



Ohio Mushroom Society

The Mushroom Log

Report on the Fall Foray at Hiram, OH

By Debra Shankland

A total of 59 mushroom enthusiasts and students from near and far attended the 2016 OMS Fall Foray the weekend of October 15 and 16, 2016 in Hiram, Ohio. Our base camp (literally, for over a dozen campers, and courtesy of Hiram College), was the James H. Barrow Field Station.

Folks from afar arriving on Friday night were treated like royalty by outstanding hosts Jerry and Cathy Pepera. Guests to their Chardon home brought a variety of foods and drink to supplement the chili, cornbread and more lovingly prepared by Cathy. Jerry showed off his beer making skills with no less than four varieties on tap. The bonfire was most welcome on this chilly evening.

At the field station Observation Building on Saturday morning, Matt Sorrick, Hiram College's Director of the Center for Science Education, welcomed everyone following registration and morning coffee. After giving us a bit of history on the Field Station and the Observation Building we were situated in, he briefly outlined the natural features found in the surrounding 500 acres and suggested various trails and locations that may be most productive. And we were off!

In spite of the rather dry (and getting drier every moment) conditions, participants brought back plenty of specimens to keep foray mycologist Walt Sturgeon busy nearly through lunch with identification. Then after lunch he presented a richly-illustrated talk on non-gilled macrofungi.

The afternoon foray brought in additional

mushroom species, again presenting Walt with a few surprises and plenty to do. It's always a great time, with folks pitching in to ferry identified mushrooms to the display tables, and others snapping pictures, oohing, ahing, and comparing notes with each other. With most of the mushrooms ID'd, they were gradually assembled in relational groupings on the tables.

Among those attending were 39 members and 16 new members. They were Chris Flak, Carol Agnew, Dave & Laura Iberilleid, Josh Morgan, Stephanie Byler, Alan Frank, David Tate, Joyce Jacobs, Joseph Patella, David Dewalt, Rachel Toth, Cheri Spoo, Melanie Schori, Tom Shue, Dave Brumfield, Ronnie Bokow, Linda Rafferty, Debra Shankland, Jerry Pepera, Rob Miller, Laura Wilson, Sharon Greenberg, Tim Mullen, Alan Mihalik, Jack & Valerie Baker, Nidia Auquedas, Martha Bishop,

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Pete & Pauline Munk, Dave & Marie Miller, Walt Sturgeon, Jim Scott, Sheri Scott, DJanso Grootsmeyers, Samantha Nagy, John & Kim Plischke, Mary Lee Bramleh, Mary Jo White, Hugh Urban, Dick & Judy Doyle, Bob & Joanne Antibus, Bryan Lewis, Tim Lovell, Dandelion Duff, Paul Balog, Paul Popa, Liz Tousey, Dustin Hourie, Abbey Rowe, Autumn Osgood, Mary Benjamin, Carmella Hourie, and Martin Bramlett.

It was a productive, fun, warm, and busy day. Famished, the group dispersed, with most of us retiring to Sean's Pub in Garrettsville for some frosty beverages and tasty pub grub.

Day two allowed us more time to study the collected specimens. After some hot coffee, tea, and breakfast, Walt addressed the group and gave us pertinent notes and a few amusing tales concerning many of the species. Everyone pitched in to clean up, and some specimens were saved for the Ohio University herbarium and also Hiram students.

Then it was off to nearby Camp Asbury. We were welcomed and oriented by

Reverend Bill Graham and his wife, who each led smaller groups of us through their beautiful, mature woodlands. Though we were fewer in number than at the field station, we still found additional species to add to the foray list.

It was a great time, with wonderful hosts, enthusiastic participants, nice weather, and plenty of mushrooms!

**OMS Fall Foray 2016
Species found at Hiram
College Barrows Field
Station on 15 Oct 2016
**and at Camp Asbury
on 16 Oct. , or
*exclusively at Camp
Asbury**

**Compiled by several
industrious OMS members**

*Agrocybe firma***
*Aleuria aurantica***
Amanita amerirubescens
group
Amanita banningiana
*Amanita bisporigera**
Amanita lavendula = *A.*
citrina (Wayne Co.)
*Amanita muscaria**
Amanita muscaria var.
guessowii
Annulohyphoxylon sp.*
Armillaria calvescens
*Armillaria gallica***
*Armillaria tabescens***
Arrhenia epichysium
*Bisporella citrina***

