

SPORE PRINTS



BULLETIN OF THE PUGET SOUND MYCOLOGICAL SOCIETY

Number 414

September 2005

ANNUAL EXHIBIT

Ron Post

As we gear up for another annual wild mushroom show (our 42nd) on October 22–23, I decided to write a list of all the activities it takes to put this event together. It's a long list, and it takes a long list of volunteers to bring it off!

Those of you who are new to our society most likely got your introduction to PSMS at the wild mushroom show last year: more than 100 new members joined. And if you are able to help put on this year's show (please do!) this is how we do it.

Hundreds of species of mushrooms are carefully collected in the two days previous to the show. They are delivered intact, often with some of their natural substrate, then sorted, identified, labeled, and attractively arranged in moss-covered trays on Friday night and Saturday morning (Oct. 21 and 22 this year).

Other popular attractions at the exhibit are being put together as the specimens are being carried out: cooking demonstrations, a lecture, arts and crafts, book sales, amateur and commercial cultivation, a lichen display, conservation and ecology material, a feel and smell table, identification tables for the public, a kids' table, a membership table, and a black light display with glowing mushrooms.

This year we will have an additional, unmanned display that introduces the public to identification keys.

Whew! How do we make all this come together? Just sign up for your two-hour slot(s) at the September or October meeting, show up at your appointed time during the exhibit, and find out!

Following is a list of the committees that need people for specific duties or at specific times. Some of these committees have chair contacts who will take down your name and contact information, and hopefully confirm your slot.

A few chair positions are still not filled, but you may sign up for times anyway by coming to the meetings or contacting me (ronp46@hotmail.com).

We don't sign up for the job of cleaning up after the exhibit, but we can always use as many as possible (we shoot for around 30 people). Once again this year we'll likely order pizza and share a meal (at CUH if possible, at a restaurant if not) on Sunday night after the close of the show.



Exhibit Committees

Exhibit Chair, Ron Post	(206) 527-2996
Arts & Crafts, Marilyn Droeger	(206) 634-0394
Book Sales, Trina Litchendorf	(206) 330-1414
Construction/Setup, Don Lennebacker	(425) 742-3163
Cooking & Tasting, Patrice Benson	(206) 722-0691
Decoration	
Feel & Smell, Dennis Krabbenhoft	(253) 752-7202
Greeters	
Kitchen (Hospitality), Pacita Roberts	(206) 362-2713
Membership, Bernice Velategui	(206) 232-0845
Mushroom Collecting, Russ Kurtz	(206) 784-3382
Parking & Security	
Poster Distribution	
Signage	
Ticket Sales, Elizabeth Lisaius	(206) 433-0193
Tray Arrangement, Marian Maxwell	(425) 235-8557
Moss & Duff collection, Lynne Elwell	(425) 885-5580

MYCOPHAGY AT THE EXHIBIT

Patrice Benson & John Goldman

Once again, John Goldman and Patrice Benson will team up to organize the culinary crew for the cooking and tasting section of the PSMS Wild Mushroom Exhibit, October 22–23, 2005.

Please be prepared to sign up for helping with this fun and flavorful part of our exhibit. All levels of expertise are needed, so just sign up and get involved in mushroom cooking, cleaning, and prepping. Mushrooms are also needed! We would love to remind you to pick edibles for the exhibit while you are looking for display specimens. Dried mushrooms which are properly identified are welcome as donations. You can bring dried mushrooms to the meeting in September or October. Fresh mushrooms marked "for cooking and tasting" may be delivered to the mushroom receiving on Friday evening, October 21. Call Patrice at (206) 722-0691 with any questions.

THANKS, MICK

Brian Luther

The wonderful success of last spring's field trips to Eagle Creek were very much due to the behind the scenes contributions of PSMS member Mick Mueller. Mick is the Forest Service Fire Ecologist for the Leavenworth Ranger District (USFS), and he met with me and my daughter, Arnica, for an all-day preview and exploration of the Fischer Fire area. He was also the one who got our authorized collecting permits from the Forest Service and supplied valuable maps and other info., and he's a wealth of information on forest fires.

I wanted to take this opportunity to offer a very special thanks to you, Mick, for all you did. We are very fortunate to have such a good friend in his position. PSMS has a special gift for you, Mick, but it's in preparation.

Spore Prints

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PUGET SOUND MYCOLOGICAL SOCIETY

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Annual dues \$25; full-time students \$15

CALENDAR

- Sep. 13 Membership Meeting, 7:30 PM, CUH
Sep. 17 Field Trip, Money Creek Campground
Sep. 19 Board Meeting, 7:30 PM, CUH
Sep. 20 *Spore Prints* deadline
Sep. 24 Field Trip, Silver Springs Campground
Oct. 1 Field Trip, Crystal Springs Campground
Oct. 1–2 Salmon Days, 10 AM–6 PM, Issaquah
Oct. 11 Membership Meeting, 7:30 PM, CUH
Oct 22–23 Annual Exhibit, Magnuson Park

REGIONAL EVENTS

Priest Lake, Idaho, Foray, Spokane Mushroom Club, Sept. 23–25, 2005. For details, telephone (509) 328-7973 or visit www.spokanemushroomclub.org.

