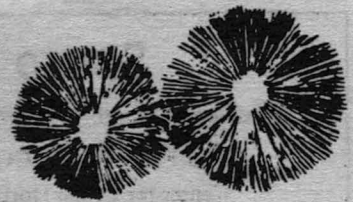


# SPORE PRINTS

BULLETIN OF THE PUGET SOUND MYCOLOGICAL SOCIETY  
Number 355 October 1999



## SPREAD OF DEATH CAPS IN AUSTRALIA

Rada Rouse

BRISBANE, Sept. 5 AAP - Death cap mushrooms (*Amanita phalloides*) have poisoned at least eight people, two fatally, in the last ten years in Australia, and there are concerns they may be spreading.

Seven patients were hospitalized in the Australian Capital Territory after eating the mushroom between 1988 and 1998, including a child. Out of three who developed severe liver problems, one died. A previous death has been recorded in Victoria. Three of the Canberra patients were Laotians who had mistaken the death caps for the edible paddy straw mushroom.

Toxicologist Prof. Le Couteur from the Canberra Clinical School of the University of Sydney said the community, and particularly doctors, should be aware of the potential toxicity of the death cap. "To an untrained eye it can look similar to another common mushroom found all over southeast Australia and it also looks a bit like a mushroom common in southeast Asia," he said.

Prof. Le Couteur said it was believed death caps were imported to Australia unwittingly in the 1920s when oak trees were brought in to beautify the new national capital. "Although *A. phalloides* is found primarily in association with oak trees, there is concern among mycologists and toxicologists that it may develop the ability to grow in association with other trees, particularly Australian natives, and thereby spread dramatically," Prof Le Couteur and colleagues said in an article in the *Medical Journal of Australia*.

In the United States *A. phalloides* have been spotted nestling under pine trees, in Africa they sprout under eucalyptus, and in Victoria they have been found under birches. A botanist has now found a death cap growing with a eucalyptus in Canberra, fuelling concern.

## MUSHROOM MISSIONARIES

Patrice Benson taught a mushroom class for the Women Chefs Association on Monday, September 13, at the Pike Place Market. She also gave two mushroom science classes at Washington Middle School on Thursday, September 23.

Ron Post gave a mushroom class at an elderhostel on the Olympic Peninsula on September 8.

## NEEDED: A FEW GOOD MUSHROOMS

Patrice Benson needs fresh edible wild mushrooms for the Cooking and Tasting demonstrations at the annual exhibit. The mushrooms do not need to be cleaned. They can be dropped off at mushroom receiving (label them "for cooking") or they can be brought to the cooking demonstration area Saturday or Sunday. Patrice promises the chefs will make something delicious for you to taste. Dried mushrooms are also welcome. If you have any questions, call Patrice at (206) 722-0691.

## MUSHROOM IDENTIFICATION CLASSES

Lisa Bellefond

Come learn the art, science, and joy of mushroom identification. Classes will be offered in October and November that will cater to various interest and skill levels. The classes will cost \$30.

The Beginner ID Class will familiarize students with the macroscopic features of fungi, the use of dichotomous keys, and proper collection skills. The class will meet October 19, 26, 28 and November 2 and 4. The text will be *Mushrooms Demystified* by David Aurora. The book will be available for purchase at the first class.

An Intermediate Level ID Class will focus on using dichotomous keys and an in-depth study of four fungi families. The class will meet on Wednesdays on October 20, 27 and November 3, 10, and 17. The text will be *Mushrooms Demystified* by David Aurora. The book will be available for purchase at the first class.

A microscopy workshop, taught by Judy Roger, will be offered on the mornings of November 13 and 14. The first morning will focus on the preparation of slides and proper microscope handling. On the second morning, students will practice their new skills.

To register, please submit a check made out to the PSMS, a note indicating which class you will be attending, AND a stamped, self-addressed envelope. These three items should be sent to

Lisa Bellefond  
8546 20th Avenue NW  
Seattle, WA 98117

For additional information, call Lisa at (206) 782-1377.

## LAKE QUINULT FALL FORAY

Set aside the weekend of October 23-24 now for the PSMS Fall Foray, which will again be held at Kamp Kiwanis on the shores of Lake Quinault. Foray activities include mushroom collecting, identification, slide presentations, nature walks, and good food. There are sure to be a mushroom tasting and some social activities as well.

Kamp Kiwanis is on the beach at Lake Quinault in the heart of the Olympic Mountains at the edge of Olympic National Park. The accommodations are rustic, but there are hot water and showers, heated cabins (bare bunks, eight persons per cabin), and a lodge with excellent cooking and dining facilities. Bring a sleeping bag, pad, toothbrush, pictures of the family, whatever will make it feel like home. Ear plugs, wine, and after dinner board games are optional.

