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Spring Edition

# Potomac Sporophore

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The quarterly publication of the Mycological Association of Washington (MAW)

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## **Monthly Meeting Location:**

Kensington Public Library  
4201 Knowles Avenue.  
phone number 240-773-9515

## **2012 Scheduled Events**

### **Monthly Meetings/Major Events**

Monthly meetings are normally held on the first Tuesday of the month. All monthly meetings start at 7PM and include a brief review by each of the MAW board members and a summary of monthly events and mushroom finds by the President. The program starts at about 8PM.

April 3 - Monthly Meeting – Silvia Cook – Mushroom mycelia and packaging

May 1 – Spring “Wild Foods” Tasting Meeting

June 5 – Monthly Meeting TBD

July 3 – Monthly Meeting TBD

August 2 – 5 NEMF Foray East Stroudsburg University. Register at [www.nemf2012.org](http://www.nemf2012.org)

August 7 – Monthly Meeting TBD

September 28 – 30 – Annual Foray at Camp Sequanota in Western Pennsylvania.

October 2 – Fall “Mostly Fungi” Tasting meeting

October 7 – Annual Mushroom Fair at Brookside Gardens

### **Tentative Spring and Summer Forays**

There are certain changes ahead in the way MAW forays will be conducted, along with the methods of notification. As you can see from the following list of foray dates, they don't include a specific time and exact location for when and where we'll meet to begin the foray. All scheduled forays are tentative, until they're confirmed by an e-mail or telephone notification, which will include the specific meeting time and place, with directions. Changes may occur depending on the weather leading up to or on the foray date, or the availability of a foray leader. In addition, not all forays will be open to non-members – there will still be a \$5 fee for non-member foray attendees. If you discover, or are aware of, areas that look like good places for MAW forays, please send an email to [forays@mawdc.org](mailto:forays@mawdc.org) so that we can look into it. We also would be glad to talk to private landowners who have an interest in knowing what is in their woods, and would be willing to allow MAW collection forays as a way to help them learn what they have. Some of our forays will be designated as “identification only” and others as “collection discretion advised.”

The first will be used when it is certain that a particular park has clear rules against collection that we understand represent a considered policy that is enforced in practice by the park rangers [Rock Creek Park is a good example of this]. The second is for instances where the administrative policy regarding collecting is somewhat uncertain or we may have had encounters with park authorities in that or a related park in the past that left us with an impression that there may be an issue. We recognize that that collection of fruiting bodies is not harmful to the fungus itself, and we certainly discourage (regardless of park policy) all collection methods that disturb the ecology of the area (and especially the mycelium). As we understand it, picking a specimen mushroom and turning it over to examine it for identification and study would not be a violation of rules that prohibit collecting. However, MAW's policy is to discourage violation of established rules (even if we disagree with the need for them) and to avoid confrontations where there are uncertain rules. Foray leaders will not act as enforcer of park rules, but if you should decide to collect mushrooms (or anything else) in such areas, you are on your own in terms of dealing with local authorities and possible fines.

#### **Here's the tentative schedule:**

**Saturday, 4/7** – Fairfax County, VA

**Saturday, 4/14** – Fairfax County, VA or central P.G. County, MD

**Sunday, 4/15** – Montgomery County, MD

**Saturday, 4/21** – Jewell Hollow, VA or central P.G. County, MD

**Sunday, 4/22** – Montgomery County, MD

**Saturday, 4/28** – Front Royal, VA

**Saturday, 5/5** – Front Royal, VA area

**Possible 1-3 forays during period 5/12 – 6/30**, places and times TBD

**Saturday, 7/7** – Montgomery County, MD

**Sunday, 7/15** – P.G. County;

**Sunday, 7/22** – Northern Maryland

**Friday, 7/27 – Sunday, 7/29** – western VA joint foray weekend

**Sunday, 8/12** – Northern Virginia

**Saturday, 8/18** – Michaux State Forest, southern PA

#### **MAW Board Notes**

**Membership renewal was due on 1 January 2012. If you have not renewed, you are now three months overdue.**

#### **From the MAW President**

Over the years I have seen MAW's ability and methods to communicate with its members and the public grow by leaps and bounds. When I joined, monthly meetings, the Sporophore, letters, postcards and the telephone tree were how we communicated with members. Newspaper, posted signs, flyers, the occasional radio or television show, and meetings were the only methods that we used to talk to the public. Telephone voice mail and recordings, added flexibility and

wider distribution, then became obsolete as email, social media and personal communication devices took over and expanded. MAW's "communication plan" evolved, but without coordinated direction or a real plan, it has become overlapping, inefficient and often ineffective in getting the right message to the right people. The Board is trying to take steps to improve this situation in a controlled and deliberate manner.

