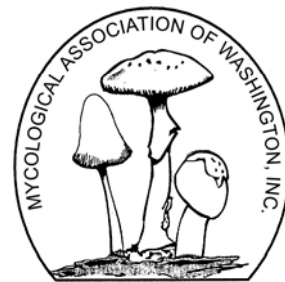


Potomac Sporophore



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2010 Scheduled Events

Meeting Site Directions - Chevy Chase Public Library

The Chevy Chase Public Library is located at 8005 Connecticut Avenue which is about 2 miles south taking exit 33 on the Capital Beltway (Route 495). If coming from the District of Columbia, it is about 2 miles north of Chevy Chase Village just past the intersection of East-West Highway (Route 410). The phone number of the library is (240) 773 9590.

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. Light refreshments are available as well as an occasionally mushroom dish prepared by a member

March 30 - Board Meeting

April 6 - Monthly Program TBD

April 18 - Foray by Fournet Roundtree Park, Fairfax, VA

April 24 - Foray by Fournet Wheaton Regional Park, Wheaton, MD

April 25 - Foray by Fournet Watkins

Regional Park, Upper Marlboro, MD

May 1 - Foray by Fournet Northern VA 4-H Center, Front Royal, VA

May 2 - Foray by Fournet Skyline Drive, Front Royal, VA

May 4 - Annual MAW's Spring Wild Food Culinary Event.

May 8 - Foray by Fournet Front Royal, VA

June 1 - Monthly Program TBD

July 6 - Mushroom ID Workshop

August 3 - Mushroom ID Practice

August 12-14 - The 2010 NAMA annual foray will be hosted by the Colorado Mycological Society at the YMCA of the Rockies' Snow Mountain Ranch.

September 24 - 27 Regional Foray Wildacres, North Carolina. Contact Bruce Boyer for details.

October 2 Multiple forays for the Mushroom Fair at Brookside Gardens

October 3 - The Annual MAW Mushroom Fair

October 5 - Annual MAW's Wild Mushroom Culinary Event.

October 8-10 - Annual MAW Foray at Camp Sequanota in Jennerstown, PA. Co-sponsor with Western PA Mushroom Club.

November 2 - Nominations for MAW Board for 2011.

December 7 - Election for MAW Board for 2011.

From the MAW President **How I Spent My Winter Vacation**

Well, I sure haven't spent it picking wild mushrooms, because it's a little hard to find them under 55 inches of snow. But that didn't stop me from enjoying mushrooms that I had picked last year or even several years ago.

I learned early on in my career as a mushroom hunter the benefits of preserving mushrooms for future use. This solves a number of problems—what to do with the remainder of your harvest after you've eaten your fill and your refrigerator can't hold any more, how to enjoy your favorite mushrooms even when you can't find any or they're out of season and are suffering from “mushroom withdrawal,” what to give gourmet friends and relatives as gifts, and even how to create tastier versions of mushrooms that aren't quite interesting enough for you in their natural state. I use several different preservation techniques, depending on the mushroom. Since most fresh mushrooms are highly perishable even where properly stored, preservation gives you a way to have them any time you want. Just be sure to label your mushrooms with species and date at a minimum. You might even want to add information on where and under what circumstances

they were collected.

Freezing is a great way to preserve cooked mushrooms and does not significantly their flavor or texture. Cooking mushrooms by heating them to the boiling point pasteurizes them, killing larvae and most bacteria that cause decay. Note: simply heating mushrooms to the boiling point does not by itself render them safe for home canning (See below). It also compacts them by breaking down cell membranes and allowing air to escape. The process can even be continued after the mushrooms are fully cooked to condense them by evaporating off a significant amount of the water they contain. I've found that as much as half of the original fresh weight can be cooked off without risk of browning if it's done over a low flame. After I'm done cooking them down, I pack them into half-cup or half-pint bags, squeeze out all the air, seal the bags, pack the bags into labeled freezer containers, refrigerate them several hours, and then freeze them. I've found this technique works well for *Agaricus*, *Coprinus*, *Cantharellus*, *Laetiporus*, *Lactarius*, and *Pleurotus*, among others. I recommend against freezing raw mushrooms because they may contain enzymes that can cause deterioration even in frozen material.

