

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!



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PRESIDENT'S MESSAGE

Our club has many diverse, interesting activities, but forays are by far my favorite one. They take me into the woods all over New Jersey. I get to spend time with strangers I would not have met, but for our common interest in fungi. And some of these people become my friends. I get to learn new species of fungi, or more likely, become reacquainted with ones I saw last week or last month or last year but can't remember their name. Very importantly, I get to participate in documenting the local fungi across New Jersey.

I don't remember a recent year in which we have seen as many mushrooms during the first half of our collecting season as 2017. Beginning with the Princeton foray in early May, we have seen a tremendous number and diversity of macro-fungi at each of our six forays through early August. The Princeton foray in early May was remarkable for the large number of morels collected. Each of the next five forays – Stokes Lake Ocquitunk, Wawayanda, Meadowood, Thompson Park/Helmetta, and Stephens – produced unusual numbers and diversity of fungi. Ample rainfall and many enthusiastic collectors brought a lot of fungi to our display tables each week. Rain seemed to fall at the most favorable time before each foray. Many newcomers contributed excellent collections, and became engaged in efforts to sort and identify the specimens. At the six early season forays, we made nearly 500 identified collections of 280 taxa. Thanks to everyone who has participated.

I wanted to highlight the role our forays (and every participant) play in helping to document New Jersey's macro-fungi. At a productive foray, our experienced identifiers are stretched to sort all the material brought in, talk about it with foray participants, and assign Latin species names. We hate to bother newcomers with the Latin binomials, but they are essential. They provide an unambiguous reference that participants can begin to learn to associate with each taxon and use to find further information or photos in field guides or online.

Participants at every foray will have noted that many unidentified collections and collections identified only to genus remain on the table. Sometimes our identifiers are able to recognize one of these as highly unusual and worthy of further study. Someone takes these home for further study. Many collections are too old, missing essential parts (most often, the base of the stem), eaten by slugs, or too immature to identify. We discard these. But a surprising number of specimens are in fairly good shape, with information about the habitat, what the fungus was growing on, and nearby trees where they were collected, yet completely unknown to the experienced identifiers present. As many of these as we can handle go home with someone for further study.

We greatly appreciate such collections, and if you have made one, thank you. So far in 2017, these leftover, unnamed collections have enabled our experienced identifiers to identify 18 species that had not previously been recorded by NJMA, and many more that have been recorded only a few times in our 37 years of keeping records. Members dry as many of these unusual fungi as we can manage and place them in NJMA's Eugene Varney Herbarium housed at Rutgers Chrysler Herbarium through the support of the university's mycologists. Some members also dry and preserve unidentified fungi in hopes that further research or future DNA analysis of genetic material will eventually yield a species name.

Even our best efforts will leave many collections to be returned to the woods, unnamed. Someone asked me recently how many species of fungi there are. Science offers only an imprecise answer to this very good question. The best estimate I know of was published in 2011 by Dr. Meredith Blackwell, a mycologist at the University of Louisiana and expert in the systematics of fungi. Dr. Blackwell placed the number of fungal species documented by science at about 100,000, and the total number of fungal species somewhere between 3.5 and 5.1 million species. So the ratio of undocumented to documented species is somewhere between 35 to 1 and 50 to 1. Our club species list includes just less than 2,000 species. So, with the limitations of not enough time, skill with a microscope, and access to modern scientific descriptions, some large fraction of our unnamed collections remain unknown to science.

As you can see, fungi are understudied relative to other organisms. Professional mycologists welcome the efforts of amateurs to help document our macrofungi. We can help by providing well-documented collections supported by photographs of fresh material and dried specimens. This makes the hunt all the more fascinating.

Please mark your calendar for Fungus Fest to be held at Frelinghuysen Arboretum in Morristown on September 24, 2017 from 10:30 AM-4:00 PM. This is a wonderful opportunity to meet and talk with members representing the broad range of interests within our club. Please volunteer to help out if you can. Don't worry if you feel like you don't know enough about the club or about mushrooms. If you have been to one of our activities and enjoyed it, our Fungus Fest chair, Liz Broderick, will find you a job.

– John Burghardt

President, New Jersey Mycological Association
609-651-2728

Visit the NJMA
Discussion Group



<http://tinyurl.com/jjualgz>



EDITOR'S NOTES

What a difference rain makes! For a most welcome change, 2017 has been much wetter during the peak mushroom fruiting season than any of the last several years.

Instead of having to search diligently to find anything at all to collect, most forays have been very productive. Several forays have yielded more than 100 identified species. Not are there only more mushrooms, but the number of attendees at our forays increased as well. Igor reports a record number of new members this summer. I anticipate that we will see the same kind of increases in fungi and attendance at Fungus Fest this month as well.

All of this had led me to decide that there will be a change in *NJMA News* as well.

We will no longer be publishing foray reports as in the past. Instead, we will be hoping to get more specialized reporting from members, both newbies and seasoned collectors.*

From the “veterans”, we would like to receive more technical reports on the collections: unusual finds, why a particular fungus is found at one foray and not another, why some fungi are found on every foray, how to differentiate between lookalike species, how to correctly collect and record data for specimens, what is MO and how is it used, etc.

From newer members, we would like to get their impressions of club activities; how did they find out about NJMA, what did they learn on a foray or at a lecture or workshop, what would they like to learn more about.

The articles can be almost any length. We always need short fillers, and longer, more detailed accounts would be welcome additions as well. As a general “rule-of-thumb”, 500 words in a Word 11-point font will format to one column. If you include a photo with your article, it would be appreciated if the file name is changed from letters and numbers to something that’s more descriptive, for example: DSC1234834645 to “Amanita muscaria Stokes SF John Smith”. This will not only serve as a caption, but it also identifies the photographer as well.

If you’re an artist, poet, craftsperson, cook, photographer, or whatever, we would love to share your work with our readers. Recipes for favorite mushroom dishes are always welcome – from anyone!

I will look for feedback from you, pro or con, about this new “arrangement”. Its success or failure depends on you!

Send your contributions to: njmaeditor@gmail.com

– Jim Richards

*For those members who would like to get the list of a particular foray’s finds before John Burghardt (johnab190007@gmail.com) collects all the year’s data for the January recap, he is willing to send you any individual foray’s species list. Just ask!

NOVEMBER 12TH MEMBERSHIP MEETING AND LECTURE

DR. TIMOTHY BARONI

by John Burghardt, President, NJMA

The speaker at our November 12th meeting will be Dr. Timothy Baroni, Distinguished Professor of Biology at the State University of New York, Cortland. Dr. Baroni has studied and taught about the systematics and biodiversity of fungi throughout his long career. He is an expert on the pink-spored Entolomataceae as well as the Boletaceae. He has led long term studies of local fungi in Central America, Asia, and Australia. His love of teaching and learning is evident in his commitment to supporting amateur mushroomers. Dr. Baroni is a frequent faculty member at the Northeast Mycological Federation annual foray and lecturer at amateur mycological societies. If you find an unusual Entoloma and send it to him, you will hear back – maybe several times - as he mulls over the possible identity of your find. His dedication to helping us all become better identifiers is evident in his recently published field guide, *Mushrooms of the Northeastern United States and Eastern Canada*. We look forward to welcoming Dr. Baroni back to New Jersey. His lecture will share stories about some interesting fungi from the Northeast US.

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 ELECTION

The Nominating Committee would like to submit the following proposed slate for 2018:

- Luke Smithson – President
- Frank Marra - Vice President
- Stephanie Bierman - Secretary
- Igor Safonov - Treasurer

For the 5-year trustee term - Liz Broderick

The Nominating Committee - Mike Rubin, Patricia McNaught and Jenifer Nina Burghardt

Candidates for open positions can also be nominated by petition. Petitions nominating a Member must be signed by no less than 30 current Members in good standing and presented to the Chair of the Nominating Committee.

Nomination petitions must be submitted to the Nomination Chair no later than October 12, 2017. Contact Jenifer Nina Burghardt to receive blank nominating petitions and instructions on submitting completed petitions (jnburghardt536@gmail.com)

WANTED: MUSHROOMS

by Luke Smithson

One of the great things about belonging to a mushroom club is the opportunity to help advance the science of mycology. Professional mycologists and amateur researchers often rely on mushroom club members to search out and collect specimens needed for their research. In order to make these collections useful, good collecting is essential. Here are some tips to help make your collections useful:

- Photograph in the field, using your cell phone with the GPS enabled. GPS coordinates need to be attached to your photos in order to properly document the location of your collection. Multiple photographs capturing all of the distinctive features of your mushroom will be very much appreciated. Don't forget to get down to "eye level" with the mushroom and photograph the under-sides, then a few more photos after the mushroom has been carefully dug up or removed from the substrate. A tripod mount for your cell phone and a camera app with a shutter delay is recommended.
- Take field notes: what was the mushroom growing on (dead wood, the ground, the base of a red oak, etc.). The more detailed, the better. Conifer or hardwood. Sandy soil or peat moss. What plants and trees are growing close by (very important for mycorrhizal species).
- Dry your collection carefully in a dehydrator with the temperature set at no more than 110F. Dry until nice and crispy, like a cracker. Sorry, your oven will not work because excessive heat will destroy the DNA.
- Post your photos to <http://mushroomobserver.org/> along with your field notes. Be sure to note that a herbarium specimen is available, and be prepared to send that dried specimen and the Mushroom Observation Number to a researcher.
- Additional information, such as higher quality photos when you reach home, spore prints, dimensions of the mushroom, written descriptions of the mushroom, etc. are always helpful to include in your *Mushroom Observer* post.

