

SPORE PRINTS

BULLETIN OF THE PUGET SOUND MYCOLOGICAL SOCIETY
Number 544 September 2018



55th ANNUAL PSMS WILD MUSHROOM SHOW Milt Tam



Paul Hill

It's already September! Time to start thinking about fall mushrooms and the Annual Wild Mushroom Show. This is our opportunity to share with the general public our knowledge of and enthusiasm for the kingdom of fungi. Let's again work together to put that "WOW" factor into the show and amaze the public with all the colors, shapes, and sizes of fungi we bring in for display.

Our show dates are October 27 (12–6 pm) and 28 (10 am–5 pm). This year, we are holding the show at North Seattle College, 9600 College Way N, the facility just west across I-5 from the Northgate Shopping Center. We like it because it is centrally located on I-5 and will be a shorter commute for most of us. Kim Traverse, Derek Hevel, and Milton Tam will again be the co-chairs this year.

Please help us make it happen! We put on one of the largest and best shows on the West Coast year after year only because of your assistance. Sign up for one or more tasks over the weekend, including helping at the touch-and-feel table, the cultivation tables, the photography contest, the mushroom cuisine area, and microscopy, as well as administrative tasks like registration, hospitality, and loading/unloading of items. Sign up on paper at September's membership meeting or online in October at the PSMS website PSMS.org website under "Events." Posters, yard signs, and postcards to publicize the show will be available at our September meeting for you to post in appropriate public areas around the region. And remember: as a volunteer, you'll have full access to the always amazing all-day potluck buffet and the accompanying set of awesome volunteers!

We also need YOUR mushroom specimens for our display table! Summer has been very dry so far, and mushrooms may be more difficult to find before the show. To encourage your participation, we will organize carpools and special collecting trips. If that interests you, please sign up to drive or join a trip. We're counting on

YOU to make an extra special effort to go out and find specimens this year.

The schedule for the show looks like this:

- October 24–25, Thursday+Friday - Specimen collecting trips (see field trip insert). Contact Derek Hevel to help find and collect mushroom specimens for the tray displays at the show.
- October 26, Friday - We start setting up in the old cafeteria at North Seattle College. Members and friends who have been collecting wild mushrooms and forest duff begin to drop them off by 5 pm. By early evening the main hall is humming with activity, some volunteers setting up and others sorting mushrooms to genus.
- October 27, Saturday - We start early, finish setting up, select the best specimens, label to genus and species, and artfully arrange them in trays for display. By noon the tables are full of mushrooms and the exhibit opens to the general public. In the evening the mushrooms are covered and put to bed for the night.
- October 28, Sunday - The show opens again at 10 am and goes until 5 pm, when we rapidly tear down the exhibits, clean up, load our vehicles, and depart.

We really want to see you at the show, whether you are a guest or a volunteer!



Paul Hill

7-YEAR-OLD CHINESE GIRL SUFFERS MULTIPLE ORGAN FAILURE DUE TO FOOD POISONING AFTER EATING BLACK FUNGUS THAT WAS SOAKED FOR 48 HOURS Pui Fun

<https://www.worldofbuzz.com/>, Aug. 13, 2018

We have got to be really careful about what we eat and how we store our food, guys!

As a result of eating mushrooms that were prepared improperly, a little seven-year-old girl from Hangzhou, Zhejiang, in China is suffering from multiple organ failure.

The little girl, known as Wenwen, had eaten a dish of cold black fungus [*Auricularia polytricha* aka wood ears] on July 27 along with her mother and her brother. The fungus had been soaked in water out on the balcony for two days and two nights in preparation for the cold salad. The family ate the fungus dish, and Wenwen ate more of it as it was her favorite. Her younger brother did not really like it, so he ate barely a few mouthfuls. The next day, the whole family suddenly experienced abdominal pain, vomiting, nausea, and dizziness. All three were sent to the hospital for treatment, where the doctors suspected that they were suffering from severe food poisoning.