Byssomerulius incarnatus
= *Phlebia incarnata*
*Callistosporium luteo-
olivaceum*
Calvatia sp. (Hiram
Rapids, Portage Co.)
Cantharellus lateritius
Chlorociboria
*aeruginescens***
Chlorophyllum rachodes
Climacodon septentrionale
Clitocybe clavipes
Clitocybe gibba
Clitocybe odora var. *odora*
Clitocybe robusta
Clitocybe sp.*
Collybia cookei
Coprinopsis atramentaria
Coprinellus micaceus
Coprinus comatus
Crepidotus mollis
Cuphophyllum virgineus
*Cyathus striatus**
Cyptotrama asprata
*Daedaliopsis confragosa***
Daldinia concentrica
Deconica sp.?
Ductifera pululahuana =
Sebacina pululahuana
Echinoderma aspera
*Entoloma abortivum**
Entoloma parasiticum
Flammulina velutipes
*Galerina marginata***
Ganoderma applanatum
Geastrum saccatum
Geastrum sp.
Gomphidius glutinosus
Gymnopolus dryophilus
Gymnopolus luteus
Gyropporus castaneus
Hericium americanum
Hericium sp.*
Hygrocybe cantharellus
Hygrocybe flavescens
Hygrocybe marginata var.
marginata

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Hygrocybe miniata
*Hymenochaete on cherry**
Hymenopellis furfuracea
*Hymenopellis megalospora***
Hymenopellis sp.
Hypholoma fasciculare
(from Wayne Co.)
*Hypholoma lateritum***
Hypomyces on a
Strobilomyces
Hypomyces succineus on
Pholiota angustipes
*Hypoxylon fragiforme**
Hypsizygus marmoreus
Inocybe geophylla var.
lilacina group
*Ischoderma benzoinum**
*Ischoderma resinosum***
Tapinella atrotomentosa
Laccaria ochropurpura
Lactarius argillaceifolius
Lactarius cinereus var.
*fagetorum***
Lactarius vinaceorufescens
Laetiporus sulphureus
Lentinellus ursinus
Lentinus levis (Wayne Co.)
Lentinus micheneri
*Lenzites betulina***
*Lepista nuda***
Leratiomyces squamosus
var. *thraustus*
Leucoagaricus leucothites
(Geauga Co.)
Leucopholiota decorosa
*Lycogala epidendrum***
Lycoperdon marginatum
Lycoperdon pyriforme
Macrotyphula juncea
Marasmiellus praeacutus
Mycogone rosea (pink mold growing on gills of *Amanita muscaria* var. *guessowii*)

*Mycena atkinsoniana**
*Mycena crocea***
*Mycena gallica**
*Mycena inclinata***
*Mycena leaiana***
Mycena pura = *Prunulus pura**
*Neofavolus alveolaris***
Ossicaulis lignatilis
*Panellus stipticus**
Paxillus involutus
Phallus ravenelii
*Phellinus gilvus**
*Phlebia tremellosa***
Phyllotopsis nidulans
Pholiota alnicola
Pholiota aurivella
Pholiota squarrosoides
Pholiota angustipes
*Pleurotus pulmonarius**
*Pleurotus ostreatus***
*Pluteus cervinus***
Pluteus thomsonii group
Polyporus badius =
Polyporus picipes =
*Picipes badius***
Polyporus brumalis
Polyporus radicans
Polyporus squamosus=
Cerioporus squamosus
Polyporus varius
Psathyrella delineate
Psatharella sp.*
Rhodocollybia butyracea
Rhodocollybia maculata
Russula ballouii
Russula compacta
Russula mariae
Russula sp.
Scleroderma citrinum
*Scutellinia scutellata***
Scutellinia sp.
Simocybe sp.*
Strobilomyces sp.
Stropharia hardii
*Suillus granulatus***
Suillus grevillei

*Suillus luteus**
*Trametes versicolor***
*Trichaptum biforme***
Trichoderma harzarinum
on *Ganoderma applanatum*
*Tyromyces chioneus***
Tyromyces spraguei

Groves Woods Mini-Foray Report Sun 9 Oct 2016

By Pauline Munk

A beautiful autumn morning brought 16 attendees to Groves Woods in Trumbull County. We were fortunate that the Cleveland Museum of Natural History (CMNH) has again provided the Ohio Mushroom Society permission to survey mushrooms on this special property.

Mushrooms were indeed everywhere, and new members as well as long-standing members filled their baskets with a colorful variety of gilled and non-gilled species. Walt Sturgeon was kept busy identifying over 60 species. Although conditions had been fairly dry, this habitat supports a good diversity. We are happy to share the species list with CMNH, and increase the

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knowledge and ID skills of our members.