Breitenbush Mushroom Conference, Oct. 6–9, Breitenbush Hot Springs Resort near Detroit, Oregon. For details visit www.breitenbush.com/html/events/oct6-9.html or telephone or e-mail Patrice Benson at (206) 722-0691 or bensonp@amgen.com.

Annual Mushroom Exhibit, Northwest Mushroomers Association, Oct. 8, Bellingham, WA.

Third International Medicinal Mushroom Conference, Fort Worden, Port Townsend, WA, Oct. 12–17, 2005. On-line registration at www.fungi.com/immc.

Annual Mushroom Exhibit, Olympic Peninsula Mycological Society, Oct. 23, Tri-Area Community Center, Chimacum, WA.

MEMBERSHIP MEETING

Tuesday, September 13, at the Center for Urban Horticulture, 3501 NE 41st Street, Seattle

September's meeting will feature the mushroom culinary skills of one of our talented chef members, Jeremy Faber. Jeremy is a skilled mushroom businessman, providing fungi and other wild products to local restaurants and farmer's markets. Formerly chef at the famed The Herbfarm restaurant, Jeremy is now devoted full time to his mushroom and wild products business.

The second part of this meeting will be devoted to details surrounding our 42nd Annual Wild Mushroom Exhibit and distribution of the new exhibit poster. Please don't miss this important meeting and be prepared to sign up for the exhibit and taste the fresh mushrooms of chef Jeremy Faber.

If your last name begins with the letters A–L, please bring another little something to share after the meeting.

TREE IDENTIFICATION CLASS

A free class in native tree identification will be given by Washington Native Plant Society steward John Dixon on Friday, October 7, at 1 PM in Twin Ponds Park in Shoreline. A maximum of 15 people can sign up for the walk by phone through the evening of October 3. We will meet at the corner of North 155th Street and 1st Avenue Northeast in the parking lot at 1 PM, and the class should last a couple of hours.

A hand lens and tree field guide are advisable, but some copies of a short guide will be distributed at the class. Call the office number (206) 522-6031 and hit the No. 6 option to leave your name and phone number. Just say you're interested in the October 7 tree walk and you'll receive a confirmation call.

REPORT FROM NAMA 2005

Patrice Benson

Dr. Tom Volk and his students hosted the 2005 North American Mycological Association (NAMA) Conference on the Campus of the University of Wisconsin, LaCrosse, July 21–24. Tom's students were amazing in their talents and generosity, sharing their knowledge and time with the 165 attending members of NAMA. One of the highlights was a field trip to the oldest American chestnut tree. *Castanea dentata*, once ubiquitous, has been decimated by the fungus *Cryphonectria parasitica*. Research into the treatment of this fungal infection continues, with the only current workable solution being another infection, less virulent, which replaces the deadly one. Hybridizing the trees is also a potential saving of the genes.

The NAMA foray was big news in LaCrosse; we made the front page of the *LaCrosse Tribune* on July 22, 2005, with photos and a report of the field trip to Hixon Forest. The food was great, the talks inspiring, and the workshops full of useful information. I attended my 3rd dyeing with fungi workshop this year and came away with 46 different colors from eight fungi in 2 hours! The regional caucus was held to elect a representative from the Pacific Northwest; I made the mistake of leaving the room to answer a call of nature and upon my return found out that I had been elected the representative from our region! Ben Woo had decided to "retire" from the board after serving for at least 12 years. Thank you, Ben, for yet another leadership role which you have filled to represent PSMS. I hope that I can fill his shoes! The next NAMA foray is in Alberta, Canada, in the Jasper National Forest in August 2006.

FIELD TRIPS

Cathy Lennebacker

Hooray, it's fall, and we can hit the woods for mushrooms again. Be sure to dress appropriately for all kind of weather. There will be a potluck at each of these sites. As usual hosts are needed, so give me a call at (425) 742-3163. No experience needed.

September 17

Money Creek

This is a lovely riverside campground with chanterelle and bolete hunting. Drive 30 miles east of Monroe on Highway 2, and follow the sign right 1 mile to campground. We have reserved site #7 on the Skykomish River for Friday and Saturday. There is a \$7 overnight parking fee, and forest passes are required.

September 24

Silver Springs

This is in a lush forest near Mt. Rainier. Overnight camping is available at \$7/night. We have reserved site #36 for Friday and Saturday. A forest pass is required to hunt. There is a limit of 1 gallon of mushrooms per household per day.

Drive east on Highway 410 from Enumclaw 33 miles to the campground.

October 1

Crystal Springs

Drive east on I-90, take exit #8 for Stampede Pass, and turn right at stop sign. The camp site on the right 1/4 mile before the bridge. There is free tent camping across the road along the river.