I believe that we should develop a comprehensive communication plan, documenting and implementing it. At the Board meeting last week, we made several important decisions to further this end. The plan must include different elements for communicating with the public and with our members. With the public we need to meet the objectives of our charter, including education and safety. With our members, we need to meet these goals as well, but also to provide their desires: of additional flexibility, for varied interest and capabilities to use rapidly evolving digital systems, and to avoid what some see as burdensome methods. We focused on MAW's most time sensitive need: scheduling and notifications regarding forays.

Members and non-members need different information. Members want detailed, timely and updated knowledge, so that they can decide to participate in forays or not, when and in the manner which best suits them. MAW's unwritten policy has been to invite non-members to attend any local forays, charging a participation fee, so that people can find out what we do before deciding to become a member. We have found that as a result, some forays become unmanageably overcrowded. We also believe that some individuals have attended a few forays, learned where and what we are looking for, and remained on

notification lists primarily to hunt the same areas just before future scheduled forays.

The Board has not made any changes to the way we notify members about forays. We are moving the non-members on the foray email list to MAWDC Meetup. This allows us to require an RSVP to limit the size of some forays, require a waiver to protect the club and participating attendees from over-zealous pothunters, and to better identify those non-members who attend forays. This also changes our policy a little, consistent with our policy that most, but not all meetings are open to the public without joining MAW. It allows foray leaders to schedule some member only forays. Details of these changes and how they are being implemented are discussed in this newsletter and will be open for question at our April meeting.

Good hunting

- Bruce Boyer

### **The Mushroom Chronicles**

*Welcome to the Mushroom Chronicles, a new column in the Potomac Sporophore. In each issue, the Chronicles, with some help from MAW's mushroom enthusiasts, will inform readers about various far-out fungi or fungal friendlies. Yes, it's all a thinly veiled attempt to push you toward the conclusion that mushrooms truly are otherworldly (as the column's name-grab implies).*

### **Inhospitable Habitats**

Mushrooms might seem like happy little forest-dwelling decomposers, and for the most part they are (at least as far as we know.) Sure, a few common species break that mold — the cheery little yellow flowerpot

fungi, *Leucocoprinus birnbaumii*, the hickory nutshell-loving *Hymenoscyphus fructigenus*, and the scourge of the British fleet, Chicken of the woods (*Laetiporus sulphureus*) — but those fungi aren't all that enterprising. From desert dwellers to cold-gilled killers, here are a few mushrooms spreading their spores at the fringes of our preconceived fungal habitats.

Erosion is bad for soil, ergo fruit trees and fruiting bodies, too? Well, *Leccinum arenicola* proves us wrong. As Dr. Patrick Leacock, adjunct curator in mycology at The Field Museum in Chicago, explained at the November MAW meeting, this bolete (which a MAW member had found on a Delaware beach) prefers sandy environments. *Mushrooms of Cape Cod and the National Seashore* says it's "usually partially buried and coated with sand" or found on coastal sand dunes.

Sand being no barrier, you might think the desert would pose mycological issues. Again, wrong. Enter the Terfeziaceae, a family of culinarily prized and high-priced truffles that grow right in the desert sand, supposedly where lightning strikes. You're likely to find them in many arid and semi-arid regions of the Mediterranean, North Africa, and the Middle East. In actuality, lightning has nothing to do with their growth, and they more likely have formed mycorrhizal relationships with desert plants.

Deserts are hot, but they aren't exactly oven hot. Yet again, mushrooms are up to the challenge. The spores of certain Phoma species and the *Chaetomella raphigera*, found in a tropical semi-arid habitat in the Western Ghats of India, are able to germinate after incubation in an oven for more than two hours at 100 C. (The spores must cool off again before they ger-

minate.) Bartalina spores can survive two hours at 115 C.

