NJMA NEWS

THE OFFICIAL NEWSLETTER OF THE NEW JERSEY MYCOLOGICAL ASSOCIATION

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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!*

WHAT'S INSIDE:

PRESIDENT'S MESSAGE

As we start 2022, I am optimistic that in-person, indoor events will return. Victor Gambino Weekend (canceled in 2020) is being planned for this year, albeit a little different.

I have come to believe that the personal connections among NJMA members, created by Victor Gambino Weekends and other events, coupled with mandatory changes in leadership, has kept us an active growing club for over 50 years. Because it is the long-term members who are truly the backbone supporting new club officers, NJMA starts this year by awarding Jim Richards, a NJMA Life Membership.

After 19 years, Jim may have passed the torch of *NJMA News* editor to someone else, but he will continue to volunteer his time as Trustee, chairperson of the Robert H. Peabody Library, and chairperson of the Culinary Group.

Now, about us newbies. Myself (Sue), Trustee Maricel Patino, and club Secretary Lyla Meader, all joined NJMA in 2015. Our interests and backgrounds all differ. But we were all willing to give back to NJMA and do some of the less fun behind the scenes work. To the new members, from the pandemic years 2020-2022, you will become the club officers and trustees soon enough.

One of you, Sydney Hilton, has already assumed the position of editor for the club newsletter, *NJMA News*, volunteered to be Outreach Coordinator, and created an NJMA Instagram account.

Such enthusiasm is contagious. With hundreds of members, we cannot meet you all in person. It is my hope that this year, some of you will listen in or participate in the newly introduced Member Roundtable Planning sessions on Zoom, which we hope to have quarterly. Get to know us better and help make the club

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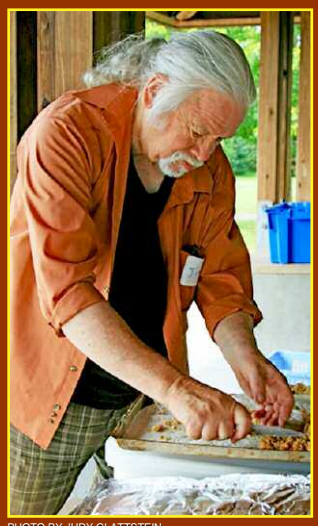


PHOTO BY JUDY GLATTSTEIN

Congratulations,

JIM RICHARDS

Your dedication and service to NJMA since 1976 has been awarded with a ***Lifetime Membership****.*

Thank you for your continuing service!

EDITOR'S NOTES

Hi, folks. So, after 17 whole years of service, what can be said besides, Thank You.

As most of you may know, our dearest Jim Richards has handed over the reigns to the NJMA newsletter, and here I am, a virtual (no pun intended) stranger to the club, now taking control of this crazy horse.

My mushroom story begins all the way back in August of 2021 — yes, last year, folks. I had just moved back home after a three-year stint teaching English in Cartagena, Colombia. I was unmoored by the change; although it was only a few years, Colombia became my second home. It was where I met some of my closest friends, where I got my first taste of freedom, at certain times delicious and at others bitter; it was where I'd hunker down during the tumultuous time of 2020, as COVID ravaged the world. Coming back to the United States, it felt like nothing made sense anymore. The country was divided, at times violently, and I suddenly felt lost in the places that used to be familiar. Closed in spaces felt like a death trap, and large crowds made me uncomfortable. So, like many people during the pandemic, I did something that made the most sense to me at the time: I had a return to nature.

There was something much more comforting in the sounds of the forest: the wind whispering through leaves, the birds chirping, the critters clambering through the underbrush and the open air so free of sickness. And it was during one of these trips to the woods (the Japanese Ministry of Agriculture and Forestry aptly calls it *Shinmin-yoku*, or forest bathing, the simple act of spending time in nature and absorbing the forest atmosphere) that I started looking at the forest floor for the first time in many years – and that's when I saw it.

A mushroom. A red topped, medium sized specimen with a large stem and white dots speckled on its cap. I know what you're thinking; nope, it wasn't the iconic *Amanita muscaria* (I have yet to encounter any of these toadstools in New Jersey), but, in fact, an aging *Russula emetica*. A "vomiting russula", which is simply the most unappetizing name for a mushroom (good thing it isn't edible!). I plucked it from the grass, not for the purpose of cooking it up and eating it later, but, simply, because I thought it looked so neat, and I couldn't bear to leave such a neat looking thing to its own devices.

*(continues on **next page**)*

EDITOR'S NOTES *(continued from previous page)*

I grabbed it, stem and dirt and all, and threw it in my tote bag since this was my first encounter with a mushroom, and I didn't know anything about proper fungi storage. The *Russula emetica* was the first thing that I had officially foraged. It was also the first mushroom that taught me a very important lesson about how it's probably a bad idea to leave uncovered fungi in your bag, in *AUGUST*, in a hot car; yes, folks, I left my bag in the car for a weekend, and by the time I hopped back into the driver's seat for a Dunkin Donuts Coolatta, the smell was so horrific that I was convinced something had snuck into my Camry and died.

There were many more foraging oopsies that would come in its wake. I accidentally picked Ghost Pipe (*Monotropa uniflora*) and frantically began searching for any information about them on the internet, thinking I had stumbled upon a new fungus, before I learned that they were, in fact, a plant. I tried to dehydrate a bolete in the oven, only to return to a plume of smoke rising from my oven, and a mushroom blackened. On another occasion, I left a Chanterelle I'd found outside, hoping that the late August sun would provide its own sort-of natural dehydration. I watched in horror as a squirrel snatched up my find.

There are two morals to this long story. The first one is to buy a dehydrator. The second is that, in the world of mycology (or, the study of fungi), that there is always something to learn, and that even the oldest, most knowledgeable of us will always be students. I am a student. I am new to this world, and even though in these past few months I have discovered an entire world beneath my feet, I still have a lot of learning to do, and I'm excited to do it with the New Jersey Mycological Association, as the new newsletter editor. I'd like to say that I have some huge shoes to fill, but the reality is that I will never be Jim Richards, and I can only ride this crazy horse the way I know how — as Sydney Hilton. I'm looking forward to providing all of you wonderful people with the latest in the culture of fungi in New Jersey and nationwide. I'm also looking forward to hopefully meeting some of you in real life, as venues open and in-person events resume!

All of my love,
Sydney Hilton

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!

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.

BYTES, BITS, & BITES

TASTY LITTLE TIDBITS FROM OUR MEMBERS

Have you read something interesting concerning mushrooms or foraging? Send it to ***njmabbb@gmail.com*** *and share with the rest of our members!*

from Sue McClary:

The top 10 benefits of mushrooms everyone should know about:

https://tinyurl.com/trkpmk9h

from Sue McClary:

The seven best mushroom foraging books of 2022:

https://tinyurl.com/yckd4scv

from Sue McClary:

Review of the Top 12 best medicinal mushroom supplements:

https://tinyurl.com/2p88pzex

from Sue McClary:

Skip button mushrooms and look for these 7 mushroom varieties instead:

https://tinyurl.com/8vd4b4hs

from Sue McClary:

Foxfire phenomenon caused by the honey mushroom (*Armillaria mellea*):

https://tinyurl.com/2p96ayjx

Important announcement!

SUBMISSION DEADLINES for *NJMA NEWS*

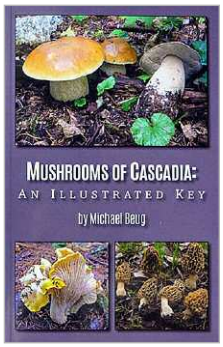
As you may have heard, *NJMA News* has converted to a quarterly publication timed roughly to correspond with the middle of each season. The new issue dates and deadlines for 2022 are as follow:

SPRING (May) issue: Deadline is 4/15/2022
SUMMER (August) issue: Deadline is 7/15/2022
FALL (October) issue: Deadline is 10/15/2022
WINTER (February) issue: Deadline is 1/15/2023

BOOK REVIEW

MUSHROOMS OF CASCADIA: AN ILLUSTRATED KEY

a review by Luke Smithson



Mushrooms of Cascadia: An Illustrated Key
by Michael Beug

The FUNGI Press (April 22, 2021)
314 pages

ISBN-10: 0578904764
ISBN-13: 978-0578904764

Dr. Michael Beug's book is a continuation of his work with the Pacific Northwest Key Council, an organization dedicated to the writing of keys for the purpose of mushroom identification. The council was started by Kit Scales Barnhart and Dr. Daniel Stuntz in 1974 when they started recruiting local amateur mycologist to meet regularly and develop keys for the Pacific Northwest. Dr. Beug has been a member of this group since 1975 and produced this modernized key with photographs from his and Kit's extensive mushroom photograph collection (along with several other photographer contributions).

The book focuses on the Cascadia region of the Northwestern United States, also known as the Pacific Northwest (including the states of US states of Washington and Idaho, along with portions of Oregon, California, Nevada, Wyoming, Montana, Alaska, Yukon, and British Columbia), with Beug's mycological center being the Columbia River Gorge. It includes various ecosystems, including low level rain forests, dryer forests and semi desert regions. In all, his book covers approximately 900 species with over 1,000 color photographs.

This book is a key, which is a bit different than your typical field guide. A key is a tool that helps identify an organism based on observable traits. Usually, two options are given, and you choose the option that is more appropriate to the observable traits of what you are looking at. Eventually, you run out of options to choose from and end up with a likely identification for your organism. This is a dichotomous key. In Beug's key, he often gives more than 2 options (but usually no more than 4) so that the reader needs to read through all the options before choosing the best fitting description.

