The Wisconsin Mycological Society
NEWSLETTER

Volume 26 **Number 1** **Spring 2009**

The Morels are Coming! The Morels are Coming!

It is with much anticipation that wild morel season is approaching for much of North America. The Upper Midwest and Northeast boast some of the largest yields of these highly prized wild mushrooms. Even larger numbers are collected from the mountainous areas of the West. In fact, in the western mountains, you will find the commercial collectors out in force this spring, following the paths of last season's fires which will spawn a huge crop of a particular type of morel that fruits after burns.

The public's interest in foraging for wild edibles in general, and wild mushrooms in particular, is on the rapid increase in North America. (Whether it has anything to do with the fact that none of us can afford to buy groceries anymore, is left to the reader to ponder!) Morel season is a great time for novices to get started as the risks are relatively low; morels are a pretty safe bet with a brief familiarization.

So, where and when to look? *See inside for details….*

Wisconsin Mycological Society
c/o Fred Kluhsman
5315 S. Sunnyslope Road
New Berlin, WI 53151

Got your attention?

A Message from the President

Greetings!

I'm sure that most of us are thrilled to see the coming of spring and all the possibilities it brings – warm days to enjoy, new plants to put in the ground and watch grow, returning birds to hear sing, rivers flowing again, and of course mushrooms to find. After a cold winter, it feels so nice to have the sense of new life starting over again.

The WMS has a number of activities planned in the coming months. We still have one lecture left in our winter into spring lecture series. Bernadette O'Reilly, a former student of Tom Volk's, will be speaking at the West Allis Library on April 23. The first two lectures of our series have been excellent. Ken Gilberg, from the Missouri Mycological Society, gave us a panoramic view of the mushroom world at his February talk, and at the March lecture, Steve Nelsen took us through the mushroom season from spring to fall at Walking Iron County Park. A hearty thank you to both of these speakers!

Additionally, I would like to thank all of those who made the January potluck and slide show a success: Kris Ciombor and Chuck Soden for organizing the event, Chuck Fonaas for arranging the facilities, Dave Menke for running the slide show, as well as to all of you who contributed slides and all that great food.

May 16 will be our annual spring foray. Many of us are looking forward to the tasty possibilities of the upcoming morel season. Though not all edible, there are other mushrooms besides morels to enjoy looking for and finding in the spring. *Polyporus squamosus* [inset] is a good-sized scaly pored shelf mushroom that often occurs in abundance around the same time as morels do. It is easy to recognize and a good mushroom for beginners to learn. Though not a great edible, sometimes, younger specimens aren't bad to eat. Another good-sized spring mushroom is *Tricholomopsis* (*Megacollybia*) *platyphylla*. This is a gilled mushroom with a fiberstreaked cap that grows on decaying wood. It is somewhat similar to *Pluteus* in appearance, but while *Pluteus* has free gills and a pink spore print, the *Tricholomopsis* has attached gills and a white spore print. There are many other spring mushrooms that I could mention, but these are a couple of the larger, more distinctive ones. Whatever we find, it will be great to get out in the woods and get together with mushroom friends again and enjoy the spring wildflowers !

Also, Britt Bunyard has been hard at work making arrangements for our first ever weekend chanterelle foray to northern Wisconsin, July 17-19. This should be great fun. More information on this event can be found elsewhere in this newsletter. We also have the annual spring mushroom dinner at Heaven City and the June picnic to look forward to.

I wish you all a great spring.

Colleen Vachuska

Events Calendar

Thursday, April 23 Lecture Series presents: Bernadette O'Reilly (Duke University)
"Mycoparasitism: When one fungus takes another out to lunch."

7:00pm,West Allis Library. Bernadette, currently a graduate student at Duke University will discuss the latest research with Honey Mushrooms & Aborted Entolomas, among other woodland mushrooms.

Saturday, May 16 Annual Spring Foray

Foray Leaders: Colleen and Peter Vachuska. Meet at Mauthe Lake and be ready to leave at 10:00 am sharp.

Sunday, May 17 Annual Spring Mushroom Dinner Heaven City Restaurant

See WMS website for exact details including complete menu. Cash bar 4pm, dinner 5pm; cost $45 plus you can add wine flights. Questions: John Steinke 262.363.7407.

Saturday, June 27 Annual Business Meeting and Picnic

We will meet 4:00 pm at Papa Steinke's Farm. See WMS website for details and directions. Questions, Bill Blank at (414) 476-1592; or our host John Steinke at (262) 363-7407. Always great food. Always great company. Always a great time!