These finds beat out the previous record holders; thermophilic fungi until recently were the only known eukaryotes that could grow above 45 C. Researchers have nicknamed these newly found heat-resistant fungi "Agni's Fungi" after the Indian god for fire.

Programs Chair Bruce Eberle says these hotheads reinforce the theory that fungi might have had something to do with the demise of the not-so-hot-bodied dinosaurs.

Red tide, eat your heart out, says the *Psathyrella aquatica*, first found off the Coast of Oregon in 2005. No puny wave-dweller, this mushroom bears gills and looks just like its terrestrial brethren except it's underwater. While fungi have been observed underwater, *P. aquatica* is unique in that it develops underwater and shows recent adaptations to the stream environment in its gills and ballistospores. Eberle points out the mystery here: "How in the devil do you move fungi around underwater?"

Washington Metropolitan Area Transit Authority might not be so pleased to learn that while we don't have well-fed rats in our subway tunnels, we do have some interesting transit fungi. Webmaster Martin Livezey found a strange agaricus specimen growing in wood mulch beneath an elevated Metro station where little rain falls. DNA testing confirmed it's *Agaricus pearsonii*, a known species in South Africa that also can be found in France. Livezey was proud to be the first to document the species in North America.

Mushrooms find home in animals

both living and dead, too. Romina Orietta Gazis, a doctoral student at the University of Maryland, presented examples of entomopathogenic fungi from her thesis work at the Feb. 7 meeting. The spores of these fungi attach to the body of an insect, germinate, and slowly grow and bore into the insect's body cavity. The insect dies either as a result of fungal toxins or because the fungi has pretty much consumed the insect. "I like best the ones that trap the insects while they are alive," Gazi commented.

In many cases, once the insect is dead, the fungus undergoes sporulation (fungal reproduction), aka: mission accomplished. "It's like mummified," Gazi said, expressing the gross but intriguing allure of her prized beetle carcasses.

For the carpenter ant and the bullet ant (*Papaponera clavata*), which Gazis also had the displeasure of meeting while doing research, entomopathogenic fungi act as more than just unwanted parasites. Certain species of *Cordyceps* enter these ants' bodies and control their minds.

This "mind control" isn't quite like the movies. The fungi slowly spread throughout the ants' bodies. Once they reach the brain, the fungi produce chemicals that compel the ant to climb a tall plant and secure itself firmly at the top. Soon after, the ant dies, giving the fungi a great perch from which to send out fruiting bodies and spores. (So much for this column *borrowing* its name in jest from a sci-fi colonization story.)

While insects might be far removed from humans in many ways, we're apparently also susceptible to fungal invasion — and not just of the athlete's foot variety. Take your Vitamin

C and Zinc or an inky cap (*Coprinopsis atamentaria*) might invade your esophagus. That's right, Nicolas Money, a fungal researcher at Miami University in Ohio, reported such an observation in an NPR interview earlier this year.

"This was actually photographed in some very unfortunate individual whose immune system was really crashing," he said in the interview. "A mushroom growing in that area is something none of us want to experience."

Former President Ray LaSala tipped me off about the pretty well-known Corpse finder, *Hebeloma sylvense*, that grows near dead bodies. But only the *Schizophyllum commune* gets close to Money's report. *S. commune* caused some real damage when it got into a relatively healthy Japanese gardener's lungs and multiplied, stimulating the poor soul's bronchial tubes to produce quite a lot of mucous. Doctors were stumped at first, but later identified a monokaryotic strain of *S. commune*.



*Schizophyllum commune*

As Money says, fungal spores are "always available, they're always in the air, and they're always trying to exploit the opportunities to grow and reproduce."

*They are coming, and they might be fungi.*

— Willow Nero

## Editorial

### Mushrooms with Sherry

#### The Meeting of Two Kingdoms

There's a small pleasure whenever I see a movie scene that depicts mushrooms, especially a forest scene. And when, a few years ago, PBS announced an hour long program on mushrooms there was the same kind of excitement. But when the program aired it was disappointing because it hardly mentioned the finding, cooking and eating of wild mushrooms- it made the "startling" point that there are many people who have an interest in mushrooms and fungi that has nothing to do with mycophagy.