Drying not only preserves mushrooms; it also benefits them by changing and intensifying their flavor. This is most notably so for boletes. I also prefer to dry morels not only to preserve them but also to mellow and intensify their flavor. Black chanterelles, fairy ring mushrooms (*Marasmius oreades*), and *Agaricus* also dry extremely well. Surface dirt should be removed by trimming or gently brushing before drying, but do not wash

mushrooms to be dried. I like to dry black chanterelles whole, but I separate the heads of morels, boletes, and *Agaricus* from the stalks before drying and do all the heads first because they are more perishable. I peel the cap cuticles from slimy species of boletes such as *Suillus*, and I remove the tube layers from the undersides of the caps if they are expanding, darkening, or getting soggy. In spite of what everyone else says, I slice boletes caps rather thickly—about 3/8” because they have a nicer texture that way when reconstituted. There are a lot of ways to dry mushrooms. The key is not heat, which in fact should not rise above 110°F, but rather abundant flow of fresh dry air without any recirculation. Reconstituted morels, black chanterelles, and fairy ring mushrooms can be used exactly the same way as the fresh material. Dried *Agaricus* and boletes work very well in sauces where flavor is important but texture isn't. I have to confess that I find it very satisfying to maintain a “cellar” of dried mushrooms kept in labeled clear glass jars so that I can admire them like bottles of fine wine.

I'm still learning about pickling and have never tried brining or salting. Pickling involves immersing mushrooms in a hot solution of vinegar and water (anywhere from 2:1 to 1:1 is typical); sometimes olive or salad oil; and salt, sugar, and spices such as garlic, bay leaf, allspice, and mustard seed and keeping them in glass jars for an extended period. Young, firm buttons work by far the best. I've pickled honey mushrooms, boletes, and oyster mushrooms with great success and have seen commercially pickled golden chanterelles and *Lactarius*. See the MAW website at

http://www.mawdc.org/recipes/pickle_dmushrooms.html for my recipe. The shape and texture are preserved very well, but they do, of course, pick up the tang of the vinegar and spices. Pickled mushrooms are best used as appetizers. Eastern Europeans seem to be especially proficient in these techniques, and I'd love to have some of our Russian, Ukrainian, or Polish members give us a talk on brining and salting. Do we have any volunteers?

Canning is a wonderful way to preserve the shape, color and texture of mushrooms. I've helped can golden chanterelles, and they are delicious. I've also seen morels and honey mushrooms done this way but have not tried them. I have to admit that I'm a little leery of this technique because of the risk of botulism. Because mushrooms in their natural state are not an acidic product, hot water canning such as can be used for tomatoes is not by itself adequate—salt and or acidity must be added to the process prevent the growth of harmful bacteria, essentially turning it into pickling or brining. Pressure canning is the way to go, but you need the right equipment and technique. Check with the *USDA Complete Guide to Home Canning* or the *Ball Blue Book of Preserving* for details; and for heaven's sake, have someone experienced show you how to do it the first time.

Of course, you could just pick fewer mushrooms to begin with or bring the excess to the next MAW meeting if the timing is right (hint, hint), but I find it very satisfying to make use of what I've found without having to worry about who else might want them. Besides, since I love to play with my food anyway, preservation gives me several more things to do with the mushrooms I've collected,

both in and out of season!

- Ray LaSala

Feature Article

How and Where to Find Morels

This article supplements the article of **Morels and How to Find Them** dated March 24, 2005 (see www.mawdc.org). Some sentences from the original article are paraphrased in the supplemental article for continuity. Based on my own experiences, this article provides the best habitats to find black, gray, yellow (also called white), and half-free (semi-libera) morels. This article is limited to those morels growing in the Maryland, Virginia and Washington, DC areas. My experiences provide additional information that will help in finding morels.