The book begins with the usual mushroom ID book preambles: An introduction by the author, describing how he became interested in mushrooms. Some helpful information about mushroom hunting and identification follows, along with some notes on using mushrooms in the kitchen and a nice shout out to FunDis (Fungal Diversity Survey of North America). I found the author's notes on seasonality and personal collecting experiences interesting, and it helps qualify the author as an authority on his local fungi.

The keys themselves begin with a picture key of the larger mushroom groups: gilled fungi, non-gilled fungi, gelatinous fungi, spined fungi, etc. along with corresponding page numbers where these groups begin. This is helpful so that the reader does not need to start from the beginning of the key with each mushroom. You are quickly directed to the page number where groups start. This part of the key looks very similar to the keys that exist in *Ascomycetes of North America*, a book that Beug co-authored in 2014.

The keys lead you to photographs that were mostly taken by Beug or Kit Scates Barnhart (Harley Barnhart and Paul Stamets are the only other two photo contributors). The color photos are small (generally less than 2" x 3" with some being under 1" wide) and of medium to high quality. They are well composed, generally doing a good job showing the mushrooms in various positions. The color quality and sharpness of the images are nice, with only occasional photographs being a little washed out or in shadow. Overall, while small, the photos are nice.

The descriptions for the mushrooms are limited to macro-observations (traits visible to the naked eye, or with a loupe). No microscopic information is given. Descriptions are short, starting with only the essential statement that is needed for the particular line in the key, followed by a comment section when an identification is made. In this comment, the author expands on the statement made in the key, but keeps descriptions and comments brief and to-the-point. These are not fully expanded descriptions that cover every trait of the mushroom, but rather it seems to be the author's notes on how to identify each mushroom. Edibility/toxicity is discussed, along with some opinions by the author about how tasty some species are.

The book ends with a glossary, a common name reference section and an index. At approximately 8.5" x 5.5" and 314 pages, the softcover book is small enough to be carried in the field. Published by The FUNGI Press, and printed in the United States, it is available for $29.95 at ***https://fungi.com/collections/identification-guides/products/mushrooms-of-cascadia***. I would consider this book to be of great value if I lived in the Pacific Northwest. Additionally, it would be worth the investment if I was traveling in the area and intended to look for mushrooms.

Radulomyces copelandii

NJMA History Highlights

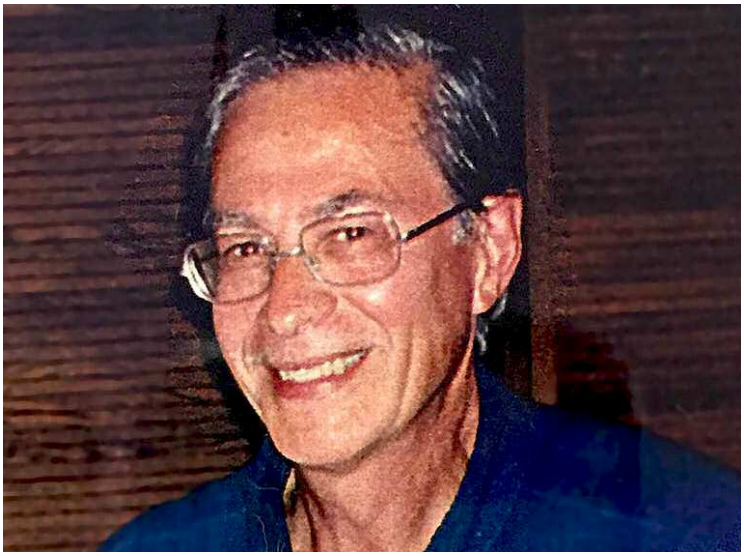
by Dorothy Smullen

This issue's featured past member is Neal Macdonald. Neal was one of the original members of NJMA when it was called the Lakeland Mycology Club. In 1973, he was the vice president and, by 1974, filled the position of president.

Neal was an accomplished artist and did many sketches for the club's newsletters, including the cover for a collection of recipes that were featured with his artwork of species called the "Mycophagist's Corner". (see below; also see *NJMA News* vol. 51-4.)

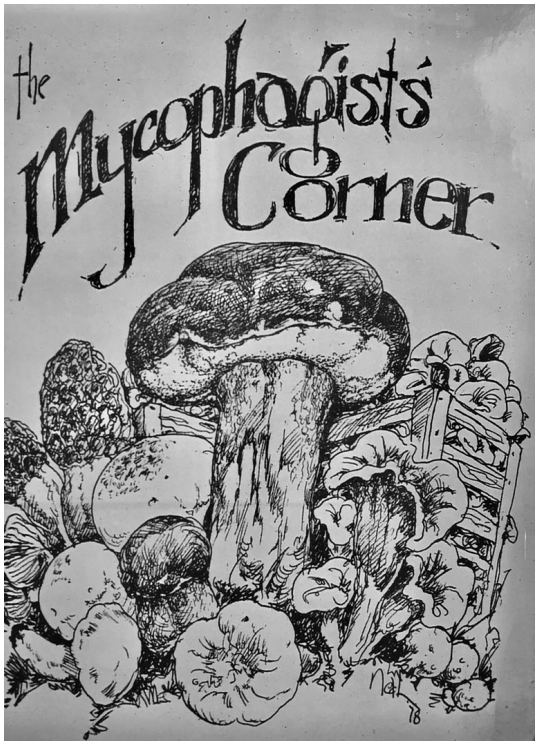
*1979 watercolor of **Amanita flavorubens***

Neal at mushroom fair in Denville (1972) of the Lakeland Club.



Neal at Nov. 2001 Club history program presented by Bob Peabody.

1988 foray: Roy Watling (from Scotland), Neal, Geoffrey Kibby, and Bob Hosh



Mycophagists's Corner compilation cover artwork

A REVIEW OF ADAM HARITAN'S ONLINE COURSE "FORAGING WILD MUSHROOMS"

by Arthur Veilleux, PT

Being a new member of the New Jersey Mycological Association in 2021 was both interesting and enjoyable. Finally, after seeing mushrooms on my hikes through the woods over the years, I was able to attach names to many of the more common varieties I encountered. Becoming a NJMA member also encouraged me to seek out other sources of fungi education. I purchased identification books, explored web resources, downloaded apps, and enrolled in an online course by Adam Haritan called "Foraging Wild Mushrooms".

Adam Haritan is an officer and identifier with the Western Pennsylvania Mushroom Club (WPMC). Adam acquired his knowledge through his participation with the WPMC and other regional and national organizations, and through reading the mycological literature and self-studying over the past ten years. I first encountered Adam through his YouTube channel "Learn Your Land" (LYL) – "a media channel created with the intention to help you develop a connection to nature one species at a time." In addition to its other content, many of the LYL video's deal with finding, identifying and learning about wild mushrooms. All of his videos are engaging, informative and well-produced. So, with the intention of deepening my understanding of mushrooms, I purchased his online course.

"Foraging Wild Mushrooms" is a collection of eighty-seven lessons that cover common mushrooms found in the eastern United States. The majority of the lessons are video presentations that run from under ten minutes, to nearly thirty minutes in length. In all, there are approximately sixteen hours of video. Although the course was released in 2019, there have been additions included since then. Some lessons include a downloadable PDF of well written text, often including color pictures (or drawings) that reinforce or provide supplemental or bonus information. The lessons are divided into modules or categories that begin with a set of ten objectives that are expected to be met by the end of the course. Each objective is focused on an important aspect of understanding fungi and safely identifying, harvesting, preparing, preserving and consuming mushrooms. This is followed by fungi safety, the role of fungi in the environment, taxonomy, and fungal anatomy. Foraging principles and practices are covered in a series of lessons that include a general review of rules and regulations for harvesting, using spore prints and chemical tests for identification, a review of mushroom myths, and a presentation on heavy metal contamination.

The bulk of the course is presented in seasonal categories covering the most common edible mushrooms likely to be found in winter, spring, summer and autumn. Mushrooms are referred to by their common and scientific names, often with explanations for the origin and possible variations of each. Adam describes each mushroom in depth, along with the environmental conditions and fungal characteristics – such as being mycorrhizal, saprophytic, parasitic, etc. Often, multiple species in one genus will be covered with a review of the characteristics that distinguish each. Lookalikes are discussed, with any poisonous varieties thoroughly identified. Five medicinal fungi are covered in their own videos while others are included with the editable varieties when the two overlap. Evidence from scientific literature is provided to support medicinal claims. Specific instructions are provided for dehydrating medicinal fungi, as well as creating decoctions and extractions. The final category of identification covers poisonous mushrooms. Mushroom toxins are explained along with signs and symptoms of poisoning.

In the penultimate category, video lessons on the nutritional benefits of wild mushrooms are followed by methods of preserving and preparing the harvest. Several recipes are offered, including Black Walnut Chaga Cold Brew.

The course concludes with three lessons on additional resources – books, clubs and websites, as well as some final remarks.

Adam Haritan is most likely best known for his YouTube channel "Learn Your Land", which has over 20 million views and 357K subscribers. I believe he is a talented presenter and video producer, and his love of the out-of-doors and knowledge is readily apparent. In this course, Adam set out ten objectives that would lead to a greater understanding and knowledge of wild edible mushrooms. I believe these objectives can be achieved by any participant who has the interest and motivation to complete the course. Personally, it has taken me over one year to make my way through the majority of the lessons – leaving some lessons on preserving and preparing medicinal mushrooms and supplemental mushrooms for another time.