FIELD TRIP TIPS

Agnes Sieger



Once again it's time to review some basic mushrooming tips regarding the upcoming field trips.

Apparel: The Pacific Northwest is wet. Wear warm clothing, preferably in layers, and waterproof shoes or boots and bring your rain gear. Pacific Northwest vegetation is usually thick, and the sky is frequently overcast. Bring a compass and whistle and a map of the area—and remember to use them.

Mushrooming Gear: You will need a wide-bottomed container for your mushrooms. This can be a basket or bucket. Do not use plastic sacks; they tend to condense moisture and turn mushrooms into mush. You will need a sturdy knife suitable for cutting and prying and perhaps a soft brush to clean up the edibles; some people even bring a small garden trowel for digging. To protect individual specimens for identification, take some wax paper sandwich bags or aluminum foil.

Collecting: If you know you have a good edible, cut off the stem cleanly and brush off as much soil and debris as possible. Store like species in a rigid container where they won't get crushed or pick up more dirt. Try to keep the mushrooms cool and dry, and process them as soon as possible.

Field Trip Format: Most PSMS field trips are planned for Saturdays, since this is the most convenient time for many people. It may be possible to come early on Friday and stay over to Sunday. Almost all field trips have hosts, who set up by 9:00 AM on Saturday with hot coffee and snacks. The hosts greet and sign in members, relay general tips on what is up and where, and introduce newcomers to more experienced members. They also

have a map of the area. After signing in, field trip participants gather their gear and head out to hunt. In the afternoon, they come back to the campsite to identify their finds, compare notes, and prepare for the potluck.

Potluck: The potluck starts at 4:00 PM (sometimes later when the days are longer). You need to bring your own eating utensils and beverage and a dish to contribute to the table. This can be an appetizer, a salad, a main dish, or a dessert.

WHY DID THE FLEMING STRAIN FAIL?

via *The Mycophile*, NAMA, July/August 2005

"Why did the Fleming strain fail in penicillin industry?" is the title of a paper (*Fungal Genetics and Biology*, 42(5): 464–470) by Marta Rodríguez-Sáiz et al. Penicillin, discovered 77 years ago by Alexander Fleming, is a naturally produced compound excreted by the mold *Penicillium notatum*. While Fleming eventually shared a Nobel prize for his discovery, this fungus proved to be of little use in making this miracle antibiotic. In 1943, Chain and Florey found that another species, *Penicillium chrysogenum*, makes the same compound—and 1000 times the amount of the original species. Turns out that a single genetic mutation is responsible for the superlative production. Penicillin production begins with the production of a precursor acid that can be converted to either penicillin or another compound, 2-hydroxy-PA. The researchers found that *P. chrysogenum* has a gene defect that prevents it from producing much of the 2-hydroxy-PA. The result is that it gets stuck in its penicillin-making mode.

MUSHROOM OF THE MONTH

Dick Sieger

The Politician Mushroom, *Catathelasma ventricosum*, is big and delicious. The trouble is, you won't find it very often and when you do, and it's past the button stage, you'll do a lot of chewing. It's a denizen of our coastal spruce forests, likes deep duff, and will grow under other conifers. I've seen it near Forks, Washington, and along the Van Duzer Corridor on the way to Lincoln City, Oregon, but most of my occasional meals were "rescued" from foray tables.



C. ventricosum gets to 8 inches tall and 8 inches wide. Its flesh is hard.

The stalk is thick, deeply rooted, pointed at the base, and may have a medial bulge. A partial veil leaves a ragged double ring, and its fragments may hang from the cap margin. The whitish gills are decurrent, running well down the stalk. The cap is dingy gray, bald, smooth, and somewhat cracked. The spore print is white.

A look-alike that gets even bigger is *Catathelasma imperiale* which has a brown scaly cap that is sticky, a feature best observed by touching it to your inner lip. The best one can say about its edibility is that it's not poisonous. A casual mushroomer might mistake two other big white-spored mushrooms for *C. ventricosum*, *Tricholoma magnivelare* (Matsutake) and *Amanita smithiana* which is dangerously poisonous.

My name for *C. ventricosum*, "The Politician Mushroom," comes from its distinctive features: hard, gray, bald, with a medial bulge, surrounded by a ragged ring, smooth, thick, and somewhat cracked.

BOG BLOG NO. 8: SHADOW LAKE BOG UPDATE

Alissa Allen

The summer days are cooling off as the subtle hints of autumn begin blowing in from the north. The bog project is entering its third year. Fungi are stirring from the depths of seemingly dry mossy floor. The Russulas are taking turns fruiting; as one shrivels up another pops through. Yellow-footed Chanterelles (*Craterellus tubaeformis*) are bursting out of the lime green sphagnum moss like a bouquet of golden trumpets.