Of course one knew that already. Tom Volk spoke to MAW a few years back about the many human diseases caused by fungi and he wasn't talking about those common assaults like toe and nail fungus, ringworm or dandruff. He described Blastomycosis and Cryptococcus and other fungal diseases which lead to death in humans, especially in those people who have a compromised immune system. After the lecture one had to be a little hesitant to continue to look for mushrooms.

Park curators, landscape businesses and the lumber industry have an interest in the dangerous fungi spores that are always 'there' to find weakness in trees. Gone is the great spread of chestnut trees that dominated the Appalachian Mountains until the ear-

ly 1900's-gone .because of a fungus. And the oak tree, the beech tree, the elm and the palm trees of the South are under attack by fungi and there is little we can do about it.

The animals haven't escaped the depredations of fungi. I heard recently that the Little Brown Bat is being killed by the White-nose Syndrome-caused by a cold-loving fungus that thrives in caves. Cordyceps spores invade the body of many species of insects and eventually cause their death. Central American amphibians are being decimated by a fungus and Illinois rattlesnakes are under attack by a fungus.

Plants, too, are a target for fungi. The potato blight in Ireland was a fungal menace, and the same fungus has recently appeared on Long Island, and is also eating the tomato plant there. Cruciferous crops are often attacked by fungi and many diseases of the rice plant are caused by fungi. These are some of the actions of fungi that bring human attention.

Aside from cooking and eating fungi and making dyes and hats and other craft items, many people are involved in the beneficial study and growth of fungi. There is a large arsenal of medicinal drugs that has been derived from fungi, for example: statins, steroids and antibiotics, as well as a growing industry that concentrates on fungi supplements which are used to enhance our general well-being and to ward off illness. Fungi growers have increased the number of wild edible mushrooms that can be grown for commercial sale (I read somewhere that there are about twenty species of fungi that are grown commercially). Many people take a gastronomic pleasure in eating fungi and quite a few people eat those fungi

that produce a more dramatic pleasure. Beer, wine, bread, soy sauce and blue cheeses, along with soda drinks and many baked goods are made with the help of fungi. Stone-washed jeans and Beano as well as paper and cloth products are also manufactured with the use of fungi.

Finally, there is mycoremediation-the use of fungi to degrade or break down the environmental pollutants that are a menace to human and animal health. DDT, PCP, gasoline. dioxin, pesticides and plastics are some of the waste products that fungi can degrade. The enzymes of the white-rot fungi are particularly effective for this and the oyster mushroom has been successfully used to demonstrate the process.

Fungi are found in every environment. Their spores are in every breath we take. They will attack and eat any substrate that provides them with nourishment. They can grow in the soil, in water, in space ships, on our skin and gut, on books and on cheese Without fungi, 90% of trees and other plants would not thrive. Thousands of their mycelia can be found in an inch of soil. They have their own biological kingdom and only 5% (77,000) of the estimated number of their species has been scientifically cataloged. Still, only a relatively few people know of all this fungal activity, and so, the PBS program referred to above was, it seems, a timely event.

- Jim Sherry

### National Survey of Mushroom Club Members conducted by R. D. Bixler, Clemson University

The survey was conducted in the Fall of 2008 "out of sheer curiosity" on the part of the principal investigator who contacted mushroom clubs in the

United States to the extent that they were identifiable through NAMA or via independent web sites. MAW participated in the survey. Among the more interesting results:

- Increases in related behaviors associated with mushroom collecting
  - o 61.1 percent cooking gourmet meals
  - o 57.7 percent concern for public lands
  - o 66.5 percent interest in biology and science
- Percentage of respondents participating in mushroom related activities
  - o 90.0 percent cooking with mushrooms
  - o 63.1 percent taught others about mushrooms
  - o 58.6 percent mushroom photography
  - o 7.0 percent collected mushroom stamps
  - o 6.9 percent created artwork on an artist's conk
- Top 3 constraints to mushroom activities
  - o Many mushrooms do not have common names
  - o Concern about lawn chemicals
  - o Many mushrooms not listed in field guides.
- Number of species respondents able to identify

o	0 - 10	35.9 percent
o	11 - 25	28.8 percent
o	26 - 50	16.3 percent
o	51-100	9.6 percent
o	>100	9.4 percent
- Top 8 favorite edible mushrooms
  - o Morels