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CALENDAR

- Sept. 11 Membership meeting, 7:30 pm, CUH
Sept. 17 Board meeting, 7:30 pm, CUH board room
Sept. 18 *Spore Prints* deadline
Sept. 29 Field trip (see PSMS website)
Oct. 6 Field trip (see PSMS website)
Oct. 19-21 Ben Woo Foray, Black Diamond Camp
Oct. 27-28 PSMS Annual Wild Mushroom Exhibit, North
Seattle College

SHOW COOKING HELP NEEDED Jamie Notman

The PSMS Annual Wild Mushroom Show is approaching, and I will need help in the cooking/tasting area. This year will be an adventure as we will be at a new venue with new possibilities to explore. I will need servers, dishwashers, and help in preparing the cooked dishes to be served. If you would like to do a cooking demo, contact me personally at jamientmn@gmail.com and I will help you pick out a time.

There will be a sign up sheet at the next meeting for cooking demo sign up.

MEMBERSHIP MEETING

Tuesday, Sept. 11, 7:30 pm, Center for Urban Horticulture, 3501 NE 41st, Seattle (PSMS members only)

Our speaker for September is David Aurora, author of the iconic *Mushrooms Demystified*. His talk, entitled "Mushrooms Demythified," will center on myths surrounding mushrooms. Not the old "toads-make-mushrooms-poisonous-by-sitting-on-them" variety, but contemporary myths and misinformation spawned and reinforced by websites and online forums. He draws on a lifetime of research and teaching as well as mushroom hunting experience around the world.



David Aurora

In addition to authoring the well-known books *Mushrooms Demystified* and *All that the Rain Promises, and More*, David has edited a special publication on ethnomycology for the journal *Economic Botany* and described various new species of mushrooms. In 2015 he was awarded the Gordon and Tina Wasson Award by the Mycological Society of America for "outstanding contributions to the field of mycology."

Would people with last names beginning with the letters A-K please bring a plate of refreshments to serve after the meeting?

COOKBOOK UPDATE

Derek Hevel

The budding cookbook team is setting up to produce a PSMS cookbook in 2019 on the 50th anniversary of the first cookbook from 1969. This is a year-long project that will involve all kinds of culinary and publication activities. We had our first potluck this summer, getting together on a beautiful summer day with our homemade mushroom dishes and some take-home recipes and photos for consideration in the cookbook. Much of the content for the cookbook will come from our own PSMS activities like the Holiday Extravaganza, Mushroom Maynia, and cooking-themed general meetings. We also hope to hold a blow-out cookbook hoe-down in spring 2019 to create the final content before publishing and making the book available in the fall. Contact Derek Hevel at dfhevel@gmail.com if you would like to participate!

BOARD NEWS

Luise Asif

Thank you, Derek Hevel, for your leadership to develop a set of strategies resulting from the working retreat held in February. The Board has worked hard over the past 6 months to codify the many ideas and suggestions presented by retreat attendees and the PSMS membership into the six strategies listed in a separate article in this newsletter. Shannon Adams is working on updating the club microscopes. September 9 Wren Hudgins will be leading a training session for field trip leaders. The Bridle Trails Study will begin again this fall; a notice will go out once the dates have been established. Marian Maxwell has been busy with mushroom presentations at regional libraries. Carlos Cruz is working on improving our first aid kits. Work is gearing up for the Fall Show to be held at North Seattle College. Volunteers are needed!

BEN WOO MEMORIAL FORAY Friday, Oct. 19 – Sunday, Oct. 21 2018

The Puget Sound Mycological Society has decided to make the Ben Woo Memorial Foray an annual event. This year's foray will be held the same location as the past 2 years—Black Diamond Camp at Mt. Rainier located about 30 miles east of Enumclaw. The camp is surrounded by magnificent old growth forest with unlimited habitat easily within driving distance. But there is no need to drive anywhere, with plenty of forest to explore within walking distance of the lodge and mushrooms just outside your door.