Amanita bisporigera
Amanita brunnescens
Amanita citrina
Amanita rubescens
Armillaria mellea
Aureoboletus innixis
Clitocybe nuda=Lepista nuda
Coprinus micaceus or Coprinellus micaceus
Cortinarius sp.
Cortinarius iodes
Cortinarius violaceus
Entoloma abortivum
Grifola frondosa
Gymnopus dryophilus
Helvella macropus
Hericium americanum
Hygrocybe conica
Hymenopellus furfuracea (Rooting Collybia) syn.
Xerula furfuracea
Hypholoma lateritium (Brick Caps)
Laccaria ochropurpea
Lactarius sp.
Lactarius chrysoreus
Lactarius decptivus
Lactarius ligniotus (?)
Lactarius piperatus
Laetiporus sulphureus (Sulphur Shelf, Chicken of the Woods)
Leccinum longicurvipes
Lentinellus ursinus (Bear Lentinus)
Lenzites betulina
Lypoperdon pertlatum
Lypoperdon pyriforme
Macrolepiota sp
Marasmius strictius
Mycena crocea (grows on walnuts/hickory nuts)
Mycena leaiana (Orange

Mycena)
Mycena inclinata
Otidea alutacea
Phallus ravenelii
Phylloporus leucomycelinus (Gilled Bolete)
Pholiota aurivella
Pholiota squarrosoides
Picipes badius (Black Footed Polypore)
Polyporus radicans
Psathyrella sp.
Psathyrella delineata
Psathyrella rugocephala
Ramaria stricta
Russula sp.
Russula compacta
Russula variata
Retiboletes ornatipes
Stereum complicatum
Strobilomyces floccopus (Old Man of the Woods)
Tapinella panuoides syn.
Paxillus
Trametes versicolor (Turkey Tail)
Tylopilus alboater

Body found under bridge identified

From the Oct.26, 2016
Cleveland Plain Dealer

The 65-year-old North Olmsted man whose body was found wrapped in a tarp under a Cleveland bridge was a retired Cuyahoga County probation officer who owned a lie detector business, according to officials and public records.....Cashin's

body was found wrapped in a blue tarp about 1:45 pm Saturday by a woman who was hunting for mushrooms beneath the West 25 Street bridge, near the Cleveland Metroparks Zoo. The woman cut across the railroad tracks and spotted the tarp. She saw Cashin's hand protruding from beneath the tarp and called police.

RADIATION-RESISTANT FUNGI

<http://phys.org/Nov14, 2016>

Mycena News, Myco. Soc. of San Francisco, Nov. 2016

It is amazing how often great scientific discoveries arise by accident, and the story behind radiation resistant fungi is no different.

About 30 years ago, a routine test led the Chernobyl Atomic Energy Station in the Ukraine to explore radioactive material. Somehow amidst the debris, some fungi not only survived, they seemed to have adapted to the radiation and thrived, as noted by microbiologist Nelli Zhdanova at the Institute of Microbiology and Virology in Kiev. She

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and her team discovered these fungal oddities using robots to collect the material. Since then, these fungi have been preserved by Tamas Torok of the Lawrence Berkeley National Laboratory, who observed that “once the fungus discovered the radiation source, they grew directionally toward it.”

Upon closer look at the microscopy and morphology of these fungi, including *Wangiella dermatitidis*, *Cryptococcus neoformans*, and *Cladosporium sphaerospermum*, it was observed that the hyphae were particularly melanized, in other words they were black with melanin, suggesting that the presence of melanin could be a benefit to their adaptation to extreme environments (Dadachova et al., 2007; Dadachova and Casadevall, 2008).

Kasthuri Venkateswaran of NASA’s Jet Propulsion Lab and Clay Wang of USC School of Pharmacy decided to test these readily adaptable organisms in space. Their goal is understand how these super fungi might help humans be more resistant to radiation—think radiation therapy for cancer patients.

Venkateswaran is responsible for preventing microbes from contaminating space and other planets. Through his research he knows that gene expression is dramatically altered after persistent time in space. Wang studies how natural organisms could be used in pharma for strains of *Aspergillus nidulans*, and in July they sent some Chernobyl fungi, to the International Space Station (ISS) with a big question—will these fungi change? On August 26th the Dragon space capsule, loaded with space-grown fungi, dropped down in Baja California. The results have yet to be published, but Wang reported that they saw changes in their secondary metabolites (Love, 2016). This has huge implications for protecting people from radiation. This is a small step toward a much larger field of research. Little by little they intend on discovering how these compounds could be miracles amongst us.