There are two considerations that I will mention: Course availability and cost. First, participation in the course is not open at all times. Those wishing to purchase the course must put their contact information on a notification list to find out when enrollment is open. Second, the cost of "Foraging Wild Mushrooms" is currently $375.00. While it is difficult to compare this cost with the cost of other mushrooms identification courses available in-person or online, I really had to think twice before paying the fee. However, when I consider the quality of the course and the fact that my purchase goes to support someone who has released so much free content through LYL, I feel that it was worth it. Overall, I highly recommend "Foraging Wild Mushrooms" to anyone who wishes to increase their knowledge and enjoyment of this wonderful activity in the woods.

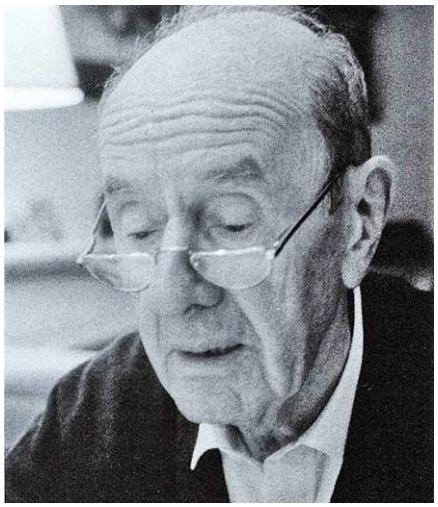
WHO'S IN A NAME?
Peyritschiella heinemanniana

by John Dawson (eighty-fifth in a series)

Peyritschiella heinemanniana is a laboul (insect ectoparasite) whose scientific name is yet another example of a double eponym. Its generic name honors the Austrian physician and botanist Johann Joseph Peyritsch and its specific epithet the Belgian mycologist Paul Heinemann.

Peyritsch (20 October 1835–14 March 1889) earned his Doctor of Medicine degree from the University of Vienna in 1864, then served for two years as a naval medical officer. From 1866–71 he worked at the Vienna General Hospital, before becoming a curator at the Vienna Museum of Natural History. In 1874, he received his *Habilitation* (higher doctorate) from the University of Vienna, and from 1878 until his death, he was a Professor of Botany at the University of Innsbruck. He described various plants in the families Celastraceae and Erythroxylaceae, collected mosses in the Austrian alps and liverworts in the vicinity of Innsbruck, and as a mycologist was particularly interested in the Laboulbeniales. In addition to the fungal genus *Peyritschiella,* the plant genus *Peyritschia* in the grass family is also named after him.[1]

Johann Joseph Peyritsch



Paul Heinemann

As for Heinemann, he became renowned worldwide for his work on African fungi and his publications on the genus *Agaricus*, and the epithets of three species in that genus (*A. heinemmannianus*, *A. heinemanniensis* and *A. heinemannii*) honor him, as do those of one species each in the genera *Cantharellus, Leucocoprinus, Marasmius* and *Russula*. In addition, two years after Heinemann's death, Roy Watling erected a new monotypic genus in the family Agaricaceae that he named *Heinemannomyces*.

During his life, Heinemann described 435 new taxa and wrote 225 journal articles,[2] on the basis of which he was regarded outside Belgium as the embodiment of Belgian mycology. Within that country, however, recognition of his merit came late in his life, in part because he was almost entirely self-taught and did not earn his doctorate until he was 40. Born 16 February 1916 in Brussels, he came of age during the Depression and spent the years 1933–41 working as a gardener's assistant on the plantations of the city of Brussels while taking night classes in chemistry at the Brussels Institute of Arts and Crafts. After that he moved to Gembloux, where he became an assistant at the Center for Ecological Research and Plant Associations and the Center for Mapping Plant Associations. From 1942–47 he also studied agricultural engineering at the Gembloux Agricultural Institute, and in 1946, he co-founded the Mycological Circle of Brussels, whose activities thereafter became an integral part of his life. (He served as its president for over forty years, from 1953–95!) Finally, in 1949, he became a collaborator of the Brussels Botanical Garden and was appointed as an assistant to a professor at the Gembloux Institute — the first step on his long climb up the academic ladder of the Faculty of Agricultural Sciences there.

In 1953, Heinemann was appointed Director of Research in that Faculty, and three years later he received his Doctor of Agricultural Science, was awarded the Adjutant Lefebvre prize of the Royal Belgian Academy, and served as secretary general of the First European Mycological Session, held that years in Brussels.

That was one of the few scientific congresses that Heinemann attended, for he disliked participating in large gatherings. In accord with his self-directed character, he preferred to carry out research by himself in Gembloux. He did, however, maintain an extensive correspondence with other mycologists, most of whom he never met. (It is said that he never even learned the gender of some of his correspondents, which he deemed not important enough to determine.) Remarkably, his publications on African fungi were based entirely on his studies of the

*(continues on **next page**)*

[1] Information about Peyritsch was gleaned from the brief entries on him in vol. 1 of *Lexikon deutschsprachiger Bryologen* and on Wikipedia. The portrait of him reproduced here is from the collection of the Hunt Institute for Botanical Documentation at Carnegie Mellon University.

[2] Vol. 131 no. 2 of the *Belgian Journal of Botany* contains a list of those taxa on pp. 81 – 101, a list of Heinemann's publications on pp. 72 –80, and a biographical memoir of him in French by J. Rammeloo and Olivier Guillitte on pp. 67 – 71. The latter is the only substantial account I have found of Heinemann's career, but it says next to nothing about his personal life. The information about Heinemann given here is based almost entirely on that memoir, from which the portrait of Heinemann reproduced here is also taken.

descriptions and exsiccata (dried specimens) of such fungi made by other collectors, as he never visited the African continent himself.

Heinemann's work was characterized by exacting attention to details, and he demanded the same from his students. He emphasized experimentation and questioning. In the obituary memoir of Heinemann cited in footnote 2, his colleagues J. Rammeloo and Olivier Guillitte describe his methodology: "Everything was meticulously recorded in volumes of collection records, photos, and negatives, annotated in great detail." In the case of fungi each record "was composed of a macroscopic description illustrated with sketches, sometimes with photos and notes on macrochemical reactions, and completed by a detailed microscopic description accompanied by numerous calibrated black and white photos" that "allowed him later to make [spore] measurements ... [and] treat [them] statistically."

From 1959–62, Heinemann served as an Associate on the National Fund for Scientific Research, and in 1963, he was finally promoted to the rank of Associate Professor in the Faculty of Agricultural Sciences at Gembloux. In 1965, the Royal Botanical Society of Belgium awarded him its Marchal prize for mycology, and in 1973–74 he served as president of that society. He became (full) Professor of Plant Biology at Gembloux in 1974 and held that chair until his retirement in 1983. He continued to publish prolifically, however: fifty-five journal articles authored or co-authored by him appeared between 1984 and 1997.

During his teaching career, Heinemann served on the doctoral dissertation juries, or as dissertation director, of many doctoral candidates at Belgian universities (and even some outside that country). He was also much in demand as a reviewer of journal articles in mycology. But at Gembloux, he directed only a single dissertation in mycology. In part, that may reflect "the emergence of new centers of interest based on new exploratory and experimental technologies" that Heinemann did not embrace.[3]

At his death on 18 June 1996, Heinemann left behind a large collection of offprints and an herbarium of over 9000 plants and fungi. They are preserved at Gembloux and in the National Botanical Garden at Meise.

[3] Quoted once again from the memoir cited in footnote 2.

TEACHING FUNGI HOW TO WRITE

by Amanda Caracas. Reprinted from The Sporeprint, newsletter of the Los Angeles Mycological Society, December 2021

Spalted wood is a highly sought after material in the high-end furniture industry. In a newly developed process, scientists from the Swiss Federal Laboratories for Materials Science and Technology (Empa) have succeeded at controlling the spread of fungi in native wood types to create elaborate marblewood pictures — and even taught the fungi to write some words. In spalted wood, the lines mark boundaries where different cultures of fungi have clashed and fought for territory and resources in the wood. By drawing up their opponent, the fine threads of the fungal community not only protect their colony, but also prevent bacteria and insects from entering their domain.

Moreover, this defense strategy ensures an ideal amount of moisture in the wooden habitat, allowing the fungus to thrive. In nature, one of the purposes of fungi is to cause the decay of wood — and although this natural process may seem basic, it is, in fact, quite spectacular. Each decaying piece of wood is uniquely patterned with colors and lines, artfully displaying the synchrony of life and death. This characteristic has made decayed wood a sought-after resource for thousands of years, especially for the production of furniture.

However, naturally obtained decaying wood from the forest floor may take several years to grow fungal-induced patterns, and there is no guarantee that the quality of the wood will suffice for its transformation into a functional item. Empa researchers from the Cellulose & Wood Materials Lab, led by Francis Schwarze, have developed a technology with which native hardwoods such as ash, beech and maple can be specifically treated with fungal cultures so that patterns in the wood can be controlled while retaining the stability and shape of the wood. Schwarze's team identified several fungi growing in nature and analyzed them in the lab to select those with the best properties as wood finishers. Depending on the combination of fungal species, dark lines caused by the pigment melanin appeared in the wood. Melanin is water repellent, antimicrobial, and protects the fungus from natural competitors, *e.g.*, bacteria.