It is helpful to know what mushrooms researchers are looking for, and who specifically is looking for them, so I will mention a few different mushrooms that are on people's wanted lists.

Hebelomas

<http://mushroomobserver.org/259663?q=8DTF> and <http://mushroomobserver.org/259662?q=8DTF>

These are small to medium-sized terrestrial mushrooms, with white to buff or some shade of brownish cap, often slippery. Gills are brown at maturity and typically attached. The flesh often has a radish like odor and the spore print is brown (*Mushrooms Demystified*; Arora).

We made a few collections of these at the end of last October in Belleplain State Park and posted photos on *Mushroom Observer*. One collection was sent to Herbert Beker, via *Mushroom Observer*, who is working on a monograph of Hebelomas in North America. The other collection was sent to NJMA's Linas Kudzma, who does some work on Hebelomas when he is not busy with *Inocybe*. Linas got back to me and explained that the Hebeloma that I sent to him is an unnamed species that he has collected in both New Jersey and in Maine, provisionally called sp-HEB2. Linas says that he has collected seven different species of Hebeloma in New Jersey that are difficult to tell apart in the field but have distinct DNAs. They are always growing in October in the Pine Barrens and we should all be on the lookout for these mushrooms this fall. Both Herbert Beker and Linas Kudzma can be contacted via *Mushroom Observer*.

Pleurotus citrinopileatus

P. citrinopileatus is a golden oyster mushroom that is indigenous to Asia and has escaped cultivation and now grows wild in parts of North America. I have never seen it in New Jersey, but I have seen it in Pennsylvania, very close to the Jersey border.

Andi Bruce is a grad student at the University of Wisconsin-LaCrosse and is researching population genetics in an attempt to trace their naturalization from Asia. He is seeking dried specimens, spore prints on aluminum foil, collection date and location and any additional information that may be helpful if known (e.g. any known mushroom cultivators in the area, proximity to town or farmers markets, etc.). Photographs of this mushroom can be found on *Mushroom Observer*. Specimens should be sent to:

Receiving Stores
Biology Department
ATTN: Andi Bruce
855 East Ave. North
La Crosse, WI 54601

Antrodiella fragrans

<http://mushroomobserver.org/249192?q=8DTF>

A. fragrans is a "turkey tail lookalike" that I am particularly interested in.

It is a tough, flexible polypore with no stem, up to 4 cm long and 2 cm wide. The cap is covered in fine hairs, zonate, and the color of cinnamon to pale brown with orange tints (often slightly greyish). The pore surface is pale orange to brown with a silvery shine, and the pores are circular and very tiny (6-7 per mm) (*Poroid Fungi of Europe*; Ryvarden & Melo). Its most striking feature is its intense fragrance, smelling of coumarin (a very sweet, spicy smell). This smell will persist after the mushroom is dried.

I've only ever seen this mushroom once, in August 2016

at a foray held in southeastern Pennsylvania by a local conservation group. Several NJMA members attended to help with identification and this mushroom turned up on the identification table with no notes (although it is likely it was growing on deciduous wood). I couldn't place an identification on it so I took it home with me and followed the above guidelines (photographs, written description and a posting to *Mushroom Observer*). I was finally able to get an identification using the very fine book *Poroid Fungi of Europe* (Ryvarden & Melo), but according to this book, its distribution is restricted to a tiny area of Eastern Europe. The only postings on *Mushroom Observer* are a cluster from Eastern Europe and a single observation from the Moscow region. But being that the identification matched so closely, I contacted Leif Ryvarden and asked for his advice. He advised that I send him a sample, which he reviewed and then had a DNA sequence done for it. The DNA confirmed that it is indeed *A. fragrans*, which according to GenBank (an open access database of genetic information maintained by the United States Government), has been observed only three other times in North America (twice in Florida and once in Virginia). Our observation is most likely the first in Pennsylvania. Whether it is a recent arrival, or merely never noticed before, is unclear.

I would like to get better field data for this mushroom, as well a better feel for how often it shows up and what kind of geographical distribution it has. So please take a look at the Mushroom Observation post and keep an eye out for this mushroom.

I can be contacted through *Mushroom Observer* or by email at mycofreak74@gmail.com.

As we enter the field and collect mushrooms for food, crafts and for education, we should keep an eye out for these mushrooms. Keep reading *NJMA News* for future "Wanted Mushrooms" and read other mushroom publications such as North American Mycological Association's *Mycophile* to stay abreast of researchers interest and needs. It is a very unique opportunity for each of us to be able to contribute to the science of mycology!



ARE YOU DRAWN TO DRAWING MUSHROOMS?

We are always interested in receiving accurate hand drawings, sketches, or artwork in any variety of media to grace our pages. While we cannot guarantee that your work will be published, we do file each submission and consider it for use either in conjunction with specific articles or for use as backgrounds or supplemental art when needed. You retain your copyrights and you'll be credited in all cases.

Contact our Art Director Jim Barg at jimbarg@bssmedia.com for more information or to submit your work.

MEADOWOOD PARK FORAY – JULY 17, 2017

reported by Dorothy Smullen

This foray always is a fun one, with lots of varied species and just in time for wineberries.

There were 112 species recorded with 12 different *Amanita* species (five entered by Igor at *Mushroom Observer*). Lots of boletes and *Lactarius* were collected. We always find *Russula earlei* at this spot – 11 other russulas were identified as well. Many of the newer members were helped by the old-timers in learning how to improve their identification skills.



PHOTO BY DOROTHY SMULLEN

Hydnellum spongiosipes, a tooth fungus used for dyeing wool.



PHOTO BY DOROTHY SMULLEN

Russula earlei

TEETERTOWN RAVINE FORAY – AUGUST 13, 2017

reported by Maricel Patino

THOMPSON / HELMETTA PARK FORAY JULY 24, 2017

by Betty M. Wise

NJMA convened at the Thompson Park trailhead on July 23rd for the joint Thompson Park and “Helmetta Bog*” forays. Both places were new sites for the club this year. Approximately 30 people showed up for the events. After introductions by Nina and me, the group split up for the individual forays at each location before meeting back at Thompson Park for the ID session. It was clear it was a fruitful day for finding fungi. Approximately 60 species were found at Thompson, with a total of 91 for both places.

A lot of people, including many newbies and non-members, show up for our events just looking to find their choice edibles or even any edible, and hoping we will lead them to our alleged “known” treasure trove of these. We try to tell them that the purpose of NJMA and the foray is education, and we have research permits to “hunt” at a specific locale. We are not there simply to look for the in-season edible to bring home for dinner. We are only allowed to remove specimens for study as per the permit.

According to John’s report on the species found on the two forays, a *Loweomyces fractipes* found at Thompson Park had never been recorded from 1981-2016. Since NJMA keeps records of all species found at forays. I always wonder how many more we could discover if people were not there simply to find an elusive bolete or other edible.

It is my hope that in the future, the Thompson Park and Helmetta Bog forays could be held on different days so that people could attend both.



*“Helmetta Bog” is within the Jamesburg Park Conservation Area.



PHOTO BY BETTY WISE

Amanita species at Thompson Park

Coming to a foray in a new place is always exciting. What new species are going to be there? What new species that I haven’t seen before?

There was no need to walk too far. I stopped at the entrance of the trail in the camping area. Immediately I found, on a huge fallen tree, around seven almost black strange looking mushrooms named “dog’s nose” (*Camarops petersii*). Then, after this incredible encounter, other fungi revealed their fruiting bodies: tiny green-blue cups growing on birch (*Chlorociboria aureginascens*), minute yellow cups (*Chlorosplenium chlora*), yellow jelly cups (*Guepinopsis buccina*), purple and pink disc-like *Chromelorosporium coerulescens*, and the ochro-purpureo gilled mushroom *Callistosporium purpureomarginatum*. I circled the first tree and found several other interesting fungi. After telling myself “OK, it is time to come back now!”, I returned to the identification tables and along with many other members, showed my finds, helped identify some fungi, and helped with the cleaning up.



PHOTO BY MARICEL PATINO

Camarops petersii



PHOTO BY MARICEL PATINO

Callistosporium purpureomarginatum

WHO'S IN A NAME?

Hydnellum earlianum

by John Dawson (sixty-second in a series)

Franklin Sumner Earle (4 September 1856 – 31 January 1929) was the first mycologist to be employed by the New York Botanical Garden. He is commemorated in the names of nearly thirty fungi bearing the epithets *earleae*, *earlei*, *earleana*, and *earlianum*, including *Hydnellum earlianum*, a hydnum that grows under hardwoods in eastern North America.¹

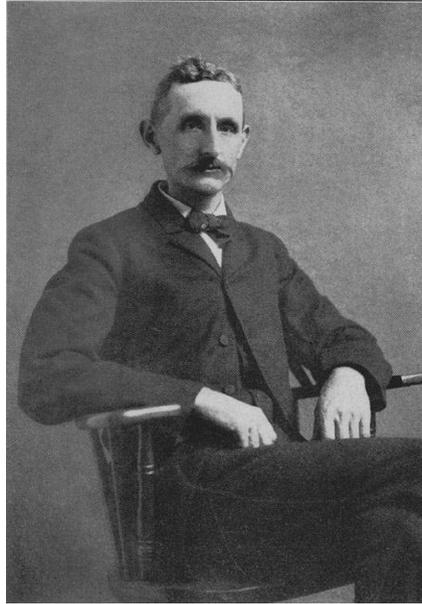
Born in Dwight, Illinois, a hamlet some thirty miles west of Kankakee, Earle was one of three children of Parker Earle, a noted horticulturalist, and his wife Melanie. Not long after Franklin's birth the Earle family moved to the town of Cobden in extreme southern Illinois, where Parker established extensive orchards and gardens and became a major commercial producer of strawberries. It was there that Franklin spent his youth and, like his father, developed an interest in horticulture. Sources I have seen say nothing about Franklin's early education, but note that he attended the University of Illinois "sporadically in the 1880s" without ever earning a degree.² Nevertheless, while there he studied mycology under Thomas J. Burrill, founder of that university's herbarium, with whom in 1887 he co-authored a paper, *Parasitic Fungi of Illinois: Part II. Erysiphaceae*, that established his reputation.