The bog team has been busily winding up phase one of the bog project as we make plans for phase two. Our primary goals for phase one were to:

- (1) Generate a species list of the macrofungi present in a defined set of study areas.
- (2) Describe, photograph, and preserve voucher specimens of each species, identifying as many as possible.

Even after collecting on a weekly basis for two years we are still bringing back new and exciting specimens, and our species count continues to grow (a little slower than in the beginning). Our identified species list has grown to over 161 species representing 74 genera, with some of our latest finds being the most exciting yet. Stay tuned for reports on specific finds.

Over the past few months we have been working hard to develop a plan for the second phase of the survey. Now that we have a general idea of the common fungi at Shadow Lake Bog, we have some questions that we would like to answer. These questions are:

- (1) How do the macrofungi found in the bog change over the course of a year?
- (2) What is the microhabitat distribution of different macrofungi?
- (3) What are the plant associations of different macrofungi?

We started in April by measuring our current collection routes and designating them as preliminary transects. In a traditional fungal survey, ten 10 × 10 meter plots would be set up in each habitat type, and samples of every species within each 100 square meter plot would be collected, documented, and preserved. We questioned whether this would be possible in such a small, fragile place with patchy microhabitats. A footprint from a careless visitor left in a sphagnum moss hummock next to the boardwalk has not changed much over the last several years. In fact it takes 45 years for the moss to grow 1 inch. When we went out to set our plots, we realized that we were going to have to come up with another way to get scientifically sound data.

We searched high and low for papers that would steer us in the right direction. We considered moveable plots, smaller plots, rotating plots, and possibly using devices that would distribute our weight more evenly. But all of these methods would interfere with the weekly monitoring system that we wanted to continue. Through all of our searches we found nothing definitive that said, “This is how to set up plots in a small patchy bog.”

Our next step was to present the situation to the Pacific Northwest Key Council. Some of the members had done surveys in bogs in the past. But what we found was that virtually no surveys were done with as much frequency as the Shadow Lake Bog project. Collecting for the survey of Burns Bog near Vancouver, Canada, was done in only one or two days. The impact from a short-term survey is fairly insignificant compared to our weekly monitoring. We considered collecting less often but were told by many that the frequency of our collecting is part of what makes

this survey so unique. The Key Council had some good ideas and some helpful feedback, but basically we were told that we would have to pioneer the way.

So for lack of a better plan, we continued discussing possibilities, reading more papers, books, and articles, and collecting in the same way—walking along pre-existing trails that were carved into the bog by people and animals over several thousand years.

Dr. Ammirati suggested we get an ecologist out there to help us determine our habitats. This was just great. The bog team knows a little bit about plants and habitats, but we were in desperate need of an expert. Robin Leshner, an ecologist with the Forest Service, graciously agreed to meet us at the bog and help us to name and measure the length of each habitat type along our current collecting paths. We discovered that there are five definable habitat categories in our collection area.

Ensuing discussions led to a decision to use the pre-existing trails as the midline to our habitat plots. We would then determine an acceptable width for each plot. In the thick Labrador Tea (or as ecologists say: open TSHE/LEGR/SPHAGNUM), a collector can see only about a half meter to either side of the trail. But in the open woody area (TSHE/POMU/GASH), we can see up to three meters on either side.

We will now be able to calculate the square area of each plot and associate it with a habitat name and a GPS location. This will make researching the phenology, the microhabitat distribution, and fungal-plant associations easily accessible as well as prevent degradation of the fragile bog hummocks.

We are very excited to have our plan for phase two ready to go. If you have any questions about the project at Shadow Lake Bog feel free to approach us at a meeting or e-mail us at bog@helvella.org. The Boggers are Alissa Allen, Joshua Birkebak, Noelle Machnicki, Colin Meyer, Christie Robertson, and Leesa Wright.



NEW US POSTAL SERVICE STAMP SHEET DEPICTS SEVERAL MUSHROOMS

Brian Luther

Many of you know that I've collected, studied, photographed, and researched postage stamps illustrated with fungi for many years and that I used to give lectures on the subject, when I had the time. My collection has grown from just a handful of issues in the early 1980s to thousands of stamps from around the world today.

In an article I wrote for *Spore Prints* a few years ago (<http://www.psms.org/sporeprints/sp358.html>), I brought you up to date on the US Postal Service stamps that had mushrooms on them at that time. I like to keep you current on these developments, so here's an update.

I am now pleased to inform you that a recently released sheet of US stamps entitled “Northeast Deciduous Forest” issued on March 3, 2005, shows three different species of fungi. This is the seventh stamp sheet issued in the Nature of America series and as with all in this series, it contains ten 37-cent stamps per sheet. On this sheet two of the mushrooms are actually shown on stamps; the third is simply on the large sheet showing a deciduous forest scene but is not actually on one of the ten stamps cut from this panorama scene. On the lower middle left of this sheet is one stamp that has a large portion of a clump of *Armillaria mellea* (or

a related species of *Armillaria*) on the right side of the stamp. On another stamp, toward the lower right center of the sheet, which mostly shows a chipmunk, the far right side of this stamp has part of a clump of *Laetiporus sulphureus*, the eastern Chicken of the Woods species. The third mushroom is an unidentifiable agaric (gilled mushroom) growing on the log in the center left of the sheet, and as I said is not actually on one of the ten stamps that are cut from this larger forest scene.

