

NJMA NEWS

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NJMA EVENTS HOTLINE

908-227-0872 for information on
NJMA events or cancellations due to
bad weather. It is **NOT** for general
inquiries or to contact officers!



Hygrocybe cantharellus
The Chanterelle Waxy Cap

This diminutive mushroom
looks like *Cantharellus minor*
or *Cantharellus cinnabarinus*,
but it is not related. Note the
translucent waxy texture and
the white mycelia at the base.

Collected on NJMA's
2022 Victor Gambino Foray.

PHOTO BY DOROTHY SMULLEN

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PRESIDENT'S MESSAGE

It's summer and the NJMA Foray season has begun. It may be off to a slow start with dry weather, but with a couple of dozen collectors at a foray, there always seems to be a table full of different species of fungi being brought back for novices and experts to learn more about – whether onsite at the macro level or to take home for the microscope. If you reside in a conifer area, I hope you come out to a foray in a deciduous forest location, and vice versa.

What's new at forays? The shared identification books at forays have been expanded to include some new books on Amanitas, Polypores, and eastern Boletes. You might also see a new canopy being put up for additional shade at one or more forays this year.

Also ongoing, for the first time this summer, is the selling of books. Our new book inventory is already posted and available online (<https://www.njmyco.org/book-sales-online.html>). But we also have a large collection of duplicate used books. Former members and their families have generously donated their mushroom book collections over the years. Our library chairperson, Jim Richards, agreed it was time to try to get some of the duplicate titles (surplus books) from the Robert H. Peabody Library into the hands of our newer members. So now at this year's forays, during the identification portion of the foray event (12:00pm-2:00pm), we will try to have a couple of small bins of used mushroom books available to purchase (prices are competitive to those found online elsewhere). Many of these books may be old in copyright, but some are classics that have been reprinted in recent years. This year, Rhoda Roper donated her mushroom books (thank you Rhoda!). I am happy to report some of her books have already found new owners.

At more than 800 members, our membership has a lot of eyes. This may be the year we reach 1000 members, because when fungi come out, membership rises with new and renewing members. We hope you will not only be readers, but will also be citizen scientists and help collect occurrence data on rare fungi. FunDiS has launched its Northeast Rare Fungi challenge (<https://fundis.org/protect/northeast>). Even if your fungi finds are not rare, I hope you will join other club members, and share your finds online on Taxonomy Tuesdays, our virtual foray.

– Sue McClary

Join us this Tuesday!

TAXONOMY TUESDAYS

Online every Tuesday evening at 7:00PM on ZOOM!

Download the ZOOM app to your phone, computer, or tablet and have digital photos of your mushrooms ready to present to the group.

Watch your email for details!



EDITOR'S NOTES

Welcome to the summer newsletter. As any of you who attended the forays may know, this summer has proven itself to be hot, dry, and nearly devoid of mushrooms. As I write this, New Jersey is suffering through a severe drought which has expanded into 7 counties, including portions of Morris, Essex, Hudson, Middlesex, Union, Somerset and Hunterdon counties, with “mild” drought conditions in Bergen, Passaic, and Monmouth Counties. There are mandatory restrictions on water usage for both residents and businesses; reservoir levels have been dropping; and the state has seen up to 75% less rainfall than average over the past 60 days, according to National Weather Service data.

We are living in unprecedented times. As Covid restrictions ease and we shift from a pandemic to an endemic, we are suddenly reminded of how climate change is ravaging our planet in the form of freak weather conditions, the likes of which none of us have ever experienced before. As temperatures rise, perhaps our new normal will see October, November and December becoming peak mushroom hunting months as the weather cools and the rain sweeps in.

It's not all doom and gloom, however. The first forays of summer yielded a variety of different fungi, including oysters, amanitas, and a stinkhorn or two. And although those fungi were few and far between, too many patches of barren, dry woods didn't stop our dedicated foragers and citizen scientists from trudging in the arid dirt at 12:00pm, when temperatures sometimes reached over 90 degrees. This newsletter features reviews of the Victor Gambino foray, pictures of our hunters in action, and the rogue fungi-based recipe or two. As we wait for the final newsletter of this year, I urge you all to stay safe, stay cool, and if you're out there searching for mushrooms, I wish you the best of luck.

And don't forget to bring a water bottle.

– Sydney Hilton

WELCOME TO THE ONLINE EDITION OF NJMA NEWS

For the great majority of you who are viewing the online PDF of this newsletter, please note that **most web links and email addresses are clickable**. Clicking on a **blue** web or email address will launch your web browser and take you to the specified page or open your email software so you can send an instant email. Just look for the “click finger” when you hover your mouse over these items.

NJMA 2022 FORAYS

by Nina Burghardt

Last year, we collected and dried quite a few fungi. Some of these I posted on *Mushroom Observer* with photos and descriptions; Igor will be sending them off to a lab to be sequenced.

ITS, which stands for Internal Transcribed Spacer, is the most commonly used genetic marker for biological research. As a matter of fact, in 2012, it was evaluated and proposed to become the universal DNA barcode marker for the Kingdom of Fungi. ITS is not a gene that codes for protein, but is instead a nonfunctional piece of DNA that has a specific role during the production of the ribosome, an essential biological “machine” that makes proteins in all living things on the planet Earth.

When raw DNA chromatograms come back from the lab, Igor will review, edit and assemble them to produce the final and trustworthy ITS sequence. He will then enter the sequence into an algorithm called BLAST (Basic Local Alignment Search Tool). This algorithm will search for possible genetic matches in a vast and constantly updated database of sequencing data called GenBank. The search output (a hit list of published sequences) is then carefully evaluated and interpreted to provide the best identification for the fungus based on a information provided for each relevant hit. Sometimes there is no match because the fungus has not been previously sequenced, even though it could be a known species. Occasionally, our mushroom could be a unnamed species with matching sequences in GenBank. Regardless of the outcome, at the very least ITS will allow identification to a genus even if GenBank hits are only distantly related. The best scenario is to match our sequence to a published one derived from the type collection (holotype). Holotypes are specimens on which the species original description is based, *i.e.* the reference organism. Thus, type collections anchor species epithets, while generic holotypes also establish the identity of a genus, a group of all evolutionary related extant organisms descending from the most recent common ancestor. If Igor is not familiar with the fungus, he will investigate to see if the DNA-base identification makes sense and the fruiting body matches the description provided in the literature and/or online resources, such as *Mushroom Observer* and *iNaturalist*.