- o Chanterelles
- o King Bolete (CEP)
- o Oyster
- o Boletes
- o Hen of the Woods
- o Chicken of the Woods
- o Shitake

• Top 3 reasons to continue with mushroom activities

- o Enjoy being in the woods and other natural areas
- o Enjoy getting off the trail to look for mushrooms
- o Enjoy seeing all the different forms mushrooms can take

## Cooking Corner

You asked, so Sporophore is delivering a mushroom recipe in every issue. Want to see your creations in Cooking Corner? Submit your recipes to newsletter@mawdc.org, and help show off MAW's culinary genius.

Since morels should by now be springing up in abundance, try pairing them with another springtime classic, asparagus, in this simple risotto.

### Asparagus-Morel Risotto

Servings: 6

5 cups strong chicken stock

¾ pound fresh thin asparagus stalks, trimmed and blanched

½ pound fresh morels

2 tablespoons olive oil

1 tablespoon butter

¼ cup finely diced onion

2 cups Arborio rice

¾ cup freshly grated Parmesan cheese

1 tablespoon minced fresh Italian parsley

Salt and freshly ground white pepper

In a heavy saucepan, bring the stock to a slow, steady simmer over mod-

erate heat. Lower the heat and maintain the simmer.

Cut the asparagus tips to 1-inch and set aside. Cut the remaining asparagus into ½-inch pieces.

Trim the stems from the morels and reserve them for another use (in stocks or soups). Brush any debris from the morels and, if they are very large, cut them in half.

Heat the oil and butter in a heavy-bottomed, broad, medium saucepan over moderately-high heat. Stir in the onions and sauté for about 5 minutes, or until translucent. Add the asparagus stalks and the morels and sauté for about 1 minute, or until they are well-coated with the fat. Add the rice and sauté for a few minutes to thoroughly coat the grains with the fat.

Add 1 cup of the simmering stock and cook, stirring constantly with a wooden spoon, until all of the liquid has been absorbed by the rice, about 5 minutes. As each addition is absorbed, continue stirring and adding stock, ½ cup at a time, until the rice is tender but still al dente. You should begin tasting the rice after it has cooked for about 20 minutes. Just before the rice is ready, stir in the reserved asparagus tips, ½ cup of the cheese and the parsley. Season with salt and pepper.

(Recipe contributed to www.foodandwine.com by Charlie Palmer)



## Fungus Notebook



**Common Name: Clinker Polypore, Clinker Fungus, Cinder Conk, Birch Canker Polypore, Black Mass, Sterile Conk Trunk Rot of Birch** - A clinker is a hard mass of fused stony material that is formed in a furnace, usually black in color; the fungus is so-named for its resemblance to furnace clinkers. Black Mass and Cinder Conk also refer to the amorphous shape and the burnt charcoal color of the fungus.

**Scientific Name: *Inonotus obliquus*** - The generic name refers to the fibrous, hairy surface of the fungus; obliquus is Latin for slanting, sideways or on one side and refers to the oblique orientation of the pores on the fruiting body; also known as *Polyporus obliquus* and *Poria oblique*

The *Inonotus obliquus* is a prolific and well known fungus in Eastern and Northern Europe, particularly in Russia. This is in part because of the prevalence of birch trees in these areas, the normal host of the parasitic clinker polypore. In Russia, it is called Chaga (anglicized from *Czaga*), which is purportedly derived from the word for mushroom in the Komi-Permyak language of the native peoples in the Kama River Basin just west of the Ural Mountains. In Norwegian, it is called *kreftkjuka*, which literally translates as "cancer polypore," referring either to the alleged medicinal properties of the fungus or to the fact that it looks like a cancerous growth.