July 31 – August 2 First Annual Chanterelle Foray, Lost Lake State Park, Wisconsin

For details, see elsewhere in this issue of the newsletter.

Saturday, August 1 A Midsummer's Foray

Foray leader: John Steinke. Meet at Papa Steinke's Farm on Cty. NN, between Mukwonago and Eagle, at 9:15am. We will leave at 9:30 sharp, and drive to the foray location. Bring a lunch. Directions at WMS website.

Sunday, August 16 TENTATIVE 10 am – 4 pm 2008 Mushroom Madness

Saturday, August 29 Annual Photo Foray

Foray Leader: Chuck Fonaas. Meet at 10 am Scuppernong Nature Trail in the South Kettle Moraine State Forest. Details, WMS website or contact Chuck at (414) 328-0458.

Dues Reminder

Annual membership renewals are due at the beginning of each calendar year and are $20. If you are a member of the North American Mycological Association (the national organization) or wish to become one, your NAMA dues must be paid by WMS in order to receive a discount rate. Active dues are to NAMA are an additional $32. Make all checks payable to WISCONSIN MYCOLOGICAL SOCIETY and mail to: Fred Kluhsman, WMS Secretary/Treasurer, 5315 S. Sunnyslope Road, New Berlin, WI, 53151- 8077.

MYCOBRIEF

Biofuel fungi: one makes diesel…

Here's a story that recently made the headlines and for obvious reasons. A paper published in the journal *Microbiology* (154: 3319-28) described how an endophytic fungus of the tropical rainforests called *Gliocladium roseum* was found to produce several volatile hydrocarbons when grown in a lab culture under specific conditions. (Before you ask, "endophytic" describes an organism that lives *inside* a plant; compare with "epiphytes" which live *on* plants.) The hydrocarbon profile of *G. roseum* contains a number of compounds normally associated with diesel fuel and so the volatiles of this fungus have been dubbed "myco-diesel." This is not the first time that discover, Gary Strobel, has struck mycological gold. Maybe you recall a certain fungal-derived anticancer compound that was all the rage in the early '90s: Taxol.

…and the other eats ethanol

Now comes a story from the British Mycological Society's journal *Mycological Research* (112[11]: 1373-80) on a fungus that eats ethanol. And little else. The fungus, *Baudoinia compniacensis*, colonizes the exterior surfaces of a range of materials, such as buildings, outdoor furnishings, fences, signs, and vegetation, in regions subject to periodic exposure to low levels of ethanol vapor, such as those in the vicinity of distillery aging warehouses and commercial bakeries. Germination of mycelia of *Baudoinia* is enhanced by up to roughly one day's worth of exposure to low ethanol concentrations, optimally 10 ppm when delivered in vapor form and 5 mm in liquid form. However, growth was strongly inhibited following exposure to higher ethanol concentrations for shorter durations (e.g., 1.7 m for 6 hours). The fungus breaks down the ethanol via the enzyme alcohol dehydrogenase (which is how we humans do it) and acetaldehyde dehydrogenase.

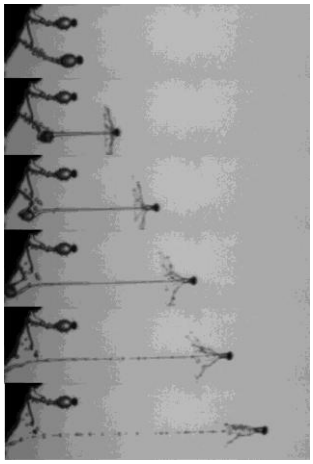
From BMS's journal *Field Mycology*

Volume 9, number 4, of *Field Mycology* was a treat to receive, as is every installment of that terrific little quarterly. I particularly enjoyed "The Life and Works of Theodor Holmskjold," both for its historic accounts, as well as its lavish illustrations of mycological artwork. Alick Henrici's regular department "Notes and Records" features a nice discussion of the association, in Britain, of members of the plant genus *Monotropa* and their mycorrhizal mushroom hosts, in this case, *Tricholoma cingulatum.* Long assumed to be plant parasites, members of the genus *Monotropa* have no chlorophyll (thus, are not green) and cannot photosynthesize. It was not until the 1990s that the true nature of these plants was made known: they're parasites alright, but of the fungi that are associated with plant roots! *Monotropa hypopitys*, the Yellow Bird's Nest or Pinesap, may soon get Red List status in Great Britain. In North America, our second species of *Monotropa* (*M. uniflora*) is known as Indian Pipes. Watch for them while foraying this year and see if you can spot their mushroom host, often *Russula brevipes.*

The "Fastest Flights in Nature"