The "Pacific Coast Rain Forest" sheet, released in 1999 and the second issued in this Nature of America series, also has three stamps with small mushrooms.

Before the above sheets were issued, there were only three US stamps with fungi on them. Previously, only one fungus was shown as the main illustration on a single US stamp, namely the SEM (Scanning Electron Microscope) photo of *Penicillin* on the Celebrate the Century series for the 1940s. This was issued on a sheet of 15, with only one of the stamps being of *Penicillin*. This is not what most mycophiles would have chosen for the very first US stamp showing a fungus, but nonetheless it gets that honor. The other two are what we call MIDs (Mushrooms In the Design of the illustration, but not as the main stamp illustration), and these were both issued on the same sheet in the year 1987.

The Postal Service has not yet issued a set of fungi as the main illustration, which is too bad, because practically every other nation in the world has at least one set, and in some cases many sets, of such stamps. These are hot collectors' items throughout the philatelic world, and if the Postal Service got smart and started issuing sets of these, they'd make a bundle on them, because stamp collectors never use these stamps for postage and thus with no delivery service on the purchased stamps means that it's pure profit for the Postal Service.

Those of you who like lichens will find several illustrations of them on US Postal Service stamps or sheets, but I will not be covering lichens in my discussion of fungi on US stamps.

Here's a quick review of United States postage (stamps or souvenir sheet illustrations) with fungi on them to date:

1. 6/13/87. Scott Catalog #2297 (22 cents).

Main illustration an Eastern Chipmunk. MID with two sporocarps of the fungus *Naematoloma sublateritium* in the lower right hand corner of the stamp. This and the next stamp are both on the same sheet of 50 stamps, each depicting a different animal from each state. These could only be purchased from the post office as the sheet of 50 different animals, but you can find them as individual stamps, mint or used, or cancelled on covers (envelopes) from stamp dealers or collectors.

2. 6/13/87. Scott Catalog #2335 (22 cents).

Main illustration a Red Fox. MID with four polypore sporocarps on the log below the fox. One species right of stick (with one sporocarp) and another species (with three sporocarps) to the left of the stick. There are many generic possibilities here and we could speculate forever. Whether the artist drew these from nature, or whether they just generally represent lignicolous polypores seen on wood, is not known.

3. 2/18/99. Scott Catalog # 3186 B (33 cents).

Main illustration an SEM photo of a *Penicillin* conidiophore, colored blue-green, titled "Antibiotics Save Lives." This is only one stamp on a sheet of 15 stamps for the Celebrate the Century series for the 1940s. It is now difficult and expensive for collectors because it has been out of print for several years and the rarity is increased by the fact that there is only one of these stamps on the sheet of 15. You were never able to buy the individual stamps from the post office. The sheet can be obtained from stamp

dealers or at stamp shows, of which there are several in the Seattle area each year, but you can expect to pay a premium price. Individual stamps cancelled on envelopes can be located through stamp dealers.

4-6. 1999. Scott Catalog # 3378 (33 cents). Pacific Coast Rain Forest sheet.

Several small, obscure mushrooms on three different stamps on this sheet, which is the second in the Nature of America series. (1) Several mycenoid mushrooms on the log below the elk with a small portion on the stamp with the (2) Winter Wren and another small clump of a different fungus in the upper right hand corner of the stamp showing the (3) Western Tiger Swallowtail butterfly.

7. 3/3/05. Scott Catalog # not known at the moment (37 cents).

A large portion of a clump of *Armillaria mellea* shown on the right side of the stamp. This can be considered as part of the main illustration. This is only the second US stamp with a fungus as the main illustration.

8. 3/3/05. Scott Catalog # not known at the moment (37 cents).

MID with a small portion of a clump of *Laetiporus sulphureus* (Eastern Chicken of the Woods) shown in the lower right hand corner of the stamp, with the main illustration being a chipmunk.

9. 3/3/05.

Possible obscure mushroom in the forest scene of the Eastern Deciduous Forest, but *not* on one of the actual stamps cut from the scene. This is an unidentifiable gilled mushroom on a log.

This Eastern Deciduous Forest sheet is sold out at most all post offices, but can be obtained from the downtown Seattle Philatelic Center Post Office on 3rd and Union or from the US Postal Service Philatelic Center in Kansas City, MO, at a charge of only one dollar for shipping (you can order as much as you want for only the one dollar shipping). 1-800-782-6724. The US Postal Service also issues a wonderful color catalog that comes out several times a year entitled: *USA Philatelic* which tells all about the current stamps being issued, interesting articles, as well as future issues and "Last Chance" items to purchase that will no longer be available through the US Postal Service after a specific date. This catalog is free for the asking.

