# SPORE PRINTS

BULLETIN OF THE PUGET SOUND MYCOLOGICAL SOCIETY
Number 322 May 1996

## PRESIDENT'S MESSAGE

**Marshall Palmer**

Please join me in welcoming Mary Lynch as our new Vice-President. Mary has been an exceptionally energetic and generous member of PSMS for many years as field trip host, Banquet Chair, coordinator/identifier for the The Mountaineers weekend, and in numerous other roles. She is one of those people whose names have appeared in most of the issues of *Spore Prints* since they've joined. Mary has prior experience on the Board, and we will all benefit from her experience and resources.

On the cultivation front, Curt McClive has earned a welcome break after teaching a six-session cultivation class for us at CUH. Curt's preparation for the class included sterilizing enough agar to pour more than 100 Petri dishes for class members, buying 80 lb of whole grain and enough canning jars for this medium, writing and duplicating multiple pages of class notes for each session, and frequently making multiple trips in his car on class days in order to deliver all the materials. Whew! Also present each night was Cultivation Chair Greg Chew, helping to answer questions, delivering a carload of his own equipment, and seeing that all students received the help they needed. Gentlemen, we thank you! May we soon find ourselves buried under a mountain of productive shiitake logs and bales of oyster mushrooms.

Speaking of cultivation, Greg Chew has served very capably as Chair for quite a while and is in need of a member who is willing to take on this role. The Cultivation Chair coordinates committee meetings, oversees a cultivation area at our annual exhibit, and finds members to help with special projects such as the cultivation class. This position is also available in a Co-Chair capacity. To express interest, please call me at 527-6207.

Brandon Matheny has assumed the helm of the Education Committee and has been coordinating the current I.D. class. He has many ideas that will enable us to expand our knowledge of the mushroom kingdom. We appreciate your willingness to share your curiosity about mushrooms, Brandon.

In closing, I would like to ask that you pass on your appreciation to the following people: Dick Sieger—for his help thus far in mentoring the microscopy study group; Lorraine Dod—for her efforts to reorganize and catalog our library books; and Nancy Ernst and Melanie Foster—for volunteering to keep the library open for us from 7:00–7:30 PM before our monthly meetings. We are enriched by their contributions.

And now...on to the morels!

## MICROSCOPY STUDY GROUP

**Brandon Matheny**

Griffey, Jr., and Edgar each belted two home runs while Dick and I pondered over *Paxina* species. For more baseball, microscopy, and mycological gossip, please join us at the next microscopy study session on Monday, May 13, at 7:00 PM in the CUH board room. For those who would like more information or have a video camera with a removable lens, please call Brandon at 524-6467.

## POP QUIZ

Which mushroom has the most protein? (answer on p. 3)

a. Oyster mushrooms *(Pleurotus ostreatus)*
b. Buttom mushrooms *(Agaricus bisporus)*
c. Enokitake *(Flammulina velutipes)*

## FUNGI, PLANTS, & BACTERIA

**Connie Battaile**

*Arkansas Fungi*, Arkansas Mycological Society, via *Mycena News,* Vol. 46, January 1996

Speaking before the September 12, 1995, meeting of NATS, Dr. Torguy Unestram of the Swedish University of Agricultural Sciences at Uppsala described his recent research on the physiology of mycorrhizae. Mycelium, he said, is made up of visible cords and invisible hyphae which spread out at the ends of the cords. Inside each cord is a tube which is surrounded by protective strands of hyphae. Water, with nutrients, travels through the tubes, sometimes in one direction and sometimes in the other. Sugar manufactured by the tree is transported from the tree roots through the mycorrhizae out to the tips of the hyphae. The hyphae simultaneously take up soil nutrients and transport them to the tree.

His research has discovered, however, that the hyphae can glean nutrients from solid rock in addition to those from soil. Under magnification, a granite surface that looks solid to the observer turns out to be covered with pits extending down less than 1/10 inch. The pits are lined with hyphae. Bunches of bacteria, like grapes, sit on the hyphae. There are 4 to 400 million of these bacteria per gram of stone, much more than in the soil.

The question then arises as to the function of these bacteria and their relationship with the fungus. The hyphae have a "greasy" surface and do not lose water except to exude droplets at the tips. Analysis of these water droplets shows that they contain dissolved chemicals such as sugars (34%), peptides (14%), toxic compounds such as oxalic acid and acetic acid, and minerals. The fungus needs most of these compounds, so it resorbs most of them. In this respect, the hyphae are functioning like animal kidneys, which excrete everything and then take back nearly everything but the toxins. The drops are thus like urine. Bacteria can live on these drops. The toxic oxalic acid crystallizes, which makes it less dangerous. It is seen as shiny crystals on the mycelium. The bacteria then utilize other nutrients in the urine droplets.