In August of 1886, Franklin married Susan Bedford Skehan, the eldest of five daughters of Parker's friend William Skehan, and the next year she gave birth to a son, William Parker Earle. A daughter, Melanie Tracy Earle, was born two years later in Ocean Springs, Mississippi, just east of Biloxi, to which Franklin, his brother Charles and their father had moved and where they established the Winter Park Land Improvement and Livestock Company on some 15,000 acres of land. That same year, however, Franklin's mother Melanie died, and in 1891, shortly after the birth of his third child, Ruth Esther Earle, Franklin's wife Susan also died.

Left a widower with three young children, in 1892 Franklin was appointed superintendent of a branch of the Mississippi Agricultural Experiment Station, a post he held for the next three years. Then, in 1893, calamity

struck again when a category 4 hurricane devastated Ocean Springs, killing 2000 people. (Franklin's father survived but moved to New Mexico, where he staked a mining claim.)

For one year, from 1895-96, Franklin served as assistant plant pathologist at the U.S. Department of Agriculture's National Herbarium in Washington, D.C. He then returned briefly to Cobden, Illinois, to marry one of his first wife's sisters, Esther Jane Skehan (1867–1948), who assisted him in his natural history pursuits and became "a notable botanical artist [who provided] illustrations for Franklin's later studies of Caribbean fungi."³ After that, he accepted a position as biologist



Franklin Sumner Earle

and horticulturist at the Alabama Agricultural Experiment Station in Auburn and there developed a close acquaintance with G.F. Atkinson, profiled earlier in this series. At that time the experiment station was part of the Alabama Polytechnic Institute (now Auburn University), which awarded Earle an honorary M.S. degree, his only academic distinction.

Earle spent the years 1901-1904 as assistant curator of the mycological collections at the New York Botanical Garden, and during that period published *The Genera of North American Gill Fungi*. He left in 1904 to assume the directorship of the Estación Agronómica at Santiago de Las Vegas, Cuba, and remained in Cuba the rest of his life, taking up resi-

dence in Herradura, where he cultivated fruit.

Due to lack of sustained support for the station at Santiago de Las Vegas, Earle resigned two years after his appointment there and became consulting agriculturist to the Cuban-American Sugar Co. and President of the Cuba Fruit Exchange. As an authority on diseases of sugar cane he was appointed by the USDA in 1918 as Specialist in sugar-cane culture and was sent to Puerto Rico to assess a mosaic disease that was then ravaging the sugar cane industry there. He succeeded in developing a variety of cane with high resistance to the mosaic, as a result of which the production of sugar cane in Puerto Rico rose from 406,000 tons to 742,000 tons within ten years, with no increase in sugar cane acreage.⁴

During the final decade of his life, Earle served as consulting agriculturist to Central Aguirre in Puerto

(continues on [next page](#))

¹ Not to be confused with *Hydnum earleanum*, a synonym for what is now called *Sarcodontia setosa*.

² Quoted from the article "Josephine Skehan and the mountains near Gray" by Eugene Jercinovic, an account of the pioneer botanical collecting done by Earle's sister-in-law in New Mexico, available at <http://newmexicoflores.com/Josephine%20Skehan.htm>. A secondary source for this profile was the obituary memoir of Earle by Carlos Chardon in *Mycologia*, vol. XXI, no. 6 (1929), pp. 301–303. The portrait of Earle reproduced here is from Wikimedia Commons.

³ "now part of the William A. Murrill Collection at the New York Botanical Garden." Jercinovic, *op.cit.*

⁴ Data taken from Chardon, *op. cit.*, p. 302.

Rico and General Sugar in Cuba, and from 1925 until his sudden death four years later, he was associated with the Tropical Research Foundation. At the same time, he began work on his *magnum opus*, the treatise Sugar Cane, which appeared just days before his death.⁵

Professionally, Earle was a member of the American Association for the Advancement of Science, the Mycological Society of America (of whose journal *Mycologia* he was, for many years, associate editor), and the Botanical Society of America, which he served as President in 1906.



⁵ Chardon, op. cit., p. 303.



BYTES, BITS, & BITES

TASTY LITTLE TIDBITS FROM OUR MEMBERS

from the Tasting Table blog

A new foraging app from the Danish chef, Rene Redzepi, of Noma Restaurant, considered by many to be the world's greatest restaurant.

<http://tinyurl.com/yac2lmp3>

from The NY Times:

Admire the work of Carsten Höller at the Gagosian Gallery. The artist, who once worked in biological science, offers flying mushrooms and giant dice.

<http://tinyurl.com/ycpzsh5>

from Dr. Faith Perrin (NJMA member and veterinarian):

Mushroom toxicosis in dogs:

<http://tinyurl.com/ya5jvbkf>

from Bob Hosh:

A segment on the “stoned-ape” hypothesis:

<http://tinyurl.com/ycztuerd>

from Judy Glattstein:

11 Things in NJ Forests that can kill you:

Mushrooms

“The most obvious piece of advice is to never eat a mushroom without identification,” Luke Smithson, vice president of the New Jersey Mycology Association, said. There aren't too many mushrooms that are deadly without ingesting, but there are mushrooms that can cause you to become violently ill.

“*Amanita bisporigera*, the “Destroying Angel” and *Gallerina marginata* are two of the more commonly found, lethal mushrooms,” Smithson said.

“The other really common, but sometimes lethal, mushroom in the area is *Chlorophyllum molybdites*” he said. “While the toxins in that mushroom are not lethal itself, the violent gastrointestinal distress it causes can cause death in some individuals.”

If you ended up eating a mushroom and feel sick, you can call NJ poison control hotline at 1-800-222-1222. Of course, If you become seriously ill, call 911. (thread continues in next column)



Amanita bisporigera

from the Editor:

And what are the others?

from Judy:

Rattlesnake, copperhead snake, black bear, giant hogweed, mosquito-borne diseases, bobcat, tick-borne diseases, coyote – enough?

from The NY Times via Judy Glattstein:

A great article and video on how fungi launch their spores:

<http://tinyurl.com/y8mdemxw>

from Judy Glattstein:

Here's Tuva Putin with his optional sun-hat removed, looking at mushrooms with Defense Minister Sergei Shoigu:



(continues on the [next page](#))

CALENDAR OF UPCOMING EVENTS

Sunday, October 1
10:00am **FORAY: OCEAN COUNTY PARK**
Lakewood, NJ. (Ocean County)

Sunday, October 8
10:00am **FORAY: BRENDAN BYRNE STATE FOREST**
Woodland Township, NJ (Burlington County)

Saturday, October 14
10:00am **FORAY: FOREST RESEARCH EDUCATION CENTER**
Jackson, NJ (Ocean County)

Sunday, October 22
10:00am **FORAY: WELLS MILLS COUNTY PARK**
Waretown, NJ (Ocean County)

Sunday, October 29
10:00am **FORAY: BELLEPLAIN STATE FOREST**
Wiidbine, NJ (Cape May County)

NJMA ANNUAL MEMBERS' MEETING AND ELECTION OF OFFICERS:
Frelinghuysen Arboretum,
Morristown, NJ

Sunday, November 12
1:30pm Our guest speaker will be **Dr. Timothy Baroni**, Distinguished Professor of Biology at SUNY Cortland and author of the new field guide *Mushrooms of the Northeastern United States and Eastern Canada*.

The topic of his talk will be "Northeast Mushrooms". See article on [page 3](#).

DEADLINE TO ENTER THE 2017 NJMA PHOTO CONTEST

Sunday, November 12 All entries must be received by the close of our meeting at 4:00 PM.
(Or midnight if you're submitting by online electronic means) See [page 18](#).

BYTES, BITS, & BITES (continued from [previous page](#))

In this photo [see [previous page](#)] released by Russian state-run media Saturday, Russian President Vladimir Putin, left, and Defense Minister Sergei Shoigu rest after fishing during a mini-break in the Tuva region of Siberia a few days ago. (*Alexei Nikolsky/Sputnik, Kremlin pool photo/AP*)

Will Putin and Shoigu cook the mushrooms? Perhaps they are poisonous, and Putin is going to destroy them. Russian state media did not release many details from the trip, but the president is something of a wilderness expert.

from Pat Bogue:

A tick-control solution? Thought you might find this interesting. I wonder if cats would have the same effect?

<http://tinyurl.com/yb94ec8l>



PHOTO BY JIM RICHARDS

An unknown crust at Stephens State Park

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ECOLOGICAL ROLES OF FUNGI - A REFRESHER

by Ron Post. Reprinted from *Spore Prints*, newsletter of the Puget Sound Mycological Society, January 2016

You may want to know all about this subject if you're interested in fungi and you are made of organic matter, because some fungi are just waiting to digest you. It's as if the mushroom is the chef, and you or your deliciously available organics (skin or hair or whatever else you are made of) become the juicy piece of meat. No cooking required!

The mushroom produces the spices, aka the enzymes, to help the digestive process along. This is called decomposition. Sounds musical, eh? As the melody plays, if the fungus is not eating you it can find plenty of other things to chew on: leaves, trees, decaying wood, paper, insects, cheese and just about all the other organic matter available. And it doesn't even need a stomach!