Maricel Patino has been working with Sigrid Jakob (who does both lab work and sequence analysis). They have also identified some of our NJMA collections as well.

Once a collection is identified, it will be put into our herbarium located at Rutgers in New Brunswick.

DNA analysis is a powerful tool in the identification process, but it is only one tool. A good description of the collection, where it grows, how it grows, what it looks like and microscopic features are all important, especially if your fungus is an undescribed species.

I hope this year we can save more of our foray collections for DNA analysis. We always have fungi which we can either not identify to genus or are unsure of the species.

This is what I do to prepare a collection for DNA analysis: After a foray, I photograph the collection when fresh. Since it is sometimes twilight before we get home, I take a picture with artificial light and take another the next day if the color is not true. It is helpful if a bit of the substrate the fungus is growing in or on is included in the collection (such as a leaf a bit of moss, or bark). I photograph the top of the fungus, the underside (gills, teeth, pores or smooth surface), the stipe (if present) and the base where the fungus is attached to the substrate or ground. Measurements, descriptions of surfaces and context, any bruising, discoloration, odor or chemical reaction need to be noted. I then put the fungus on a slide so I can see the color of the spore print. With the spores already on the slide it makes it easier to examine the spores under the microscope on the next day. Sometimes when the fungus is too young or too old to drop spores, I smash a piece of gill between a slide and slide cover. The trouble with the smash print is that it is often hard to see the color of the spores. I try to include a microscopic picture of the spores and gills with my online observation.

Sometimes, if there is only one specimen, I cut it in half. One half I dry right away and the other half I use for analysis.

One thing I learned is to look at the spores of all the fruiting bodies in a collection. Just because the fungi look identical, they might not be. I checked the spores of one of the fruiting bodies in a collection but did not check the spores of the others. It turned out that one fruiting body was an *Entoloma* and the rest were *Mycena*. I posted the *Entoloma* spores and the DNA was conducted on the *Mycena*. I felt like a fool because a simple spore print would have told the difference.

I use a NESCO Snackmaster® food dehydrator because it has a thermostat. You need a steady heat (around 125 degrees) to extract good DNA. I also find that it is easy to break holes in the drying shelves to accommodate larger fungi. I use small mesh bags such as those used to package garlic, Hanukkah coin sacks or even the netting on top of berry punnets to keep very small collections separate. After the fungus has dried for about 24 hours, I put it in a Ziplock sandwich bag with the identification tag which includes the *iNaturalist* or *Mushroom Observer* observation number.

If you are posting an observation, I have found that putting a name on it, even if you are not sure of the species, gets the attention of people who are better identifiers.

If you take pictures at a foray or have *MO* or *iNat* observations, please send them to the club recorder (which is presently John Burghardt) so they can be attached to the foray list.

I am looking forward to this year's forays and hope you are too.



LAKE OCQUITTUNK FORAY JUNE 25, 2022

by John Burghardt, NJMA Foray Recorder

Our first foray of 2022 was at Lake Ocquittunk campground in Stokes State Forest. The area had received rain recently, so the streams were bubbly and full. But conditions felt dry. Still, we found and identified a nice mix of common early summer fungi.

The PDF containing a list of our finds can be found by clicking this link: <https://tinyurl.com/2p85x7en>. The list is arranged alphabetically within “form groups”. These groups are defined by similarities in the structure of the spore bearing surface of the fungi. But the groups are not indicative of genetic relationships. (See Timothy J. Baroni, *Mushrooms of the Northeastern United States and Eastern Canada*, Timber Field Press, 2017). In addition to the species name, the table shows the frequency of collections at forays this year and over the 41 years NJMA has kept records of its finds. This helps recognize common and uncommon species. The final column in the table shows references to photos of fungi collected at our foray. Our members often post to widely used platforms for sharing information on fungi: *Mushroom Observer* (www.mushroomobserver.org) and *iNaturalist* (www.inaturalist.org). You can view photos of our collections by entering the *Mushroom Observer* or *iNaturalist* number into the search function at the website. If you make a post, or see one that I have not listed, please let me know.

We found a nice mix of mycorrhizal fungi, which derive their food energy from living plants and in return provide the plants with water, minerals from the soil, and protection from disease. Among the gilled fungi, the *Amanita*, *Cortinarius*, *Lactarius*, and *Russula* are mycorrhizal, as are the *Tylopilus*, all the *Chanterelles* and one or possibly two of the jelly fungi (*Clavulina coralloides* definitely, *Ramaria stricta* might be). In addition to the two identified *Russula* species, we had several *Russula* collections representing six or seven different species that were not identified.

Thanks to everyone for the many excellent collections and help sorting, completing foray tags and assigning names.

We hope to see you again soon. Thanks to everyone for the many excellent collections and help in sorting and identifying. Please let me know of additions or corrections to the list.

GOING TO A FORAY? TAKING PICTURES? NJMA News needs photos from each of our upcoming forays!

Send them to us at njmaeditor@njmyco.org

If you have people in your photos, be sure to tell us their names (and if you have their permission to take their picture).

If you send mushroom pictures, try to be as accurate with your ID as possible.

Include that information in your filename as this example shows:

Jane Smith with *Agaricus campestris* at Stokes foray, taken by Mary Jones.jpg

MEADOWOOD PARK FORAY JULY 9, 2022

by John Burghardt, NJMA Foray Recorder

After another two weeks with only spotty rain in central New Jersey, we feared our second foray of 2022 at Meadowood Park would be dry. Oh well, I said to myself, it will be a nice walk in the woods, and maybe we'll find something unusual, as often happens when conditions are too cold, too dry or too “something”. In fact, we found a nice sampling of early summer fungi..

A PDF containing a list of our finds can be found by clicking this link: <https://tinyurl.com/znsrnb8>. The list is arranged alphabetically within “form groups”. These groups are defined by similarities in the structure of the spore bearing surface of the fungi. But the groups are not indicative of genetic relationships. (See Timothy J. Baroni, *Mushrooms of the Northeastern United States and Eastern Canada*, Timber Field Press, 2017). In addition to the species name, the table shows the frequency of collections at forays this year and over the 41 years NJMA has kept records of its finds. This helps recognize common and uncommon species.