References

Dadachova E., R.A. Bryan, X. Huang, T. Moadel, A.D. Schweitzer,

P. Aisen, J.D. Nosanchuk, & A. Casadevall. 2007. Ionizing radiation changes the electronic properties of melanin and enhances the growth of melanized fungi. *PLoS ONE* 2(5): e457. doi:10.1371/journal.pone.0000457

Dadachova E. A. Casadevall. 2008. Ionizing radiation: how fungi cope, adapt, and exploit with the help of melanin. *Current Opinion in Microbiology*, 11(6), 525–531.

Love S. 2016. What radiation-resistant space fungus can do for drug discovery. Web accessed October 21, 2016: <https://www.statnews.com/2016/10/11/space-fungus-drugdiscovery/>.

SMALL AND EXTREMELY RESILIENT: SECRETS OF BLACK FUNGI

<http://phys.org/>, Nov. 14, 2016

Highly resistant to stresses, black fungi are real champions among microorganisms. With the support of the Austrian Science Fund FWF, a research team in Vienna discovered that the fungi

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owe their qualities to hitherto unknown proteins and special processes at (the) cellular level.

They are true survival artists, not minding the cold any more than they do heat. Whether their environment offers little or plentiful oxygen, is wet, salty, dry or has contaminated soils, the black fungi keep their cool and feel at home in even the most inhospitable of living conditions. How do they do that?

“To our great surprise, the fungi show almost no stress response at all. This means something in their structure makes them inherently resistant to stress,” relates Katja Sterflinger. With the support of the Austrian Science Fund FWF, the microbiologist used a climate chamber to simulate different stress situations as the fungi encounter them in climatically extreme regions such as the Arctic or deserts. She first observed how the cells of the fungi, or, more precisely, its proteins, react to cold, heat, ozone, or aridity.

Unique “Protein Tool”

Sterflinger heads the “Extremophile Center” at the Vienna Institute of BioTechnology (VIBT), University of Natural Resources and Life Science. The climate chambers, built specifically for the Institute, and the use of cutting-edge sequencing technologies have made it possible for the first time to identify the proteins of black fungi. “This was very difficult, because they are not like or even comparable to anything else we have seen so far,” notes Sterflinger.

This is actually a very smart move on the part of the fungi, because any dramatic changes would consume energy. The fungi have no need for that and therefore remain active even in low-nutrient environments such as glaciers or stone.

Understanding Cellular Processes

In a next step, the team headed by Sterflinger matched the protein data yield with the transcriptome data, i.e., they analyzed the sequence of cellular processes. The researchers discovered that the cellular secret seems to be less related to the proteins than to the

non-coding RNA (ribonucleic acid). These molecules are active in the cell without being translated into proteins. While their biological functions had been largely undetermined until recently, it is now known that they have an important role in regulating a variety of cellular processes. After all, only two percent of the genetic material that is actively read is translated into proteins.

The Exceptional Talent of *Exophiala dermatitidis*

Among the hundreds of fungal strains the Viennese researchers have investigated to date, *Exophiala dermatitidis* has turned out to be a particularly versatile extremophile. This microfungus, also known as “black yeast,” is found across all temperature ranges from cold to warm and withstands simply everything.

“It grows on glaciers just as in saunas and, unfortunately, also in our dishwashers. And it has the disagreeable property of being a human pathogen,” explains Sterflinger. This is the negative side of the

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fungus. On the plus side, it has an optimal talent for degrading hydrocarbons, i.e., toxins. This latter quality induced the microbiologists from the Extremophile Center to launch a second FWF-funded project in which they screened more than 200 black yeasts in their search for a biological “cleaner” for exhaust fumes and contaminated soils. Apart from *Exophiala* they found only one other fungus with the ability to degrade environmental toxins. Unfortunately, this second variety is also closely related to human pathogen strains, which meant that plans for using them as biofilters have been shelved for the time being

Medical Focus

Instead, the experts from Vienna’s University of Natural Resources and Life Science now focus on medical issues and have set out to investigate the molecules of the pathogenic *Exophiala dermatitidis* more closely, since the fungus provokes infections not only in people with weak immune systems but also increasingly in individuals of average good health, as Sterflinger notes,

underlining the relevance of her research for medical science. According to the microbiologist, the extreme stress tolerance of the fungus is probably related to its pathogenicity. “This is an area we still don’t know enough about. It is our goal to find out more about the virulence factors of the fungus.”