Fungi is the kingdom of gastronomy gone wild. And there are, of course, many different kinds of chefs and cuisines. Some scientists classify the ecological role of fungi using the following method: as saprotroph, necrotroph or biotroph. Does it decompose dead organic matter? Does it digest and kill live things? Is it mutualistic or parasitic?

Many fungi are not decomposer-chefs (saprotrophs) but symbiotic partners with other life (biotrophic.) These are called by various names. Mycorrhizza is a good term but bulky and well... Greek. I prefer the simpler term partner. It's a bit more romantic and it accurately describes the unseen fungi residing in the roots of most plants. Partner fungi get nutrients such as sugars from the plants, and the partner-plants get a number of benefits, including more water and nutrients and some protection from disease. It's that simple!

Well - it's really a bit complex. Fungi are extremely important to the forests in our temperate zone. Forests rely on mycorrhizal mushrooms to help them thrive. There is evidence that these fungi are completely necessary for forests to regenerate: studies in alpine areas show that trees will not colonize land where glaciers have receded unless mycorrhizal fungi are present. Other studies show that conifer trees, especially those within the group Pinaceae, will not be healthy unless accompanied by fungal partnerships. Timber companies learned this fact long ago and so they inoculate the roots of their soft-wood seedlings with fungi before planting.

It is also thought that when plants first evolved on land they were only able to do so with the help of fungal partnerships. Lichens, a mutualistic association between fungi and algae and/or bacteria, are thought to be one of the most ancient land-dwelling life forms. Fungi are in a league of their own, and they even compete with each other. For more information on competition, succession and how fungi invade or co-exist with trees, you can

watch Professor Lynne Boddy's online *Vimio*. Of course, wild animals and insects are happy to spread the spores of both the partner fungi and harmful ones into new areas. Eating the fruited mushroom or just walking through mushroom habitat will do the trick. You and I help this process along when we pick mature mushrooms and transport them. Spores get around. 

MYCOLOGY VOCABULARY: TAXONOMIC SHAPE WORDS

reprinted from *Sporophore*, newsletter of the Mycological Association of Washington, July 2017.

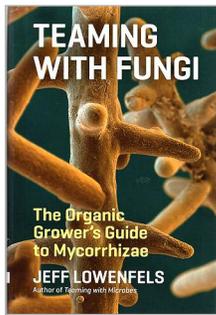
Many taxonomic names seek to describe the thing they name; understanding root words can help you remember both the name and the organism. Shape words commonly appear in taxonomic names, since we often recognize different organisms by their distinctive shapes. There are way too many to include them all here, so the list below contains a few of the most common ones.

WORD	MEANING	EXAMPLE
brevi-	short	<i>Russula brevipes</i>
derma	skin	<i>Scleroderma citrinum</i>
-folia	leaves (or gills, in mushrooms)	<i>Russula densifolia</i>
-formis	the shape of	<i>Lycoperdon pyriforme</i>
gaster	belly	<i>Gastroboletus turbinatus</i>
imbricatus	tiled	<i>Sarcodon imbricatus</i>
longi-	long	<i>Leccinum longicurvipes</i>
macro-	large	<i>Macrolepiota procera</i>
marginatus	bordered	<i>Galerina marginata</i>
micro-	small	<i>Microglossum viride</i>
minor	smaller	<i>Cantharellus minor</i>
morpho-	shape	<i>Xylaria polymorpha</i>
-odon, -odus	tooth	<i>Climacodon septentrionalis</i>
ped, pes	foot (or base/stipe in mushrooms)	<i>Harrya chromapes</i>
phyllo-	leaf (or gill, in mushrooms)	<i>Chlorophyllum molybdites</i>
pubescens	downy	<i>Trametes pubescens</i>
rhiza	root (or root-like structure, in mushrooms)	<i>Scleroderma polyrhizum</i>
umbonatus	with a raised central bump (umbo)	<i>Cantharellula umbonata</i>
velut-	velvety	<i>Flammulina velutipes</i>

BOOK REVIEW

TEAMING WITH FUNGI: THE ORGANIC GROWERS GUIDE TO MYCORRHIZAE

a review by Betty M. Wise



Teaming With Fungi:
The Organic Growers Guide to Mycorrhizae
by Jeff Lowenfels

Published by Timber Press, 2017.

ISBN 10: 1604697296
ISBN 13: 978-1604697292

This book is the third in a trilogy on organic growing practices by the same author. As a proponent of composting and organic gardening in general, I hoped this book would provide some additional methods I might be able to employ in my own small vegetable and flower gardens, to increase the health and production of my plants. When I first saw the title, I pictured teaming networks of mycelium hiding beneath the surface of the soil and how I might incorporate them into my own gardens. Then I began to see the other meaning of it being the team-player in helping plants grow. Plants and fungi provide mutual benefits for each other; one cannot exist without the other.

The connection between plants and fungi has been studied for over a century, but the finding was not initially embraced or even taken seriously. The premise of the book is a paper written in 1885 by a German Botanist, Albert Barnhard Frank about the beneficial relationship between fungus and their host plants. Fungi was seen as detrimental to plant growth and even feared. It took over 50 years for the paper to be scientifically tested for accuracy. Prior to that, fungi were feared and eradicated as the enemy of gardens and growing. Some of this continues today with the proliferation and use of chemical fungicides and fertilizers. This book attempts to dispel the myths, and explains how a specific type or types of mycorrhizal fungi can even be harvested and used to help increase the growth of the host plant and benefit the fungus as well.

Mushrooms and fungi are decomposers of organic matter and are important for the ecosystem as they are nutrient recyclers. Fungi form symbiotic relationships with plants in what is known as a mycorrhiza. Mycorrhizal fungi colonize the roots of most plants providing them with water and minerals in return for carbon in the form of plant sugars that fungi cannot produce on their own. When fungi colonize the roots of plants, they increase the root structure allowing for greater absorption and retention of water. This in turn helps the plant grow faster, larger and healthier. It improves the soil and crop yields, and is a natural approach that can eliminate the need for fertilizers. In

addition, it helps the plant tolerate droughts, diseases, parasites and pathogens better.

The phylum Glomeromycota is one of seven in the kingdom Fungi. It has fewer species than the better known Ascomycota or Basidiomycota, but they are more abundant and widespread. Arbuscular mycorrhizal fungi are glomeromycetes that form symbiotic relationships with most herbaceous plants and trees. There is a lot of information in the book about which plants form arbuscular mycorrhizae and which do not, and discusses other types of mycorrhizae to colonize specific plants including, amazingly, Cannabis. But don't try this in New Jersey as there will be legal ramifications!

The book describes specific uses for arbuscular mycorrhizal fungi in agriculture, horticulture, hydroponics, silviculture (trees), lawn and turfgrass applications. The appendices provide a wealth of resource links and further reading suggestions to increase your knowledge.

This book is well researched and written, but it is also highly technical and was not an easy read for an amateur mycologist. Had I not promised to review this book for the newsletter, I would have returned it to the shelf. Maybe some additional editing would have helped the flow a bit. If you have a background in biology or mycology, or have recently taken a college level course in these subjects, it would help. It is certainly not a book for the casual home gardener looking to make a few simple changes to improve their soil and plant yield, unless they are willing to spend the time and energy coming on board. Having said that, the concepts and practical applications could be offered as part of a curriculum that county agriculture extension services might offer in their public outreach courses for professional and home landscapers, farmers and gardeners. In that way, it may better reach the masses. 

BOOK REVIEW

THE GREAT OUTDOORS: A USER'S GUIDE

a review by Dave Wasilewski



The Great Outdoors:
A User's Guide: Everything You Need to Know Before Heading into the Wild (and How to Get Back in One Piece)

by Brendan Leonard

Published by Artisan Press, 2017.
(320 pages)

ISBN 10: 1579657079
ISBN 13: 978-1579657079

The first thing I noticed about “The Great Outdoors, A User's Guide”, by Brendan Leonard, was there is not a single chapter devoted to mushroom hunting! Well,

(continues on next page)

okay, I didn't really expect to see one. As we all know, mycological skills that one develops over the course of many years could never be realistically condensed into fifty-some pages. The emphasis here is on hiking, backpacking, mountaineering, rock climbing, ice climbing, canoeing/kayaking/rafting, downhill skiing, and outdoor survival skills. In short, this book provides motivation to uncover one's hidden adrenaline junkie.

There's lots of good advice here for people who wonder about which of these activities may best suit their temperament and physical abilities, including necessary gear, conditioning, associated cost, allotment of time, degree of difficulty, and the assessment of risk. (The author never mentions one-cup drip coffee makers, which I think is a major omission, especially since he devotes two full pages to making coffee in the back-country.) This book functions as a precursor to becoming more focused on some particular activity. There are a few notable omissions. For example, in the section on hiking the Appalachian Trail there is no mention of the need to provide for the occasional replacement of footwear. Presumably, one acquires this knowledge when delving into a more detailed analysis. But this does serve to illustrate a problem with a book that attempts to cover a multitude of different activities.

A particular strength of this book is that the author stresses respect for the environment, including for the other folks who are pursuing the same activity. Waste management, avoiding potentially destructive activities, and outdoor etiquette are all addressed.