Morels can be found in a number of different habitats. The first thing to look for is the type of trees and bushes in the area. During most years morels grow in good quantities under tulip poplar, ash and dying American elm trees. They can be found in orchards under dying apple trees. During the best morel years, they can also be found under wild Cherry and other trees. It is a good idea to learn how to identify trees by the type and shape of their bark and leaves. Refer to mushroomexpert.com for good information on tree identification. Morels are usually found under tulip poplar or white ash trees, and where pawpaw trees, spice bush and/or ferns grow. For example, at one forest they might grow under pawpaw trees, and at another forest under spice bush. Some of the sites that have ferns growing under the tulip poplar trees produce large

amounts of morels.

Morels fruiting in these areas normally occur from April 8 thru May 15 each year. The fruiting of morels usually occurs first in southern areas of Maryland, Virginia, and most areas of Washington D. C. A few weeks later they can be found at higher elevations in Shenandoah National Park and in the northern areas of Maryland. The black morels appear first followed by the other morels which sometimes appear in the same areas. The half-free morel overlaps the fruiting season of black and yellow morels. Some years produce a lot of black and/or yellow morels, but 2009 was not a good year for yellow morels, particularly under tulip poplar trees. Some years produce only a few half-free morels, but 2009 produced a much larger number of them.

Soil type and moisture content are important factors for proper growth of morels. You should become familiar with the soil type where morels grow. The soil is usually somewhat spongy, but not real hard or sticky wet. The soil will have a relatively light leaf cover. The mycelium from which the morels grow requires rainfall during both the previous season and the current season. The morels cannot grow without this moisture. Spice bush, pawpaw trees, ferns and/or trillium are indicator plants of enough moisture in the soil for morel growth. They sometimes grow in flood plains or on hillsides where water flows downhill. They can also grow on flat plains at the top of hills. A place where relatively steep slopes meet relatively level ground that gradually slopes downward is another potentially good area. Areas where plants are wilting are an indication of

dry soil. You probably won't find any morels if the soil is too dry. But in any case, morels are usually found somewhere in the vicinity of a small to medium size stream of water.

Air temperatures must be between about 65 to 68 degrees Fahrenheit for 3 to 4 days before ground temperatures reach the necessary level of approximately 53 degrees Fahrenheit for morels to fruit. About a week of ground temperature in the 53 degree Fahrenheit range is necessary for morels to pop out of the ground. Morels usually begin to fruit when the leaves of the tulip poplar or ash trees reach the size of a squirrel's ear.

The layout, elevation and other factors of the sites can influence the timeliness for fruiting of the morels. South, east and southeastern facing slopes receive more sun than those facing in other directions. These slopes can sometimes produce the first morels, but not always due to other factors. On mountainous hills of Virginia and Maryland the morels don't always fruit first at the bottom of the hills. Sometimes they initially fruit part way up the hills. This is because at night the warmer air sometimes settles part way up the hills. But sites at elevations that are significantly lower than sites at higher elevations generally produce morels first. Southern latitudes generally produce morels sooner than the northern latitudes.

Refer to the original article for an excellent explanation on how to spot morels. You will get better at finding morels as you gain more experience. They have been found very close to the base of ash trees, and as far as 30 feet from tulip poplar trees. They have been found underneath May

apples and trillium. If you find one or two morels at a given spot, look again as their might be more. They sometimes grow in a straight line.

The foregoing description should provide you with a better understanding on how to find morels. Ensure that you look in the proper habitat with the right flora, adequate moisture, and with the most appropriate soil for morels to fruit. These approaches will most likely result in good morel finds.

- Larry Goldschmidt

The MAW Board

The Board of Directors is responsible for the operation of the Mycological Association of Washington according to the by-laws. The primary actions of the board are directed at planning the activities of the organization and in establishing an operating budget every year. It is important for the membership of MAW to be aware of the people who are on the board. This affords them a means of communicating their views so that they may be represented at the board meetings. As a means of furthering this knowledge, a biographical sketch, with an emphasis on its mycological, will be the subject of this and follow on articles in future newsletters. The logical board member to start with is the president, Ray LaSala. Ray is from Long Island, New York and received a Bachelor of Science Degree from Princeton University and an MBA from Stanford University. He recently retired from a 37 year career in the federal government spent mostly in the Department of Energy managing research on geothermal power plant and drilling technologies as a part of the Geothermal Technologies Program. He has been a

