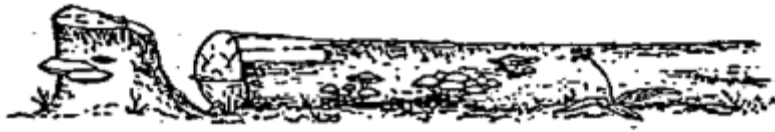


The Mushroom Log

Ohio Mushroom Society



President's Corner

Welcome to spring, Fans of Fungi!

Like most spring seasons, temperatures have fluctuated. Here in the northeast part of the state where I live, there has been plenty of wet weather, something I'm very glad to see. According to the USA National Phenology Network [www.usanpn.org], all of Ohio is experiencing first leaf-out and first bloom earlier than usual, significantly earlier in some areas. Already there are rumors of morels in a couple places!

Your OMS has an excellent lineup of forays scheduled across the state (see page 16 for details), and more will be added as fruiting conditions dictate. To ensure that you receive the email notices of these late-breaking forays, please make sure that your membership is up-to-date. All memberships (except for 'Life' memberships) expire on December 31 each year. We continue to communicate for a few months with those in arrears as a courtesy. However, this will be your last newsletter if you haven't paid your 2024 dues.

Regarding foray sites, Ohio is near the bottom of the 50 states in the public land acres available per person, so every acre is precious. It is unfortunate that we must continually fight to keep these remaining public lands public, and to maintain habitat for mushrooming and other recreational pursuits. You may have heard that Salt Fork State Park will be subject to fracking in the near future (it's true). The latest to come under attack is 40,000 acres of the Wayne National Forest to be leased to the oil and gas industry for drilling and fracking. This is wrong in so many ways, and we must let the Bureau of Land Management know that we value this land as it exists today! I ask you to please take a moment to read about the proposed project on the Bureau of Land Management's website (eplanning.blm.gov/eplanning-ui/project/2024234/510) and [submit your public comment](#) via the same page by clicking on the green "Participate Now" button *before the May 17 deadline*. It's important to let the decision-makers know what the forest means to you personally, and how it will affect your quality of life.

To end on a positive note, I'm excited to share a recent discovery: www.repurposedmaterialsinc.com I'm a big fan of reusing and repurposing, and I love a bargain, so this was a valuable find for me, and perhaps for you, too. They offer salvaged and surplus items, many new and unused, at big discounts. There's a constant turnover of items, so you never know what you'll find. Many of the items can be used in cultivation (for both fungi and general farming), and in crafts and home renovation projects. They have a brick-and-mortar store you can visit on weekdays, located in Newton Falls, OH. Why not save money and keep stuff out of the landfill?

Now, let's get out there and *enjoy Spring!!*

~ Debra

Scholarship Opportunity

The North American Mycological Association (NAMA) will be awarding several scholarships to attend their annual foray this year in Randle, WA, and the Ohio Mushroom Society has opportunity to win one of those scholarships. Each scholarship is a fully covered, double occupancy registration, along with room and board at the Pacific Northwest NAMA Camp from October 31st to November 3rd, 2024 (namyco.org/annual-foray). Transportation costs are the responsibility of individual winners.

We are seeking candidates who are interested winning a scholarship. Scholarship recipients must be at least 18-years-old, and must be first-time NAMA Foray attendees to be eligible. Further, the successful candidate must be a member of OMS, who *has attended* at least one *OMS foray* in the past two years.

If you're eligible and would like to be considered for an award, please email Debra **by May 15** at DebraShankland@OhioMushroomSociety.org

MANAGING 'BROWN GOLD': THE CHALLENGES—AND OPPORTUNITIES—OF SPENT SUBSTRATE

By Doug Bierend, CIVIL EATS, 19 March 2024

Collar City Mushrooms occupies a small building along the post-industrial waterfront of Troy, New York. Out back, baking in the winter sun between a shed and a yellow Volkswagen bus, sits a waist-high heap of what looks like dozens of giant Frosted Mini-Wheats, each roughly the size of a cinder block. The weathered caps of oyster mushrooms sprout defiantly from various points in the pile.