Despite the dry conditions, we found a nice mix of fungi. Several mycorrhizal species were represented, including *Amanita*, *Inocybe*, *Russula*, *Cantharellus*, and *Astraeus*, but no *Boletes* (although *Astraeus smithii* is a member of the *Boletales*). We also found a few parasitic fungi – *Laetiporus*, which is parasitic on trees and two *Hypomyces*, which are parasites of fungi). Most of our finds across several form groups are saprobes, which break down dead plant material.



Megacollybia rodmanii at Meadowood Park

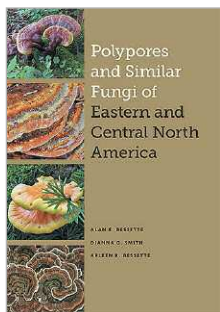
Our collections included what I believe is *Russula glutinosa*, a very unusual, seldom-collected species. The species was originally described as new to science by Raymond F. Fatto, a long time NJMA member who was an expert in the genus *Russula*. Interestingly, data for the type specimen of *R. glutinosa* at the New York Botanical Garden indicate that it was collected on August 6, 1997, in Morris County, New Jersey at a

(continues on [page 9](#))

BOOK REVIEW

POLYPORES AND SIMILAR FUNGI OF EASTERN AND CENTRAL NORTH AMERICA

a review by Maricel Patino



Polypores and Similar Fungi of Eastern and Central North America

by Alan Bessette, Arleen R. Bessette, and Dianna Smith

University of Texas Press (September 15, 2021)
392 pages

ISBN-10: 1477322728

ISBN-13: 978-1477322727

This book includes nearly 250 species in color, some of them relatively new to science as well as common look-alike species. It also includes the most currently-accepted genera and species names and a list of relevant taxonomic synonyms with each species description.

The updated keys provide resources for identifying the polypores to genus and species based on macroscopic, microscopic, chemical, and molecular characteristics.

In the book's introduction, the definition for polypore is presented, as well as a brief history of the historical and contemporary uses of polypores. The book also contains information on the edibility of polypores, their evolution along with their host trees, types of fungal decay, guidelines for collecting and preserving polypores and the identification process (how people can learn to identify polypores).

The keys for identification go from the letters A to M, throughout 30 pages. The last portion of the book includes the description of the polypore species and illustrations.

Each polypore is presented by introducing its scientific name, followed by common names, the polypore's macroscopic and microscopic pictures, occurrence in the field, edibility and, finally, the author's remarks on the fungi. The polypore's upper surface and the fertile surface are presented in one photo.

The number of details included in each polypore species makes this book a good resource to enhance your knowledge about them. You may be surprised about how it may help you to differentiate a greater variety of polypores.



Gilled polypore, *Trametes betulina*



BYTES, BITS, & BITES

TASTY LITTLE TIDBITS FROM OUR MEMBERS

Have you read something interesting concerning mushrooms or foraging? Send it to njmaeditor@njmyco.org and share with the rest of our members!

from Sue McClary:

New cookbook reflects mushroom mania but not foraging's full community:

<https://tinyurl.com/2yan5yfn>

from Sue McClary:

These mushroom foragers hit the jackpot. Then they got creative:

<https://tinyurl.com/4erubh2b>

from Sue McClary:

The Chilean mycologist celebrating fungi's "hidden kingdom":

<https://tinyurl.com/uavpdyeh>

from Lyla Meader:

Fungal Homes: Much Room, No Mushrooms:

<https://tinyurl.com/yckhmz5a>

from Sue McClary:

Fungi: The secret kingdom we don't see:

<https://tinyurl.com/2a7uxkjr>

from Sue McClary:

Robotics researcher revolutionizes mushroom harvesting:

<https://tinyurl.com/mr26ews2>

from Sue McClary:

Embroidered Sculptures Recreate Lifelike Mushrooms, Lichen, and Fungi in Thread:

<https://tinyurl.com/492amakz>

from Sue McClary:

Magnificent Mushroom podcast:

<https://tinyurl.com/4946nbpc>

from Sue McClary:

To make better mushrooms, squish 'em:

<https://tinyurl.com/2p84uhby>

from Sue McClary:

Mercedes-Benz electric concept car to use mushroom leather:

<https://tinyurl.com/2y2ajhww>

from Jim Richards:

The New York Times – Unearthing the Superpowers of Fungus:

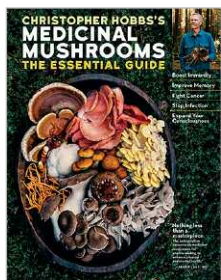
<https://tinyurl.com/mvfbehcu>



BOOK REVIEW

CHRISTOPHER HOBBS'S MEDICINAL MUSHROOMS: THE ESSENTIAL GUIDE

a review by Bob Saunders



Christopher Hobbs's Medicinal Mushrooms: The Essential Guide

by Christopher Hobbs

Storey Publishing, LLC (March 30, 2021)
272 pages

ISBN-10: 1635861675
ISBN-13: 978-1635861679

This is the definitive book on medicinal mushrooms and their uses so far. The author brings the uses from traditional Chinese medicine and Native American medicine, and the latest scientific studies of mushrooms in healing. He is a third-generation herbalist, author (I have and use his excellent “Herbal Remedies for Dummies”) and teacher (I have taken lectures by him at herbalist conferences) who studied under luminaries such as Paul Stamets and Dr. Alexander Smith.

The information in the book is a thorough and authoritative examination of the subject, yet easy to read. The explanations are careful enough to convince medical personnel (*i.e.* skeptical doctors) of mushrooms’ effectiveness. The extensive research studies are referenced in detail, so a reader can get more information by going back to the original study.

The book itself is handsome — clearly, profusely, beautifully, yet carefully, illustrated in color. Each mushroom mentioned is shown with photographs that enable the reader to see important features.

Hobbs means to show how mushrooms can be very useful medically, and succeeds. He does not merely list various mushrooms and their uses. He starts by showing the effects of the important constituents of mushrooms, and their actions in the body and in healing. These include high fiber, an array of vitamins and minerals, and useful components such as the immunomodulators (like beta-glucans) and antioxidants, especially terpenes. The book shows how they work in nutrition and as medicine.