The cost of the event is \$180/person. The package includes two nights' accommodations and five meals. This is a non-refundable registration fee.

Friday night our presenters will be the extraordinarily gifted mycologist Noah Siegel plus author and culinary artist Langdon Cook. Saturday night's speaker will be PSMS's expert mushroom identifier and nice guy Danny Miller. In addition we will hear from the truffle whisperer Alana McGee. Saturday there will be organized full- and half-day forays.

Check-in begins at 3:00 pm on Friday, October 19, and checkout is at 11:00 am Sunday morning, October 21. You must be out of the lodge by 11:00 am, but you may linger on the property to forage for the remainder of Sunday.

All registrants must be PSMS members whose dues are current for July 1, 2018, through June 30, 2019. If you are unable to register, make sure your dues are current for the coming year. All attendees must be pre-registered (no drop-ins or daily attendees).

Don't miss this amazing event; last season we identified over 200 species! Save the date and register early—space is limited to only 105 foragers and last year we sold out! We are looking forward to seeing you there.

Ben Woo Foray contacts:

- James Nowak contact@terra-fleurs.com
- Luise Asif fasif@hotmail.com
- Marian Maxwell (for registration questions/problems) outreach@psms.org

PLANNING UPDATE

Derek Hevel

The PSMS Board would like to announce to our members that we have undergone a broad planning review of the Society over the past 6 months and have put together vision and strategies statements, as well as 50+ actionable tasks to accomplish the vision. Below are the vision and strategies statements, and the tasks which will be worked through with committee chairs and interested volunteers over the next year. Some of the awesome things we plan to achieve include creating guidelines for new club outreach speakers, researching new cultivation technology, improving our website and member communications, better connecting board members with committee chairs, streamlining volunteer coordination, and updating our microscopes to improve mushroom ID and education. Over the coming months you'll get updates on the tasks our team of volunteer leaders is working hard to achieve.

Vision

A higher degree of member and volunteer engagement, more active outreach and conservation opportunities, stronger member services including communications, a clear growth strategy, and a greater scientific literacy for members and the public.

Strategies

1. Increase support for, and connect members to, outreach and conservation opportunities.
2. Engage members in a wider range of personal activities.
3. Streamline digital communications to improve their function and the user's experience.
4. Create a growth strategy that addresses future financial, policy, and venue options.
5. Strengthen services for members and foster a more vibrant group of volunteers.
6. Increase the scientific literacy of our members and the public.

ATTENTION—NEW RULE FOR ATTENDING THE FIELD TRIP ON MEMORIAL DAY WEEKEND

Brian S. Luther

Pam and I started holding this annual, four-day field trip on our private property in 2005, and it's always had enthusiastic member interest and a large turnout. Starting in 2019, we have decided to reserve this special event for PSMS members who have made a contribution to the club by consistently volunteering.

Eligible members include all acting PSMS officers, Board members, committee chairs, *Spore Prints* editorial team, those who volunteer for at least an entire day at the Annual Fall Mushroom Show, who help by hosting at field trips or as a field trip guide, who contribute at Mushroom Maynia or the Ben Woo Foray, who regularly help at the monthly membership meeting with setup, hospitality, assist at the ID clinics, help teach classes, etc.

In short, in order to register to attend the Memorial Day weekend field trip next spring, you'll need to have been directly involved in helping PSMS during the previous year, this fall, and next spring. We've made this change to encourage PSMS member participation and involvement and to reward those who've devoted time to our club. It's always a very small fraction of members who do all the work for others in non-profit organizations such as ours.

If you've enjoyed coming to this event in the past, then don't miss out. Please step forward and ask how you can help and make a difference!



Cortinarius

*These agarics are mushrooms we call
Cortinarius, given that all,
From their stems to their caps,
Have cortinae, those scraps
That hang down like a shredded-up shawl.*

—Chris Doyle, OEDILF



THE FIRST SET OF POSTAGE STAMPS WITH FUNGI AS THE MAIN ILLUSTRATION

Brian S. Luther

This article discusses the first set of postage stamps issued that featured fungi as the main illustration.