Both articles are from Bulletin of the Puget Sound Mycological Society, Number 527, December 2016

**Articles for the next newsletter
due Feb. 25, 2017**

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Editorial Musings

My apologies for the tardiness of this Log. The holiday season got the better of me! The brief article from the Cleveland Plain Dealer gives a clear warning to those who do their foraging in urban locales. The two articles on black fungi are pretty tough going (I had a hard time understanding parts of them.

The connection for me was the presence of melanin. This term of melanin casts a pretty broad net, but it refers to dark (black) pigment found in a variety of fungi. The one we are most likely to encounter are found in the “boot straps” which *Armillaria* (honey mushrooms) uses to spread its parasitic mycelium from tree to susceptible tree, as this fungus, though highly prized by collectors, can also be a dangerous threat to an orchardist. I’ve seen pictures in old fungus textbooks of excavations dug around an infected tree to prevent the infection of other nearby susceptible trees. These bootstraps consist of living mycelium surrounded by a layer of melanized and hence impervious tissue.

This somewhat circuitous ramble does, at last bring me back to *Armillaria*, which was probably the most prevalent species collected at the Fall Foray. I hope you all can follow this!

So now we are in the bleak month January. But there still might collectible edible mushrooms for your basket. I am thinking of two Mushrooms: namely

Calendar of Events

OMS Events

Check your most recent issue of the *Mushroom Log* or our website for more detailed information. Please plan to join us. All mini-forays are subject to cancellation. Call first to confirm.

Please bring a whistle and compass and an **RSVP to the host is mandatory so they have cancellation flexibility.**

Morel and other mini-forays, are subject to change, especially the former. Leaders will be checking the woods to assess their progress, so you should contact them at least a week prior to the announced mini-foray for any updates.

Miniforays: (RSVP required)

Beside those listed below, other mini-forays are likely during the summer/fall..

See later issues of the Log or the OMS website for later postings of these miniforays.



Flammulina velutipes and Pleurotus ostreatus.

These can appear during a brief thaw such as we're having now. Good luck.

The OMS Volunteers will meet in mid February to pull together the 2017 Calendar. It will be in an upcoming Log.

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Name:(printed) _____ Address: _____

City: _____ State: _____ Zip: _____ Telephone: _____

Fax: _____ Email Address: _____

Enclosed please find check or money order (check one):

____ \$15.00 annual family membership (newsletter via email and website only)

____ \$20.00 annual family membership (newsletter via paper, email, and website)

____ \$150.00 life family membership (newsletter via paper, email, and website)

My interests are: Mushroom Eating/Cookery _____ Photography _____ Nature Study _____ Mushroom ID _____ Cultivation _____ Other (specify) _____

Would you like to be an OMS volunteer? In what way? _____

How did you hear about our group? _____

May OMS provide your name to other mushroom related businesses? Yes _____ No _____

LIABILITY RELEASE AND PROMISE NOT TO SUE:

I understand that participating in the activities of a mushroom club involves a moderate amount of risk. This includes all of the risks of being away from home, risks associated with moving about in fields and woods, risks of encountering inclement weather, risks involved in eating wild mushrooms, risks of losing personal property by theft or misplacement, and all other expected and unexpected risks, including illness or injury. While a member of the Ohio Mushroom Society; or as a non-member attending any event hosted by the Ohio Mushroom Society, I agree to assume total responsibility for my own safety and well-being; and that of any minor children under my care, and for the protection of my and their personal property. I release the Ohio Mushroom Society, its board members, club members, contractors, and any and all entities such as parks or preserves, or any private property owner who may host an Ohio Mushroom Society event, and all other persons assisting in the planning and presentation of any Ohio Mushroom Society event, from liability for any sickness, injury, or loss I or any minor children under my care may suffer during any event or as a result of attending or participating. I further promise not to file a lawsuit or make a claim against any of the persons or entities set forth above, even if they negligently cause me or my minor children injury or loss. I agree to hold the Ohio Mushroom Society harmless from any liability they may incur as a result of any damages to any property I may cause. This release and promise is part of the consideration I give in order to be a member of the Ohio Mushroom Society, or to attend any event which they host or attend, whether a member or a non-member. I understand this affects my legal rights. I intend it to apply not only to me but to anyone who may have the right to make a claim on my behalf.

Signature: _____ **Date:** _____

Return form and check or money order to: Ohio Mushroom Society, c/o Jerry Pepera, 8915 Knotty Pine Lane, Chardon, OH 44024

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