This is followed by listing types of ailments, and which mushrooms are most practical for prevention and treatment of each. This step is all too often neglected by herbal authors, but maybe readers are looking for their own specific problem. Then Hobbs clearly details the processes for making medicines from mushrooms, such as tinctures and extracts, again well illustrated.

A major section is devoted to the discussions of many individual mushrooms including scientific findings,

medicinal uses, dosage, commercial products, harvesting and processing for each one. He examines the research and lore, admitting the limits of our knowledge, as well as the usefulness that has been shown. An important ten are discussed in full detail, with another eleven in less detail.

Another major section is devoted to “Visionary Mushrooms”, also known as magic mushrooms, entheogens, or hallucinatory mushrooms. He makes a convincing case for their use in healing based on traditional history, modern scientific studies and his own experience. These studies have shown their effectiveness in mental illness and other ailments, and indicate the likelihood of more to come. Mostly, he concentrates on *Amanita muscaria* and *Psilocybe* species. He admits there is a need for much more research, but shows that the benefits exist and deserve further exploration.

The final section of the book deals with understanding fungi — their life cycle, identification in the wild, harvesting, processing and cultivation. And importantly, how to identify and avoid toxic mushrooms and lookalikes. This would be an excellent introduction for anyone just getting started studying mushrooms, for whatever reason.

In all, this is a clear, careful handbook of medicinal mushroom that gives a good understanding with little technical jargon. It certainly makes a convincing case for mushroom’s usefulness in medicine. Recommended for all levels, from beginner through medical personnel or professional mycologist.



Calling all citizen scientists!

**The FunDiS [Fungal Diversity Survey]
Northeast Rare Fungi Challenge
has officially launched!**

**FunDiS wants your help in recording
rare, under-documented, and/or
threatened species of the Northeast.**

**This challenge runs from July 1, 2022
through December of 2027.**

**For more information on how to participate,
go to <https://tinyurl.com/25uvbzz7>**

WHO'S IN A NAME?

Fomitopsis mounceae

by John Dawson (eighty-seventh in a series)

The red-belted polypore in the eastern United States was until recently called *Fomitopsis pinicola*. But in 2019, DNA analysis revealed that it was distinct from that Eurasian species. It was accordingly renamed *Fomitopsis mounceae*, in honor of Irene Mounce, the pioneer Canadian mycologist who published a classic monograph on the species in 1929.



Irene Mounce

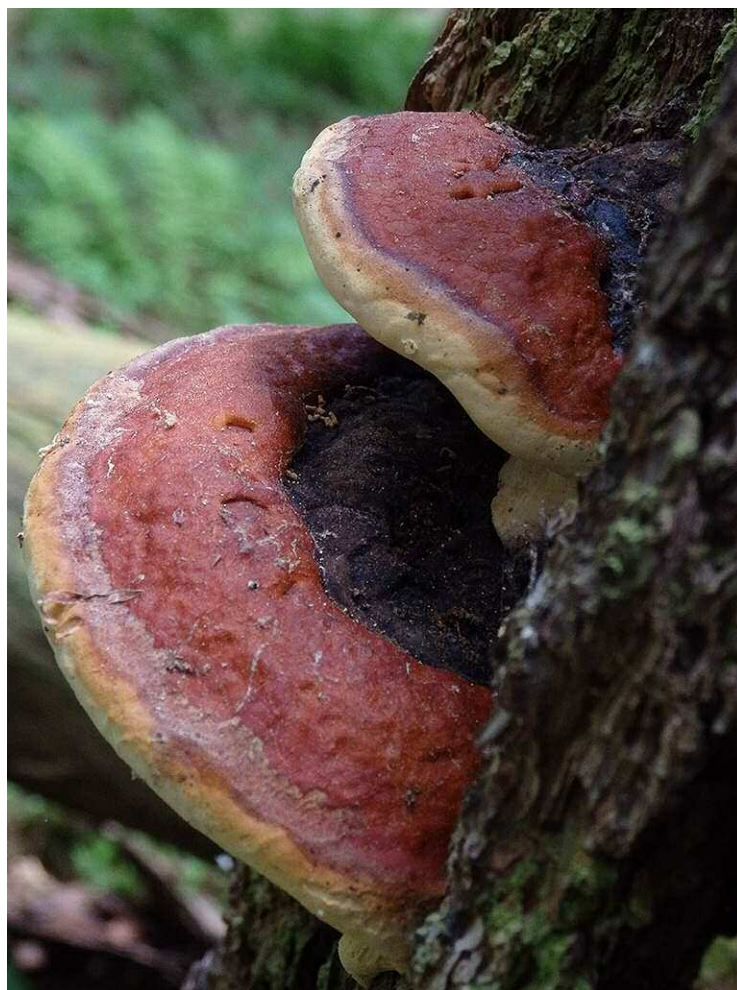
Medal for scholarship. Supported by a Hudson's Bay Company Research Fellowship as well as a Studentship from the Canadian Honorary Advisory Council for Scientific and Industrial Research, she then moved to the University of Manitoba to work in the laboratory of A.H. R. Buller (profiled in installment 20 of this series). There she studied the mating systems of species of *Coprinus*, on which she published two papers in the *Transactions of the British Mycological Society*.

In 1924, two years after receiving an M.Sc. from Manitoba, Mounce began work for the Division of Botany of the Canadian Department of Agriculture in Ottawa. One of her first assignments there was to study wood decay in Sitka spruce, which was causing a serious problem for the export of spruce lumber to British ship-building firms. Then, in 1929, she earned a Ph.D. at the University of Toronto under the direction of J.H. Faull. Her dissertation results on cultural characters, wood decay and mating systems in the Polyporaceae, were published immediately as Bulletin 111 (*n.s.*) of the

Mounce was born 31 August 1894 in Union, British Columbia (present-day Cumberland) and died 26 June 1987, aged 92, in Vancouver, BC. An outstanding student, she earned a B.A. in 1918 and an M.A. in 1920, both from the University of British Columbia, where she was awarded the Governor General's Gold

Canada Department of Agriculture, entitled "The biology of *Fomes pinicola*" (the classic monograph mentioned above).