I previously documented the five earliest sets of postage stamps showing fungi (Luther, 2012), but all of those are MIDs, i.e., have mushrooms or fungi in the design of the illustration but not as the main illustration (M). The first set of M was issued by the former Soviet republic of Romania in 1958.

First myco-stamp set with fungi as the main illustration.

Issue Date	Scott Cat. #	Value*	Subject
July 12, 1958	1225	5b	<i>Lepiota procera</i>
"	1226**	10b	<i>Clavaria aurea</i>
"	1227	20b	<i>Amanita caesarea</i>
"	1228	30b	<i>Lactarius deliciosus</i>
"	1229	35b	<i>Armillaria mellea</i>
July 30, 1958	1230	55b	<i>Coprinus comatus</i>
"	1231	1.0L	<i>Morchella conica</i>
"	1232**	1.55L	<i>Psalliota campestris</i>
"	1233	1.75L	<i>Boletus edulis</i>
"	1234	2.0L	<i>Cantharellus cibarius</i>

*Values are in bani (b) and lei (L); a leu is subdivided into 100 bani.

**The nomenclature has changed; Scott 1226 is now a species of *Ramaria* and Scott 1232 is an *Agaricus*.

Discussion

All ten stamps depict edible fungi. The stamps are colorful but have rather simple painted illustrations. All are perforated with gum. They were also issued CTO for some collectors. The Stanley Gibbons Thematic Catalogue (McKenzie, 1997) gives the year of issue only as 1958, but not the month. The Scott Postage Stamp Catalogue (2011) lists the issue date as “1958, July” and the Domfil



Romania 1958. First of two FDCs.

Catalogue (Gimeno, 1998–2000) lists the issue date as July 12, 1958. Both Weber (1983–1994) and Gerlinger (1991) give July 12 as the issue date for the first five in this set, but July 30 for the last five in the set, as noted in the table. Two FDCs were issued: one has the first five stamps and the second has the other five. The stamps on these FDCs are in order of numerical value, from left to right. Both have a cachet showing nine mushrooms (eight different species), and the cancel is circular with a single stylized bolete in the middle. I’m showing only the first of these two; the other is identical except for the last five stamps and cancel date.

Over the years, Romania has issued a number of other sets of beautiful stamps with fungi as the main illustration (1986, 1994, 2003, 2008, 2017) and many MIDs as well along with an extremely extensive wealth of beautiful mushroom-illustrated covers, postcards, and maxicards, but they would require a publication of their own to document.

The next two sets of myco-stamps with fungi as the main illustration, in chronological order, were issued by Czechoslovakia (later in 1958) and Poland (1959).

There is older literature devoted to mushroom-illustrated stamps, some of which I’ve mentioned here, but there are no current catalogs detailing all fungus-illustrated stamps and postal items. It would be difficult to keep current because issues are appearing all the time and some are quite obscure, especially MIDs requiring examination under magnification to see the fungi on.



Romania 1958. Scott 1225–1234.

Nomenclature

M = stamps featuring fungi as the main illustration

MID = mushrooms in the design of the illustration but not the main illustration; sometimes they are so small they can be discerned only under magnification

FDC = first day cover, an envelope (cover) with the stamps affixed and cancelled on the first day of issue, along with a colorful illustration (cachet) and a cancel of the same theme

Maxicard = a postcard issued and cancelled on the first day of issue showing one or more of the fungi in a set and normally with a cancel the same as the FDC for the set

CTO = cancelled to order, or stamps that are pre-cancelled.

References

Gerlinger, G. P. 1991. *Champignons & Mycologie en Philatelie* (5th ed.). Privately published by the author, Paris. 153 pp. In French.

Gimeno, Jordi Domingo. 1999–2000. *Setas, Mushrooms, Champignons, Pilze, Funghi. Domfil Thematic Stamp Catalogue*. Barcelona, 258 pp. In Spanish and English.