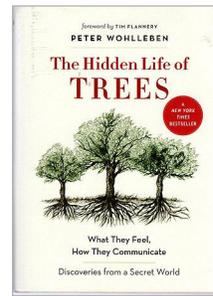
This book is aimed at a generation of people for whom the closest thing to a nature-based experience may be Pokemon Go in a location where there are a few trees. The author seeks to convince such a person that the natural world offers a diversity of potentially exciting activities. The heavy emphasis upon excitement leads one to the conclusion that enjoyment and risk-taking are equivalent concepts, in which case we applaud Mr. Leonard for generally avoiding the topic of edible wild mushrooms. (He does once mention the existence of such entities in the survival section.) But, there are more gentle activities that offer the potential for moments of ecstasy. One need not be an expert on wild fungi, wild plants, birds or any other such biological niche to experience the joy of encountering an object of beauty. A section devoted to nature photography could have made this point without venturing into esoteric technicalities. In the chapter "On Snow" only a couple pages are devoted to snowshoeing, and cross country skiing is merely mentioned as a less exciting version of downhill skiing.

Actually, the author does include one short section called "how to skip a rock on water." Okay kids, put down those phones, we're gonna chuck a few rocks into the lake.



BOOK REVIEW THE HIDDEN LIFE OF TREES

a review by Dorothy Smullen



The Hidden Life of Trees: What They Feel, How They Communicate — Discoveries From a Secret World

by Peter Wohlleben

Published by Greystone Books, 2016.
(288 pages)

ISBN 10: 1771642483
ISBN 13: 978-1771642484

I was looking forward to reviewing this book because I have always loved trees, but as I glanced through it, I sensed that I would not be pleased.

Written by a German forester in 2015, it was translated in 2016. A sticker on the cover says it is a New York Times bestseller. Much of the dialogue pertains to European trees, but that still applies to the US.

I am a "visual" learner and love diagrams. I understand color images would be very expensive, but there are only five black and white line drawings of whole trees in the book. This book is not meant to be a field guide, but I would still have liked to see labeled diagrams – such as a leaf cross-section, stem sections, insect galls, and the interconnections of fungi with root systems.

The growing layer of trees, the cambium, is only mentioned a few times and the cells they give rise to, such as xylem and phloem, are not mentioned at all. The whole topic of dendrochronology seems to be missing.

Although fungal connections are mentioned here and there, it is only in an added 2016 "Notes from a Forest Scientist" by Suzanne Simard that the word mycorrhizae is used with a stress on the mutualism.

There are nine pages of references to notes in the text. The book has a thorough index that is useful and an interesting but short chapter on animal pests of trees.

I would recommend this book to the public that doesn't already know much about trees, but not to mushroom club members who already know the interactions of the forest and its community.

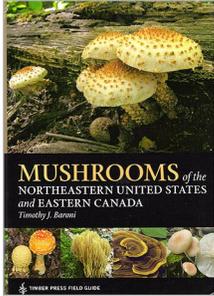


ILLUSTRATION BY KATY LYNES

BOOK REVIEW

MUSHROOMS OF THE NORTHEASTERN UNITED STATES AND EASTERN CANADA

a review by Luke Smithson



Mushrooms of the Northeastern United States and Eastern Canada by Timothy J. Baroni

Published by Timber Press, 2017.
(600 pages)

ISBN 10: 1604696346
ISBN 13: 978-1604696349

The latest guidebook for northeastern North American mushrooms is a winner. Timothy Baroni has packed his book with over 500 species of “the region’s most conspicuous, distinctive, interesting, and ecologically important mushrooms” so says the back cover. And it really is filled with interesting mushrooms!

The book is a relatively modest size, small enough to put in your backpack, but big enough to be able to devote a full page to each species. A typical description includes a color photograph of the mushroom, mostly in situ, at an approximate dimension of 5x7 inches. The written description includes the current taxonomic name (up to date as of publication), a common name if applicable, and synonyms associated with the species. The description goes on to describe the mushroom’s macroscopic features in typical field guide language as well as habitat information. The spore description is solid with dimensions as well as shape, ornamentations and amyloid reactions. Very occasionally, some additional microscopic or macro-chemical reactivity is noted. Finally, each description contains a comment section of useful information such as look-alikes, edibility and/or toxicity and often good notes on recent DNA work and how it relates to the mushroom’s placement in systematics.

The book organizes the agarics by broad families based on spore color, so that you have a section of pale colored spores that first treats *Amanitas*, then *Lepiota* and Allies, then *Russula* and *Lactarius*, etc... The section on *Tricholoma* and allies is particularly robust. Other spore colors are treated, then we move into boletes, then polypores, then chanterelles, etc. I believe the books strongest section is certainly the gilled mushrooms, although there surely are plenty of boletes (all with the up- to-date generic names). Polypores are not extensively covered, nor are some of the more obscure basidiomycetes. Ascomycetes are only briefly covered, but there are enough mushrooms after the big gilled and bolete sections to make it still worth using when you are trying to identify a northeastern fungus other than a gilled mushroom. The book color-codes the top of the page for each of these sections, so it is easy to move to

the next section simply by looking at the fore edge of the book.

Most sections also contain a key, but not the typical dichotomous keys that many books contain; these list unique features and then give a list of genera describing specific characteristics. Once you think you have the genus, it is up to you to flip through the pages to find a likely match. While reading through each description of a genus may not be the most efficient key to use, this book has the most comprehensive listing and descriptions of genera that I have seen. It will certainly aid anybody who is interested in understanding all of the new genera that DNA studies have revealed. The majority of the features listed in these keys are macroscopic features, meaning they are features that are visible with the naked eye or with the aid of a magnifying glass. Microscopic features seem to be listed only when there is no other way to sort the mushrooms out.

Other features of this book include a line drawing picture key to mushroom groups on the inside of the front cover and a line drawing diagram of mushroom parts on the back cover (gill attachments, stem shapes, growth stages, etc.). The book includes a glossary, a one page introduction to microscopy, a section of further reading which recommends a lot of really good books, a few other resource sections for the mushroom enthusiast and photo credits. This is a good time to congratulate NJMA’s own Nina Burghardt for her photo of *Calliderma indioigera*, which is included in this book! The book wraps up with an index that lists mushroom species by genus first (which can become confusing when the mushroom gets moved to a new genus, but a minor inconvenience).

The author notes in his introduction that this is not a book on edible wild mushrooms, but an educational resource for both new and experienced mushroom enthusiasts. He says that this book contains at least 100 species not covered in other guides for the region and includes many new genera. It does contain many species that I am unfamiliar with, or only have passing knowledge of and I feel that it will be a great resource, especially for the typical gilled and stalked mushroom.

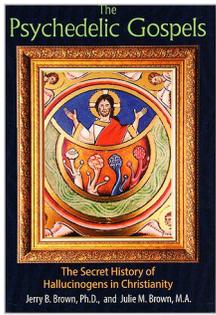
Timothy Baroni is a Professor of Biology at the State University of New York, College at Cortland and a researcher who specializes in researching biodiversity of macrofungi. He is a regular faculty member at the Northeast Mycological Federation’s forays; identifying mushrooms, delivering lectures and interacting with mushroom enthusiasts. His love for fungi is readily apparent in this book, often referring to a mushroom as beautiful or fondly describing a mushroom as “little beacons of light in the dark woods”. His passion and love for mushrooms comes across in this concise and informative field guide that surely will become a standard reference for mushroom hunters in the Northeast!



BOOK REVIEW

THE PSYCHEDELIC GOSPELS: THE SECRET HISTORY OF HALLUCINOGENS IN CHRISTIANITY

a review by Marc Grobman



The Psychedelic Gospels: The Secret History of Hallucinogens in Christianity

by Jerry B. Brown, Ph.D. & Julie M. Brown, M.A.

Published by Park Street Press, 2016.
(288 pages)

ISBN 10: 1620555026
ISBN 13: 978-1620555026

Although people sometimes assume I am Jewish, I assure you I have the credentials to review a book about Christianity and psychedelics. When I was growing up in rural Florida in the 1950s, the Supreme Court hadn't yet banned prayer in public schools, so every morning our class chanted the Lord's Prayer, read Biblical passages, and sang "Jesus loves me this I know/'Cause the Bible tells me so" before we studied secular stuff.

Those teachings made me a solid Believer until third grade, when I climbed a tree and couldn't get down. In times of trouble, school had taught me, pray to Jesus for help and He will come to your aid. So I did, but He didn't. I figured out how to climb down by myself, and never prayed again.

On the psychedelic side, I once ingested an organic ticket that granted me admission to a moonlit movie starring small flying saucers floating through violet lace curtains... That really happened! Unless there's no statute of limitations on the activity I've alluded to, in which case, sorry, that was just locker room talk.

Psychedelic Gospels author Jerry Brown's experience far surpasses my dabbling; he's taught a "Hallucinogens and Culture" course for 40 years. The inspiration for this book's genesis, he writes, came when he and "co-author" Julie Brown (he's the writer, she's the photographer) visited Scotland's ancient Rosslyn Chapel, where he purchased a replica of a carving of a man's head decorating its stone walls. Suddenly, he realizes there's an upside-down image of a mushroom on its forehead. The raised dots on its cap, veil on its stem, and bulbous base, he writes, indicate it's *Amanita muscaria*, or fly agaric! And indeed, a mushroomy image is apparent in the book's photo of the carving.

But perhaps I need to chaw some *A. muscaria* to identify it as confidently as Brown. The image I see is so vague it could be any of many Amanitas. (However, Brown argues, "One of the world's leading experts on mycology," Paul Stamets, "confirmed that the mushroom we found on the [carving's] head was a 'taxonomically correct *Amanita muscaria*.'")

That relates to my strongest concern about the book. Despite one source cautioning Brown that "humanity needs its fantasy in order to escape what is too often a boring reality," in several instances it appears Brown tries so hard to see psychedelic-Christian connections that he convinces himself they exist.

That's not to claim *Psychedelic Gospels* simply collects Brown's daydreams about those connections. It's generally a scholarly reference reflecting exhaustive research, with many of its assertions footnoted, and a bibliography listing almost 150 sources.

