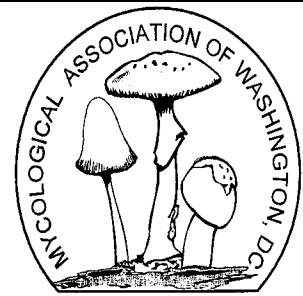


# Potomac Sporophore



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## MAW DUES

**MAW Dues are collected each January. Please send your dues to:**

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**Individual: \$20.00;  
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## THE MUSHROOM FAIR

MAW's 4<sup>th</sup> Annual Mushroom Fair took place on October 2<sup>nd</sup> of this year at Brookside Gardens. By all accounts it was a great success. About 750 people entered the visitor's center and most of them visited our fair, according to Brookside personnel. Many of our members worked with great enthusiasm to make the fair a success, and together, everyone helped to create a very festive atmosphere, which prevailed throughout the afternoon. The purpose of the fair was to help the public to know about mushrooms and to learn how they can enjoy them.

We would like to thank Phillips Mushroom Farm for providing us with the mushrooms which were cooked at the fair by Dan DeSouza and Ray LaSala. Both worked throughout the afternoon in demonstrating how

to cook delectable mushroom dishes.

John Plischke, III and Kim Plischke, who are very active in the Western Pennsylvania Mushroom Club, were the first to arrive and were very helpful throughout the day. John gave two slide/lecture talks and was the principle mushroom-identification mycologist. Kim gave the public information on using mushrooms to dye yarn and to make mushroom paper.

The membership table, which was brought inside the main hall this year, was staffed by Karen Adams, Catherine White-Horne and Hilde DeSouza.(see picture below) They were at the table all afternoon selling raffle tickets and explaining the benefits of MAW membership. We are happy to report that over 10 people joined our club and that others are expected to join.



Hundreds of raffle tickets were sold.

Both Bruce Boyer and Mitch Forenet led forays on the grounds of the Wheaton

**Municipal Park. These walks were enthusiastically received by a public that was often well-informed about those aspects of the flora other than mushrooms.**

**Waldemar Poppe spent the afternoon teaching people how to grow mushrooms on logs and bundles. He showed racks of shiitake and pleurotus ostreatus, which he had grown and these mushrooms were some of the principle raffle items, which Waldemar donated.**



**Waldemar Poppe at the Fair**

**Paul Goland was busy introducing the public to a variety of mushroom books and other items related to mushrooms and he demonstrated the way in which logs are inoculated with mushroom plugs.**

**Maria Dobrowolsky, for the 4<sup>th</sup> year, managed the children's room the children colored outlines of mushrooms set in forest settings.**

**The tallest tree in the eastern forest is the tulip poplar**



**John Plischke and Jon Ellifritz at the mushroom tables**

**Jon Ellifritz gave a lecture on mushrooms and spent his day identifying mushrooms for the public.**

**Fred Seymour, who is serving as the club's librarian, brought the MAW library to the fair for the visitors to peruse.**

**Many other members were at the fair and helped with the other tasks which were vital to a successful fair: Larry Goldschmidt, Gerry Barton, William Needham, who worked with Catherine White-Horne on the publicity for the fair and who took the pictures of the fair used in this letter, Don Evans, Jerry Rafats, and Bob Jaegly.**

**I would like to give a special thanks to Gordon Callahan who created a very exact file of previous fairs, which was quite valuable to me. Jim Sherry**

## **THE OCTOBER TASTING**

**Ilona Conolly**

**Culinary Chair (a/k/a Master of Culinary Ceremonies)**

**Waldemar Poppe, loves to cook and share his culinary enthusiasm and creations with all who are willing to partake, and the October tasting was no**

**exception -- the crab-stuffed shiitake mushrooms and pan fried mushroom medley were superb. But Waldemar's generosity is not limited to his culinary contributions, both at the Tastings and at monthly membership meetings -- he also donates most of the prizes for the cooking competition (in which he never participates, but always gets lots of votes!). For those who dislike competitions, this one is unique -- the number of prizes nearly equals the number of dishes, so there are never really any losers.**

**Agit Gadre's Sauted Mushrooms Indian Style won top honors, followed by Bruce Boyer's Enoki and Chanterelle Cinnabarinus Mimosa Salad, Mitch Fournet's Chanterelle Chicken with Pasta and Asparagus, Bonnie Johnson's Portabellas Stuffed with Mushroom Medley and Boursin Cheese, and Andrew Burman's Savory Mushroom Bread Pudding. Other dishes included:**