200 NEW SPECIES OF YEASTS

Myc. Res.
via *The Mycophile*, NAMA, July/August 2005

Yeasts are some of the best known and most ubiquitous fungi. About 1,000 species are known. Resulting from a study by Sung-Oui Suh and Meredith Blackwell, that number has just gone up by 200. The researchers are interested in the fungal flora of the guts of insects and other arthropods, and how these fungi benefit their host organisms. It seems that cellulose-fermenting yeasts may play a crucial role in the insects (including beetles) that consume plant material. The discovery of so many new species came while surveying a number of beetles from the southeastern US and Panama. It was published in the journal *Mycological Research* (109:261-265).

The authors are confident of finding hundreds more new species. In fact, the currently known species of yeasts may end up being only about 1% of all the species out there! Incidentally, the "beetle belly" yeasts (I'm not making this up, that's what Dr. Blackwell calls them!) comprise species from genera familiar to many of us, including the ascomycete *Candida* spp., but also include some basidiomycete representatives, as well, including *Trichosporon* spp.

NEW BLACKBERRY RUST MAY SPREAD ACROSS THE US

Marvin Pritts

Dept. of Horticulture, Cornell University

The Himalayan blackberry (*Rubus armeniacus/Rubus procerus*) is considered a noxious weed in Australia, New Zealand, and Chile. A rust fungus, *Phragmidium violaceum*, was introduced in these countries to help control its spread. Now this fungus has shown up in Oregon and Washington and has begun to infect commercial plantings of certain blackberry cultivars, causing significant losses.

Most of the blackberry varieties grown in California, Washington, and Oregon are not closely related to the susceptible varieties; however, many eastern varieties have susceptible species in their parental background. It is possible that this rust disease could spread to eastern plantings in the next couple of years. We do not yet know which varieties are susceptible, so screening will be under way shortly.

The rust disease does not kill the plant completely but can weaken it over time and significantly reduce fruit production. Wine colored spots appear on the top of infected leaves. Directly under these spots, on the bottom of these leaves there will be circular patches of cream to yellow spore masses surrounded by a violet tinge.

Advanced stages of the disease will also have black spores mixed in with the yellow spores. Older leaves close to the canes are the first infected and can eventually die. Defoliation of entire canes has been seen in severe cases. Spores can also often be found on the blossoms and unripened fruit. All green portions of both primocanes and floricanes can be infected. Information and images of this rust can be found on-line at <http://www.nwipm.info/blkrust-05.htm>.

If the rust appears, it should be able to be controlled with fungicides. Pathologists in Oregon and Washington will likely have figured out how to manage the disease if and when it gets into the eastern United States.



P. violaceum on evergreen blackberry leaf

ISSAQUAH SALMON DAYS BOOTH

Ron Post



Help is needed to staff our first-ever appearance at Issaquah Salmon Days. As usual, your time will be greatly rewarded by keeping busy explaining to the public what PSMS does and how they can also enjoy the mysteries of the fungal world.

The event is in downtown Issaquah October 1–2. The hours are 10 AM until 6 PM, and you can sign up for either a two-hour shift or two consecutive shifts.

People who would like to cultivate or have experience in mushroom cultivation are especially welcome, so we can teach people what is really meant when we use the word “spawn” (HA-HA).

Call PSMS board member Colleen Compton at (206) 417-4540 to sign up for your slot.

THE QUESTION IS BLOWING IN THE WIND Else Vellinga

Mycena News, Myco. Soc. of San Francisco, February 2005
via *Spores Afield*, Colorado Myco. Soc., August 2005

Like a cake covered in icing sugar, so powdery white are the honey mushrooms and the ground around them. A typical one of these spores is only 1/3000 of an inch long. Every single mushroom in the clump sheds an estimated 15 billion of them, but many don't go far. Is there a single one which makes it high enough into the air to get transported away from the parent?

For any spore trying to travel a long distance, survival is the first challenge because conditions in the atmosphere are downright hostile. It is cold and very dry, and there is strong UV light to break down essential molecules. Spores with thin walls don't last long. Those with thick walls and a covering of pigment have the best chance of making it. But after its journey a spore faces other challenges. It has to land in a suitable place (sea or ice won't do); it has to germinate (desert areas are usually too dry), and then it has to find a mate (species that do not need a partner are at an advantage) and ally itself with a compatible substrate (an ectomycorrhizal partner of pine will not survive in a South American monkey puzzle forest). Success only comes with escape from the parental “home,” survival of the journey, and expansion into the new environment.

The wonder is that some species are very good at long distance dispersal and achieve wide distribution. Puffballs are notable examples, and I have seen the same earthstar, *Myriostoma coliforme*, on the Big Island of Hawaii and in the Dutch dunes in Europe. The spores of these guys are not just thick-walled and well-pigmented, but they are hydrophobic and many have spines, both of which are excellent, additional adaptations to airborne transport. *Pleurotus djamor*, a close relative of the oyster mushroom, is widespread in the tropics, and yet its spores have been detected as far north as Canada and Switzerland! But is this typical for most species? For only a few spore dispersal has been investigated, and here are highlights of what we have learned.