The researchers could even control the patterns in the wood depending on the type of fungi they used, bringing forth different results; some lines were scrambled, others almost geometrically perfect. And last but not least, the team could even "teach" the fungi to write words — a world's first. While the fungus can be controlled to deliver the desired artistic result, the outcome of the process is also owed to research in the area of wood processing. Most fungi can only colonize and degrade wood when fiber saturation occurs, i.e. when the moisture of the wood is greater than 28–33

*(continues on **page 17**)*

NJMA RECORDER'S REPORT FOR 2021 FORAYS

by John Burghardt, NJMA Recorder

The 2021 NJMA collecting season was more relaxed than our 2020 season. By mid-summer, we were able to open each foray to all NJMA members without the need for them to preregister.

Weather largely determines how good collecting conditions will be over the course of a season, and this year we were lucky. Despite often-patchy precipitation around the state, most of our foray sites had received rain shortly before our visit to each one. These favorable conditions and the many interested members who turned out every week generated many very interesting collections in good condition. Overall, we identified about 870 taxa of fungi (Ascomycetes, Basidiomycetes, Urediomycetes, Zygomycetes) and myxomycetes and over 70 taxa of lichens.

The table on the following pages, and standalone .pdf file ***https://tinyurl.com/2p8usjmn***, provides a list of the fungi and lichens that we identified in 2021. We held 18 forays starting on June 20th at Stokes State Forest/Lake Ocquittunk in Sussex County through November 11th at Wells Mill County Park in Ocean County. Foray locations and dates are shown at the end of the list. The list also includes collections in 2021 from visits throughout the year to Franklin Parker Preserve (FPP) in Woodland Township, Burlington County. NJMA has been conducting this survey of fungi (and now lichens) for the New Jersey Conservation Foundation since 2009. A list of our identified collections by location in 2021 is at ***https://tinyurl.com/476jx96c*** .

We made collections in all 15 fungal "form groups" shown in the table. We group fungi with different forms of their spore-bearing structures to help narrow the search for the identity of an unknown fungus. But members of a form group are not necessarily related to each other genetically.

Finding species that we identify for the first time at one of our forays is always special. We know there are far more species of fungi producing visible fruiting bodies out there than science has named. And we discard many fungi at our forays because we cannot link the collection to the name of a described species. This year about one in 14 of the fungi we identified to species (7%) were species not previously identified from a NJMA foray. I attribute this to the many careful collections by foray participants and the hard work of everyone who takes material home to identify after the forays. Also important are the many sources of reference and direct support of experts on the internet, as well as the growing access to molecular analysis for documenting fungi collected by amateur mycologists.

I wanted to briefly highlight a few new finds at the four locations NJMA visited for the first time in 2021:

Kittatiny State Park in Andover Township, Sussex County. We shared the park with bicycling group that was preparing for a race the next day. One species new to our list from Kittatiny was *Neoboletus varitatibus*. Nina sent photos of this pretty bolete to Igor Safonov, who identified our specimen from the photo. Igor has studied this taxon as part of an ongoing effort by bolete specialists to understand the Boletaceae of northeastern North America. Igor and Linas Kudzma assigned a provisional name based on field characteristics and genetic data from many collections in the Northeast over several years. Photos and a description are at ***https://mushroomobserver.org/name/-show_name/110877***.

White Lake Natural Area in Hardwick Township, Warren County. Maricel Patino collected and identified the ascomycete *Geotrichum candidum* (***https://www.inaturalist.org/observations/89727397***) as well as the crust fungus *Subulicystidium longisporum* (***https://www.inaturalist.org/observations/89727398***). Maricel loves bumps on logs, and has become proficient in identifying them through their interesting microscopic characteristics.

Scherman Hoffman Audubon Wildlife Sanctuary in Bernardsville, Somerset County. Thanks to Dorothy Smullen for arranging this foray on short notice and leading it. Among several species new to our list was an *Agaricus proximans*, which Igor identified. Here is Nina's *Mushroom Observer* observation of the collection from Scherman Hoffman: ***https://mushroomobserver.org/483672***.

Smithville Historic Park in East Hampton, Burlington County. Maricel Patino organized and led this foray, and recorded all the collections. Thank you. Maricel. Here is Maricel's *iNaturalist* observation of *Mycena rosella:* ***https://www.inaturalist.org/observations/97853723.***

We also expanded our collection of lichens in 2021. We began to record lichens in 2020. In 2021, we collected lichens at 11 of our 17 forays, and at many of our visits to FPP. In addition, we held lichen workshops at Franklin Parker in April and May. Dorothy Smulllen and Dennis Waters lead both workshops. Elizbeth DeCicco and Jason Hafstad contributed lichen identifications at the workshop, forays and trips to FPP.

Thanks to everyone who participated in our forays in 2021. It was great fun. Let's hope for good conditions again in 2022.

(See the tables on the following pages)

SPECIES FOUND ON NJMA'S 2021 FORAYS

(Names in bold are new to the NJMA list in 2021)

MUSHROOMS (Fragile cap with gills, with or without stem)

Agaricus abruptibulbus
Agaricus approximans
Agaricus floridanus
Agaricus nanaugustus
Agaricus placomyces
Agaricus sp.
Agaricus vinosobrunneofumidus
Agrocybe acericola
Alboleptonia sp.
Alboleptonia subsericella
Amanita aestivalis
Amanita amerifulva
Amanita amerirubescens
Amanita amerivirosa
Amanita austrowellsii
Amanita banningiana
Amanita bisporigera
Amanita brunnescens v brunnescens
Amanita brunnescens v pallida
Amanita canescens
Amanita chlorinosma
Amanita chrysoblema
Amanita cokeri
Amanita crenulata
Amanita daucipes
Amanita dulciarii
Amanita elongata
Amanita farinosa
Amanita flavoconia
Amanita flavorubens
Amanita helmettensis
Amanita lavendula group
Amanita limbatula
Amanita longicuneus
Amanita longipes
Amanita morrisii
Amanita onusta
Amanita pakimpondensis
Amanita parcivolvata
Amanita persicina
Amanita phalloides
Amanita polypyramis
Amanita praecox
Amanita rhacopus
Amanita rooseveltensis
Amanita sect. Amadella
Amanita sect. Lepidella
Gloioxanthomyces nitidus
Gymnopilus junonius group
Gymnopilus liquiritiae
Gymnopilus penetrans
Amanita sect. Phalloideae
Amanita sect. Vaginatae
Amanita sect. Validae
Amanita sinicoflava
Amanita sp.
Amanita stirps Sororcula
Amanita subcokeri
Amanita subsolitaria
Amanita umbilicata
Amanita vaginata v vaginata
Amanita velatipes
Amanita vulpecula
Amanita whetstoneae
Armillaria calvescens
Armillaria gallica
Armillaria mellea
Arrhenia sp.
Asterophora parasitica
Atractosporocybe inornata
Baeospora myosura
Calliderma indigofera
Campanella sp.
Chroogomphus vinicolor
Clitocybe clavipes
Clitocybe odora
Clitocybe rivulosa
Clitocybe sp.
Clitocybula lacerata
Clitopilus prunulus
Clitopilus section Clitopilus
Collybia sp.
Conocybe lactea
Conocybe rugosa
Conocybe sp.
Coprinellus micaceus sect Micacei
Coprinellus sp.
Coprinopsis atramentarius
Coprinopsis cinerea
Coprinopsis variegata
Coprinus disseminatus
Cortinarius alboviolaceus
Cortinarius anomalus
Cortinarius armillatus
Cortinarius bolaris
Cortinarius camphoratus
Cortinarius caperatus
Cortinarius collinitus
Hypholoma sublateritium
Hypholoma sublateritium
Infundibulicybe gibba
Inocephalus quadratus
Cortinarius corrugatus
Cortinarius iodeoides
Cortinarius iodes
Cortinarius lilacinus
Cortinarius limonius
Cortinarius malicorius
Cortinarius marylandensis
Cortinarius mucosus
Cortinarius sanguineus
Cortinarius section Dermocybe
Cortinarius semisanguineus group
Cortinarius sp.
Cortinarius squamulosa
Cortinarius vibratilis
Crepidotus applanatus
Crepidotus mollis
Crepidotus sp.
Cuphophyllus pratensis
Cuphophyllus virgineus
Cyptotrama asprata
Cystoderma amianthinum
Cystoderma sp.
Deconica montana
Desarmillaria caespitosa
Entoloma abortivum
Entoloma albinellum
Entoloma conicum
Entoloma exile
Entoloma luteum
Entoloma pseudoconferendum
Entoloma rhodopolium
Entoloma sericellum
Entoloma serrulatum
Entoloma sp.
Entoloma strictipes
Entoloma strictius
Entoloma unicolor
Flammulina sp.
Galerina marginata
Galerina paludosa
Galerina sp.
Galerina sphagnorum
Galerina tibiicystis
Gerhardtia highlandensis
Gerronema strombodes
Gliophorus irrigatus
Gliophorus laetus
Lactarius subdulcis
Lactarius subpurpureus
Lactarius vinaceorufescens
Lactifluus corrugis

SPECIES FOUND ON NJMA'S 2021 FORAYS

(Names in bold are new to the NJMA list in 2021)

MUSHROOMS (Fragile cap with gills, with or without stem) (CONTINUED)