- **Green Tea with Maitake**
- **Pork Stir Fry with Shiitake, Mixed Mushrooms and Veggies**
- **Enoki Salad**
- **Coussins de Champignon at Homard**
- **Botrytis Semillion**
- **Roast Chicken with Golden Chanterelles and Royal Trumpets**
- **Funghi con Potato**
- **Blanquette of Maitake and Cauliflower**
- **Funghi Trifolati on Pasta**
- **Mushroom Stroganoff**

- Artichoke Cheese Mushroom Spread
- Mushroom Tempura
- Noodles with Mushrooms and Seafood
- Chap Choie
- Straw Mushroom Rice
- Herbed Portabellas
- Mushroom Fried Rice

Phillips Mushrooms of Kennett Square, Pennsylvania once again donated a sizable quantity and variety of the mushrooms that they grow and sell through local markets, including Whole Foods. Thanks to Phillips and MAW members who volunteered to cook the mushrooms, attendees enjoyed shiitake, oyster, king oyster, birch mushrooms, enoki and maitake (hen of the woods). Some 42 members enjoyed 25 dishes prepared by our members.

The next Tasting is the Wild Foods Tasting on Tuesday, May 2, 2006. One can expect to taste fresh morels, preserved mushrooms from the previous season and other wild foods including ramps, venison, and wild edible plants. Let your culinary spirit entice you to cook a dish for the next Tasting. If you have questions about preparing a dish for the Tasting, please listen to mailbox 41 on the MAW announcement line (301-907-3053), check the MAW website ([www.mawdc.org](http://www.mawdc.org)) or contact the culinary chair via e-mail at [culinary@mawdc.org](mailto:culinary@mawdc.org) for details. Attendance will once again be FREE to members in good standing who bring a dish and just \$10/person without a

dish. We look forward to seeing you next May!

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### Anne Dow Memorial Library

Jon Ellifritz

Last January we voted to name our relatively small library in honor of longtime member and former newsletter editor Anne Dow, who passed away in 2004. And at a Board meeting in September we voted to authorize a contest to design a bookplate for books in the library.

Dr. Samuel Ristich of Maine, a venerable mycologist who makes mushrooms exciting, had asked if we planned to do anything in Anne's memory, and that eventually led to the January dedication. Dr. Ristich made a cash donation for the library, sent by way of one of Anne's sons, Joshua Dow, and Joshua added a generous amount before sending it on to us. Dr. Ristich had several years ago also donated Bessette, Roody, and Bessette's North American Boletes to our library. A grateful thank you to Joshua and Dr. Sam for their generous contributions. We have \$80 to add to our collection of mushroom books.

Ray LaSala suggested the following technical specifications for electronic submissions for the bookplate design contest. The image should be saved in a commonly available, easily scalable format such as .psd (Photoshop document) or .tif (tagged image file format used for scanned files), at least 3" by

3" but no more than 8.5" by 11", scalable to a height of 6" or less and a width of 4" or less, in black and white, and suitable for reproduction on an office copier. Electronic submissions may be e-mailed to [webmaster@mawdc.org](mailto:webmaster@mawdc.org) and those on paper (same dimensions) may be brought to the January 3 meeting at Chevy Chase Library or sent to our librarian, Fred Seymour, 12821 Lackey Road, Union Bridge, MD 21791. Deadline for receipt is January 9, 2006. Remember that you should include in the design the words "Anne Dow Memorial Library" and either "Mycological Association of Washington" or "MAW." The prize for the winning design is a mushroom book of the winner's choice, within reason, e.g., relatively easily obtainable (still in print or still readily available

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### Sooty Molds and Woolly Aphids

Jon Ellifritz

Not long ago our Webmaster forwarded me an e-mail from someone who had photographed what seemed to be a fungus, shot from a kayak during a trip on the Pocomoke River. She asked if we could identify the critter from two attached photographs. They looked like little white corals with lots of "arms." For a moment I was at a loss. Then the cartoon light bulb flashed. The gray of the branch and the presence of two ants on it reminded me of something I had first seen close to 20 years ago. Woolly aphids! But was this merely an entomological

matter? No. What I had seen way back when was indeed a gaggle of woolly aphids on an eye-level beech branch. Somewhere between adorable and ridiculous, they slowly and constantly waved their snowy, rudimentary wings up and down. But on the ground just beneath them was a thick, fibrous mat that looked a bit like sphagnum moss or a natural sponge, but seemed somewhat fungal too. Although I took samples of both aphids and sponge to the next MAW meeting, it wasn't until a year or so later that a guest speaker, Dr. Samuel Ristich of the Maine Mycological Association (see the MAW library article for more about Dr. Sam) revealed the secret of the bugs, along with many other mycological marvels.