Dr. Nik Money spends his time investigating the mechanisms of spore dispersal in fungi. The research team in his lab at Miami University in Oxford, Ohio, recently has employed an ultra-high-speed video camera to film a number of fungi as they blast their tiny progeny at tremendous velocities. The nature of spore release mechanisms among fungi has been investigated since the eighteenth century. Long thought to rely mostly by passive means, it was assumed that mushrooms—as one example—simply dropped their spores from gills, with the

ensuing clouds of spores carried off on a current of air. Money has shattered that myth. First off, it should be noted that a variety of spore discharge processes have evolved among the fungi. Those with the longest ranges are powered by hydrostatic pressure and include "squirt guns" that are most common in the Ascomycota and Zygomycota. In these fungi, fluid-filled stalks that support single spores or spore-filled sporangia, or cells called asci that contain multiple spores, are pressurized by osmosis. Because spores are discharged at such high speeds, most of the information on launch processes from previous studies could only be calculated using mathematical models, at best, or pretty much guessed at by others.



In their report, recently published in the prestigious on-line research journal *Public Library of Science ONE* (Yafetto et al.; 2008; *PLoS ONE* 3[9]: e3237), Money and colleagues have used ultra-high-speed video cameras running at rates of 250,000 frames per second (!) to analyze the entire launch process in four species of fungi that grow on the dung of herbivores. For the first time ever, they were able to take direct measurements of launch speeds and empirical estimates of acceleration in these fungi. Get this: launch speeds ranged from 2 to 25 meters per second with incredible corresponding accelerations of 20,000 to 180,000 times the force of gravity which propelled spores over distances of up to 2.5 meters. (Little wonder that Nik has dubbed fungal spores the "fastest flights in nature.")

Contemporary analysis of these extraordinary processes has implications for the fields of plant disease control, terrestrial ecology, indoor air quality, atmospheric sciences, veterinary medicine, and biomimetics. Mechanisms include a catapult energized by surface tension that launches mushroom spores, the explosive eversion of a pressurized membrane in the artillery fungus (*Sphaerobolus stellatus*, see color photo with multiples stages in readiness prior to blastoff) and the discharge of squirt guns pressurized by osmosis. Squirt gun mechanisms are responsible for launching spores at the highest speeds and are most common in the Ascomycota, including lichenized species, but have also evolved among the Zygomycota, including the loveable "hat thrower," *Pilobolus* (see image sequences). In the so-called "coprophilous" fungi in both phyla, specialized for growth on herbivore dung, these squirt gun mechanisms propel spores over distances of many centimeters or even meters onto fresh vegetation (and thus away from the "zone of repugnance" surrounding the grazers' dung) where they may be consumed by their host animals. The range of these mechanisms necessitates very high launch speeds to counteract the otherwise overwhelming influence of viscous drag on the flight of microscopic projectiles. Money is now taking a look at the mechanisms of ballistospore discharge within the Basidiomycetes, and you can too.

Check out the sequence of images Dr. Money supplied to *Fungi* magazine website (www.fungimag.com) that show spores being shot from the gills of *Armillaria tabascens*, one of the honey mushrooms. Last summer at the annual meeting of the Mycological Society of America, Nik brought down the house with his Cannon Fungus Opera, featuring ultra-high-speed film of fungi blasting away, set to the tune of the "Anvil Chorus." You too can enjoy watching this film, by visiting the *Fungi* website. You won't want to miss this and be sure to turn up your volume!

Morels, *continued from page 1*

Throughout much of the range east of the Rockies, including Wisconsin, you'll have your best luck checking beneath American elm trees (especially recently dead ones and note that in Wisconsin we have several species of "elm" but do not bother with species other than American elm), white ash trees, tulip trees, and in very old apple orchards. This last one has been known to morellers for generations. But recently some mushroom hunters have claimed that long term spraying of the apple trees with heavy metal-based fungicides in the last century may cause ill effects in those consuming apple orchard morels. A report in the winter issue of the journal *Fungi* goes a long way to dispel this myth (http://www.fungimag.com/winter-08-articles/Rev_Medicinal.pdf). Turns out that the heavy metals used to prevent fungal disease in the apple orchards (primarily lead arsenate), while no doubt bad for the environment (and no longer used), is in a chemical form that's not likely taken up into the mushroom's tissues. Of course, more research needs to be done but for the time being there is no reason to suspect apple orchard morels are any less safe than those found growing anywhere else. And if you are wary, simply stick to the woods; there are usually plenty of morels to go around!