Mounce engaged in further work on Canadian wood decay fungi in the 1930s. In order to gain greater expertise in that area of mycology, she worked for several months in the laboratory of L.O. Overholts at the Pennsylvania State University. Their collaboration continued for the rest of her career and, with his assistance, she established an herbarium of wood decay fungi and a reference collection of pure cultures of fungal pathogens.



Fomitopsis mounceae, Cook Forest State Park

¹ Quoted from the obituary memoir of Mounce by J. Ginns in *Mycologia*¹, the principal source for the information given in this profile, from which the portrait of Mounce reproduced here was also taken.

Visit the NJMA
Discussion Group



facebook

<http://tinyurl.com/jjualgz>

NJMA History Highlights

by Dorothy Smullen

NJMA
50
YEARS

Grete Turchick

The NJMA annual picnic at Stokes State Forest is named for Grete Turchick, one of the earliest members of the Lakeland Mushroom Club founded in 1971 (which later became the NJMA).

Grete was treasurer and membership secretary for 25 years for which she was honored with a cake celebration and award in 1995.

Grete lived in Sussex County and was a morel hunter extraordinaire. She taught at NJMA's June foray weekend – her special “Mycophagy Magic Workshop”. She was always serving her famous pickled mushrooms and fried, breaded burdock root to members at our meetings.

Another job she chaired was as NAMA Trustee and liaison for many years.

I wonder how many of us older members still have some of her needlework creations – knitted red and white mushroom pins. She also exhibited her cross-stitch work at our Fungus Fest events.

I'm so glad we will be returning to our annual picnic sharing after Covid and honoring Grete's name and dedication to NJMA.



Grete Turchick receiving an award for 25 years of service from Dorothy Smullen (1995)



Grete Turchick with author Roger Phillips (1991)



Viola Spock with Grete Turchick at a bygone Fungus Fest

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Views expressed herein do not imply New Jersey Mycological Association endorsement.

Mendham town park. The GPS coordinates indicate this park was in the vicinity of Meadowood Park (but was not Meadowood Park). As best I can tell, this is the first collection of *R. glutinosa* at Meadowood Park.



A stinkhorn resembling *Mutinus elegans* at Meadowood Park

Kevin and Jane collected this *Russula*. It had a yellowish cap with some duff adhering and cuticle barely peeling, cream-colored gills, and a very hard white stipe encased in duff almost to the cap. I dried the collection in hopes that we can confirm the ID with DNA. Thanks, Kevin and Jane, for this very interesting collection.

Thanks to Dorothy Smullen for leading the foray and providing a list of the lichens present. Thanks to everyone for the many excellent collections and help sorting, completing foray tags and assigning names.



The Meadowood Park collection

BALDPATE MOUNTAIN FORAY JULY 17, 2022

by John Burghardt, NJMA Foray Recorder

Our foray at Baldpate Mountain in Hopewell Township Mercer County was hot and dry after another week with very little rain in central New Jersey. Despite these conditions, a group of enthusiastic collectors made the foray fun, and found more interesting fungi than I was expecting. Thanks to everyone who participated.

The PDF containing a list of our finds can be found by clicking this link: <https://tinyurl.com/2nkj8c5f>. The list is arranged alphabetically within "form groups". These groups are defined by similarities in the structure of the spore bearing surface of the fungi. But the groups are not indicative of genetic relationships. (See Timothy J. Baroni, *Mushrooms of the Northeastern United States and Eastern Canada*, Timber Field Press, 2017). In addition to the species name, the table shows the frequency of collections at forays this year and over the 41 years NJMA has kept records of its finds. This helps recognize common and uncommon species.



Golden Oyster, *Pleurotus citrinopileatus*, at Baldpate Mountain

One sign of the dry conditions is the small share of mushrooms – gilled fungi – on our list and the relatively large share of polypores. Gilled fungi are usually close to half of our collections. An even stronger sign is the very small proportion of mycorrhizal fungi. These fungi live as mycelia underground which attach to the roots of trees in order to draw food energy from the tree's products of photosynthesis in return for minerals that the fungi draw from the soil. I count six or, at most, seven mycorrhizal taxa on our list: *Lactarius* sp., *Russula pusilla*, *Russula* sp., *Tylopilus alboater*, *Cantherellus lateritius*, *Thelephora americana*, and perhaps the *Clitopilopsis* sp. A few are pathogens. *Desarmillaria caespitosa* and sometimes *Fuscoporia gilva* parasitize trees, and the two collections of *Hypomyces* parasitize other fungi. However, the great majority of the species we identified live on and draw their food energy and nutrients from dead wood they are helping to decompose.

CALENDAR OF UPCOMING EVENTS

Sunday, August 7 10:00am	FORAY – TEETERTOWN RAVINE (Lebanon Township, Hunterdon County)
Saturday, August 13 10:00am	FORAY – THOMPSON/HELMETTA PARK (Jamesburg, Middlesex County)
Saturday, August 20 10:00am	FORAY – WHITE LAKE NATURAL RESOURCE AREA (Hardwick Township, Warren County)
Saturday, August 27 7:30pm	ONLINE GENERAL MEMBERSHIP MEETING Watch for email containing Zoom Link Meet some of the Officers and give us your feedback
Sunday, August 28 10:00am	GRETE TURCHICK FORAY AND PICNIC Stokes State Forest, Kittle Field Picnic Area (Sandyston, Sussex County)
Sunday, September 11 10:00am	FORAY – SCOTLAND RUN PARK (Clayton, Gloucester County)
Saturday, September 17 10:00am	FORAY – WAWAYANDA STATE PARK (Hewitt, Passaic County))
Saturday, September 24 10:00am	FORAY – KITTATINNY VALLEY STATE PARK (Andover Township, Sussex County)
Sunday, October 2 10:00am	FORAY – BRENDAN BYRNE STATE FOREST (Pemberton and Woodland Townships, Burlington County)
Saturday, October 8 10:00am	FORAY AND PICNIC – SMITHVILLE PARK - SMITH WOODS AREA (Eastampton Township, Burlington County)
Sunday, October 16 10:00am	FORAY – CATTUS ISLAND COUNTY PARK (Toms River, Ocean County)
Sunday, October 23 10:00am	FORAY – ESTELL MANOR PARK - NORTH GATE (Mays Landing, Atlantic County)
Sunday, October 30 10:00am	FORAY – WELLS MILLS COUNTY PARK (Waretown, Ocean County)
Sunday, November 6 10:00am	FORAY – BELLEPLAIN STATE FOREST (Woodbine, Cape May County)

All forays begin at 10:00am and run until 12:00pm, followed by an ID session which runs until 2:00pm (or so).