Luther, Brian S. 2012. The earliest postage stamps with fungi. *Spore Prints* No. 483 (June), pp. 4–6. Online and in color at www.psms.org.

McKenzie, Eric H. C. 1997. *Collect Fungi on Stamps*, 2nd Ed. *Stanley Gibbons Thematic Catalogue*, Stanley Gibbons Ltd., London and Ringwood. 86 pp.

Scott Postage *Stamp Catalogue*. 2011. Vol. 5. Scott Publishing Co., Sidney, OH.

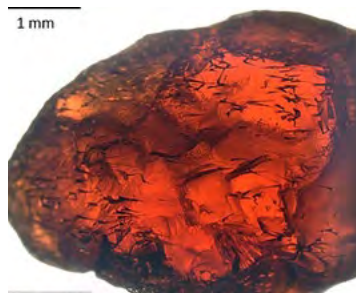
Weber, Gerlinde. 1983–1994. *Pilze auf Briefmarken. Mykologie und Philatelie*. Ten 3-ring binder notebooks, in German. Edited by Egon and Johanna Arnold.

THAI GARNETS: DID MUSHROOMS TUNNEL THROUGH THESE RED GEMSTONES? Tim Collins

<http://www.dailymail.co.uk/>, Aug. 9, 2018

Garnets have long been prized for their flawless interiors and decorative value, but it seems living micro-organisms may also have valued them as a place to live.

While studying garnet crystals they found in river sediments and soils in Thailand, scientists from the University of Southern Denmark discovered strange tunnel-like patterns inside the gem stones.



Were the lines in this gemstone made by a fungus?

One possible explanation for the markings could be the presence of grains from other minerals; however, the hardness of the garnet means diamonds and sapphires are the only candidates tough enough to penetrate it. Given these aren't often found in the same region, the researchers ruled them out as a possibility. Speaking to *The New York Times*, Magnus Ivarsson, who led the study, said: "There is basically no mineral grain that can be propelled through a garnet like that."

Another possible explanation was that the tunnels were made by endoliths, organisms that live inside rocks or in pores between mineral grains. There are thousands of known species of endoliths, including types of bacteria, archaea, and fungi.

This was confirmed when the scientists cracked open the red gems to find traces of organic compounds inside the tunnel structures, suggesting something had been living inside them. The team believes a form of fungal endolith is the most likely candidate for the tunnels they discovered in the garnets.

Whether or not these organisms excavated the tunnels themselves is less clear, the team says. The shape of the tunnels, examined under various types of microscopes, doesn't completely rule out a non-biological process at work.

That being said, certain features characteristic of endolithic lairs, such as anastomoses—connecting passages between adjacent tunnels—suggest they were at least partially formed by endolithic microbes.

The team thinks that weathering on the garnet provides initial surface areas that the fungal endoliths can colonize.

In iron-poor sediments like those studied here, garnets represent a rare source of iron for iron-oxidizing microbes. This encourages the fungal endoliths to burrow deeper, using an as yet unidentified chemical process.

"I think there's a two-step process, a superficial weathering, then an organism takes over," Dr. Ivarsson told *The New York Times*.

Confirming the identity of the tunnel-borers will require observations of live organisms in a laboratory setting in further tests.

In a written statement, Dr. Ivarsson added: "The reported tunnel system in garnets represents a new endolithic habitat in a hard silicate mineral otherwise known to be resistant to abrasion and chemical attack."

The full findings of the study were published in the journal *PLOS One*.

Food Poisoning, cont. from page 1

Out of the three of them, Wenwen showed the most severe symptoms, her liver started to fail and other organs started to show different degrees of damage as well. She was quickly transferred to the intensive care unit, where the doctors tried to treat her. They had to give her transfusions four times from July 31 to August 8 to try and save the little girl's life. The doctors said that although they were currently trying to treat her as best as they could, her chances did not look good owing to her multiple organ failure.