The Split-gill, *Schizophyllum commune*, is found all over the world and is completely interfertile. In other words every *Schizophyllum* can mate with any other, regardless of its place of origin. In this way it is like humans, but just as with humans, there are regional differences due to geographical barriers such as seas and high mountains. The South American Split-gill is different from the North American populations, so a natural question is: what happens in the Caribbean? Do both forms occur there and do spores from both groups get there? To find out, researchers set baits to trap the *Schizophyllum* spores. Each bait was a Petri dish with mycelium from one spore of *S. commune*, on which other spores could land and germinate. Subsequently the two different mycelia fuse and produce a third which can be distinguished from the original mycelium. What the researchers found was that spores could indeed migrate over long distances. There were many spores a mile out at sea, and not all of them came from the closest land. Yes, they did find South American spores in the Caribbean, but not farther north. On the other hand, North American spores failed to turn up in the Caribbean. It was estimated that every hour around 18 spores land on every square meter of surface. This research suggests that seas do pose a spatial barrier, but one that is not absolute; with wind in the right direction and at the right time, spores may be transported over wide expanses of water.

A second study had a rather different emphasis and investigated not only how far spores can travel, but also how viable they are. Here the setting is Sweden, and the species in question are the

old-growth forest dwellers *Fomitopsis rosea* and *Phlebia centrifuge*. These species do not grow in areas where the forests have been chopped down, and are rare in places with small relicts of forest. Where the regions of forest are more extensive, in the north of the country, the two are more common. The question the study addressed was: how large do the forests need to be to sustain viable populations of these species? The same approach was used as in the *Schizophyllum* study, with the difference that wood discs were used to grow the mycelium, to better mimic the natural conditions. Baits were put out in seven locations at widely separated latitudes. Many more spores were found on the northern baits than on the southern ones (where scarcely any were found). Significantly, the spores from the small, stressed populations tended to have more problems germinating than the ones from the large, healthy populations. It appears that the size of the population and the presence of old-growth forest both play a role in sustaining the fungi.

No one has investigated this kind of effect in California, and it would be interesting to see whether there is direct contact between populations of, let's say, *Amanita lanei* (formerly *Amanita calyptroderma*) in the coastal oak forests and in the Sierra foothills. Do spores travel through the air over the Central Valley between those populations, or is there only more local spore transport? Will the Sierra populations still be viable when all the coastal live oak has succumbed to sudden oak death?

Humans are very good at transporting all kinds of organisms, both inadvertently and deliberately. With their help, mushroom species have jumped, again and again, to new territory in modern times. The Octopus Stinkhorn, *Clathrus archeri*, is a good example. It arrived in Europe from Australia at the end of the First World War, probably with military equipment or in bales of wool. It settled in the northeastern part of France and from there, helped by the local flies, it spread like ripples in a pond, until it is found in virtually every country in Western Europe. Recently it has also appeared in California undoubtedly with human help, though we do not know whether it came directly from Australia or via Europe. We should all keep our eyes and noses open to record its progress here.

However, the story of *Armillaria mellea* in South Africa shows that not all transplants are that successful. Dutch settlers in the 17th century planted a garden in Cape Town, to provide fresh provisions for seafarers making the long voyage between Europe and the Far East. With the roots of grape or citrus, or perhaps some other European plant, came the honey mushroom. Even now the original garden still harbors the very same honey mushrooms, all genetically identical. But the species has not made the jump into nature and has affected only the plants within the original garden.

Unraveling those stories, and determining what makes a species a successful long-distance flier or a perfect invader will keep amateur and professional mycologists busy for years to come.



BREITENBUSH MUSHROOM CONFERENCE

Patrice Benson

The annual mushroom conference at Breitenbush Hot Springs Resort near Detroit, Oregon, will take place October 6–9, 2005, just prior to the Myco Medicinal III Conference at Ft Worden, in Port Townsend, Washington, on October 12–17, 2005.

Our speakers this year are Mycologist Dr. Susan Libonati, who will be delighting us with the subjects of mushroom anatomy and human uses of fungi, and Dorothy Beebee, an artist and internationally recognized expert on the subject of dyeing with fungi.

Chef Michael Blackwell will present the mushrooms with their best flavors forward, and hot-springs biologist Paul Kroeger will be our foray mycologist with expertise to share about what's what at the fungi level at Breitenbush.

Judy Roger and Maggie Rogers are our local mushroom experts and fountains of information about things mushroom, including books about them and what they are and how to find them! Expert guides will lead the inexperienced in daily forays and hands-on dyeing, and identification workshops will keep you busy back at the resort when you are not soaking in the hot waters or enjoying the delicious organic foods.