The lumpy blocks are spent substrate, the living material left over after growing mushrooms. Composed of sawdust and soy pellets woven through with mycelium—the thread-like aspect of the fungus from which mushrooms sprout—spent substrate is a unique kind of waste. It's also one with many potential uses; it can be used as compost, as a means of decontaminating soil, as biofuel, and simply for growing more mushrooms. And while each of those uses could provide revenue potential for mushroom farms, the expanding piles of spent substrate also represents a mounting logistical challenge.

Right now, we have people picking it up almost as

a favor for us, because otherwise what are we doing with it?" said Avery Stempel, Collar City's co-founder, as we gazed upon the pile. Stempel currently takes most of the material to a nearby compost facility, but local farms, gardeners, and florists also take a portion. So do individuals, whether for compost in their gardens or just to grow mushrooms at home. "People will come and buy a bucket for five bucks," Stempel said.

Before it's put to work growing mushrooms, substrate is carefully mixed and sterilized to maximize efficiency and prevent competition for the fungus. Protected inside breathable plastic bags, the sawdust and soy hulls are inoculated with an edible mushroom strain, then stacked on racks in climate-controlled rooms. The bags are sliced open when the mycelium is ready, and out sprouts the first "flush" of mushrooms. To make the best use of space, many farms will dispose of the blocks after a single flush, but each block is capable of several rounds of mushroom production. In this sense, the substrate isn't really "spent."

Collar City is a relatively small operation, producing up to 1,000 pounds of mushrooms a week. An hour south, in Hillsdale, New York, Tivoli Mushrooms produces around 20,000 pounds per week, and it's currently only using half the capacity of its new 15,000-square-foot facility. Soon after moving in, Co-founder Devon Gilroy reached out to a neighboring organic farm, offering the spent substrate for free as compost if they would simply take it off his hands. It wasn't a tough sell. "They showed up like two weeks later with a tractor and a big truck to load it in," he said. "They insisted on paying us for the substrate, which really helped."

More Mushrooms, More Problems

From a revenue perspective, specialty mushroom substrate's greatest value is currently as compost, which can sell for around \$150 per cubic yard. It has a low pH level, useful in soils with low acidity, and a carbon-to-nitrogen ratio of roughly 40 to 1, which is close to ideal for building healthy soil. Spent substrate is also a useful addition to vermicompost—worms love to eat mycelium, and in doing so, they also break down woody debris and support soil biodiversity. It is also an excellent addition for structure and water retention.

But that doesn't mean every mushroom farm has an easy time finding a second life for its spent substrate, and the quandary of how to make use of the material is growing along with the scale of the specialty mushroom industry.

'BROWN GOLD', contd

"If you're going to do it, awesome, but account for this waste stream you're producing and how you're going to get it off of your property." That's the advice Amanda Janney, founder of KM Mushrooms in California, offers new farmers. Janney's farm is about as modest as they come, operating out of her home in Santa Rosa. As the farm's output quickly grew, from 20 pounds of mushrooms a week to around 300, the leftover material quickly became a logistical problem to be solved.

"In the beginning when we were doing really low volume, it was not much of a consideration; giving bags of spent substrate out via Craigslist and Facebook Marketplace was sufficient," said Janney. "Then production increased a lot faster than I had planned on, which is a great thing, but a big piece of it became connecting with farmers that were interested in [taking substrate] and getting a workflow to move it off the property quickly."

In 2022, driven in large part by consumer interest in meat alternatives, global revenues for mushrooms were predicted to more than double to over \$110 billion by 2030. The nutraceutical market for medicinal mushrooms—such as reishi, lion's mane, and cordyceps—may follow a similar trajectory, with one forecast suggesting the market could triple to reach \$62 billion by 2032.

The vast majority—95 percent—of the mushroom production in the U.S. is in *Agaricus*: the common cremini, button, or portobello (all the same species). Every other variety, be it shiitake or oyster, falls in the specialty mushroom category.