Gymnopilus sapineus
Gymnopilus speciosissimus
Gymnopus androsaceus
Gymnopus brassicolens
Gymnopus confluens
Gymnopus dichrous
Gymnopus dryophilus
Gymnopus sp.
Gymnopus spongiosus
Gymnopus subnudus
Hebeloma australe
Hebeloma crustuliniforme
Hebeloma sp.
Hemistropharia albocrenulata
Hohenbuehelia angustata
Hohenbuehelia petaloides
Humidicutis marginata v. concolor
Humidicutis marginata v. marginata
Hygrocybe acuticonicus
Hygrocybe cantharellus
Hygrocybe coccinea
Hygrocybe coccineocrenata
Hygrocybe conica
Hygrocybe flavescens
Hygrocybe miniata
Hygrocybe mintula
Hygrocybe punicea
Hygrocybe reidii
Hygrocybe sp.
Hygrocybe squamulosa
Hygrophoropsis aurantiaca
Hygrophorus hypothejus
Hygrophorus ponderatus
Hygrophorus sp.
Hymenopellis furfuracea
Hymenopellis incognita
Hymenopellis radicata
Hymenopellis rubrobrunnescens
Hypholoma capnoides
Hypholoma dispersum
Hypholoma fasciculare
Inocybe fraudans
Inocybe sp.
Inosperma sp.
Laccaria amethystina
Laccaria bicolor
Laccaria laccata v pallidifolia
Laccaria longipes
Laccaria nobilis
Laccaria ochropurpurea
Laccaria ohiensis
Laccaria proxima
Laccaria sp.
Laccaria striatula
Laccaria trichodermophora
Laccaria trullisata
Lacrymaria lacrymabunda
Lactarius affinis var. affinis
Lactarius atroviridis
Lactarius caespitosus
Lactarius camphoratus
Lactarius chelidonium
Lactarius chrysorheus
Lactarius cinereus v cinereus
Lactarius croceus
Lactarius deceptivus
Lactarius deterrimus
Lactarius griseus
Lactarius helvus
Lactarius hibbardae
Lactarius imperceptus
Lactarius indigo v indigo
Lactarius lignyotus v lignyotus
Lactarius mucidus v mucidus
Lactarius mutabilis
Lactarius paradoxus
Lactarius peckii
Lactarius piperatus
Lactarius proximellus
Lactarius psammicola
Lactarius rufus
Lactarius sp.
Lactifluus glaucescens
Lactifluus hygrophoroides
Lactifluus petersenii
Lactifluus subvellereus
Lactifluus subvellereus
Lactifluus volemus
Lentinellus cochleatus
Lentinellus sp.
Lentinellus ursinus
Lepiota sp.
Lepista irina
Lepista nuda
Lepista sp.
Leucoagaricus americanus
Leucocoprinus cepistipes
Leucocoprinus fragilissimus
Leucopholiota decorosa
Lichenomphalia sp.
Lyophyllum sp.
Mallocybe unicolor
Marasmiellus luxurians
Marasmius capillaris
Marasmius olidus
Marasmius pulcherripes
Marasmius rotula
Marasmius siccus
Marasmius sp.
Marasmius strictipes
Marasmius sullivantii
Megacollybia rodmanii
Megacollybia texensis
Melanoleuca alboflavida
Melanoleuca fumosoluteum
Melanoleuca niveipes
Melanoleuca odorum
Melanoleuca subsejuncta
Melanophyllum haematospermum
Mycena acicula
Mycena corticola
Mycena crocea
Mycena epipterygia

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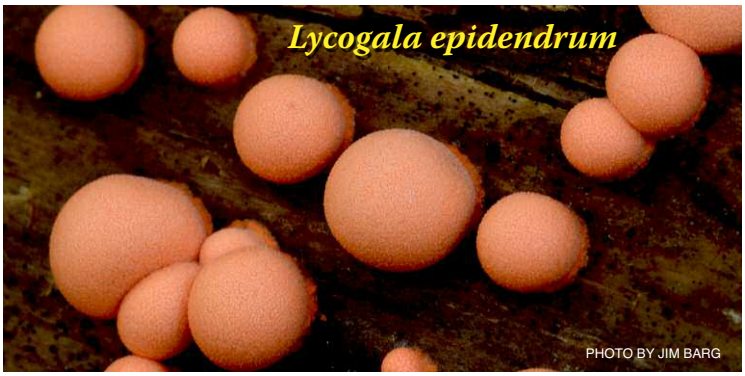
PRESIDENT'S MESSAGE *(continued from **page 2**)*

better by providing us with your direct input and sharing your fungi enthusiasm.

I must not forget to thank the outgoing President, Frank Marra, for hanging in there, despite seeing the activities he enjoyed, vanish. There are NJMA events that I have never attended: Mycophagy/MycoAuction, the Holiday Party /Photo Contest. Bringing those back will be a challenge for me, but I too, will be hanging in there working with others to restore back to NJMA what COVID took away.

– Sue McClary



SPECIES FOUND ON NJMA'S 2021 FORAYS

(Names in bold are new to the NJMA list in 2021)

MUSHROOMS (Fragile cap with gills, with or without stem) (CONTINUED)

Mycena galericulata
Mycena griseoviridis
Mycena haematopus
Mycena haematopus v marginata
Mycena inclinata
Mycena leaiana
Mycena praelonga
Mycena pura
Mycena rosea
Mycena sanguinolenta
Mycena sect. sacchariferae
Mycena sp.
Mycena subcaerulea
Mycetinis opacus
Mycetinis sp.
Myxomphalia maura
Nolanea murrayi
Omphalotus illudens
Panaeolina foenisecii
Panaeolus campanulatus
Panaeolus sp.
Panellus stipticus
Parasola misera
Parasola sp.
Paxillus panuoides
Pholiota granulosa
Pholiota limonella
Pholiota sp.
Pholiota squarrosoides
Phyllotopsis nidulans
Pleurocybella porrigens
Pleurotus ostreatus
Pleurotus pulmonarius
Plicaturopsis crispa
Pluteus cervinus
Pluteus flavofuligineus
Pluteus petasatus
Pluteus sp.
Psathyrella corrugis
Psathyrella duchesnayensis
Psathyrella sp.
Psilocybe sp.
Resinomycena rhododendri
Resupinatus applicatus
Resupinatus sp.
Rhizomarasmius pyrrhocephalus
Rhodocollybia butyracea
Rhodocollybia maculata v maculata
Rhodocollybia maculata v scorzonere
Rhodocollybia sp.
Rickenella fibula
Russula adusta
Russula aeruginea
Russula albidula
Russula albonigra
Russula aquosa
Russula ballouii
Russula bicolor
Russula brevipes
Russula brunneoviolacea
Russula cinerascens
Russula compacta
Russula cremeirosea
Russula crustosa
Russula cyanoxantha
Russula cystidiosa
Russula decolorans
Russula densifolia
Russula dissimulans
Russula earlei
Russula foetentula
Russula fragilis
Russula fragrantissima
Russula fucosa
Russula grata
Russula heterophylla
Russula humidicola
Russula ionochlora
Russula macropoda
Russula mariae
Russula melliolens
Russula modesta
Russula ochroleucoides
Russula ornaticeps
Russula parvovirescens
Russula pectinatoides
Russula perlactea
Russula pseudolepida
Russula pusilla
Russula redolens
Russula rubescens
Russula rugulosa
Russula sericeonitens
Russula silvicola
Russula sp.
Russula subgraminicolor
Russula subpunctata
Russula variata
Russula ventricosipes
Russula vesicatoria
Russula vinacea
Russula vinosa
Schizophyllum commune
Simocybe centunculus
Stropharia coronilla
Tapinella atrotomentose
Tetrapyrgos nigripes
Tricholoma aestuans
Tricholoma brunneoalba
Tricholoma caligatum
Tricholoma colossus
Tricholoma columbetta
Tricholoma equestre
Tricholoma fulvum
Tricholoma intermedium
Tricholoma magnivelare
Tricholoma sp.
Tricholoma terreum
Tricholomopsis decora
Tricholomopsis formosa
Tricholomopsis rutilans
Tubaria furfuracea
Typhrasa gossypina
Volvariella bombycina
Xeromphalina campanella
Xeromphalina cornui
Xeromphalina kauffmanii
Xeromphalina sp.
Xerula sp.

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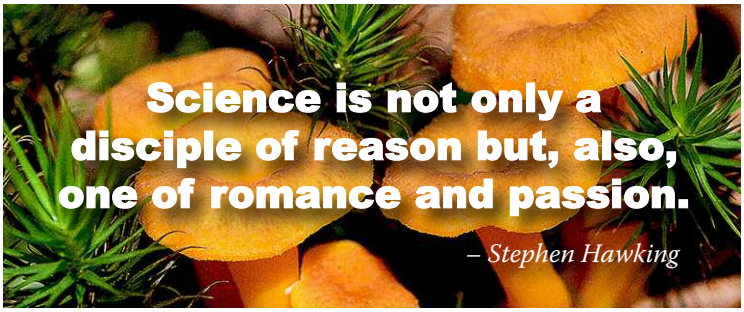

SPECIES FOUND ON NJMA'S 2021 FORAYS

(Names in bold are new to the NJMA list in 2021)

BOLETES (Fleshy, fragile with separable pores instead of gills)