The next question that arises is whether the hyphae and their bacteria are creating the pits. As an experiment, rock was ground into fine powder and mixed with agar. This slurry was put into a number of Petri dishes, and a spot of fungi or bacteria was introduced into each dish. It was found that, as the fungus or bacterium grew, the agar around it cleared, indicating that both organisms were "eating" the rock. The bacteria were even more effective than the fungi at dissolving the rock around them. Thus, it appears that bacteria, along with the fungal hyphae and their oxalic acid exudates, function to dissolve the rock and release nutrients. The bacteria are being fed nutrients such as sugars and peptides by the fungus and, in turn, feed mineral nutrients and "purified" water back to the fungus and through it to the host plant.

# Spore Prints

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**PUGET SOUND MYCOLOGICAL SOCIETY**

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## CALENDAR

| | |
|---|---|
| May 11–12 | Swauk Creek field trip |
| May 13 | Microscopy Group, 7:00 PM, CUH Board Room |
| May 14 | Membership meeting, 7:30 PM, CUH |
| May 17 | *Spore Prints* deadline **(early)** |
| May 18–19 | Tumwater field trip **(new)** |
| May 20 | Board meeting, 7:30 PM, CUH |
| May 25–26 | Crystal Springs field trip |
| June 1–2 | 29 Pines field trip |
| June 7–9 | Chatter Creek field trip |

## MARCH BOARD NEWS

**Agnes Sieger**

Mary Lynch was unanimously appointed Vice-President to finish Marshall Palmer's term. Brandon Matheny is the new Education Chair. Melanie Foster has volunteered to assist Lorraine Dod as librarian. Lorraine is looking into getting new bookshelves and a computer desk for the library. We also need more dry storage space for old records, etc. Eighty members and guests attended the Survivors' Banquet. Joanne Young is looking into a PSMS Web site. Sara Clark agreed to design a mushroom postcard of one or two colors.

## APRIL BOARD NEWS

**Agnes Sieger**

Sheila Parr pointed out that because of the flooding this year many of the roads and trails are closed. Nancy Ernst has joined Melanie Foster as an assistant librarian. A volunteer architect is redesigning the bookshelf area to obtain maximum shelf space. Henry Lingat, Randy Richardson, and Russ Kurtz have volunteered to help build shelves. We need a new Banquet Chair. Joanne Young will coordinate printing posters and notes from the six-panel 1984 exhibit poster.

## MEMBERSHIP MEETING

Tuesday, May 14, at 7:30 PM at the Center for Urban Horticulture, 3501 N.E. 41st Street, Seattle

The program for May will be announced at the meeting. Will persons whose last names begin with the letters R–T please bring a plate of refreshments for the social hour?

## MEET THE TAYLORS

**Inga Wilcox**

How does one get from Volksmarching in Oregon to PSMS in Washington? Mary Taylor did. Both Mary and Steven enjoy the outdoors. They live in Federal Way, but spend time at their vacation cabin on Mt. Hood. He is an avid fisherman while Mary enjoys walking in the woods. Noticing puffballs on a walk, she became interested in learning more about fungi. She and Steve came to the annual exhibit in 1990 and joined the society.

Steven had the opportunity to fish with then Vice-President George Bush when he was running for the presidency. Reporters crowded the area where they fished and hurled questions at the candidate. "It was an eye opener," says Steve, "to experience the rudeness and bad behavior inflicted on a political person." Mary and Steve attended the inauguration.

Graduating from identification classes, both lost some of their awe of "experienced mushroomers." When they attended a meeting at Paul Stamets' Fungi Perfecti and found large clusters of *Lyophyllum decastes* right by the road which the "experienced" hunters had by-passed, they felt pretty good. They enjoy many different mushrooms—*Verpa bohemica*, the beautiful *Sparassis crispa* (Mary found a picture-perfect specimen weighing 8.5 lb), the lovely chanterelle, *Gomphus clavatus,* which Mary serves with beef or pork. When celebrating their 25th anniversary with a trip to Kenya and Tanzania in Africa, they were told that if baboons eat a mushroom it is good for humans.

Both Mary and Steve are writers. They own a publishing company publishing their own writings. Specializing in cookbooks, they published *Dining Ethnic Around Puget Sound* as a fundraiser for Northwest Harvest. Steve does freelancing for outdoor magazines and does editorials on political issues. We are fortunate to have him monitor the State Legislature for legislation affecting fungi. The 1995 regulations regarding commercial pickers were a success. Steve feels that PSMS must take a strong stand on these issues or our relevance as a society in today's world is questionable.

Mary is an accomplished seamstress, loves everything connected with cooking, and has served as PSMS Treasurer for two terms. "It was a privilege to be able to serve and to give something back to the group of wonderful people who give of themselves."