When doctors examined the black fungi, they found bongkreik acid produced by the bacterium *Pseudomonas aeruginosa*. Ye Sheng, deputy director of the Children's Intensive Care Unit of Zhejiang University Children's Hospital, explained that the cause of the poisoning was most probably because the fungus had been soaked for too long, plus it was placed in an exposed environment, where the warm and humid conditions were conducive to the production of *Pseudomonas aeruginosa*.

In case you are worried about eating black fungus, Ye said that if you prepare it well, the black fungus is absolutely safe to eat. Just don't soak wood ears for more than 2–3 hours and always cook them before consumption.

THE PNW *CORTINARIUS* PROJECT

Shannon Adams

Passions are a funny thing. Who can explain why a birder travels across the country for the chance to glimpse a bird, why a person becomes an expert on Japanese fishing floats, or why someone chooses to study mushrooms from all the other splendid living things one could study. Certainly, I cannot explain my singular passion for *Cortinarius*—a genus of mushrooms that is difficult to identify, largely inedible, and extremely abundant.

What is a *Cortinarius*?

Cortinarius is a genus of terrestrial, fleshy, gilled mushrooms that have rusty-brown spores. With few exceptions, they have a cobwebby cortina instead of a fleshy partial veil. The most well-known of the genus are large purple species: *Cortinarius violaceus*, *Cortinarius traganus*, and *Cortinarius occidentalis*. The only common edible is *Cortinarius caperatus* (or Gypsy mushroom), which is sometimes brought in for ID on PSMS field trips as are various Dermocybes, which are popular for dyeing. The genus occurs worldwide, forming ectomycorrhizal associations with trees in the pine and oak families, among others, and includes secotiod species [i.e., intermediate forms between hymenomycetes and gasteromycetes].



Shannon Adams

Example of the cobwebby cortina that is a distinctive feature of the genus *Cortinarius*.

The Challenge

From the beginning I have been told that it is crazy to try and identify more "corts." They are too brown, too many, too cryptic, too morphologically similar and you can't eat them anyway!

It's true, Cort. ID is challenging! As the largest genus of Agaricales, *Cortinarius* has over 2000 described species (Garnica et al., 2016), estimated at over 400 in our region. Those described represent only a portion of those believed to exist. Further, there are many species that are impossible to identify without microscopy, and others still for which no obvious morphological characteristic reliably separates genetically distinct populations. While much work is being done to understand the genus, many species remain unclear or are completely unknown to science (Harrower et al., 2011).



Shannon Adams

Cortinarius collections from New Zealand. *Cortinarius* can be found all over the world.

Studying Pacific Northwest *Cortinarius*

Despite the challenges, for the past several years I have chosen to focus on *Cortinarius* in our region. I have now started a collaborative study on the genus. My goal is to start to increase the number of species we can identify and generally advance understanding of *Cortinarius* in the Pacific Northwest. I have been assisted by local *Cortinarius* expert Dr. Joe Ammirati and local PSMS Education Chair and ID specialist Danny Miller. I am also grateful to have received a Ben Woo grant to help fund collection and analysis of species and hope to inspire you to join me in developing the knowledge of the genus in our club.

The study addresses three main goals:

Producing publicly available, photographed, confirmed collections to help amateur and professional communities identify *Cortinarius* species in the Pacific Northwest.

Increasing the number of sequenced *Cortinarius* collections from the Pacific Northwest listed on GenBank.

Studying the *Cortinarius* glaucopus group, which remains under-researched in our region.

Three Ways to Get Involved

This fall, I'll be asking for your help in collecting more *Cortinarius* and offering to help you learn more about your collections.

Share Photos

The first step is to take photos of *Cortinarius* and share them on an iNaturalist project. I have a project named "North American *Cortinarius* Collections" which should be easy to find. I would be happy to add you to the study to help monitor what is fruiting and the distribution of species.