Aureoboletus auripororus
Aureoboletus innixus
Aureoboletus projectellus
Aureoboletus roxanae
Austroboletus gracilis
Baorangia bicolor
Boletaceae sp.
Boletinellus merulioides
Boletus chrysenteroides
Boletus edulis group
Boletus longicurvipes
Boletus miniato-olivaceus
Boletus oliveisporus
Boletus patrioticus
Boletus sensibilis
Boletus sp.
Boletus subcaerulescens
Boletus subtomentosus
Boletus weberi
Bothia castanellus
Buchwaldoboletus hemichrysus
Butyriboletus peckii
Cyanoboletus pulverulentus
Exsudoporus frostii
Gyroporus castaneous group
Gyroporus roseialbus
Gyroporus smithii
Gyroporus sp.
Harrya chromapes
Hemileccinum hortonii
Hortiboletus campestris
Hortiboletus sp.
Imleria pallida
Inosperma vinaceobrunnea
Lanmaoa pseudosensibilis
Lanmaoa sp.
Leccinellum albellum
Leccinum holopus v holopus
Leccinum rubropunctum
Leccinum sect. Scabrum
Leccinum snellii
Leccinum sp.
Leccinum subsection Leccinum
Leccinum vulpinum
Neoboletus chamaeleon
Neoboletus subvelutipes
Neoboletus varietatibus
Neoboletus vermiculosoides
Phlylloporopsis boletinoides
Phylloporus leucomycelinus
Phylloporus rhodoxanthus
Phylloporus sp.
Pseudoboletus parasiticus
Pulchroboletus sp.
Pulveroboletus ravenelii
Retiboletus griseus
Retiboletus ornatipes
Retiboletus vinaceipes
Strobilomyces sp.
Suilellus ameriluridus
Suillus americanus
Suillus brevipes
Suillus decipiens
Suillus hirtellus
Suillus pictus
Suillus salmonicolor
Suillus sp.
Suillus spraguei
Suillus subaureus
Suillus weaverae
Tylopilus badiceps
Tylopilus ballouii
Tylopilus felleus
Tylopilus griseocarneus
Tylopilus peralbidus
Tylopilus plumbeoviolaceus
Tylopilus rubrobrunneus
Tylopilus sp.
Tylopilus violatinctus
Xanthoconium affine
Xanthoconium purpureum
Xanthoconium seperans
Xerocomellus sp.

CHANTERELLES (Gill-like folds, wrinkles, or smooth fertile surface)

Cantharellula umbonata
Cantharellus cibarius group
Cantharellus cinnabarinus
Cantharellus flavus
Cantharellus lateritius
Cantharellus minor
Cantharellus phasmatis
Cantharellus sp.
Craterellus cinereus
Craterellus fallax
Craterellus ignicolor
Craterellus tubaeformis
Tubinellus floccosus

POLYPORES (Dry, tough, woody; tubes not separable from cap; often without stem)

Abortiporus biennis
Antrodiella sp.
Bjerkandera adusta
Bondarzewia berkeleyi
Byssomerulius incarnatus
Cerioporus leptocephalus
Cerioporus squamosus
Cerioporus varius
Cerrena unicolor
Coltricia cinnamomea
Coltricia montagnei
Coltricia perennis
Coltriciella dependens
Coltriciella oblectabilis
Coltriciella sp.
Daedalea quercina
Daedaleopsis confragosa
Daedaleopsis septentrionalis
Dentocorticium portoricense
Fibroporia radiculosa
Fistulina hepatica
Fomes fomentarius
Fomitopsis betulina
Fomitopsis sp.
Fomitopsis spraguei
Fuscoporia ferruginosa
Fuscoporia gilva
Ganoderma applanatum
Ganoderma curtisii
Ganoderma lobatum
Ganoderma lucidum
Ganoderma sp.
Ganoderma tsugae
Globifomes graveolens
Gloeophyllum abietinum
Gloeophyllum sepiarium

*(continues on **next page**)*

SPECIES FOUND ON NJMA'S 2021 FORAYS

(Names in bold are new to the NJMA list in 2021)

POLYPORES (Dry, tough, woody; tubes not separable from cap; often without stem) (CONTINUED)

Gloeoporus ambiguus
Gloeoporus dichrous
Gloeoporus taxicola
Grifola frondosa
Hapalopilus rutinans
Heterobasidion annosum
Inonotus dryadeus
Inonotus hispidus
Inonotus obliquus
Inonotus tomentosus
Irpex lacteus
Laetiporus cincinnatus
Laetiporus persicinus
Laetiporus sp.
Laetiporus sulphureus
Leiotrametes lactinea
Lentinus brumalis
Loweomyces fractipes
Meripilus sumstinei
Metuloidea fragrans
Neoantrodia serialiformis
Neoantrodia serialis
Neofavolus alveolaris
Neofavolus americanus
Oxyporus populinus
Phaeolus schweinitzii
Phellinus rimosus
Phellinus sp.
Phlebia radiata
Phlebia sp.
Phlebia tremellosa
Poria sp.
Porodaedalea pini
Postia caesia
Postia sp.
Royopous badius
Schizopora paradoxa
Trametes betulina
Trametes cinnabarina
Trametes gibbosa
Trametes hirsuta
Trametes ochracea
Trametes pubescens
Trametes versicolor
Trametopsis cervina
Trichaptum abietinum
Trichaptum biforme
Tyromyces chioneus
Tyromyces sp.

CRUST FUNGI (thin, soft, or tough flat against wood, with pores, smooth, or wrinkled fertile surface)

Aegerita candida
Amphinema byssoides
Asterostroma andinum
Asterostroma laxum
Basidioradulum radula
Botryobasidium conspersum
Botryobasidium simile
Botryobasidium sp.
Byssocorticium atrovirens
Byssocorticium pulchrum
Byssomerulius corium
Ceriporia purpurea
Ceriporia spissa
Cineromyces lindbladii
Coniophora olivacea
Corticium roseocarneum
Dacryobolus karstenii
Dacryobolus sudans
Etheirodon fimbriatum
Gloeocystidiellum sp.
Henningsomyces candidus
Hydnophlebia chrysorhiza
Hymenochaete cinnamomea
Hymenochaete rubiginosa
Hymenochaete sp.
Hymenochaete tabacina
Hyphodontia arguta
Hyphodontia sp.
Laxitextum bicolor
Licrostroma subgiganteum
Mycoacia fuscoatra
Pdeudomerulius curtisii
Peniophora albobadia
Peniophora sp.
Pentillamyces olivascens
Perenniporia tenuis var. pulchella
Phanerochaete sp.
Phlebiopsis crassa
Porotheleum fimbriatum
Punctularia strigosozonata
Rigidiporus crocatus
Scopuloides rimosa
Serpula himantioides
Subulicystidium longisporum
Terana caerulea
Tomentella sp.
Trechispora farinacea
Trechispora mollusca
Tubulicrinis sp.
Vararia investiens
Vararia sp.
Xenasmatella sp.
Xenasmatella vaga
Xylobolus frustulatus
Xylodon nespori

STEROID FUNGI (Mostly fan shaped, tough with smooth fertile surface)

Chondrostereum purpureum
Stereum complicatum
Stereum gausapatum
Stereum hirsutum
Stereum lobatum
Stereum ochraceoflavum
Stereum ostrea complex
Stereum sanguinolentum
Stereum sp.
Stereum striatum
Stereum subtomentosum

TOOTH FUNGI (fleshy or woody with spines or teeth on fertile surface)

Bankera fuligineoalba
Bankera sp.
Bankera violascens
Hericium erinaceus
Hydnellum concrescens
Hydnellum pineticola
Hydnellum scrobiculatum
Hydnellum sp.
Hydnellum spongiosipes
Hydnum albidum
Hydnum rufescens
Hydnum sp.

SPECIES FOUND ON NJMA'S 2021 FORAYS

(Names in bold are new to the NJMA list in 2021)

TOOTH FUNGI (fleshy or woody with spines or teeth on fertile surface) (CONTINUED)

Hydnum subolympicum
Hydnum umbilicatum
Hymenochaetopsis olivacea
Phellodon confluens
Phellodon fibulatus
Phellodon melaleucus
Phellodon niger
Phellodon sp.
Radulodon copelandii
Radulodon sp.
Radulomyces paumanokensis
Sarcodon imbricatus
Sarcodon scabrosus
Sarcodon sp
Sarcodon underwoodii
Sarcodontia pachyodon
Spongipellis unicolor
Steccherinum bourdotii
Steccherinum ochraceum

CLUB, CORAL, or FAN-SHAPED MUSHROOMS

Artomyces pyxidata
Clavaria cristata
Clavaria fragilis
Clavaria sp.
Clavaria zollingeri
Clavariadelphus americanus
Clavariadelphus truncatus
Clavulina cinerea
Clavulina rugosa
Clavulinopsis fusiformis
Clavulinopsis gracillima
Clavulinopsis sp.
Cotylidia sp.
Lentaria byssiseda
Multiclavula mucida
Ramaria botrytis
Ramaria concolor
Ramaria flavosaponaria
Ramaria formosa
Ramaria rubella
Ramaria sp.
Ramaria stricta
Ramariopsis kunzei
Sparassis americana
Sparassis crispa
Sparassis sp.
Thelephora sp.
Thelephora terrestris
Thelephora vialis

PUFFBALLS, EARTHSTARS, EARTHBALLS, STINKHORNS, BIRD'S NESTS

Apioperdon pyriforme
Astraeus smithii
Calostoma cinnabarinum
Calostoma lutescens
Crucibulum laeve
Geastrum quadrifidum
Geastrum triplex
Lycoperdon marginatum
Lycoperdon molle
Lycoperdon perlatum
Lycoperdon sp.
Lycoperdon subincarnatum
Mutinus caninus
Mutinus elegans
Mutinus sp.
Phallus ravenelii
Phallus sp.
Pisolithus arhizus (=tinctorius) group
Rhizopogon roseolis
Rhizopogon sp.
Rhopalogaster transversarium
Scleroderma areolatum
Scleroderma cepa
Scleroderma citrinum
Scleroderma meridionale
Scleroderma polyrhizum
Scleroderma septentrionale
Scleroderma sp.
Sphaerobolus stellatus