Steve and Mary just bought acreage on the southern Oregon coast where they plan to build. The property is heavily wooded with cedars, oaks, madronas, alders, rhodies 20 feet tall, and myrtle trees, under which no fungi grow—probably because of the spiciness of the leaves. Steve will take up photographing fungi this year. Mary has just been appointed Treasurer of the Stuntz Foundation.

We wish them many happy hours walking the woods.

## FIELD TRIPS

**Wayne and Patrice Elston**

*We will be on our honeymoon in Ireland the entire month of May, so we will be unavailable to host or field questions.*

**General Instructions:** Unless stated otherwise, the meeting time at field trips is 9:00 AM at the chosen site. Please bring a basket, knife, wax paper, compass, whistle, water, lunch, and a dish to share if you wish to join the potluck. Wear warm clothes. Include rain gear in your car or pack and wear hiking shoes or boots. Feel free to bring you friends, family, and sociable dogs.

From 9:00 to 9:30 or 10:00 AM, we check in, have munchies, and talk about the mushrooms we'll be searching for and the area around the camp site. We then head out to hunt in small groups. Identification is from noon to 4 PM. Potluck time is between 4 and 6 PM, decided on by the participants in the morning. The potlucks are always delicious, fun, and highly recommended.

The weekend field trips can be attended one or more days. Meeting time is 9:00 each morning, with a potluck breakfast on Sunday for interested parties.

**May 11–12** **Swauk Creek Forest Camp**
(elev. 2500 ft, 110 miles east of Seattle)

Take I-5 over Snoqualmie Pass to exit #85. Follow Hwy. 10 east of Cle Elum for 2½ miles. Turn left onto Hwy. 970. After 7 miles bear left onto US Hwy. 97 (north) and continue another 16 miles. The camp is on the right. Swauk Pass is 4 miles beyond the camp. We have the group camp reserved for Saturday night. Hosts are needed.

**May 18–19** **Tumwater Forest Camp**
(elev. 2050 ft, 95 miles east of Seattle)

From north of Seattle, drive east over State Hwy. 2. Tumwater Campground is about 23 miles east of the Stevens Pass summit, on the left. Watch for the sign. **(added field trip)**

**May 25–26** **Crystal Springs Forest Camp**
(elev. 2400 ft, 60 miles east of Seattle)

Drive east on I-90 over Snoqualmie Pass. Continue east for 8 miles and take Stampede Pass exit #62. Turn right at the stop sign. After ¼ mile, before the bridge, turn right to enter the camp. Hosts are needed.

**June 1–2** **29 Pines Forest Camp**
(elev. 2500 ft, 102 miles east of Seattle

Take I-90 over Snoqualmie Pass to exit #85. Follow Hwy. 10 east of Cle Elum for 2½ miles. Turn left on Hwy. 970 and go 4½ miles. Turn left onto Teanaway River Road. Continue about 6 miles to the Bible Rock Children's Camp. Bear right on the Teanaway North Fork Road and continue to Twenty-Nine Pines on the left, just past Jack Creek Road. There is no shelter. We need hosts with tarps.

**June 7–9** **Chatter Creek Forest Camp**
(elev. 2400 ft, 150 miles east of Seattle)

Chatter Creek Campground is 16.1 miles up Icicle Creek Road out of Leavenworth. Take Hwy. 2 over Stevens Pass and proceed 34 miles. (You can also take I-90 over Snoqualmie Pass to exit #85, go over Swauk Pass to Hwy. 2, and proceed left for 6 miles.) Icicle Creek Road is on the north edge of town. This is a reserved group camp with a shelter. Check in with the campground manager. Friday check-in time is 2 PM. There will be a $5 camping fee for overnighters. Pay the PSMS field-trip host(s).

**June 14-17** **American River Lodge**

## MACDONALD PARK FIELD TRIP

**Wayne & Patrice Elston, Brian Luther**

A wonderful turnout, for a beautiful spring day! Sixty-seven mushroomers, many of them first-timers, came out to celebrate the annual ritual of the "Hunting o' the *Verpa*." The extensive and easily accessible cottonwood stands at this park make it especially good for our first field trip of the season, and crossing the suspension bridge to the shelter provides a great view of the Tolt River and surrounding farmland. The steelhead fishermen were in their boats and on the banks of the river even before we arrived at the shelter. It was a beautiful sunny day, but the wind was brisk. After making sure that his kids Zachary and Arnica both had sweatshirts, sweaters, coats, warm socks, and boots, identifier Brian Luther realized that he hadn't brought a coat for himself. Numerous sympathetic members saw him shivering and offered vests, coats, and parkas, and pretty soon he was wearing a very interesting ensemble.