member of MAW since 1981 and has been on the MAW board since the early 90's with a stated goal of giving back all that he has gotten from mycology. From that mycological perspective, his favorite MAW activity is the hunt for wild mushrooms that we call a foray with the hope of finding his favorite mushrooms, the Chanterelles, especially the *Cantharellus lateritius* and not finding his least favorite mushroom, the notorious green-spored Lepiota, *Chlorophyllum molybdites*. His fondness for chanterelles should be taken into account should you go on a foray with him, as his most memorable MAW experience was to have experienced "mushroom lust" (i.e., unbridled greed and competition) while collecting chanterelles on a MAW foray. For future MAW endeavors, he would like to see more education of novice mycological aficionados in the identification and use of mushrooms and for MAW to become more involved in the North American Mycological Association (NAMA).

Editorial Mushrooms with Sherry

FALLING for MUSHROOMS

For three millennia there has been much said about fallen man but little about the man fallen-fallen in the forest-fallen while searching for his particular grail- which might be mushrooms. And women too; for Maria almost fell last year at the MAW search for morels, fortunately she landed on a log.

There are many ways to avoid falling while searching for mushrooms. One is unlikely to fall if he searches for mushrooms on the internet. We recently bought some fresh hedgehogs or sweet tooth

(*Hydnum repandum*), over 200, on the internet -they weren't quite as good as the few we found in the forest over the years and not as meaty as the ones at Wegman's. Still, we intend to buy some fresh king boletes (*Boletis edulis*) on the internet when they become available this year. One can avoid the fall, as one member reports, by looking for mushrooms while walking to work on the streets of downtown DC. He may be felled but he's unlikely to fall.

One's back yard should be a safe place. Look at the two yellow morels (*Morchella esculenta*) below that Mrs. Waldemar Poppe found in her backyard, in the same spot where, two years ago, Waldemar found seven morels. That was on May 7th, the same day of the month that the first morel was found by a MAW member last year-a bit early for yellows.



I've been bragging for years about all the mushrooms that I have found in our backyard: I have found hen, chicken, boletes, edible russulas, puffballs, honeys and a variety of others, but for the last two years the yard has been disappointing. Our prize hen tree produced only one hen this past year, which stopped growing when it reached the size of a golf ball. The odd thing is that we had twelve more inches of rain last year than was normal; but the rain fell at unusual times: the first three months of the year had the second lowest

amount of rain on record and the next three months had the second highest amount and July was practically a drought. All this rain and...

But getting back to my point, another way to avoid falling is to foray the senior citizen way, i.e., by automobile. Last year we had a banner year trolling the roads and park lanes. Of the 14 chicken mushrooms (*Laetiporus cincinnatus* and *L. sulphureus*) that I found, 12 were spotted from my car, though not all were in an edible state.

But just because you spot a chicken from the seat of your car doesn't mean that you are safe. I once got out of the car to gather a chicken that I saw in the forest but had to slip down a treacherous grassy bank, carefully avoid those berry bushes that guard the entrance to forests, step gingerly through a multiple of grounded tree branches, all the while thinking that this chicken that I am risking a fall for is really a Jack O' Lantern (*Omphalotus illudens*) because its color was a very deep orange, but it was a chicken and it was delicious. And then I had to get back to the car. Well, I am still sure-footed.

And while car shopping for mushrooms, I found most of my hens (*Grifola frodosa*); four giant puffballs (*Calvatia gigantean*) the size of grapefruit, a few meadow mushrooms (*Agaricus coampestris*) and the chicken fat mushroom (*Suillus americanus*). But the most thrilling mushrooms spotted from the car were the mushrooms that I had never found before- the horse mushroom (*Agaricus arvensis*) and another mushroom which we thought might be a Prince (*Agaricus augustus*), but research revealed that it wasn't. Here's a picture of the would-be Prince; it had chocolate spores. We didn't eat all the mushrooms that we

found because some were growing too close to busy streets.



Most the time when we look for mushrooms we do get out of the car- in local parks for the exercise. But we stick to the paths in the parks, unless we see a mushroom under the forest canopy. We found a few mushrooms while on the paths but the year was disappointing. I have asked a few members about their year and they said that the year was O.K., though they liked their luck with a particular mushroom.