JELLY FUNGI

Auricularia angiospermarum
Auricularia auricula
Auricularia sp.
Calocera cornea
Calocera furcata
Dacrymyces capitatus
Dacrymyces chrysospermus
Dacrymyces stillatus
Dacrymyces variisporus
Dacryopinax spathularia
Ductifera pululahuana
Exidia crenata
Exidia glandulosa
Exidia nigricans
Exidiopsis sp.
Leucogloea compressa
Pseudohydnum gelatinosum
Sebacina incrustans
Sebacina schweinitzii
Sebacina sp.
Sebacina sparassoidea
Tremella aurantia
Tremella mesenterica

ASCOMYCETES

Amblyosporium spongiosum
Annulohypoxylon cohaerens
Annulohypoxylon multiforme
Annulohypoxylon sp.
Apiosporina morbosa
Ascobolus furfuracea
Ascocoryne cylichnium
Biscogniauxia atropunctata
Bisporella citrina
Chlorociboria aeruginascens
Chlorociboria sp.
Chlorosplenium chlora
Chromelosporiopsis carnea
Chromelosporium fulvum
Clonstachys rosea
Cordyceps tenuipes
Daldinia childiae
Diatrype stigma
Elaphocordyceps ophioglossoides
Elaphomyces americanus
Elaphomyces sp.
Erysiphe sp.
Galiella rufa
Geoglossum simile

SPECIES FOUND ON NJMA'S 2021 FORAYS

(Names in bold are new to the NJMA list in 2021)

ASCOMYCETES (CONTINUED)

Geotrichum candidum
Helicoma sp.
Helminthosphaeria clavariarum
Helvella crispa
Helvella sp.
Helvella villosa
Humaria hemisphaerica
Hypocrea sp.
Hypomyces armeniacus
Hypomyces aurantius
Hypomyces chrysospermus
Hypomyces hyalinus
Hypomyces luteovirens
Hypomyces papulasporae
Hypomyces polyporinus
Hypomyces sp.
Hypoxylon ferrugineum
Hypoxylon fragiforme
Hypoxylon fuscum
Hypoxylon rubiginosum
Kretzschmaria deusta
Leotia lubrica
Leotia viscosa
Microglossum rufum
Mitrula elegans
Mollisia sp.
Mycogone rosea
Mycosphaerella colorata
Neolecta vitellina
Orbilia sp.
Otidea leporina
Otidea onotica
Pachyphlodes sp.
Penicillium vulpinum
Peridoxylon petersii
Peziza sp.
Rosellinia subiculata
Saccobolus minimus
Sarcoscypha occidentalis
Scorias spongiosa
Scutellinia sp.
Spathularia velutipes
Sporidesmium sp.
Sporormiella minima
Trichoderma pulvinatum
Trichoderma sp.
Trichoderma sulphureum
Trichoderma viride
Trichoglossum farlowii
Trichoglossum hirsutum
Trichoglossum sp.
Trichoglossum walteri
Xylaria cubensis
Xylaria hypoxylon
Xylaria liquidambaris
Xylaria longipes
Xylaria polymorpha
Xylaria sp.

MYXOMYCETES

Arcyria cinerea
Arcyria denudata
Ceratiomyxa fruticulosa
Craterium sp.
Fuligo cinerea
Fuligo septica
Hemitrichia clavata
Hemitrichia serpula
Lycogala epidendrum
Lycogala flavofuscum
Metatrichia vesparium
Physarum polycephalum
Physarum sp.
Physarum virescens
Physarum viride
Reticularia lycoperdon
Stemonitis sp.
Stemonitis splendens
Tubifera ferruginosa
Tubifera sp.

ZYGOMYCETES

Pilobolus oedipus
Syzygites megalocarpus

UREDIOMYCETES (Rusts/Cankers)

Cronartium quercuum
Phycomyces blakesleeanus
Pucciniales

LICHENS

Amandinea polyspora
Anisomeridium polypoi
Bacidia schweinitzii
Biatora printzenii
Buellia curtisii
Buellia sp.
Caloplaca feracissima
Caloplaca flavocitrina
Candelaria concolor
Candelariella efflorescens
Cetraria arenaria
Chrysothrix chamaecyparicola
Cladonia atlantica
Cladonia coniocrea
Cladonia crispata v crispata
Cladonia cristatella
Cladonia didyma
Cladonia dimorphoclada
Cladonia grayi
Cladonia incrassata
Cladonia macilenta
Cladonia macilenta var. bacillaris
Cladonia nappii
Cladonia ochrochlora
Cladonia parasitica
Cladonia peziziformis
Cladonia rappii
Cladonia rei
Cladonia santensis
Cladonia stellaris
Cladonia submitis
Cladonia subtenuis
Cladonia uncialis
Cladonia verticillata
Dibaeis baeomyces
Flavoparmelia caperata
Graphis scripta
Hypocenomyce scalaris
Hypogymnia physodes
Hypotrachyna livida
Imshaugia aleurites
Imshaugia placorodia

SPECIES FOUND ON NJMA'S 2021 FORAYS

(Names in bold are new to the NJMA list in 2021)

LICHENS (CONTINUED)

Lecanora strobilina
Lecanora subpallens
Leimonis erratica
Lepraria harrisiana
Myriolecis dispersa
Parmelia sulcata
Parmotrema gardneri
Parmotrema hypotropum
Parmotrema perforatum
Parmotrema reticulatum
Peltigera canina
Peltigera sp.
Pertusaria pustulata
Phaeocalicium polyporaeum
Phaeophyscia rubropulchra
Physcia aipolia
Physcia millegrana
Physcia pumilior
Placynthiella flexuosa
Placynthiella sp
Porpidea albocaerulescens
Punctelia caseana
Punctelia rudecta
Pycnothelia papillaria
Pyrrhospora varians
Ropalospora viridis
Umbilicaria mammulata
Usnea mutabilis
Usnea strigosuus
Usnea subscabrose
Usnea trichodea

FORAY DATES AND LOCATIONS

Foray #	Foray Date	Foray Location	County
1	6/20/2021	Lake Ocquittunk Stokes State Forest	Sussex
2	6/27/2021	Crystal Lake Park	Burlington
3	7/10/2021	Horseshoe Bend Park	Hunterdon
4	7/18/2021	Kittatinny State Park	Sussex
5	7/24/2021	Meadowood Park	Morris
6	7/31/2021	White Lake Preserve	Warren
7	8/8/2021	Chestnut Branch Park	Gloucester
8	8/15/2021	Long Pond Ironworks State Park at Green Turtle Pond	Passaic
9	8/29/2021	Stokes State Forest Kittle Field	Sussex
10	9/12/2021	Scherman Hoffman Nature Preserve	Somerset
11	9/19/2021	Wawayanda State Park	Passaic, Sussex
12	9/26/2021	NJ Forestry Resource Education Cen	Ocean
13	10/3/2021	Brendan Byrne State Forest	Burlington
14	10/9/2021	Smithville Historic Park	Burlington
15	10/17/2021	Estell Manor Park	Atlantic
16	10/24/2021	Cattus Island Park	Ocean
17	10/31/2021	Belleplain State Forest	Cape May
18	11/7/2021	Wells Mill County Park	Ocean
19	Jan-Nov (19 visits)	Franklin Parker Preserve	Burlington

TEACHING FUNGI HOW TO WRITE

(continued from page 8)

percent. In this case, freely available water is present inside the cells, which is essential for the growth of most fungal species. The advantage of the fungi used is that they can colonize wood even at a low wood moisture of 20 percent because they penetrate the cell walls in the absence of water and use the bound water for their growth. Thus, these fungal species become more competitive and the risk of contamination is greatly reduced. A further advantage is that after completion of the fungal treatment, the wood moisture is still very low and thus less energy is required for drying the wood. Optimizing wood properties with the help of fungi is the research topic of Empa scientist Schwarze. His group focuses on the development of an industrial process for spalting wood in high-value furniture applications.

Behind this project lie two incentives: one is to meet a high customer demand for spalted wood in the high end furniture market.

The other is that tree species favored for spalting are normally burnt as energy wood in Switzerland. Due to their abnormal growth formations and a seemingly unattractive coloring, the tree species in question—ash, beech and maple—have limited sales outside of energy wood. However, they are particularly receptive to spalting—and thus highly promising for adding aesthetic value to the upscale furniture market.

OUR DIETS HAVE MUCH ROOM FOR MUSHROOMS – WILD ONES IN PARTICULAR

*by Andy Corbly. Reprinted from Worldatlarge.news, October 2021, via **The Spore Print**, newsletter of the Los Angeles Mycological Society, December 2021.*

A pair of anthropological forces are driving humans towards the con-sumption of wild mushrooms, a trend that deserves both examination and celebration as wild mushrooms not only represent a nutrient-dense food source, but also a connection to forests and ancestral traditions.

The first is that, regardless of the fact that during the 19th and 20th centuries, twelve crops and fourteen animal species came to provide what is today around 98% of the world's dietary content, reported incidence of wild mushroom foraging has increased around the world by about 2100% over the last 56 years.

The second is that forest ecosystems are beginning to be preserved for their roles as centers of production for nutrient-dense foods that are often difficult to cultivate, or are at minimum easier to do so in a forest system. The International Union of Forest Research Organizations estimate that a third of the global population rely on forested biomes for their food. fuel, and medicine.

Mushrooms are one of these foods, and die 90 species that are commercially cultivated in a $50 billion-a-year industry, pale in comparison to recent catalogues of edible mushrooms, which total 2,000, that can be picked up and eaten, and an additional 200 that are nutritious but which require pretrealment of some kind.

With this wild mushroom harvesting boom comes the advice of every father in America about how "80% of mushrooms are poisonous". On the bright side, many edible mushrooms have a poisonous *doppelganger*, and so the differences between them are normally well-documented.