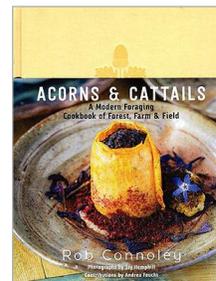
Scholarly it is, boring it isn't. Brown utilizes a first-person travelogue writing style, taking us merrily tripping through ancient Christian art, history, and theory delivered with an air of suspense, mystery, and discovery. Occasional tangents offer pleasant breaks, such as this insightful description of a comment by an English ex-pat: "Paul's jokes were interspersed with Alexis de Tocqueville-like insights: 'America is the only nation that has gone from barbarism to decadence without passing through civilization.'"

Overall, *Psychedelic Gospels* is entertaining, informative, and thought-provoking, and that's no hallucination.

BOOK REVIEW

ACORNS & CATTAILS: A MODERN FORAGING COOKBOOK OF FOREST, FARM & FIELD

a review by Mallory O'Donnell



Acorns & Cattails: A Modern Foraging Cookbook of Forest, Farm & Field

by Rob Connelly

Published by Skyhorse Publishing, 2016
(224 pages)

ISBN 10: 1510709681
ISBN 13: 978-1510709683

Just a few short years ago, it was difficult for the wild food enthusiast to find cookbooks from the current era which incorporated (or even made much mention of) foraged ingredients. Now, rather suddenly, it is a question of which new book that features or highlights wild food to turn to. Many of these recent volumes focus on a very modern aesthetic in both the food and presentation, offering up a set of recipes and ingredients which reflect a specific place. *Acorn & Cattails* is within this mold, originating from the author's fine dining restaurant (which he has since closed) in New Mexico and incorporating wild ingredients reflective of a southwestern terroir.

Rob Connelly's book breaks free from that mold immediately – by being conversational and intimate, rather than formal, and laid out like a combination of a tradi-

tional gourmet cookbook and in-depth magazine feature, with interviews and asides, detours along a meander through the chef's kitchen. General articles about foraging and chef's notes and asides are interspersed with profiles of growers and foragers within the community of the author, focusing on their relationship with the author and his restaurant. They highlight what has always been the unspoken underpinning of fine dining – the farmers, foragers and food artisans who grow, gather and craft world-class ingredients. These range from a foraging instructor, to a sustainable foods-obsessed scientist to a family of four that raises rabbits for table (don't call them bunnies).

Delightful and instructive as these pieces are, the main body of *Acorns & Cattails* still resides in the excellent recipes of the author. Clever, dynamic flavors and combinations that are challenging yet surprisingly intuitive (salmon and chocolate, crawfish and pine sap, mesquite and sumac, hackberry and rabbit). The bill of fare is a diverse one, with gonzo creations like Acorn Pasta and Spicy Crawfish with preserved kumquats alongside the humble Papas Rellenos with a wild fruit sauce. Desserts and drinks are highly featured too, with the tempting likes of Sumac Shandy, Ginger Horehound Cookies, and even a literally wild Root Beer Float! This is warm and unfussy cooking by fine dining standards, although the occasional ultra-modernist touch appears (you will need syringes for at least one recipe). Wild foods appear in many dishes, but there are plenty of more familiar ingredients here as well. A number of staples (acorn and mesquite flours, sumac, prickly pear juice, quinoa, amaranth seeds) are available online, although good luck ordering Javelina or an elk's heart from Amazon.

Focusing on a very genuine new Southwestern cuisine, *Acorns & Cattails* still offers plenty of dishes that can be recreated successfully, even here on the other side of the continent by ordinary mortals. A handy guide to substitutions is provided to help replace unfindable ingredients, but much of what is discussed in the greatest detail is available in our region. Beginning, but certainly not ending with the titular pair, which are staple foods available across most of North America. The process of incorporating wild ingredients into our cooking in this country is in its infancy, and inspired works like these are needed to lay a foundation. Perhaps, one day, cooking with wild food will be commonplace, but for now, even if you find the whole idea somewhat exotic, *Acorns & Cattails* is well worth investigating. Even if you don't start stalking cattails, you will certainly learn a thing or two about where food really comes from, and the community that makes it happen.



We apologize for the delay of this issue of *NJMA News*. We trust that our members received and read the emailings which were sent out earlier regarding our September-October Calendar of Events and Fungus Fest 2017.

BREWERY LAUNCHES PORCINI MUSHROOM BALTIC PORTER ON VALENTINE'S DAY

Press Release, Feb. 14, 2017. Reprinted from Spore Prints, newsletter of the Puget Sound Mycological Society, March 2017.

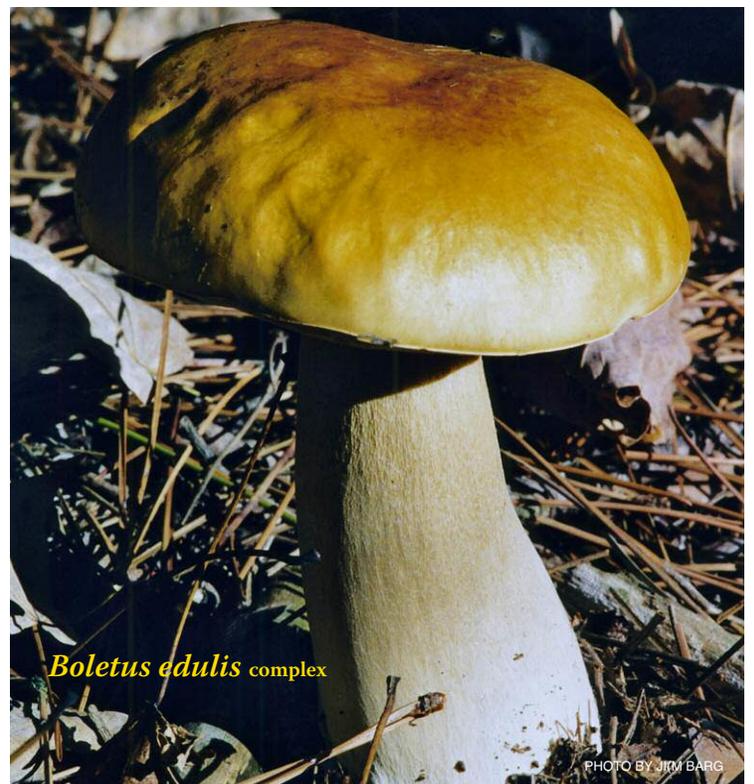
Reno, Nevada - What goes better with porter than porcini mushrooms? If you're speaking with Chris Nealon, executive head chef of Montreaux Golf & Country Club, then the answer is, "Absolutely nothing!"



Brewer's Cabinet is excited to bring back the Chef Series beer collaboration this month. The popular Chef Series began in 2016, where top chefs from renowned Reno restaurants devise a food-friendly beer brewed by Eric Ramin, brewmaster at Brewer's Cabinet. The original concoctions often feature signature flavor profiles and pairings that participating culinary experts are known for.

The first featured brew starting the 2017 series is Nealon's brainchild, dubbed "Little Phat Pig Baltic Porter," which combines imperial porter infused with porcini mushrooms from the Pacific Northwest.

"I was in Oregon for six years and one of my favorite foods to 'hunt' were the delicious, full-bodied porcini mushrooms. I would find them on walks in the woods and around my property," Nealon recalled. "Porter is my favorite beer style to pair with and drink. It's a match made in beer-loving heaven."



Boletus edulis complex

PHOTO BY JIM BARG

iNATURALIST: DIGITIZING YOUR FORAY

by Carl de Boer. Reprinted from *Mycelium*, newsletter of the Mycological Society of Toronto, v. 43 no. 3.

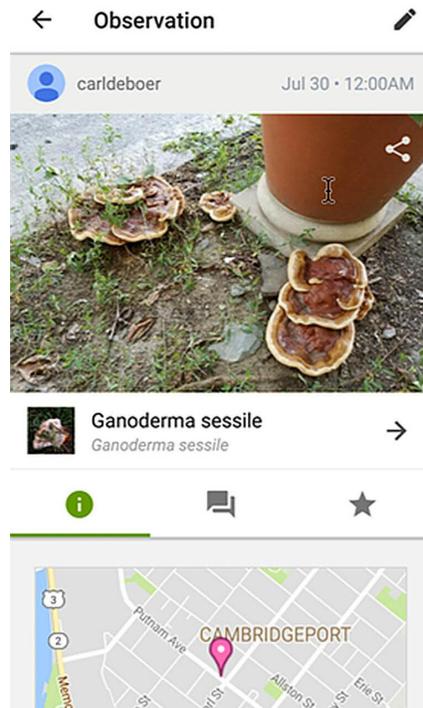
I was alerted to the iNaturalist app (Android and iPhone) by my favorite science writer, Ed Yong, whose love of David Attenborough and weird animals rivals my own. His musings are always an interesting read, so I knew when he was writing about a smartphone app it must be something different. The iNaturalist app is an interface to a database of organism sightings. All sorts of organisms are included in this database, including vertebrates (e.g. birds and mammals), insects and other arthropods, plants, and fungi. Users of the app populate the database with sightings of various creatures, usually comprised of a photo of the organism, and the location and date it was seen. With a smartphone, date and location are tagged automatically on the photo, making this really easy – you just snap a photo and hit upload. If you know the species name, you can indicate it when you upload it. If you are unsure of the exact species, you can name the appropriate taxonomic group to the best of your knowledge (e.g. fungi, basidiomycete, Agaricales, Lactarius, etc). Sightings are also curated by the users; you can confirm and identify others' sightings and they will identify/curate your own. In this way, unidentified organisms are identified and identified organisms are confirmed or refuted. For instance, I came across an earthstar labeled as *Geastrum triplex*, but it clearly lacked the collared ring typical for this species, so I labeled it as simply *Geastrum*. Over time, the community reaches a consensus on the species ID. Since this is all based on photographs, dates, and locations, identification can be a little challenging at times. For instance, red Russulas are doomed to sit at the genus level since many are distinguished on the basis of spore print and microscopic spore morphology, which are difficult to obtain in the field with a cell phone (although not impossible: <https://www.foldscope.com/home>).