I e-mailed my correspondent the preliminary guess at what she seemed to have captured, told her someone else might be able to provide confirmation, forwarded her e-mail with photos to John Plischke III, and yet again asked him the name of the fungus associated with woolly aphids, which had shown up on the display tables at his club's day-long September foray in Pittsburgh last year. I also asked about the tree, since the fruit didn't look like a beechnut, despite the superficial similarities of the bark and leaves to those of beech. John sent back a woolly aphid confirmation and identified the tree as alder, and a name -- *Scorias spongiosa*. He also included excerpts from three web articles about the fungus.

With some more research on the internet and in several books, we now have a rather complicated but fascinating picture of the interactions of several species of fungus, insects and trees.

Woolly aphids are related to other aphids, scale insects, and cicadas. Females can produce young either parthogenetically ("virgin birth") or sexually, and most require two different host plants in order to go through their entire life cycle. Some woolly aphids can be extremely destructive plant pests (e.g., the woolly adelgids devastating hemlocks in the Catskills), but some are relatively harmless and are a food source for beneficial insects like lacewings and ladybird beetles. The "woolliness" consists of long fibers of wax extruded from the aphid's abdomen, and probably offers protection against predators and the elements. Like other aphids, they suck juices from the host plant and then excrete the sweet liquid called "honeydew." Regular aphids are sometimes called "ant cows" because ants tend them so they can "milk" them to use the honeydew as a food source.

This story would be rather mundane if it involved only trees and insect pests, despite the charm of those slowly moving, shimmery, snowy wings. It's the fungus, *Scorias spongiosa*, that makes it fascinating. *Scorias* is classed among the group known as sooty molds. Many of these unappetizingly named fungi are serious parasites of mostly tropical plants, but the family to

which *Scorias* belongs has hundreds of species that live mostly on the excretions of aphids and scale insects, and this species itself is associated with aphid and scale pests of alder, beech, pine, and other trees. The sooty molds are most closely related to the powdery mildews, but as ascomycetes they also count morels and truffles among their distant cousins.

The initial, asexual stage of *Scorias* is the previously-described fibrous, sponge-like mat, cause direct somewhat yellowish-greenish-brown with a pinkish cast. It eventually transforms into the spore-producing sexual stage, a dry, brittle, charcoal-like mass, which doesn't harm to the tree it might be on even if it's esthetically displeasing.

The final (?) chapter of this story introduces a human, a 17-year old high school senior from Sag Harbor, Long Island, Ailish Elizabeth Bateman. Her chemistry project made her a finalist in the 64<sup>th</sup> Annual (2004-5) Intel Science Talent Search. Ms. Bateman first extracted a chemical, scoriosin, from a specimen of *Scorias spongiosa* on a beech tree near her science research teacher's home. Samples of the scoriosin were sent to a pharmaceutical company for magnetic resonance spectroscopic analysis to determine the molecular structure, and she then tested the activity of scoriosin and found that it was effective against three kinds of Gram-positive bacteria. (This new

antibiotic is reportedly being tested against HIV, SARS, and West Nile disease in a University of Mississippi laboratory, but this last claim, reported in a local paper and Business Week online, is puzzling, since antibiotics generally don't work against viruses.)

So we have the involvement of four of the five kingdoms proposed of late as covering the various forms of life on earth (no longer just the plant and animal kingdoms). A tree (Plantae) provides food for an insect (Animalia) whose excreta provide food for both another insect and for an ascomycete (Fungi). The fungus produces a chemical that may help humans defend themselves against harmful strains from a fourth kingdom, Bacteria. Further study of this chain might even turn up one or more members of the fifth kingdom, Protocista, which includes protozoans, algae, slime molds, dinoflagellates, and diatoms. Almost all fungi, plants, and animals have some protocist associates, as most of the members of all four of these kingdoms have bacterial associates. For example, cellulose-digesting protocists live in the intestines of termites, providing nourishment for both the hosts and themselves. One of the rewards of studying fungi rather than, say, being a birdwatcher, is that mycology seems to provide a much wider scope to comprehend the interconnectedness of life on earth. Even if you only want to learn how to find and identify a few choice edible mushrooms,

you can hardly avoid learning that one you really like is found only under certain tree species. The beech tree that started the chain may be the ideal place to find those chanterelles. What yellow-bellied sapsucker is going to lead you to them? (see the back page for a photograph of the woolly aphid).