The cost is a mere \$40 per person and includes programs, two nights accommodation, and two breakfasts, a lunch, and a dinner (Saturday dinner is potluck). Three RV spots are available at the same low, low price. Last year, places went quickly, so reserve your spot now by calling John Floberg or Lisa Bellefond at (206) 782-1377. Registrations will also accepted at the October membership meeting.



# Spore Prints

is published monthly, September through June by the

## PUGET SOUND MYCOLOGICAL SOCIETY

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Shoreline, WA 98155

Annual dues \$20; full-time students \$15

## CALENDAR

Oct. 9	Annual Exhibit, 12:00–8:00 PM, CUH
Oct. 10	Annual Exhibit, 10:00 AM–6:00 PM, CUH
Oct. 12	Membership Meeting, 7:30 PM, CUH
Oct. 16–17	The Mountaineers/PSMS field trip
Oct. 18	Board meeting, 7:30 PM, CUH
Oct. 19	Beginning ID class
Oct. 20	Intermediate ID class
Oct. 22	<i>Spore Prints</i> deadline
Oct. 23–24	Fall Foray, Lake Quinault
Oct. 26	Beginning ID class
Oct. 27	Intermediate ID class
Oct. 28	Beginning ID class
Nov. 2	Beginning ID class
Nov. 3	Intermediate ID class
Nov. 4	Beginning ID class

## BOARD NEWS

Agnes Sieger

Jerry Wire has resigned. Jim Berstein will replace him on the board. Education Chair Lisa Bellefond has scheduled three sets of classes this fall—beginning ID, intermediate ID, and microscopy—and may schedule a lichen class this winter. Colin Meyer would like to add a search engine to the PSMS website, and perhaps a mailing list. Patrice Benson volunteered to help Colin give the site a facelift. Colin and Brian Luther have been editing the database of mushroom labels. We still need a volunteer to chair ticket sales for the annual exhibit. Patrice Benson reminded people to bring dried mushrooms for the cooking demo. A motion was carried to grant life memberships to all charter members.

## MEMBERSHIP MEETING

Tuesday, October 12, at 7:30 PM at the Center for Urban Horticulture, 3501 NE 41st Street, Seattle

This month Taylor Lockwood, world traveler and mushroom “portrait photographer,” will present his famous multimedia slide show “Treasures From The Kingdom of Fungi.”



Although he calls Monterey, California, home, Taylor spends much of his time travelling the globe, photographing fungi and presenting his slide show to audiences from Siberia to Australia and many points in between.

The show keeps changing, as Taylor incorporates new and even more thrilling photographs. If you’ve seen it before, you won’t want to miss the chance to wonder anew at the beauty and variety of mushrooms and other fungi. If you haven’t seen it yet, you’re in for a treat.

Would persons with last names beginning with the letter N–T please bring refreshments for the social hour?

## ENVIRONMENTALLY ACTIVE?

DV Corey

Today’s world is increasingly crowded with humans, while diminishing in other species of animals, plants, and fungi. Human-rendered land increases, while natural habitats decrease. Suburban sprawl and commuter development continue to spread their outstretched tentacles from Seattletopolis along the I-5 and I-90 corridors, while our lumber companies continue to practice visually repulsive and ecosystem devastating harvesting techniques. All this has led to more and more reports from our members of seeing the demise of favorite mushroom hunting areas full of fond memories and abundant harvests, some going back years, others going back decades. This, as so many other things, brings to our attention the worldwide war being waged against Nature and raises in my mind the question of what I am doing as an individual and as a member of various groups in this war.

We are collectively and individually faced with the need for formulating an environmental ethic, a model or guideline by which we conduct our business, our consumption, our entertainment, our lifestyles. To my knowledge, PSMS has never adopted a statement of resolution or commitment in this area, nor have we made it a particular focus in our education or our interaction with other organizations. I suggest here that we rethink our position or lack of one as an organization, and consider how we might become more outspoken and effective advocates for our forests, our public lands, and the wildlife, native plants, and fungi that they contain. I realize that a manifesto, if you will, faces opposing dangers, either of being so timid as to be ethical pabulum or being so outspoken as to alienate large numbers of our diverse society. My suggestion is to seek a middle ground, the aim not to be a statement that rests quietly in the secretary’s minutes or impotently in the back pages of the roster, but rather a statement that is a fermentation for ideas, discussion, practices, education, and projects that will help move us all toward a more active advocacy for the Washington State environment in general and mushroom habitat protection specifically.

The following is an off-the-cuff list of ideas to give you a more concrete notion of things we might pursue.



1. PSMS members who become aware of timely issues coming up for hearings, comment, or vote could make the rest of us aware through an announcement at the membership meetings.