RECAP OF THE VICTOR GAMBINO WEEKEND FORAY

by Dorothy Smullen

Nineteen NJMA members enjoyed the Victor Gambino weekend in late June at the Nelson Lodge of the Kirkridge Retreat Center near Bangor, PA.

Over 120 species were identified, plus 19 lichens. Saturday's foray was at the Jacobsburg Environmental Education Center thanks to arrangements by naturalist Curtis Sherwood.

The potluck dinner was a great success, and thanks to all the members who helped in the kitchen and cleanup.

NJMA member and educator Dorothy Smullen did a tree ID program, and evening programs were given by members Jason Hafstad (NJ Geology and Plant communities) and Maricel Patino (Corticoid fungi). Various club members reviewed the collections on Sunday morning. Thank you to those who brought their microscopes to help with ID, including Karen, Dave, Luke, Marice – and thanks and all the excellent collectors! Kudos to our club President Sue McClary, who helped from the beginning and brought books to sell.



The group posing at the 2022 Victor Gambino foray



PHOTO BY DOROTHY SMULLEN

- ▲ Rebecca Tuanquin with *Ganoderma*
- ▼ Yiming Lu gets the picture at the Gambino foray



PHOTO BY DOROTHY SMULLEN

Send in your articles and photos!

SUBMISSION DEADLINES for NJMA NEWS

NJMA News is a quarterly publication timed roughly to correspond with the middle of each season. The new issue dates and deadlines for 2022/23 are as follow:

FALL (October) issue: Deadline is **10/15/2022**

WINTER (February) issue: Deadline is **1/15/2023**

SPRING (May) issue: Deadline is **4/15/2023**

SUMMER (August) issue: Deadline is **7/15/2023**



RECIPE FILE

Shiitake-Noodle Salad with Nuoc Cham and Herbs (Prepared by Luke Smithson at NJMA Mycophagy 2015) from *Shroom: Mind-Bendingly Good Recipes for Cultivated and Wild Mushrooms* by Becky Selengut, Andrews McMeel Publishing, 2014

This recipe is based on one of my favorite summertime dishes: Vietnamese bun or noodle salad. Traditionally room-temperature rice noodles are served with both hot and cold garnishes and sauced with what I consider the “salsa” of Vietnamese cuisine: nuoc cham or spicy lime and fish sauce. Shiitakes are my favorite cultivated mushroom, and they really take a starring role in this dish. They are bursting with flavor, especially when you add ingredients that support their savory nature – ingredients with natural glutamates such as soy sauce and tomato. This healthful and light dish is an excellent example of the whole being greater than the sum of its parts. The mushrooms can be made the day before and reheated. The dressing can be made several days ahead. If you end up frying the shallots for the bonus garnish (and I highly recommend it), they can be fried earlier in the day and left at room temperature.

1 heaping tablespoon kosher salt

1½ pounds wide rice noodles (it may say “stir-fry rice noodles” on the packaging; I use thin pad thai noodles for this dish)

SHIITAKE SEASONING

1 tablespoon tomato paste

2 teaspoons soy sauce

2 teaspoons seasoned rice vinegar

2 teaspoons toasted sesame oil

2 tablespoons coconut oil, melted, plus more for brushing the pan

Freshly ground black pepper (optional)

1 teaspoon Porcini Powder (recipe follows)

1 pound shiitake mushrooms, stems removed (saved for stock)

BONUS GARNISH

1 cup vegetable oil

½ cup thinly sliced shallots, separated into rings

⅛ teaspoon fine sea salt

FIXINGS

1 head red leaf or green leaf lettuce, cut into bite-size pieces

1 medium carrot, peeled and julienned

1 medium cucumber, seeded and julienned

1 cup thinly shredded red cabbage

½ cup roasted, salted peanuts

1 cup packed fresh basil leaves

½ cup fresh mint leaves

Nuoc Cham Sauce (recipe follows)

Place a rack in the middle of the oven and preheat the broiler to high.

Bring a medium pot of water to a full rolling boil. Add the salt and then the noodles, turn off the heat, stir well, and let sit in the water for 8 to 12 minutes. Stir from time to time. Check for doneness at about 8 minutes. You want the noodles to be al dente (soft but just slightly firm in the middle). As soon as they are done, drain them through a colander and run cold water over them to stop the cooking. Set aside at room temperature.

In a small bowl, whisk together all of the ingredients for the shiitake seasoning. Add the mushrooms and, with your hands, mix the seasoning onto the shiitakes. Brush a little melted coconut oil onto a parchment paper-lined baking pan and add the shiitakes, gills down. Broil for 5 to 6 minutes on one side, until browned, then flip over and broil on the other side for 3 to 4 minutes. Alternatively, grill over a medium-hot fire until caramelized on both sides.



PHOTO BY STEVE STERLING

(continues on [next page](#))

To make the garnish, heat the oil in a small saucepan to 350°F. Add the shallots and fry until lightly browned. Remove with a slotted spoon and drain on paper towels. Sprinkle the salt over the top of the shallots and reserve at room temperature until ready to serve.

To serve, rewarm the mushrooms either in a hot oven or in a skillet, if necessary. Place an equal amount of lettuce at the bottom of 4 bowls. Top with the noodles, carrot, cucumber, cabbage, peanuts, basil, mint, fried shallots, and warm mushrooms. Serve the nuoc cham sauce at the table. Instruct your guests to apply liberally.

Nuoc Cham Sauce

⅔ cup water

½ cup freshly squeezed lime juice (about 4 limes)

2 tablespoons fish sauce

¼ cup sugar

6 Thai chiles, minced (substitute 1 serrano chile with seeds and 1 Cherry Bomb chile, seeded)

2 cloves garlic, minced and mashed to a paste

2 tablespoons finely shredded carrot (optional)

Whisk the water, lime juice, fish sauce, sugar, chiles, garlic, and carrot, if using, together in a bowl. Make sure the sugar gets dissolved. This sauce will keep in your fridge for 1 week.