### **Pleurotus Ostreatus**

**Jim Sherry**

The *Pleurotus ostreatus* is a choice mushroom, according to many mushroom books, but some people think it is a bit slimy. Personally, I don't experience sliminess-it is one of my favorite mushrooms and I am glad that it is because I find lots of it.

*Pleurotus* is said to grow year round but I find it only in the spring and fall, and I find 80% of what I find after Nov. 15. I have found it into the 2<sup>nd</sup> week of January. Even after a snow fall, I have found edible *pleurotus*.

This year was an exception in that I began to find some *pleurotus* in August and have been finding some ever since, though never masses of it. Last year someone objected because I said that at this time of the year (fall) that the *pleurotus* is "the only game in town" but I repeat that here because at this time of the year (after Thanksgiving) it is the only choice mushroom that I find in quantity-I found lots of it yesterday (Nov. 29). One of the satisfying things about finding *pleurotus* in cold weather is that it is often free of

bugs and sometimes it is almost dry, unless it has been rained upon. And if you find it with its gills turned brown, it is still edible. It is a very hardy mushroom.

I have said before that I find most of my *pleurotus* on trees that are in or next to streams, but I have found some on trees that were about 75 feet from a stream. I don't know whether *pleurotus* needs to be near a stream or water to grow, but I don't recall finding *pleurotus* in the mountains, except once, and that was near a small river. It may be that trees near water tend to be blown over more easily because their rootballs are more likely to get waterlogged, and tulip poplar, a ready host for *pleurotus*, seems to grow more readily in areas that get flooded than does for example, oak.

At first I found *pleurotus* only on tulip poplar, then I found it growing on some sawed-up beech logs, and last year I found it on black locust and this year on a mockernut hickory and on scarlet oak, and a member of MAW has reported finding some on elm. Jon Ellifritz has found it on the mulberry tree. Still, most of the *pleurotus* that I find is growing on tulip poplar, and why not, there's plenty of it around here (Howard County, MD) And if you find a stand of black locust near a stream, as I did, you may also find lots of *pleurotus*. Sometimes, of course, one might not know the name of the tree on which the *pleurotus* is growing, especially because it can grow on logs with little bark.

*Pleurotus*, and I am referring

only to *ostreatus*, is found on large logs and on twigs and on every size of branch in between. It is found singly and in great clusters, on standing dead trees and on fallen logs and cut logs and on trees that are living, and on dead parts of living trees. It is a saprobe, which means that it derives its nutrition from dead organic matter.

If you look *pleurotus* up in Lincoff you will find over 15 species listed but the only species that I have found is the *ostreatus* and, maybe, the *elongatipes*, which I found once and which has been described by Tom Volk (look up his mushroom of the month). Maybe I have found other species and didn't know it. One reference that I came across said that the term "oyster mushroom" applies to *Pleurotus populinus* and *Pleurotus pulmonarius* as well as *P.ostreatus*.

The hurricane "Isabel" blew a tulip poplar tree onto a nearby stream on Sept. 18, 2003 and that poplar produced some *pleurotus* in 2004. This year it produced *pleurotus* on Sept.7 and has been producing *pleurotus* regularly for two months, though not a great number at any one time. This long period of *pleurotus* production from the same tree is unusual in my experience.

*Pleurotos ostreatus* is an easy mushroom to cultivate. Many of MAW members have grown it using tulip poplar logs.

It is nutritional, like most mushrooms, but it is also medicinal. It has chemicals that help lower the bad cholesterol, and nourish the heart and like so many polypores, it has an antiviral, antibiotic and anti-inflammatory effect on humans.



Pleurotus Ostreatus

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 POLYPORES

Jim Sherry

Mychologists tell us that fungi interact with trees in three different ways: (1) they have a mutually beneficial relationship with a living tree (mycorrhizal); (2) they cause a tree to die (parasitic) or (3) they decompose dead trees or dead wood in living trees (saprophytic). The polypore is part of the third group-it decomposes the logs of the forest and turns them into organic compounds that can be absorbed by the polypore. This means that the polypore's enzymes break down the tissues of the tree into simple sugars so that the cells of the polypore and other organisms can use these sugars for nourishment. If the polypore did not decompose the logs of the forest the logs would pile up and prevent the growth of new trees -bacteria and other organisms contribute to this forest cleansing, but 80% of this work is done by polypores.