2. The PSMS website might make a page specifically oriented toward this area, with a person or committee who would seek out reports, studies, events, votes, etc., of interest to be uploaded.

3. *Spore Prints* could occasionally run articles from other publications or societies that deal specifically with how other groups are approaching this issue.

4. We might set aside one "field trip" a year to participate as a group in a project like trail building, a clean-up, or some other service activity.

5. An exhibit could be developed for the Mushroom Show that teaches about mycorrhizal association and habitat preservation.

6. The Board could adopt a resolution or a By Laws addition that more specifically addresses a proactive emphasis in habitat study and preservation as one of our *raison d'être*.

I encourage all of us while out mushrooming this fall to think about ways our society can become more involved in protecting Washington forest habitats that are still healthy and rebuilding areas that have been degraded, to discuss these with your companions, and to talk to or write some of your ideas to the PSMS Board, the website, or the *Spore Prints* editor.

#### SQUIRE CREEK FIELD TRIP REPORT Brian Luther

With the magnificent Whitehorse Mountain looming right next door with its glacial cap, the setting couldn't have been better for our first fall field trip near Darrington on the Mountain Loop Hwy. Even with very dry conditions, a number of different species were brought in for ID. Thanks to Doug and Theresa Ward for hosting and for bringing their two cute dogs, Bette and Taco, who entertained my daughter, Arnica, all day, since there were no other kids at the field trip. Ron Post took a group of beginners out for a few hours and clearly got more exercise than mushrooms, but they all seemed to have fun. Thanks to Lynn Catlin, Doug Ward, and Ron Post for helping with identification. Interesting species found included both *Hypomyces lactifluorum* and *H. luteovirens* (both superficial and colorful parasites of *Russula*), *Cortinarius camphoratus*, and *Agrocybe erebia*, which was abundant in a patch of grass near the shelter. Only a few small chanterelle buttons were found, and not enough people were interested in staying for a potluck to make it worthwhile or gastronomically satisfying, but it was still great to get out in the woods for the day.

#### DANCES WITH CHANTERELLES RSW *Fungifama*, So. Vancouver Is. Myco. Soc., May 1998

Chanterelle aficionados take note. Last fall, while you were out collecting them, someone else was reorganizing them. Scott Redhead, Lorelei Norvell, and Eric Danell have written an interesting article for *Mycotaxon* (Vol. LXV, pp. 285-322) entitled "*Cantharellus formosus* and the pacific golden chanterelle harvest in Western North America." There are many interesting details in this article, but the one that everyone should be aware of (update your field guides!) is the revised taxonomy for species in the Pacific Northwest. You should consult the article for full details, but an abbreviated version of the field key appearing in the article follows.

#### *Cantharellus* subgenus *Cantharellus* in BC:

1. Fruiting body whitish (pallid, ivory, or buff), slowly staining yellowish where touched ..... *C. subalbidus*
1. Fruiting bodies distinctly colored shades of yellow or orange .....
2. Cuticle giving slightly grayish tinge to yellow-orange or orange-yellow cap, cap edge sometimes pinkish to nearly white, hymenium normally a paler orangish to orangish-yellow with a pinkish tinge, all portions staining yellow and later ochre, associated with hemlock, pines, possibly other conifers ....  
..... *C. formosus*
2. Cap bright orange-yellow, covered by thin pinkish or yellowish-pink hoary coating, without scales or gray tinges, hymenium rich orangish-yellow, usually without pinkish tones, as yellow as cap or more intense, stipe light to dark orangish, not staining yellow or ochre, associated with coastal spruce, and possibly hemlock or other conifers .....  
..... *C. cibarius* var. *roseocanus*

#### OLD BOOKS FOR SALE

Ron Meyers

Kaw Valley Mycological Society

The Kaw Valley Mycological Society has been donated some old mushroom books, which are for sale to interested buyers.

McIlvaine's *One Thousand American Fungi*, 1900, a signed copy, number 690 of 750 produced. (Internet prices range from \$200-400.) The book is in good condition for that old a book. Unfortunately it has been in a library reference section at some time and has library markings on the spine.

George Francis Atkinson's *Studies of American Fungi*, 1900, in good condition except tape added to hold the eight inner pages in position. (Internet price \$45-\$85).

A 1928 Putnam's Nature Field Book, William Thomas' *Field Book of Common Gilled Mushrooms*. Paper is old but book is completely intact. (Internet price \$20-40).

*Wild Mushrooms of the Central Midwest*, 1971, by Ansel Stubbs. Excellent condition, dust jacket still in good condition. (\$12-17.50)

*Common Fleishy Fungi* by Clyde M. Christensen, paperback, second printing 1951. Cover discolored, but book is intact. (\$10-25)

*The Observer's Book of Common Fungi*, E. M. Wakefield. Small hardbound field guide with dust cover. (\$12.50 only listing on internet, but this book is better condition than the one described.)