The Mushroom Conference at Breitenbush Hot Springs is now posted on their website at <http://www.breitenbush.com/html/events/oct6-9.html>. I encourage you to sign up right away and take advantage of the early registration discount. Click on their registration tab for instructions about how to reserve your space for the October 6–9, 2005, mushroom event.

For questions, phone or e-mail Patrice Benson at (206) 722-0691 or bensohp@amgen.com.

ANTS THAT TRAP WITH MOLD

Allain Dejean

via *The Mycophile*, NAMA, July/August 2005

A recent study published in the research journal *Nature* by Allain Dejean and colleagues of the Université de Toulouse in France describes how some tropical arboreal ants are attracted to and take up residence in pouches formed in the stems of leaves of a tree known as *Hirtella physophora*. Furthermore, the tree keeps the ants happy by providing them with nectar snacks that are grown separately from the flowers.

But ants cannot live on sugar alone. They make up for a lack of nitrogen in their diet by acting in groups to capture protein-rich flying and jumping prey—prey that would likely be herbivorous toward the tree.

The ants, *Allomerus decemarticulatus*, seem specifically associated with the Amazonian “ant-plant” *H. physophora*, and take a novel approach to catching prey. Using fibers plucked from the stem of the host plant and bound together by purposely grown fungal mycelia (from a sooty mold), they build a spongy platform for trapping much larger insects, then lie in wait.

When prey moves onto the platform, the ants spring into action. The ants beneath the platform reach through the holes and immobilize the prey before dividing the spoils among nest mates. Although it's too bad for the larger prey insect, the ants do quite well. And as the host benefits from the ants' predation (and probably from fecal and carcass waste), it suits the ant-plant just fine. The authors report this to be the first account of a collective creation of a trap as a predatory strategy in ants.

SWEDES HIT BY FUNGI FEVER **Stephen Brown**
The Seattle Times, August 22, 2005

Stockholm, Sweden (Reuters) - When Prime Minister Goran Persson wanted to cheer up Swedes enduring the wettest summer in 13 years, he first tried promising more jobs. Then, he hit upon their weak spot: mushrooms. "We are having a fantastic mushroom year," he enthused.

He may need a more traditional slogan for next year's elections but Persson knows that Swedes' fondness for picking mushrooms verges on the obsessive.

This summer's weather has been disastrous for sun lovers who normally retreat to Sweden's islands for swimming and boating. But the hot, dry start to the summer followed by persistent clouds and rain was perfect for fungi. The resulting abundance is front-page news.

"Record year in the mushroom woods," reads one newspaper headline while another newspaper gave pride of place to "Mushrooms to Avoid," publishing tips on how to detect poisonous varieties.

For the uninitiated, or those wishing to expand their repertoire to include exotic woodland varieties, advice is on hand from about 200 experts recognized by the National Mushroom Consultants' Association.

Sweden is a paradise for mushroom fans. More than half the country is covered by forests, laws of access give people the right to tramp across farmland and private timber plantations, and there are tracts of forest near all the major cities.

Some Swedes even recruit their pets to help hunt mushrooms. Inger Andersson in Eskilstuna, west of Stockholm, said her cat Ville meows when he smells chanterelles and sniffed out 20 quarts of them last year.



CHANTERELLE POTSTICKERS **Mary J. Taylor**

The following recipe works equally well with fresh or canned mushrooms. The potstickers easily freeze for a month or so.

6 slices	Bacon (or ¼ lb chopped ham and 2 TBs butter)
1 lb	Fresh chanterelles, chopped OR 1 pint canned chanterelles, drained (reserving liquid) and chopped
1 ea.	Onion, chopped
1 ea.	Clove garlic, minced
¼ cup	Sherry
2 TBs	Flour
1 pkg	Gzoya wrappers

1. Fry bacon in large skillet until crisp over medium heat. Drain, reserving the drippings. Crumble the bacon and set aside.

2. If using fresh mushrooms, add to drippings along with onions and garlic. Cook until all juices have evaporated. Stir in sherry and flour and cook, stirring, until thick. Remove from heat and cool.

3. If using canned mushrooms, add onions and garlic and drained juices from the mushrooms to the drippings. Cook until all juices have evaporated. Stir in mushrooms, sherry, and flour and cook, stirring, until thick. Remove from heat and cool.

4. Place about 2 teaspoons of the filling in the center of each wrapper. Fold dough in half to form a half moon shape. Pinch closed along curved edge. Set on plastic wrap, seam side up, and keep lightly covered while preparing remaining potstickers.

5. To cook in the Oriental fashion: Set a large frying pan over medium high heat and brush with oil. Add potstickers and fry until golden brown on the bottom, about 5–10 minutes. Add ¼ cup beef broth to the pan, cover with lid and steam 10 minutes. Serve with dipping sauce.

Traditional dipping sauce: For each serving, blend ¼ cup each soy sauce and beef broth, 1 tablespoon vinegar, and ¼ teaspoon hot liquid pepper seasoning.

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