Spent substrate waiting to be collected and reused. (Photo courtesy of Central Texas Mycological Society)

A FUNGUS AMONG US: STUDENTS PUSH FOR NEW VERMONT STATE MUSHROOM

by Corey Dockser, Vermont Public, 20 Mar 2024

In a packed room at the state capitol in Montpelier, second graders Charles and George Pelton sat at the end of a long table, flanked by legislators on all sides.

"I'm gonna talk the whole time and George is gonna do the slides. He doesn't really want to talk," Charles said.

The boys, two-thirds of a set of triplets, were students of Windham Elementary before its closure. Last fall, their school was approached by state Rep. Michelle Bos-Lun, a Democrat from Westminster, to decide on a new state symbol: a mushroom.

"We voted on different mushrooms. First we voted by a voice vote and then voted with a hand vote, which is also called a division," Charles explained to the House Committee on Agriculture, Food Resilience, and Forestry.

Now, the students were asking lawmakers to write their favored mushroom into state law.

State Rep. Esme Cole, a Democrat from Hartford, asked the boys what they learned about mushrooms and the legislative process.

"I think I learned that bear's head tooth mushroom and lion's mane mushroom are both in the *Hericium americanum* family," Charles said.

A mushroom in the making

Having students involved in adopting a new state symbol isn't new to Vermont: in 2016, the Gilfeather turnip — a cross between a rutabaga and a turnip — was named the state vegetable following lobbying by a group of students at Wardsboro Elementary School.

A year earlier, the state adopted a second state motto in Latin, on the suggestion of a Lyndon Institute student.

Bos-Lun said the state mushroom project evolved from an exercise she would do with students. In a simulation of the legislative process, The representative would have classes debate and vote on a hypothetical state ice cream (maple creemee would almost always win, she said). But it stopped at the end of the lesson.

"The last time I did that lesson I thought, you know what, the next time I do this, I want to do it

VERMONT STATE MUSHROOM, contd

with something that we could see all the way through the process,” Bos-Lun said. “And if the students come up with a good idea, I can actually submit it as a bill.”

As for why it’s a mushroom, the idea came naturally: Bos-Lun describes herself as a mycophile (a lover of mushrooms). She cultivates them. She forages them. She cooks with them. She even photographs them, a practice known as mycography. When she looked up if Vermont has a state mushroom, she knew what she had to do.

Bos-Lun partnered with two schools, Compass School, in Westminster, and Windham Elementary School. The interest was already there, Bos-Lun said.

Compass School, which serves middle and high school students, had two different mushroom guides come into the school and lead guided mushroom tours in the woods. Windham Elementary students hadn’t had that experience, but their interest was piqued by a fairy ring—a naturally-occurring circle of mushrooms—outside the school.

Bos-Lun presented students with a variety of mushrooms and had them narrow it down by voice vote and then division, where students would either raise their hands or stand up to be counted.

“What I told students was that in the Legislature, a bill will pass if it has a majority. But as it turned out, we had almost a unanimous decision,” Bos-Lun said. “I liked the idea that they were coming together around a common idea and it worked out that way—they all kind of came into agreement and basically came to see each other’s way of thinking and looking at the bear’s head tooth as the best choice.”

What makes a state mushroom?

Vermont has a lot of state symbols. There’s a state animal (the Morgan horse), state beverage (milk), two state fossils (the Charlotte whale and Mount Holly mammoth), even a state soil (the Tunbridge soil series). But fungi are not represented.

The bear’s head tooth mushroom, *Hericium americanum* (*Hericium* is Latin for hedgehog, owing to its spikes, while *americanum* means American, as the Peltons explained to the committee), has an almost regal appearance. It’s all-white in color, and its flowering body almost looks like icicles—something that stood out to the students.

“It’s just one unique mushroom that also looks like waterfalls or frozen icicles you’ll find on the highway rocks when you’re driving around Vermont.” said seventh grader Zinth Holder of Compass School.

There were ultimately several criteria the students decided on to pick their mushroom. To start with, it had to be edible: while many mushrooms are poisonous, the bear’s head tooth is not. The students considered the jack-o-lantern mushroom, which glows in the dark, but shot it down because it’s poisonous.