Stalking the Elusive Morel, Sensibly

It won't be much longer for us in Wisconsin. The forests will soon come back to life after what always seems like a winter without end. Two-legged creatures, not sighted in the woods since around this time last year, can be spotted moving about in a stealthy fashion or crouching…on the lookout…for quarry of a fungal sort. And with good reason! Many folks who are too busy to set foot in a woodland at any other time of the year will be heading out into the wilds of North America to pursue the prized morel mushrooms.

Although tricky to find (their drab coloration blends in very well with the shades of brown on the early spring forest floor), morels are probably voted #1 on the tastiness scale by mushroom hunters and gastronomes, alike. Plus, along with their springtime brethren (wild ramps and wild asparagus), they form a "holy trinity" that is the basis for some of the most amazingly tasty food that can be foraged at any time during the year. But how can you be sure you're about to pick an edible mushroom and not merely a poisonous lookalike? If your saw four morels in the picture on page 1…you *may* need to read on. If you spotted true morels among the false morels, you're already good to go!

We mycologists are glad to see an increase in curiosity about wild mushrooms; nevertheless, mushroom poisonings continue to occur as many amateurs are unable to properly identify safe edible types. A beginner should try to find a veteran mushroomer to accompany during your first morel forays. An experienced morel hunter will take you into the woods at the right time, which varies depending on where you live but usually occurs from early April to the first of June for much of the upper range of North America; about mid May for us in Wisconsin.

Morels occur very early in spring when few other types of mushrooms are up, lessening your chances to pick something dangerous. However, the false morels are also fruiting at this time, and as their name implies, they (arguably) look similar to true morels. And they *are* poisonous. Foray sensibly! While small, there is a real chance of finding and consuming poisonous mushrooms. Never take a chance on eating a mushroom that you're not absolutely certain of: **when in doubt, throw it out!**

And what of those poisonous false morels? Well, I do want to emphasize that they *are* poisonous. That being said, the false morels have long been collected and consumed by mushroom foragers. (In fact, I've eaten them. In the past. I have not done so for a long time and don't plan to consume them anymore, now that I know a lot more about the hazards.) False morels go by other, less sinister names like beefsteak morels. It seems that with lots of cooking, the toxic compounds (gyromitrins) may be volatilized and driven from the mushroom, rendering them safe-*ish* for consumption. In his book *Morels,* Michael Kuo points out that people are poisoned every year by consuming false morels and that deaths have occurred. Again, I strongly recommend avoiding them. How can you tell a false morel from a true morel? It's actually pretty easy, as they don't look *that* similar (take another look at the photo on page 1). True morels range in color from various shades of light brown to tan to almost white, and are gray when they first emerge; there are very dark brown to black species as well. False morels are typically reddish. And morels are very characteristically deeply pitted in appearance, reminiscent of a natural bath sponge; false morels have no pits but are more wavy or brain-like in appearance. And the final way to tell the difference is by slicing in half (which you will want to do in the kitchen prior to cooking, as bugs and millipedes like to hang out inside morels on occasion). Morels are always completely hollow from bottom to top. False morels never are; they may have hollow parts but not entirely.

Besides serving as your faithful newsletter editor, Britt Bunyard is the publisher and editor-in-chief of Fungi*, a journal dedicated to all aspects of mushrooms and other fungi and is a contributing editor of other research journals and the online sustainability magazine* Civil Eats; *this article was excerpted from articles in Fungi and Civil Eats.*

Introducing a new Wisconsin Mycological Society foray, coming this summer!

2009 WMS CHANTERELLE FORAY
Chanterelle Lake, Wisconsin

When: Friday evening, July 17, 2009 – Sunday afternoon, July 19, 2009
Where: "Chanterelle" Lake, Wisconsin
What: YOU, National Forest, cabins…and oh so many chanterelles

Make plans to join the WMS for an exciting new overnight foray to be held this summer, up north. Britt Bunyard will be the coordinator for this event, so contact him for details and to register. Those registering will be sent registration forms, waivers to sign, and detailed directions on how to get to the campground.

"Chanterelle Lake" is a very secluded campground up north that Britt's family, along with a few other families, have visited for the past few summers. The park is very peaceful and off the beaten path. And kid friendly! Recreation includes swimming in the pristine natural lake, canoeing (canoes and nonmotorized boats welcome), fishing, or just listening to the loons on the lake. There are excellent paths for hiking and biking. And then there's the mushrooms. Expect chanterelles, some lobsters, and oysters, plus many other interesting ones like boletes, Russulas, Amanitas, and polypores. The lake is ringed with a diverse mix of trees, lending to a diverse mycoflora; there are three zones of beech, hemlock, and mixed hardwoods.