In addition to IDs by humans, they have now trained computer algorithms to help with identification, allowing you to upload your photo and immediately get suggestions for what it might be, although, at present, this is only available online and with the iOS App (i.e. not yet on Android). Of course, the algorithm's success rate depends on the quality of the photo and the type of organism shown. For more common species, there are many photos in the database and so more examples available for the algorithm to learn what the organism

looks like. As a result, the success rate varies by organism type, with birds and insects doing quite well, but mushrooms lagging behind. In fact, no matter the fungus depicted, the algorithm seemed to suggest *Amanita muscaria* as the top hit. The one exception was a photo that may well have been *Amanita muscaria*. The algorithm will surely improve as more photos are taken and annotated, but since many fungi are difficult even for experts to identify by eye, these should always be taken with a grain of salt

The Android app is good for basic tasks, like documenting finds and annotating them, and is also good for looking for recent observations by others in your area, but the user interface is limited compared with what you can do on the iNaturalist website. For instance, the computer-generated suggestions are only available on the website (and, apparently, iOS app). If you want to do some identifying, this, too, is much easier from the web interface. Here, you can search for an area (e.g. Ontario), a group of organisms (e.g. fungi), and numerous other filters (e.g. sightings needing identification), and start going through the sightings. One annoyance for fungi in particular is that common names are the primary identifiers. For many species, these are names I have never heard of. Luckily, the specific epithet is usually also included. This has the unfortunate effect, however, that some people are misled as to what the identifiers mean. For instance, "field mushrooms" refer specifically to the genus *Agaricus*, leading many to mislabel any mushroom found in a field as an *Agaricus*. Overall, the Android app includes most of the functionality necessary for uploading your finds, but is less helpful in identifying the finds of others.

Although this app is very useful in helping amateur naturalists develop their identification skills, iNaturalist can also be used for research. For instance, the database can be used to gauge the native ranges of species, or how those ranges change over time. They can also be used to discover new species, or document the behaviour of poorly studied species. Recently, one iNaturalist user acquired the first digital photo of a poorly documented isopod species, and documented a behavior that was not known for the species. Another took the first photograph of a Vietnamese snail first discovered by western science in the 18th century. Still another discovered a new species of frog in his plot of rainforest. However, the main goal of the iNaturalist app is to connect its users to nature, and in that it surely succeeds. See also: <https://myctor.org/u6w>



SHIITAKE UMAMI – OPTIMIZING FLAVOR POTENTIAL

by Nicholas Reppenning

Reprinted from *Mainely Mushrooms*, newsletter of the Maine Mycological Society. April-June 2017 issue.

Shiitake mushrooms or *Lentinula edodes* are probably one of the most popular of Japanese mushrooms. They are also one of the more popular cultivated mushrooms commonly grown in logs. Many of you probably have a few or many of these logs in the yard which you will eventually harvest an abundance of delicious mushrooms from. Shiitake have a strong earthy smell and can be used in cooking both fresh or dried. However, when dried, their umami components increase and develop, greatly exceeding the levels available in fresh shiitake. For those of you who are unfamiliar with umami, it is the fifth flavor sense. Umami is described as a mild subtle taste that is sensed across the entire tongue and triggers the body into salivation, thus encouraging digestion. More simply put, umami embodies savoriness, encouraging appreciation and reverence for many of our culinary delights.

A combination of substances work together to produce umami, enhancing our foods and making them more desirable and digestible. Three of the major components involved in this process are: inosinate, glutamate and guanylate. These substances work individually to trigger umami sensors, but in combination with one another, increase and greatly enhance each other's abilities. This joint effort is called umami synergy. According to the umami information center, fresh shiitake mushrooms have naturally occurring levels of glutamate at a rate of 70mg/100g. During the drying process, however, shiitake glutamate levels increase to 1060mg/100g. Simultaneously, ribonucleotides are broken down and the enzymes release guanylate at a rate of 150mg/100g. These two substances work together to accomplish umami synergy. I don't have figures on rehydrated levels, but it has been documented that this rate increases even more so during the rehydration process, a step that should be taken with care as to temperature. If the water is too hot (above 140°F), it will stop any further enzyme activity, thus halting the maximum release of guanylic acid. Optimum temperature for rehydration is considered to be 86°-104°F, but I lean towards the low and slow method utilizing room temperature, (rarely reaching 84°F here in Maine.) The rehydrated shiitake are commonly used in simmered dishes with or without shiitake stock. Shiitake can be used as a flavor enhancing base for vegetarian dishes and is commonly used as an alternative to the dried bonito when making Japanese *dashii*, a stock traditionally made from *kombu* (seaweed) and *katsuobushi* (dried, fermented bonito). Most of what I've learned about shiitake stock is geared towards vegetarian cooking, but it also makes a

wonderful base for meat soups and stews, which tend to have higher levels of inosinate the third member of the umami trinity. Here is a simple recipe for rehydrating mushrooms and making a vegetarian stock:

Mushroom Stock

The mushroom stock can be made couple of ways, soaking the mushrooms in room temperature water all day/overnight, or, if speeding up the process, bring the water to 30°-40°C.

60-100 grams dried mushrooms
2 liters of water approx. 30°-40°C (it's just warm to the touch)

Bring the water to the right temperature and add mushrooms. Let them sit for few hours, the longer the stronger the stock. I prefer the stock on the milder side and between 1 and 2 hours is fine for me.

Strain the mushroom stock, there will be some tiny gritty bits in the bottom.



DETECTING POTENTIALLY HARMFUL MYCOTOXINS IN BEER

<http://canadafreepress.com/>, December 14, 2016.

Reprinted from *Spore Prints*, newsletter of the Puget Sound Mycological Society, March 2017

Beer is one of the world's most popular alcoholic beverages. But, made with barley, brews can contain low levels of mycotoxins, which are produced by fungi that can contaminate grains. Although not a major health threat, the industry needs to minimize the risk of contamination. Now scientists have developed a portable sensor that can help. Their report appears in American Chemical Society's *Journal of Agricultural and Food Chemistry*.

Because of its alcohol content and the high temperatures required to make beer, most consumers might assume that contamination by biologically derived compounds is not an issue. But mycotoxins can survive the brewing process and end up in the final product. Some mycotoxins have been shown to cause genetic damage in cells and cancer in animals. Currently, methods to detect mycotoxin contamination in beer are costly and require in-laboratory analysis. Sweccha Joshi, Teris van Beek, and colleagues wanted to come up with a less expensive, portable alternative.

Building on technology used to detect mycotoxins in grains, the researchers developed a biosensing chip that can bind these compounds when they are present in beer samples. The team also could reuse the chip 450 times before it started to fail. Testing on commercial beer and barley showed that the portable instrument detected levels as low as 0.2 nanograms/milliliter of ochratoxin A and 120 ng/mL of deoxynivalenol, respectively, the estimated safe limits for these mycotoxins.



NJMA PHOTO CONTEST 2017

Show off your fungi photos!

DEADLINE FOR ENTRIES: **NOVEMBER 12, 2017**

If you haven't already started doing so, get your photos together *now* and don't miss the deadline. Winners will receive valuable awards (see below), plus you'll receive heaps of praise from your fellow NJMA members. Also, your winning photos will become a permanent part of the NJMA Photo Library.

If you need technical assistance to prepare your digital-format photos for entry, contact Jim Barg at jimbarg@bssmedia.com or call him at 908-227-0872. You can send in your entries by email, with two important restrictions. ONE: You MUST send all your entries in one email message, and TWO: You MUST include a scanned or clearly photographed copy of your completed entry form in that message.

You can submit photos taken in *any year or any location*. You are not limited to photos taken only this year or only in New Jersey.

Also note that *we will only accept digital files* of photos from now on. If you have a slide or print, you must have it scanned before submitting it.

THE JUDGES FOR THIS YEAR'S PHOTO CONTEST WILL BE ANNOUNCED SOON ON OUR WEBSITE.

ENTRY CATEGORIES AND DIVISIONS

For all entries, the main considerations in judging will be composition, clarity, lighting, and all the other criteria that make for a good picture, whether using a camera or a scanner. Entries will be accepted in three categories in two divisions (Novice or Advanced). There will be a total of six first-place awards:

TECHNICAL (Divisions: *Novice and Advanced*)

This category is for photos that can be used to aid in the identification of fungi, as if they were going to be used in a field guide. Emphasis will be placed on portrayal of key morphological characteristics. The subjects may be photographed *in situ* or removed to a more photographically appropriate setting. Photos through the microscope are included in this category.

PICTORIAL (Divisions: *Novice and Advanced*)

The entries in this category should be more concerned with pictorial beauty and aesthetics. It is expected that most entries will be taken *in situ* to illustrate the fungus and its surroundings. Judging criteria include consideration of both technical (focus, depth of field, exposure, lighting, color, absence of distracting elements) and artistic (composition, color, background, lighting) aspects.