When I do go into the forest, as I do when I am in the woods behind my house, it is then that I might fall. Actually, most of the time, I lurch and restore my balance- I stumble but I don't tumble, which I guess is what we all do. There's a depression in the ground, or a protruding rock or a small stump that we kick and almost go down. Once I stepped in a hole, at Sequanota, but didn't fall because of a convenient sapling that I twirled around.

There are three situations that have brought me down. One was that vine, maybe more than one species, about a forth of an inch thick, that probably can be used to make porch furniture or to lash logs together for a raft, if you go boating with Tom Hanks. There's no sense in trying to kick loose once it traps your foot. You won't break it. Another condition occurred when I stepped over a log. I got the first foot over but that trailing foot bumped the log and caused a

tumble. And there are those small broken tree branches that are numerous in the fall. Your lead foot steps on one and it rolls, or your trailing foot kicks it while you are still standing on it.

I have never met anyone who told me that he or she had fallen while looking for mushrooms; I am assuming that not everyone has always stood up for mushrooms.

- Jim Sherry

Fungus Notebook



Common Name: Birch Polypore.

Birch bracket, Birch conk, Razor-strop fungus, Iceman fungus, Kanbatake (Japanese) - The name reflects the characteristic habitat as the birch polypore grows only on birch trees.

Scientific Name: *Piptoporus betulinus* - The generic name is from the Greek verb *piptein* which means "to fall" in the sense of failing or cast down and *porus*, Latin for pores. The species name is from the Latin *betula* which is the word for birch tree. It is also frequently called *Polyporus betulinus*

The Birch Polypore is a round to kidney-shaped bracket fungus that grows from a single lateral

attachment point on the trunks of birch trees. It has a tough, smooth tan upper surface that cracks and turns grayish with age, an incurved margin, and a white pore surface. It is readily identified as it grows exclusively on birch trees that inhabit the temperate to boreal forests from Siberia in Eurasia to Alaska in North America; it is hence a global species of the northern hemisphere. *P. betulinus* will grow on other trees but only if they are artificially inoculated, but this is not seen in the natural habitat - it is exclusively a birch fungus.

P. betulinus is primarily saprobic to birch trees, living on dead and decaying boles and fallen branches. It is thought that its spores land on the exposed phloem at a broken branch or other wound and send out tendril-like hyphae to penetrate the trunk so as to eventually form the mycelium of the parent fungus. While the birch tree is alive and healthy, it is able to contain the invading hyphae, but when it is weakened by old age, disease, or other stresses, it can no longer resist and the entire tree is eventually invested. In this sense, the birch polypore is considered weakly parasitic. The fruiting bodies that emerge from the mycelium to spread new spores emerge annually in the spring, though they persist as graying husks for several years (as can be seen in the picture above). The decay process is of the brown rot variety in that the fungus consumes the wood's white cellulose and leaves the brown lignin behind, a distinct aroma of green apples is often conveyed.

The global reach and ubiquity of the birch polypore did not go unnoticed by indigenous peoples of its native habitats. Over the millennia, trial and error experimentation has resulted in the fungus being used in a number of

interesting practical applications. Perhaps the most unusual of these is the etiology of the alternative name of razor-strop fungus. The cap or pileus of the fruiting body has a hard, leathery upper surface. This surface can be peeled off in strips and was used in this form as a strop for sharpening razors and also as a natural emery cloth for polishing metal to achieve an ornamental sheen. A second major functionality is associated with the dense, corky mass of the interior flesh of the fruiting body. Like the Tinder fungus (*Fomes fomentarius*), the fibrous and sere mass of the Birch fungus was used with a spark producing implement to start a fire at a new campsite. It was also used as a means to maintain and transport embers from one campsite to another in order to obviate the need to repeat the sometimes difficult fire initiation process. The corky nature of the Birch polypore was also employed in other applications in which absorption was required such as vulnerary dressings, ink blotters, haberdashery sweat bands, and even as a mounting platform for securing the impaling pins used in insect collections.