Nutrient dense and unique

In his book, *Wild Edible Fungi*, author Ii. R. Boa details how the vast majority of recognized edible mushrooms cannot be cultivated, and must therefore be gathered from the woods by hand, making it prized as food and an income source for locals in Northern Italy and the hills of China alike.

Furthermore, long-term studies of mushroom picking in the mountains of Switzerland have shown that picking wild mushrooms has no impact on future harvests. That's partly because mushroom harvesting is not a complete science, but also because mycelial structures are dramatically resilient.

Like a bio-internet, mycelial networks represent the main bulk of the biomass of the fungal kingdom, one of the six kingdoms of life. They weave through the soil and connect trees, soil microbes, and other plants to the animals above through the deployment of the mycelium's fruiting body, that which we call the mushroom.

This incredible form of life hits been shown to transfer information and nutrients between plants, taking payment in the form of carbohydrates from trees in order to protect them from pests and bacteria.

As a food item, they are excellent sources of many important micronutrients and phytonutrients such as vitamin B2, B3, and B5, a host of minerals like copper and selenium, and a variety of carotenoids, indoles and polyphenols, which serve as anticancer, antioxidant, and anti-inflammatory agents.

Mushrooms cultivated for the supermarket likely contain negligible amounts of vitamin D, but due to the fungal presence of a substance called ergosterol. a wild mushroom which has exposure to UV light can contain up to 1.5(H) IUs of vitamin D3 and D2. something which is very rare in most unfortified foods.

Medicinal effects

A study of 663 elderly Chinese found that those who consumed two servings of mushrooms per week had a reduced risk of mild cognitive impairment, while two epidemiological studies found a prevention in the growth of amyloid proteins in the brains of older people which cause Alzheimer's.

That's only what Harvard decided to note on their website, but the depth of medical studies on mushrooms is breathtaking.

Studies have shown that Reishi mushroom, which Is considered a valuable remedy in Chinese medicine, protects the liver, significantly inhibits allergic reactions, and activates immune cells, particularly ones which kill tumor cells.

A South Korean study found that white blood cells treated with the chaga mushroom showed 40% less DNA damage than those which didn't. Like the scratching of a disk, DNA damage drives many of the chronic diseases in our society.

In the journal *Agriculture and Food Chemistry*, Lion's Mane mushroom, commonly sold in supplement stores, was shown to confer too many protective effects to list, and was described as having exceptional nutritional and health-promoting aspects.

These are just some of the species cultivated for commercial sale and consumption. Like animals, fungi evolved special defense mechanisms against pathogens, such as penicillin, and those which live in a wild environment, rather than a controlled one, are likely to be far richer in these health-promoting compounds.

Gathering mushrooms is a wonderful excuse to go walking in the forest, and joining local community foraging groups to learn first-hand expert knowledge on mushroom species is a much better way to start foraging than with a guidebook.

RECIPE FILE

My Baba's Mushroom Sauce

by Chef Mykola (Nick) Rutkay with advice from Anne Moskaluk and Darcia Moskaluk Rutkay. Reproduced from ***Mycelium****, the newsletter of the Mycological Society of Toronto, July-September 2021.*

Equipment

- ***Small-medium pot***
- ***Whisk***
- ***Rubber spatula***
- ***Table spoon***

Ingredients

- ***Approx. ½ lb of cremini mushrooms*** *(You can add dried wild mushrooms for more flavour)*
- ***1 medium sized onion, diced***
- ***1 clove of garlic crushed***
- ***4 Tbsp+ butter***
- ***2 Tbsp flour***
- ***1 liter stock (Beef, chicken, turkey, vegetable or mushroom*** *("Better Than Bouillon brand recommended)*
- ***Salt and pepper to taste***

Directions

1. Add 2 Tbsp of the butter into the pot and melt down over medium heat. Add onions and mushrooms with some salt and pepper.

2. Gently cook down until the mushrooms start to shrink and smell nice and earthy. Mushrooms absorb quite a bit of fat. If they seem dry, you can add additional butter or vegetable oil.

3. Once the mushrooms and onions have cooked down, add the garlic and cook down for about a minute.

4. Add the remaining 2 Tbsp of butter and 2 Tbsp flour. You are now making what is called a "roux". (Even parts flour and fat).

5. You want to cook the flour out until it starts to look golden in colour and smell a bit nutty.

6. Once you've cooked your flour out, begin adding a small amount of your stock (about 1/4 cup at a time) and whisking quickly until you get a very thick paste. Then continue this process until you have used about half the stock. This ensures you do not get any clumps. Once you have incorporated about half your liquid, you can now add the rest of the liquid all at once.

7. Bring the sauce up to a *gentle simmer** for approximately 1 minute or so. If you like a thinner sauce, you can simply add more stock. If you like a very thick sauce, don't add as much liquid. Note the sauce will thicken as it simmers for a minute after adding liquid. If you have added too much liquid, you can mix equal parts butter and flour in a bowl and whisk it in a little bit at a time as the sauce simmers. You will get a bit of raw flour taste using this method, so it's best to get it right the first time.

TESTED! BY OKSANA HAWRYLAK

8. Taste the sauce and season with a bit more salt if you feel you need it.

* *Note:* Do not heat the sauce up past a *gentle simmer*. If the sauce gets too hot, it will cause the fat to separate and make for a loose oily sauce rather than a rich velvety texture.

Video instructions available at: ***https://bit.ly/3xkRwbV***

PHOTO BY MARICEL PATINO

WELCOME TO ALL OF OUR NEW NJMA MEMBERS!

We'd like to extend a warm welcome to the following members who joined us between November 1, 2021 and January 10, 2022. We look forward to seeing you at lectures, forays, and other NJMA events as they resume! Happy 'shrooming!

Miriam Ackerman-McBride	Lower Bank, NJ
Richard Allen	Burlington, NJ
Blanca Anagnostos	Wayne, NJ
Margaret Belskis	Ocean City, NJ
Krysta Berkowitz	Beachwood, NJ
Carol Bonney	Elmer, NJ
Jan Bresnick	Morristown, NJ
Timothy Brodeur	Asbury, NJ
Camilla Buch	Highland Park, NJ
Michael Cardona	Lodi, NJ
Jeanne Caruso	Mullica Hill, NJ
Maria Cendejas (Hagon)	Farmingdale, NJ
Termpanit (Natty)	Gillette, NJ
Vincenzo Ciancio	New York, NY
Daniel & Patricia Colson	Middletown, NJ
Reese Conroy	New Jersey
Daniel Cribari	Chester, NJ
Ann Crow	Hopewell, NJ
Katey Darago	Maplewood, NJ
Rowynn DeGennaro	Ocean View, NJ
Eric Diamond	Brick, NJ
Dianne Dillman	Royersford, PA
Alden Dirks	Ann Arbor, MI
Daniel Drigotas	Petersburg, NJ
Esther Drill	New York, NY
Olaseinde Fakolujo	New Jersey
Eileen Ferrer	Mendham, NJ
Paulina Galayda	New Jersey
John & Carrie Gordon	Maplewood, NJ
Gary Gorski	Newark, NJ
Pete Hack	New Jersey
Christiana Hart	Titusville, NJ
Christopher Henrickson	Westwood, NJ
Danielle Hoffman	Cherry Hill, NJ
James Hooper	Lyndhurst, NJ
Megan Hurley	Bordentown, NJ
Leana Iulo	Little Ferry, NJ
Rita Ladany	Monroe Twp., NJ
Glenn & Gina Leuis	Glen Gardner, NJ
Shihong Li	Berkeley Heights, NJ

Suchyn (Sue) Lin	Short Hills, NJ
Michael Lowenstein	Jersey City, NJ
Nancy Maldonado	Browns Mills, NJ
Gale Maleskey	Bethlehem, PA
Kara Malone	New Jersey
Carlos & Erica Martinez	Mountainside, NJ
Erin McAfee (Scharrer)	Wanamassa, NJ
Rick & Janice Metz	Beach Haven, NJ
Joseph Moore	Barrington, NJ
Matthew Myers	Westfield, NJ
Christopher Nadarajah	Newark, NJ
Naren Nidamanuri	New Jersey
Brittney O'Connor	Emmaus, PA
Chi Park	Princeton, NJ
Joseph Pawulack	Voorhees, NJ
Nina Postorino	Howell, NJ
Tyler Posyton	Westfield, NJ
Andrew Potts	Philadelphia, PA
Brittney Price	Neptune, NJ
Eric Richardson	East Hanover, NJ
Michael Ripca	Atco, NJ
Katherine Rummel	Madison, NJ
Shona Rutter	Petersburg, NJ
Alexander Saff	Highland Park, NJ
Amanda Schmidt	Newton, NJ
Alexander Scott	Pennington, NJ
Lisa Shapiro	Belle Mead, NJ
Christopher & Sara Simoes	Farmingdale, NJ
David Steele	Princeton, NJ
Emilio Streppone	Cream Ridge, NJ
Denise Streu (DiMare)	Old Bridge, NJ
Jeffrey Sushko	Hawthorne, NJ
Kyle Svecz	Emmaus, PA
Mark Thompson	Lambertville, NJ
Lana Vercellino	Newark, NJ
Laura Vernon	Manahawkin, NJ
Anna Weissman	Bethesda, MD
Arianna Willisams	Cape May Courthouse, NJ
Anthony Wong	Egg Harbor Twp., NJ
Mechella Yezernitskaya	Brooklyn, NY
Rachel Zekany	Pitman, NJ