The link between primary production and these predatory insects may include leaf epiphytic fungi, which serve as food for micro arthropods.