The WMS has reserved ALL eight cabins for the Foray. Cabins are rustic but with electricity and with three sets of bunk beds. Hot showers and toilets are about a two minute-walk from the cabins area. Parking area is about a three or four minute-walk. There is drinking water near cabins.

Chanterelle Lake is about 250 miles north of Milwaukee, around 4.5 hours drive. Foray goers should plan to arrive Friday afternoon or evening, for check in. Potluck dinner for early arrivals around the campfire. Alcohol is permitted in the campground. Saturday morning, following potluck breakfast, we will have a morning foray. Britt's cabin will have plenty of cereals, breads, jams, etc. and you can mix-n-match with them; coffee and tea is provided. Likewise, following a potluck lunch, there will be afternoon foraying for the hardy…others may want to beat the heat in the lake. Suggested lunchtime items could be cold cuts or PB&J. Following the afternoon foray, we will have a big dinner, included with your registration fees. Dinner will include a large assortment of grilled homemade sausages from Held's Meats of Slinger, a plethora of fresh veggies and starches to appeal to all, and the enormous salad. And, with the cooperation of the mushrooms, there will be a mycophagy cookup! (Chanterelles ***a l'Anglaise*** in the picture at the right and some years it's tough finding kitchen utensils large enough for the task!)

Following dinner on Saturday night, we plan to have mushroom lectures for general audiences, inside the classroom building (pictured at right). Tentatively scheduled is Anna Gerenday of the Univ of Minnesota, who will speak on bog mushrooms. Following the lectures, plan to relax around the campfire for a nightcap or join the kids for a night foray…there's no telling what will turn up in the northern forests at night!

Chanterelle Lake has fun for the whole family and everyone finds mushrooms!

2009 WMS CHANTERELLE FORAY

Fees

This covers 2 nights stay in cabin, Saturday dinner, lectures, morning coffee/tea

Fee for the Foray is pretty simple. The WMS is not paying for this, only those attending the Foray. Furthermore, the amount you pay is determined, in part, by how many people you share a cabin with—up to a maximum of 6.

$20.00 / person (10yrs old and up) for Saturday nite dinner & guest lecturer
$90.00 per cabin (max 6 per cabin)

So, you can get your whole family into the cabin for $90 (plus $20 per person). Or if there is a total of 3 in your cabin, you split $90 three ways, plus $20 each. Note: kids under 10 years old are free for dinner and lecture.

Here's how to register:
Please do **not** send any money at this time. Register with Britt by phone, email, letter, or smoke signal. Britt will begin taking registrations **after Sunday April 19**.
Contact Britt (**not other board members**) for details.

When you contact Britt and express an interest in registering, you will be sent a registration form and waiver to sign and return. Once all the cabins are full, all registrants will be notified that they have one week to send a check **to Britt** in order to hold their reservation (additional inquiries will be placed on a wait list and informed of their status). Any unpaid reservations will be given to wait listed registrants.

Please note that registration as well as cabin assignments or sharing requests are first come, first served.

Do NOT send money to any other WMS Board member, including Fred. Money sent to anyone but Britt will be returned and, more importantly, could cause a delay in securing your reservation. Contact Britt with questions or to register, after April 19 bbunyard@wi.rr.com or 262.677.0876.

2009 WMS CHANTERELLE FORAY

Schedule of Events

Friday July 17

Arrive anytime to register
No foraying in designated spots
Potluck dinner, evening around the fire

Saturday July 18

Breakfast on your own / potluck, coffee & tea provided at registration cabin
Morning foray departs (approx 9:30)

Lunch at cabins, potluck
Afternoon foray departs (approx 1:30)

Dinner (6 pm) included with registration fees
Drinks are BYO...wine and beer etc is permitted (so please bring some to share!)
Menu:
Appetizers: Cheese board, crackers, fruit (please bring some to share!)
Mushroom cookup / mycophagy (expect chanterelles, oysters, lobsters, boletes maybe)
Meat course featuring assorted Held's [of Slinger, WI] homemade sausages
Starch courses are usually potatoes and mushrooms, cheesy grits, several good breads
BIG salad, all organic
Several other organic fresh veggies e.g. green beans and sweet corn

Evening Lectures at pavilion
Welcome by ranking Board Member
Lecture by Anna Gerenday, University of Minnesota
Lecture and slideshow by Britt

Nitecaps by the fire, marshmallows for the kids, night forays for brave kids of all ages

Sunday July 19

Breakfast on your own / potluck, coffee & tea provided at registration cabin
Morning foray for the hardcore chanterelle lovers
Cleanup
Depart by noon.