I have listed these prices as a guide to what the books are worth, not necessarily as the minimum price for which the club will sell the book. But at least in the case of the McIlvaine, we will not let it go at a ridiculously low price. If nobody makes a sufficient bid for it we will probably advertise it in a national publication.

Bids on the books will be accepted until November 1. The highest bidder or, in case of a tie, the first bidder will be notified. There will be a small charge (just postage) for shipping.

If interested, e-mail [pilott29@sunflower.com](mailto:pilott29@sunflower.com), telephone (785) 842-9331, or write Ron Meyers, 2431 Atchison Ave, Lawrence, KS 66047-2617.

We regret to inform you of the passing of one of our charter members, Ilene Marckx, who died August 30 of this year. She will be missed.



GRANTS PASS, Ore. (AP)—Mike Amaranthus opened the glass door of a refrigerator case and peeled back the top of a plastic container to reveal a musty brown powder. "Two tablespoons of this powder contains more spores than there are people on earth," he said. "You can imagine what you can do with 50 pounds."

Amaranthus and a handful of other entrepreneurs are selling the spores of mushrooms, puffballs, and truffles as an organic and highly successful alternative to chemical fertilizers and pesticides. To make his point, Amaranthus' company, Mycorrhizal Applications Inc., offers test plants—roses, maple trees, and marigolds—grown with and without the fungi. Those inoculated with spores are bigger, leafier, and have more blooms.

"Most people relate fungi to moldy bread and itchy toes, but 90% of the world's plants form a beneficial relationship to fungi that we call mycorrhizae," said Amaranthus, a soil scientist. Mycorrhizal relationships can be traced to the earliest fossils of land plants, leading scientists like Amaranthus to theorize that fungi helped ancient aquatic plants make the jump to the hostile environment of dry land.

Amaranthus first ran across mycorrhizae in 1976, when he started working for the Siskiyou National Forest. Many foresters still regarded the white and yellow strands they saw on tree roots as pathogens attacking the trees, but he found that they were beneficial. The fungi attach to the roots of the plant and help it take in moisture and nutrients through a network of tiny filaments called hyphae that spread through the soil, increasing the root mass 10 to 10,000 times. Mycorrhizae help plants absorb essential micro-nutrients such as calcium, and can even help control pests like root-feeding nematodes. The plants feed the fungi in return.

Through his doctoral work in forest ecology at Oregon State University and later work for the U.S. Forest Service's Pacific Northwest Research Station, Amaranthus helped unravel the secret life of trees and mycorrhizal fungi. In 1997, he left the woods to bring mycorrhizae to the marketplace. He ran through his retirement savings getting started, but is now making a profit and employing five people full time.

The spores come from mushrooms harvested from the wild as well as from cultivated areas around the world. Plants link up with specific fungi, so Mycorrhizal Applications makes custom mixes for commercial clients in a liquid, powder, or gel. The spores can be mixed with potting soil, dripped on through irrigation, sprayed on by crop-duster, or dropped in the soil at planting time.

Amaranthus won't divulge financial information but says last year Mycorrhizal Applications sold enough spores to inoculate 200 million plants. They are gearing up to produce enough for 1 billion plants.

Amaranthus' business is small. Plant Health Care Inc., in Pittsburgh, Pennsylvania, claims the title of industry leader, with annual revenue of \$100 million four years after startup. The company supplies beneficial bacteria as well as mycorrhizal spores for arborists, nurseries, landscapers, turf farms, golf courses, and fruit and vegetable growers. "We think that because of regulation of soil fumigants as well as increasing regulation of certain classes of chemical pesticide, more and more growers are becoming open to and interested in the below-ground ecology of the plant," said President Wayne Wail.

Mount Angel hops grower John Annen tried some spores to see if they would help him root a difficult strain of hops in the greenhouse. He began using them on everything after his success rate nearly doubled. He said the hops treated with mycorrhizae have bigger root systems, need less fertilizer, and resist insects better, allowing him to skip one application of insecticide.

"When I first heard about it I was very skeptical," he said. "I checked it out with a few people at the college, field men, whatnot, and they told me this was nothing new, it had been studied for years, but nobody went anywhere with it. What this stuff can do is absolutely amazing."

The above-ground results produced by fungi could be achieved by applying fertilizer every two weeks, but 70 to 90% of nitrogen applied in nurseries is not absorbed by the plants and ends up getting washed into rivers, where it is a pollutant. One inoculation of fungi lasts all year, costs pennies a plant, and produces a bigger root system that is also resistant to disease.

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