The *Inonotus obliquus* is also widely distributed in Western Europe and in North America. The English and Canadians know it as the Sterile Conk Trunk Rot of Birch whereas the French call it *Carie Blanche Spongieuse de Bouleau* (spongy white birch tree rot). In Germany, it is called *Schiefer Schillerporling*. These more prosaic names characterize the knobby, blackened appearance of the fungus and its effect on birch trees. The fungus has two stages, a sterile hardened perennial conk that produces no spores and an annual, fertile fruiting body that appears after the host birch tree is dead. The growth of the sterile conk on the bark of a birch tree results in severe damage to the heartwood and death of the tree in 5 to 7 years. Once the tree is dead, the fertile fruiting bodies grow under the outer layers of wood surrounding the sterile conk and spread spores for propagation. The name Sterile Conk Trunk Rot of Birch is therefore apt, if labored.

The Chaga has been used as a folk medicine in the Northern reaches of Eurasia for millennia. It is highly prized in Siberia as a cleansing and

disinfecting substance, particularly in the treatment of stomach disorders. It has been used to treat a wide range of ailments, including digestive and liver cancers, tuberculosis or consumption, ulcers and as an analgesic with anti-inflammatory properties for the treatment of gastritis. The sterile conk was knocked off a tree with an ax, the black outer skin removed, and the yellowish internal mycelia mixed with water and boiled to produce tea. The mass that remained in the pot was used as a poultice to prevent the spread of infection on wounds.



Chaga gained notoriety in the West with the publication of Alexandr Solzhenitsyn's *Cancer Ward* in 1968. In the novel, a country doctor named Sergei Maslennikov notes that his muzhik (peasant) patients never contracted cancer. Further investigation reveals that they are too poor to buy tea; using a fungus that grows on birch trees called chaga instead. With syllogistic logic, he concludes that if they drink chaga and have no cancers, then chaga must prevent cancer. As the novel is for the most part autobiographical, Solzhenitsyn was treated for what was supposedly terminal cancer in a ward, it is likely that he used it to treat himself. Chaga has been an approved anti-cancer drug in Russia since 1955. Chaga is

also a good fire-starter, like *Fomes fomentarius*, the Tinder Fungus.

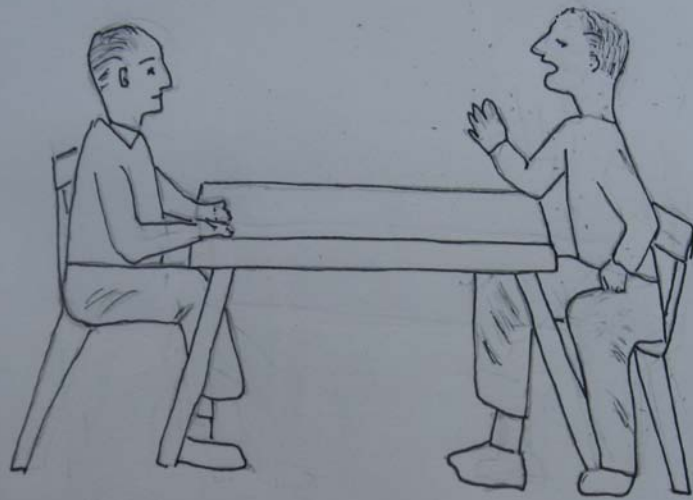
Research over the last twenty years has confirmed that *Inonotus obliquus* is a viable medicine for numerous diseases, particularly uterine, breast, lung, cervical and gastric cancers. Scientific experiments have been conducted to demonstrate that extracts of the Chaga fungus inhibit the growth of cervical cancer cells in vitro and possess anti-viral properties that act against HIV and influenza. The most recent and definitive work has been carried out by Dr. Kahlos at the University of Finland, isolating an anti-tumor triterpene called inotodiol (from *Inonotus*). Thus, Chaga is a viable medicine, and is sold as an herbal remedy. The instructions written in Cyrillic on the side of the box above are: "Use for chronic gastritis, atonic intestines (constipation), gastric ulcer, duodenal ulcer, and for controlling symptoms of oncological problems of the gastrointestinal tract. Use 50 grams of raw material in 500 milliliters of warm distilled water."

## Last Thoughts

As Morel season nears, I wish you all a good season. One that starts like this:



And ends like this:



IF WE MARRY, Do You Expect Me  
To SHARE Where I Find My MORELS!  
Jim Sherry