Learn Names from ID at Forays

We are available to help you identify *Cortinarius* at our field trips and ID sessions. Sometimes ID can be done online or in the field, but often we will need to follow-up—either sending photos to experts or sending collections for sequencing. Whether at field trips or when you are out on your own, please share photos and collections of *Cortinarius* you find and ask for ID where needed. We will do our best to give you answers or help you understand what we are doing as we work through identification.

Make Good Collections for the Herbarium

To keep herbarium collections for study, we need information and good collections. Keep track of when and where you found the mushroom, and what trees were nearby. Photos can be used if you do not know the names of trees.

It is important to have specimens at all stages of development. Almost all *Cortinarius* "brown-out" in age. That means that the gills turn a uniform rusty brown with mature spores, and we are

unable to describe the younger state. For the best chance at ID and describing new species, we need to know what color gills were before this color change.

I look forward to a fall season and practicing our skills of *Cortinarius* ID. Please contact me (Shannon Adams) by email at moonshell@gmail.com for more information or join me on iNaturalist (user: sulcatus).

References

Garnica S., Schon M.E., et al. "Threshold values for barcoding fungi: lessons from *Cortinarius* (Basidiomycota), a highly diverse and widespread ectomycorrhizal genus," *FEMS Microbiology Ecology*, 92, 2016.

Harrower E., Ammirati, J.F., et al. "*Cortinarius* species diversity in British Columbia and molecular phylogenetic comparison with European specimen sequences." *Botany* 89: 799–810, 2011.



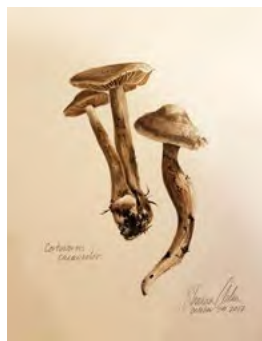
Shannon Adams

Typical *Cortinarius* collection.



Shannon Adams

Cortinarius albofragrans collected during the study.



Shannon Adams

Cortinarii occur in a range of colors from white to deep chocolate brown such as this *Cortinarius cacaocolor*.

MUSHROOM POISONINGS ON THE RISE IN NEW JERSEY

Scott Fallon

various sources, Aug. 16, 2018

The New Jersey Poison Control Center at Rutgers Medical School said 45 cases of mushroom poisoning in 15 counties have been reported since July 1. In addition to the human cases, seven pets have been poisoned. Before last year only a few dozen cases were reported each summer.

"We're having a hell of a summer again," Bruce Ruck, managing director of the Poison Control Center, said Wednesday. "Our phone has been ringing almost every day with another case." The increase is attributed to soaking rains and soaring temperatures that have led to an explosion of wild mushrooms.

Of the 45 cases, 13 were serious enough to warrant visits to the emergency room. The ages of those poisoned ranged from a 9-month-old to a 70-year-old.

The patients complained of intense vomiting, diarrhea, and dehydration. However, Medical Director Diane Calello says some toxic species that grow in New Jersey can also damage vital organs like the liver and even lead to death.

According to Calello it's not surprising to see younger patients because children are intrigued by mushroom patches growing in

backyards. As they are crawling or toddling around, they tend to put things in their mouths out of curiosity.

But as patients get older, she says, it's the foraging behavior. So an older person wants to make a meal and use fresh mushrooms from their yard. Then that person picks the mushroom, eats it, and gets sick.

"That is the behavior we are really trying to discourage," she emphasized.

Ruck believes there are many more cases that haven't been reported to officials.

"With all the cases we've had this summer, we're lucky we haven't had any deaths," he said.

USING MUSHROOMS AS A PREBIOTIC MAY HELP IMPROVE GLUCOSE REGULATION

<https://www.sciencedaily.com>, Aug. 16, 2018

Eating white button mushrooms can create subtle shifts in the microbial community in the gut, which could improve the regulation of glucose in the liver, according to a team of researchers. They also suggest that better understanding of this connection between mushrooms and gut microbes in mice could one day pave the way for new diabetes treatments and prevention strategies for people.