The Birch polypore is listed as edible in many mushroom field guides, though it is clear that edible and palatable are to be distinguished. According to William Roody's Mushrooms of West Virginia and the Central Appalachians, it is "edible when young and tender but not often collected due to the bitter flesh." Charles McIlvaine tersely writes in the 1902 publication One Thousand American Fungi (which is considered by many to be the seminal mycophagous work) that *P. betulinus* is fair when very young and "unpleasant when old." He also

records that it is eaten by deer. Peintner et al wrote in an article entitled "The Ice Man's Fungi" in the journal *Mycological Research* in 1998 that it was common practice for the people of Siberia to knock Birch conks off of trees so that they could be chopped up and eaten while still frozen. The bitterness of the Birch polypore is likely due to the taste imparted by various constituent compounds that make it one of the fungi most noted for their medicinal properties. The ice man provided incontrovertible proof that the Birch Polypore was a well known commodity at the dawn of civilization.

Ötzi, who is commonly referred to as the Ice Man, was found in 1991 by Austrian hikers who came upon a frozen corpse half emerged from the Schnalstal Glacier in the Tyrolean Alps. He was exhumed and taken to Innsbruck, Austria for analysis by medical experts. Though it was originally thought that his demise was of relatively recent occurrence, inspection of his artifacts, notably a unique copper hatchet, led to the conclusion that he was in reality a Neolithic man who had died of presumed exposure about 5,000 years ago. It is fortunate that this fact was determined while he was still frozen, as thawing would have resulted in the deliquescence and putrefaction of his flesh. Ironically, a detailed geographic survey of the site where he was found was conducted in 1998. Ötzi was Italian, which is appropriate, as his name is taken from the Italian sub alpine region of the South Tyrol. He was removed to Bolzano, Italy, where the Archaeological Museum of South Tyrol was built to house his remains. The many artifacts found with him led to a much greater understanding

of culture, foodstuffs and tools of early European hominids.

Among the artifacts found with Ötzi were two pieces of Birch Polypore threaded on a thong around his neck. It is postulated that he used it as a medicine, as an autopsy revealed that he suffered from parasitic intestinal whipworms (*Trichuris trichiura*) that cause stomach pain and diarrhea. The Birch Polypore contains numerous compounds that have antimicrobial properties. (*Photographs of Oetzi and tinder fungus from The South Tyrol Museum of Archaeology*)



Recent phytochemical analysis of the Birch polypore has resulted in the identification of numerous compounds that have medicinal implications. These may be broadly described as anti-inflammatory, anti-bacterial, anti-tumor and anti-viral. Six triterpene acids have been isolated that have

been shown to have anti-inflammatory properties in the conduct of the "mouse ear inflammation assay" in which a mouse is exposed to a chemical that induces an edema in the ears; the Birch polypore extracts inhibited the formation of ear edemas by between 49 and 86 percent. A compound appropriately named Piptamine ($C_{20}H_{35}N_3$) from the generic name *Piptoporus* has been isolated which has been shown to have an antimicrobial effect on a number of bacteria including *Bacillus subtilis* and *Escherichia coli*. Anti-tumor activity has been demonstrated with extracted polysaccharides which inhibited the growth of sarcoma by 90 percent when injected intraperitoneally into mice at a dosage of 300mg/kg. The eponymous Betulinic Acid extracted from *P. betulina* has been found to be toxic to malignant melanoma (skin cancer) cells. It is in the anti-viral properties that the Birch Polypore may have the most potential; extracted nucleic acids have been shown to protect injected mice against a lethal dosage of tick-borne encephalitis virus. In his book [Mycelium Running](#), Paul Stamets recounts his having sent mycelial extracts of the Birch Polypore to researchers at the National Institute of Health (NIH) in Bethesda, Maryland where testing revealed that it killed the cowpox virus without harming healthy cells. Stamets filed a patent on the extract on 6 January, 2004 (Pat. No. 60/534,776). He has since filed four continuations of the patent, the latest of which extols the virtues of mushroom extracts in the treatment of viruses including avian influenza, yellow fever and West Nile virus.

- William Needham