PORCINI POWDER: Break high-quality dried porcini (avoid buying really dark, dusty, broken, or worm-eaten pieces) into small pieces and buzz to a fine powder in an electric spice grinder. Store in a plastic freezer bag or glass jar in the freezer for up to 6 months. There are several ways to use this powder. You can mix it with hot water and then cook it into a soup or stew, or use it along with salt and pepper as a crust for beef or fish, or add it to boost the earthiness in a vegetarian dish. See www.shroomthecookbook.com for a video demonstration of how to make porcini powder. Please note that the porcini powder you make will be uncooked. You will want to cook this powder, by simmering it into the soup or stew, by searing the meat in the pan, and so forth. Keep in mind that you can't really remove the gritty sediment from porcini when you are making porcini powder (as you would when rehydrating). Make sure you choose clean-looking high-quality dried porcini and grind to a very fine powder. Do that, and you shouldn't have any grit problems.

Serves 4. Pairing: French Riesling



ANOTHER REVIEW OF THE VICTOR GAMBINO FORAY

by Tom Tonon and Becky Tuanquin

Becky and I had a rewarding weekend, the first break-away since the start of the pandemic. We were most impressed with the friendliness and quality of the interactions with the fellow attendees. I was blown away at the depth of interest in fungi species that I normally just step on in seeking those that we like to eat.

I counted upwards 200 samples on the specimen tables, and noticed that a great number of them were identified. I loved to see all the microscopes and the studiousness at which the investigators were using them. It was a pleasure to talk to most everyone, a great group of intelligent people with interests, ideas, and willingness to share what they know to others.

I learned very much about many things, including fungi, and especially about lichens.

This is link to Tom's recited poem that expresses his deeper sentiments about the entire weekend:

<https://tinyurl.com/3wcj72z>



FRIENDLY FUNGI ANNOUNCE THEMSELVES TO THEIR HOSTS

*Originally from <https://phys.org/>, May 17, 2022 and reprinted here from *The Spore Print*, bulletin of the Puget Sound Mycological Society, June 2022*

For many years, after discovering a diverse population of sometimes-dangerous microbes constantly living in our intestines, scientists described the situation as a form of living with the enemy. But when it comes to commensal populations of the fungus *Candida albicans*, the dreaded invader may be better seen as a helpful friend arriving with gifts.

That's the key message of a study published May 17, 2022, in *Cell Reports* by a team led by Sing Sing Way, MD, Ph.D., an infectious diseases expert at Cincinnati Children's Hospital Medical Center. "This fungus could be invisible to our bodies if it wanted to be. It can mask many of the ways our immune system knows how to recognize it," Way says. "Instead, our work shows that it purposely exposes itself to gain the benefit of our bodies recognizing it and not attacking it."

Many people are familiar with the concept of probiotic (or "good") bacteria. Scientists also have learned that

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Ursula Pohl conducting the dye workshop

A REVIEW OF THE MUSHROOM DYE WORKSHOP

by Dorothy Smullen

The Dye Workshop was a massive success! Teacher Ursula Pohl was busy managing all the heating pots of fungi and wool as she taught the registrants the process of dyeing.

Many thanks to Nina Burghardt, who ordered supplies of wool and silk scarves and kept hot water coming throughout the session, which lasted from 10:00am to 5:00pm.

Informational pages were supplied by Susan Hopkins, and some dried specimens came from the collection of dyer Liz Broderick (who we miss deeply).

Some of the fungi used were *Phaeolus schweinitzii*, *Hydnellum* sp., *Hapalopilus nidulans*, and *Cortinarius semisanguineus*.



NJMA ANNUAL ELECTION 2022

NJMA holds an annual election of Officers and Trustees. Normally, this would be conducted at our November meeting, but for the third consecutive year circumstances do not allow us to meet in person. Therefore, we will be holding a virtual election this year. This notice introduces the proposed slate and reminds our membership that they are eligible to run for any of these positions.

It also briefly outlines the process that our virtual election will follow. To run for office, one must be a "member in good standing" (that is, a member for more than a full year as of October 31, 2022 and be paid up in their dues) and submit a petition with signatures from 30 members. A description of the positions and the election process can be viewed at the tab By-Laws in the "Members Only" section of our website at <http://www.njmyco.org>.

The following positions are open:

President
Vice President
Treasurer
Secretary
One of five Trustees

The NJMA Nominating Committee submits the following slate of candidates:

President: Sue McClary
Vice President: Stef Bierman
Treasurer: Igor Safonov
Secretary: Lyla Meader
Trustee (for the term 2023 to 2027): Dorothy Smullen

Election Timeline

November 14, 2022

Deadline to submit a petition to run.

November 21, 2022

Election via electronic ballot starts.

December 4, 2022

All votes are due by midnight. Results will be tallied the following day and announcements made shortly thereafter.

January 1, 2023

All winners begin their official duties.

In lieu of a petition containing 30 signatures, the NJMA Nominating Committee will accept 30 electronic (email) letters of reference. A simple "I nominate Jane Doe for the position of trustee" is sufficient. The 30-day-prior-to-the-election deadline is waived.

Nominations can be emailed to the chairperson of the NJMA Nominating Committee, John Burghardt johnab190007@gmail.com.



FRIENDLY FUNGI... (continues from [page 13](#))

fungi can do good for people, including sometimes replacing bacteria in the commensal state and performing similar beneficial functions. “However, fungi also are much more complicated than bacteria, and relatively understudied compared to bacteria,” Way says.

Blinking “Hello”

In years past, many scientists believed that the simple presence of certain fungi in the gut was enough to signal to the body that it had a proper balance of microbiota. Even inert fungi could be detected via the surface structures and chemicals of their cell walls.

“This paper shows that commensal fungi need to be alive and actively making proteins that stimulate our immune cells to elicit that commensal benefit. They need to be metabolically and transcriptionally active,” Way says.

To determine how *C. albicans* becomes recognized as commensal, first author Tzu-Yu Shao, an immunobiology graduate student, worked with scientists at Cincinnati Children’s, Brown University, the University of California San Francisco, and the Institut Pasteur in Paris to conduct a series of experiments establishing colonization in mice.