The new snow on the Cascades, and the lack of many new buds on the black cottonwoods, led us to believe we might be a bit early for much success, but for many patience prevailed! Brian gave a brief introduction on *Verpa* and cottonwoods. Then several groups, led by Robert English, Dick Sieger, Mike Lovelady, and Patrice and Wayne Elston, struck out to the river bottom after fueling up on coffee, fruit, and pastries.

Some nice collections of verpas came back, though not in large quantities, and a bunch of *Pleurotus ostreatus* was sighted in Dick Sieger's mushroom basket. In addition to identifying, Brian had his generator along, and he and Zachary set up a microscope so folks could take a look the unusually large *Verpa* spores.

Twenty-three species of fungi were identified and displayed. Some of the interesting finds included *Baeospora myriadophylla*, the beautiful *Ustulina deusta, Peziza praetervisa* (from a nearby barbecue pit), and a very unusual lignicolous fungus which neither Dick Sieger nor Brian could identify. Later, after careful microscopic study, it turned out to be the immature stage of a *Xylaria* species.

All in all, a fun day. Even though we came away with few fungi in our baskets, we all got out in the woods and had a great time together. Thanks to all in attendance. See you again soon.

**Answer to Pop Quiz:** c. 100 g of enokitake has 17.8 g of protein; *Agaricus bisporus* has 2.7 g and *Pleurotus ostreatus* 1.9 g. A 10-year study of 12,600 users in China concluded that enokitake protects against stomach and colon cancers; recent research indicates it can also both reduce and prevent fatigue after heavy exercise.—*Mycelium, 22*(2), 1996

## STEELHEAD PARK FIELD TRIP — Brandon Matheny

Brian McNett and I, followed later Bill Bridges, sat and attempted mushroom identification at Steelhead Park near Rockport. Millie Kleinman swore that we were just too late for collecting "early morels," and by looks of things, it appeared she was right. In any case, a few new members did manage to find a modest basketful of verpas, and others found some oyster mushrooms.

It was a pretty day with fresh snowfall at the higher elevations, and the cops were out along SR-20. At least two PSMS members got speeding tickets passing through Concrete (including myself). McNett displayed the names of a few species, but the audience was sparse. Most folks left after noon

The list below does not reflect all specimens brought to the table though it does include most.

*Collybia dryophila*
*Hypholoma fasciculare*
*Ptychoverpa bohemica*
*Verpa conica*
*Mycena pura*
*Polyporous* sp. *(badius?)*
*Mycena haematopus*
*Tramates versicolor*
*Marasmius* sp.
*Lenzites betulina*
*Cortinarius cinnamomeo-luteus*
*Cortinarius* sp.
*Cyathus* sp.
*Nidula* sp. (likely *N. candida*)
*Paxina* sp.
*Pleurotus ostreatus*
*Scutellinia scutellata*

An interesting specimen happened to be collected with the following characteristics:

- growth on straw
- yellow, cylindrical to bell-shaped
- quite viscid cap
- white stipe
- small to medium size, < 8 cm across
- clustered in a small group (like *Coprinus*)

I observed something very similar growing on straw near an obviously deliquescing *Coprinus* sp. in Olympia 2 days before. Bill Bridges commented that he has observed this species for the past 3 years and has no idea what the heck it is.

## COMING—A PSMS WEB SITE — Joanne Young

PSMS is planning to build its own World Wide Web site. Some of the topics we've talked about including are *Spore Prints* articles, a mushroom of the month, an identification facility, pictures, links to other sites, how to contact PSMS, and schedules o events. Anyone interested in contributing ideas, artwork, articles, and other materials or expertise, please call or send e-mail to Steven Bell, 788-8431 and tapestry@nwlink.com, or Joanne Young, 633-0752 and jd2young@aol.com. We need people with ideas, writing skills, graphic artists, and illustrations.

## NOTICE TO ARTISTS

Artists are needed to submit art work for the 1996 exhibit poster. Give to any officer or Board member. Selection will be made at the Board meeting May 20 at CUH.

## ROAD AND TRAIL CLOSURES

Because of flooding this year, many Forest Service and National Park Service roads and trails are temporarily closed. Before you head out for your favorite spot, it might pay to call the Outdoor Recreation Information Center at 220-7450 or the local ranger station for up-to-date information on road and trail conditions.

## NOTES OF THIS AND THAT

**Magda and Marsi DiGiovanni** have volunteered to host the refreshments for meetings, replacing **Colleen Compton**.

**Melanie Foster** and **Nancy Ernst** are the new library assistants.

**Sheila Parr's** new phone number is 235-8233.

Spring is officially here. **Dick Sieger** was called to Overlake Hospital April 25 to identify a beautifully prepared dish of *Amanita pantherina* which had put three people into a sound sleep.



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