JUDGES' OPTION (Divisions: *Novice and Advanced*)

The entries in this category should be mushroom-themed or mushroom-club-related and can depict anything not covered in the Pictorial or Technical Categories. For example, they may depict either people working (or playing) with mushrooms or the results of this work or play. You can use this category for photos of club or regional events, forays, and gatherings (NJMA, NEMF, NAMA, etc.) or use it for creatively-manipulated photos involving mushrooms. It may also show people cooking mushrooms (or the dishes prepared). The use of a mushroom theme as part of a craft project and the finished objects are also appropriate entries for this category...basically, anything that is *not strictly* a mushroom photograph. (If you use digital manipulation, we will **not** need to see your originals, but it is imperative that all components of your image be your original work.) Creative use of text in the image is acceptable.

Here is a summary of the categories and divisions in which prizes will be awarded (note the **boldface category code**, for use when submitting):

NOVICE DIVISION	ADVANCED DIVISION
T echnical	T echnical
P ictorial	P ictorial
J udges' Option	J udges' Option

AWARDS

All entries will be shown and winners will be announced at our annual Holiday Party meeting in early December.

FIRST PLACE in each division of each category (six prizes total): \$25.00 NJMA gift certificate

SECOND PLACE and **HONORABLE MENTION** will be given in each division of each category.

BEST IN SHOW (chosen from the six First Place winners): \$50.00 NJMA gift certificate

As always, winners' photos will become part of the permanent photo collection of NJMA. We also reserve the right to publish any of your entries (winners or not) on our website, in our newsletter and other NJMA publications with due credit given to the photographer.

SEE NEXT PAGE FOR CONTEST RULES AND HOW TO ENTER

NJMA 2017 PHOTO CONTEST RULES

1. This contest is open to current NJMA members, officers, and photo contest committee members only. Images that have previously won (including Honorable Mention) are not eligible. You are permitted to enter photos from *any* year – you are *not* limited to photos taken only during the past year.
2. You are only permitted to enter photos in one Division or the other (Novice or Advanced). Novice contestants may not enter the Advanced Division (unless they have won a First Place award in previous years – see Rule #3), and Advanced contestants may not enter the Novice division. **You must check the box on the top of the entry form indicating your entry into either the Novice or Advanced Division.** If the Photo Contest Committee determines that you have entered into the improper division, you will be reassigned to compete in the proper division.
3. **Which Division to enter:** The following types of contestants may *only* enter the Advanced Division and are not permitted to enter the Novice Division: (a) Professional photographers or those who earn any portion of their livelihood with their photographs, and (b) Anyone who has won a First Place award in the Novice Division in any previous year.
4. **All entries must be made by electronic file (.jpg or .tif) in their original resolution.** If you have a slide or print that you wish to enter into the contest, *you* must have it scanned and converted to a digital .jpg or .tif file. (Most copy centers now have good quality scanning services and can provide you with files in either of these formats. We recommend scanning at 300 dpi resolution at an image size of roughly 8"x10") All judging will be done on computer monitors. If you're not sure how to prepare your digital files for submission, please call Jim Barg at 908-227-0872 for technical assistance.
5. **LABEL EACH ENTRY!** Name each file with **your initials**, followed by the **category code** (see previous page), followed by the **number of your entry**. For example, if your name is John Doe, and you are entering into the Technical category, and this is your first entry, the entry code on your first slide should read **JD-T-1.jpg** or **JD-T-1.tif** (don't forget the .jpg or .tif suffix!). **Record this same number on the entry form under "Entry Code".**
6. Fill out the entry form below, recording your entries using this code and also, if they are mushroom photos, providing your best attempt at determining the scientific name of the mushroom(s) included in the photo. (*Improper ID is no longer a cause for disqualification, but we are a mushroom club, and we'd really like you to attempt a proper ID!*) We suggest that you make a photocopy of the entry form and keep it for future reference.
7. Digital image files should be submitted by email or on optical media such as CD-R or DVD-R or PC/Mac flash storage devices (NOT the cards which are used in your digital camera). At your request, we can return flash storage devices if you provide us a stamped, self-addressed envelope (SASE) along with your entry. We accept entries by email, *but you must include a scanned (or clearly photographed) copy of the completed entry form.* If you choose to email your entries, we cannot take responsibility for lost, damaged, or undelivered files. If we receive your entries by email, we will send a confirmation when we get them.
8. **For photos entered in the Pictorial and Technical categories only:** If you do any digital manipulation to your photo, you **MUST** provide us with the original file or print to allow us to see the manipulation you did. Cropping, color correction, contrast and brightness adjustment, dust, dirt, or scratch removal, grain reduction, and sharpening are acceptable forms of digital manipulation in these two categories. Digitally-manipulated photos will not be considered for judging if we do not receive a copy of your unmodified original (It is acceptable to watermark this copy if you wish). If you intentionally add, subtract, or move any element or object that's in the original photograph, your entries will be disqualified. (Entries in the Judges' Option category are exempt from this requirement.)
9. **For photos entered in the Judges' Option category only:** Your subject must include mushrooms or anything mushroom-related (club activities and food photos are permissible just so long as they are identified in the title of the work.) You may do whatever manipulation, augmentation, subtraction, filtering, effects...whatever you wish. Any components you use must be your work (e.g., not scanned from a book or magazine or taken from the Internet). You may also creatively use text or other elements of your own making in your entry. You do **NOT** need to submit your originals.
10. Entries are limited to 12 photos per contestant, including any which may be disallowed for improper or non-permitted forms of digital manipulation.
11. By submitting to this contest, you grant NJMA the right to reproduce or publish your photos (without compensation, but with due credit) in the club newsletter, on the NJMA website, on promotional posters, or in any publication which NJMA provides to its membership or prospective members.
12. Entries must be postmarked (or date-stamped if sending by email) by 11:59 PM on November 12, 2017.

SUBMITTING YOUR ENTRIES

Please be sure that your entries are labeled properly (see Rules, above) and enclose them **with your entry form** and mail or deliver them to:

**Jim Barg
NJMA 2017 Photo Contest
220 Millbrook Road
Hardwick, NJ 07825-9658**

Email entries should be sent in **ONE** email message (either as multiple attachments, a Dropbox or Google Drive notification, or one .zip file containing all photos – **and don't forget to include your completed entry form!**) to jimbarg@bssmedia.com. We repeat: **YOU MUST** also attach a scanned copy of the entry form in your message or in whatever location you send your entries to us. Multiple email messages containing one photo each are confusing and will NOT be accepted since there are lots of online sharing options. If you do not know how to add attachments to an email message, use Dropbox or Google Drive, or if your outgoing email cannot handle large files, please US Mail/UPS/FedEx your entries on CD-R, DVD-R, or USB flash drive to the above address.

NJMA PHOTO CONTEST 2017



I AM ENTERING IN THIS DIVISION:

NOVICE

ADVANCED

OFFICIAL ENTRY FORM

(Please fill out according to the instructions and make a copy for your records.)

NAME OF ENTRANT _____

ADDRESS LINE 1 _____

ADDRESS LINE 2 _____

CITY, STATE, ZIP _____

EMAIL ADDRESS _____

TELEPHONE (DAY) _____ TELEPHONE (EVENING) _____

ENTRY NUMBER	ENTRY CODE <i>(see items 5 and 6 in Rules)</i>	CATEGORY <i>(check one per entry)</i>	IDENTIFICATION or CAPTION
1		<input type="checkbox"/> TECHNICAL <input type="checkbox"/> JUDGES OPTION <input type="checkbox"/> PICTORIAL <input type="checkbox"/>	
2		<input type="checkbox"/> TECHNICAL <input type="checkbox"/> JUDGES OPTION <input type="checkbox"/> PICTORIAL <input type="checkbox"/>	
3		<input type="checkbox"/> TECHNICAL <input type="checkbox"/> JUDGES OPTION <input type="checkbox"/> PICTORIAL <input type="checkbox"/>	
4		<input type="checkbox"/> TECHNICAL <input type="checkbox"/> JUDGES OPTION <input type="checkbox"/> PICTORIAL <input type="checkbox"/>	
5		<input type="checkbox"/> TECHNICAL <input type="checkbox"/> JUDGES OPTION <input type="checkbox"/> PICTORIAL <input type="checkbox"/>	
6		<input type="checkbox"/> TECHNICAL <input type="checkbox"/> JUDGES OPTION <input type="checkbox"/> PICTORIAL <input type="checkbox"/>	
7		<input type="checkbox"/> TECHNICAL <input type="checkbox"/> JUDGES OPTION <input type="checkbox"/> PICTORIAL <input type="checkbox"/>	
8		<input type="checkbox"/> TECHNICAL <input type="checkbox"/> JUDGES OPTION <input type="checkbox"/> PICTORIAL <input type="checkbox"/>	
9		<input type="checkbox"/> TECHNICAL <input type="checkbox"/> JUDGES OPTION <input type="checkbox"/> PICTORIAL <input type="checkbox"/>	
10		<input type="checkbox"/> TECHNICAL <input type="checkbox"/> JUDGES OPTION <input type="checkbox"/> PICTORIAL <input type="checkbox"/>	
11		<input type="checkbox"/> TECHNICAL <input type="checkbox"/> JUDGES OPTION <input type="checkbox"/> PICTORIAL <input type="checkbox"/>	
12		<input type="checkbox"/> TECHNICAL <input type="checkbox"/> JUDGES OPTION <input type="checkbox"/> PICTORIAL <input type="checkbox"/>	

Please remember that photos submitted on digital media will not be returned unless you enclose a SASE with your entry.

Also remember that, if you digitally manipulated or retouched your entry in the Pictorial or Technical categories, you must enclose the original (or an unmodified copy of the original, or a watermarked copy of the original) as well!

DEADLINE FOR ENTRIES IS 11:59pm, SUNDAY, NOVEMBER 12, 2017.