They learned that the gene UME6, which helps regulate filamentation in fungi, is essential for allowing intestinal *C. albicans* to “prime” the immune system so that it can fight off a wide range of infections. Initially, the team expected this priming effect to be caused by either extremely high or low expression of this gene.

However, the beneficial effects did not occur when colonization with *C. albicans* was locked into either extreme. Instead, engineering the fungus to oscillate between high and low levels of UME6 expression during colonization was essential. This blinking back-and-forth appears to signal to the body that *C. albicans* is beneficial. In return for not being chased out of the intestine, the fungi help the body more rapidly respond and fend off infection by a variety of microbes—including *C. albicans*.

“We found that not only does the fungus have to be living, it has to purposely execute a program of expressing specific cell wall components so that our bodies can detect them. They are deliberately doing that to help us and themselves,” Way says.

Next Steps

Eventually, it may be possible to manipulate this process to restore healthy levels of commensal fungi. But first, Way’s team seeks to learn more about how this symbiotic relationship works.

“Good” fungal colonization can begin as soon as birth but can take months to complete. Later, various events

can cause other fungal populations to dive. How do such population variations affect the commensal benefit? The team also plans to explore how commensal *C. albicans* works in other tissues, including oral mucosa, lungs, skin, and the birth canal.

“We’re interested in figuring out in more depth how and why we are colonized with these microbes,” Way says. “Given that our immune systems can see them, additional next steps also include understanding why colonization does not normally cause aberrant inflammatory reactions.”

STARTUP MAKES CARBON-NEUTRAL, HIGH-PROTEIN PASTA FROM FUNGI

by Adele Peters, <https://www.fastcompany.com/>, May 23, 2022 and reprinted here from *The Spore Print*, bulletin of the Puget Sound Mycological Society, June 2022

Early in the pandemic, when her mother was diagnosed with prediabetes, Michelle Ruiz, a chemical engineer at ExxonMobil, wondered how she could help make the life change easier, as her parents struggled to figure out how to adjust their diets.

“We’re from Ecuador, and we found that all the foods that are most culturally embedded in our daily lives are packed with refined carbohydrates that would make my mom’s diabetes worse,” she says.

As she started thinking more about food, she noticed that a growing number of startups were beginning to use mycelium, the rootlike part of mushrooms, to make plant-based meat alternatives for foods like chicken breast. She realized that mycelium also could be used to make a high-protein, low-carb flour for pasta, tortillas, and other foods typically made with wheat flour — options that would be far healthier, especially for someone with diabetes.

From her work at Exxon (which happened to involve running a wastewater-treatment plant), Ruiz also realized that it could be possible to make mycelium-based products affordable enough to compete with wheat. The key was using something that would normally be discarded: sugar-filled water waste from food and beverage manufacturers like breweries. Breweries pay a surcharge to wastewater-treatment plants to treat that sugary water, a byproduct of brewing, and the process involves using fungi and bacteria to consume organic material in the water.

Mycelium, Ruiz knew, could do the same job. For a brewery, paying for wastewater treatment can account for 20 percent of their operating costs; annual costs can be in the millions. At the same time, around half of the cost of production for companies producing mycelium comes from buying sugar.

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Last year, Ruiz began working on a startup, Hyfé Foods, to commercialize the idea. The startup will partner with food and beverage manufacturers and build its own production inside their facilities, since moving the water would be too expensive.

“We take the water that would normally go down the drain at a very specific point in the plant where it’s still food safe,” Ruiz says. The water goes through a pretreatment process and then gets added to bioreactors filled with mycelium, along with oxygen and micronutrients to help the mycelium grow.

The mycelium grows into tiny spheres resembling couscous. Then it’s filtered out of the water, dried, and turned into a flour that can be used to make other foods. Hyfé plans to sell both the flour and finished products to food companies.

Because the process helps avoid creating waste, it’s actually carbon-neutral. At wastewater treatment plants, after fungi and bacteria chew through the water, they’re filtered out and sent to landfills, where they emit methane, a potent greenhouse gas. Because a bowl of pasta made from mycelium has as much protein as a chicken breast, without the carbon footprint, the startup thinks that it can be an alternative for climate-conscious consumers.

Production could begin quickly enough to begin to respond, to a small degree, to the global wheat shortage caused by the war in Ukraine; right now, countries are relying on some reserves of wheat but are quickly running out. The startup eventually wants to have production facilities inside food manufacturing plants around the world.

“That is the most efficient from a cost standpoint,” Ruiz says. “But then the second part is you’re giving individual regions around the world the sovereignty of producing their own food. It’s a decentralization of food production versus relying on one particular region to produce a specific type of food and then ship it all over the world .”



PHOTOGRAPHY OF MACROFUNGI: AN IN-DEPTH LOOK

from the *Fungal Diversity Survey* blog, published by Alan Franck
All photos by the author except where noted.

Photography is an indispensable tool for the study of macrofungi. Photographers should document as much information as possible about a fungus, especially to aid identification.

The observer should consider photographing:

- 1) **all sides** of the fungus
- 2) **with scale** for measurement
- 3) **external details** (i.e. close-ups)
- 4) **the base** (e.g. mycelium, buried or hidden parts)
- 5) **the interior** (typically sectioned with a knife)
- 6) **spore deposits**
- 7) **color changes**
- 8) **exudate**
- 9) **different stages** of growth

- 10) **numerous individuals** to show morphological variability
- 11) in **different seasons**
- 12) its **substrate or habitat**

Some things cannot be easily photographed, and such things ought to be carefully noted, including firmness/brittleness, texture (e.g. slimy, dry, scabrous), smell, taste (only with proper expertise and caution), population aspects (solitary, numerous, etc.), colors which may not be accurately depicted by photography, habitat, and associated organisms (e.g. mycorrhizal plant host, plant identification of dead wood).

For whatever camera you choose, accessories worth using include a tripod, macro lens for close-ups, portable light for shaded conditions, and an umbrella for diffuse lighting in sunny conditions.



Geodina guanacastensis (L), with a quarter for scale, and *Myxarium nucleatum* (R), with a dime for scale



Numerous individuals of a *Hygrocybe* species (presumably of the same species) showing variability in color.



A) A species of Polyporales in early fall (0.15 cm rainfall in prior 6 days). B) The same species of Polyporales (from the same exact colony as A) in the late summer (8.66 cm rainfall)