In the study, the researchers showed that feeding white button mushrooms to mice changed the composition of gut microbes—microbiota—to produce more short chain fatty acids, specifically propionate from succinate, according to Margherita T. Cantorna, Distinguished Professor of Molecular Immunology in Penn State's College of Agricultural Sciences. Previous research has shown that succinate and propionate can change the expression of genes needed to manage glucose production, she said.

"Managing glucose better has implications for diabetes, as well as other metabolic diseases," said Cantorna.

The researchers, who reported their findings in a recent issue of the *Journal of Functional Foods*, used two types of mice in the study. One group of mice had microbiota, the other group did not have microbiota and were germ-free mice.

"You can compare the mice with the microbiota with the germ-free mice to get an idea of the contributions of the microbiota," said Cantorna. "There were big differences in the kinds of metabolites we found in the gastrointestinal tract, as well as in the liver and serum, between the animals that had microbiota than the ones that didn't." The researchers fed the mice about a daily serving size of the mushrooms. For humans, a daily serving size would be about 3 ounces.

According to the researchers, consuming the mushrooms can set off a chain reaction among the gut bacteria, expanding the population of *Prevotella*, a bacterium that produces propionate and succinate, said Cantorna. These acids can change the expression of genes that are key to the pathway between the brain and the gut that help manage the production of glucose, or gluconeogenesis.

According to the researchers, the mushrooms, in this case, serve as a prebiotic, which is a substance that feeds beneficial bacteria that are already existing in the gut.

A CREAMY MUSHROOM PASTA FOR WHEN NOTHING ELSE WILL DO

Elizabeth Jaime

Bon Appetit, Feb. 22, 2016

One of my absolute favorites is this brown butter-mushroom orecchiette—it was a staple at my mother-in-law’s dinner table, and thereafter became a staple at mine. This simple, creamy dish cures all my winter blues, and I bet it’ll fix yours, too.



Begin by browning a good chunk of **butter** in a skillet—exactly how much depends on what kind of week you’ve had. As the butter begins to brown, add a handful of **sliced mushrooms** and let them cook down. Cremini work great, but any mix of mushrooms (such as maitake, shiitake, and king trumpet) would work. After the mushrooms are nice and browned, add a bit of **heavy cream**—not too much, just enough to make everything creamy.

While the mushrooms are browning, boil a pot of heavily salted water (you always need more salt than you think!) and add a box of **orecchiette**. I like my pasta *al dente*, so cook it a minute under the suggested boiling time. Once the pasta’s done, add the drained orecchiette to the skillet with the buttered mushrooms and a *bunch* of **grated Parmesan** and mix it all up. A sprinkle of **chives** on top lends a pop of color. Once plated, top it with as much Parmesan as you can physically grate and give it another good stir.

JUDITH A. "JUDY" ROGER

We regret to report that long-time PSMS member Judy Roger passed away on July 16, 2018, after a two-year battle with pancreatic cancer. She is survived by her husband Phillip Roger of Gladstone, OR, and brother William C. Macomber of Ephrata, WA.

A graduate of the University of Washington, where she studied mycology, Judy was a life member of PSMS and the Oregon Mycological Society and served over 35 years on the Pacific Northwest Key Council. She was the Executive Secretary of the North American Mycological Association for 24 years, and helped found the Estacada Mycological Society. She was a board member of the Daniel E. Stuntz Memorial Foundation and other organizations. Over the years she taught many mushroom identification and microscopy classes for these organizations and through local junior colleges.

Besides her interest in mycology, Judy was also an avid racer of Siberian husky sled dogs in the Pacific Northwest. She and her husband operated Spindriff Kennels for nearly 20 years in the Estacada area and produced several well-known lead dogs and Iditarod team dogs during that time.

Judy was a life-long gardener, having been introduced to that activity by her grandfather, Meryl O. Beebe of Spokane. Most recently she was an active member of the Gladstone Gardening Association where she served as vice president for four years.

She will be missed by many. Rest in peace, Judy.

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