Some of our favorite mushrooms

are polypores. Lincoff lists three polypores as "choice": *Grifola frondosa* (hen-of-the-wood), *Laeterporus* (chicken mushroom), and *Polyporus umbellatus* (umbrella polypore) and two that are 'good': *Fistulina hepatica* (beefsteak polypore) and *Merpilus giganteus* (blackstaining polypore). He lists many others as 'edible' which means that if you like their taste and eat them when they are young, you have another polypore to hunt. The *Polyporus squamosus* (Dryad's saddle) and the *Bondarzewia berkeleyi* (Berkeley's polypore) fall into this group.

Polypores are also very important as agents for health and for fighting disease and are now being studied for their industrial uses. When Oetzi, the 5,000 year old iceman, was found in the Alps he was carrying two polypores-one to start fires and another for medicinal purposes.

When you are in the woods you will see many logs that are in various stages of decomposition. You may see polypores on them or you may not, but even if there are no visible polypores (fruiting bodies) on the logs, it is more than likely that there is a mycelium growing throughout the log and it is this hidden mycelium which is decomposing the log. Sometimes you see a polypore at the foot of a living tree but it is usually decomposing the dead wood cells of the tree. Actually, only about 1% of the cells in a living tree are live, working cells.

When a polypore decomposes a log it causes two main types of rot: (1) brown rot and (2) white rot. The type of rot depends on which polypore is active in the log.



**Brown Rot**

Brown rot is caused by a polypore that consumes the white cellulose and the white hemi-cellulose of the tree and leaves the brown lignin unconsumed and this lignin remains visible, as can be seen in the picture above. Brown rot is easily recognized because it is not only brown but it forms cubical squares, which eventually crumble. Some common polypores which cause brown rot are: *Laetiporus sulphureus* (chicken mushroom) and *Lenzites betulina* (gilled polypore).

White rot is caused by polypores that consume the brown-colored lignum of the cell walls of the log while leaving the white (hemi) cellulose cells. The wood on which white rot occurs becomes stringy and is less likely to crumble. Over 90% of polypores cause white rot. Some white rotters are : *Grifola frondosa* (hen of the woods) and *Trametes versicolor* (turkey tail). Polypores are not the only fungi to cause rot, e.g., the *pleurotus* causes white rot. Some polypores are capable of consuming both the lignin and cellulose and they are also referred to as white rotters.

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**White Rot**

The picture above shows the stringy fibers of white rot. The lignin has been consumed by the fungi. Although white rot is much more common than brown rot it is much easier to recognize brown rot because white rot is often taking place while the fallen tree still has its bark and its inner bark intact. Walk through the forest and you will see brown rot easily but try to spot white rot; it's not as apparent even though it is working on the vast majority of fallen logs in the forest.

I remember reading the review of a book which described the process by which invertebrate devour the carcass of an animal after the larger animals were finished with it. Each invertebrate took its turn in a sequence of dining-one ate and the remains were fodder for the next insect and so on. A similar process occurs with the repast of polypores. Some dine first and later others take their place. The first ones leave the wood in a state that can be digested by the later arrivals. It is, though, possible to see different species of polypores on a log at the same time. One report listed ten polypores on the same tree.

The mycelium of the polypore acts upon the log by secreting enzymes which break down the wood cells, then the mycelium ingests or absorbs the

result.(animals do the opposite-they ingest first and then digest.their food).

The work of rotting is done by the mycelium's enzymes and it is these enzymes which are the subject of so much research by many industries. For example, the paper industry is studying the secretions of the *Trematas versicolor* (turkey tail) because it consumes lignin but does not consume the cellulose from which paper is made and this is a much more environmentally friendly way of making paper because you wouldn't have to use bleaches which are not environmentally friendly. The turkey tail's enzymes are also used in the manufacture of stone-washed jeans. Currently there is much research on the ability of fungi enzymes to decompose contaminated waste sites.

We all know of the delights of eating the polypores listed at the beginning of this article, but we may not know of the vast amount of research going on in the U.S. and in Asia on the medicinal and therapeutic benefits of polypores.

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The tallest tree in the eastern forest is the tulip poplar.

The stoutest tree in the eastern forest is the sycamore tree.

The strongest tree in the eastern forest is the hophornbeam, also called the iron tree.

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I must go down to the woods again  
To the lonely woods and sky  
And all I ask is a tall tree  
And a mushroom growing by.

Jim Mansfield



**Woolly Aphids and ants on the branch of an alder tree. The stingy-like balls are a waxy substance from the abdomen of the aphid.**

**The photo was taken by Vicki Dodson**

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