It had to have medicinal value: the *Hericium* genus of mushrooms produces compounds being studied for use in treatment of neurodegenerative diseases like Alzheimer’s.

It had to have no poisonous lookalikes: bear’s head tooth’s only lookalike is the lion’s mane mushroom, which is also edible, and isn’t generally found in the wild in Vermont.

“Some people call it the bear’s head tooth’s twin because it’s hard to tell them apart,” said seventh grader Nicholas Duprey, also of Compass.

It also had to be unique. Fifth grader Lydia Dutton, who presented on the history of state symbols, said 20 states have milk as their state beverage. But only five states have state mushrooms, and no other state has bear’s head tooth as its mushroom.

It couldn’t be endangered: while bear’s head tooth isn’t something a forager will find on every expedition, it isn’t rare enough to be considered at-risk.

It had to be cultivable, both in order to preserve the species and to make it viable to sell.

“You can grow the bear’s head tooth in your backyard. The fact you can do that and find it in the woods is very unusual, because if you do that, then you can increase the numbers of the bear’s head tooth, which would do more good for the environment.” Nicholas said.

The students at Windham Elementary wanted a mushroom that grows on trees (something Vermont is famous for), and bear’s head tooth grows on another state symbol, the state tree: sugar maple.

Testifying before the committee

Each student presented a different facet of the mushroom bill. The Peltons gave a general overview and talked about the process to decide

VERMONT STATE MUSHROOM, contd

on a mushroom. Lydia talked about state symbols. Zinth, a self-described mushroom fan like Rep. Bos-Lun, spoke about mushrooms in general and how they benefit the environment, or as they phrased it, “Why they’re just amazing.”

“Mushrooms can even be used to fix damaged soil, but only a few like oyster mushrooms. These mushrooms are used to remove toxins from the Earth’s soil, such as oil spills,” Zinth said.

Nicholas discussed the bear’s head tooth itself, which was only described as a separate species in 1984. Rep. Henry Pearl of Danville asked Nicholas how to safely harvest the bear’s head tooth so that it grows back.

“It’s safer to cut it to not damage the roots so they can keep growing and so they won’t be extinct,” Nicholas said, without missing a beat.

Eighth grader Mustapha Tucker finished things off with a presentation on the voting process and why the students chose the bear’s head tooth.

Asked about the difference between mushroom and fungi, Mustapha noted that, while the kingdom of fungi includes mushrooms, yeast, and mold, the state mushroom would work as a good representative of fungi as whole.

“We don’t want a state yeast or state mold, this would just represent the entire community of fungi,” Mustapha said, to laughs. “A state mold would be kind of interesting, though.”

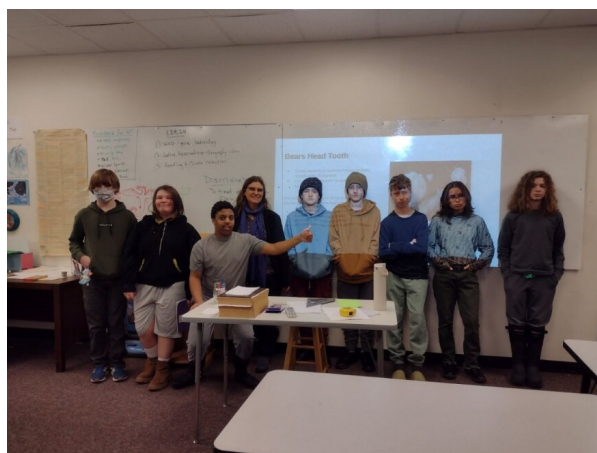
The road ahead

After their testimony, the students took a break in a side room; there wasn’t enough room for every student and parent to stay in the committee room.

“Honestly, I was a little nervous because I haven’t done speaking in a second. I presented to the middle school yesterday and that was a little harder, because they’re middle schoolers,” Nicholas said in an interview after his speech. “I think I did an overall good job.”

“It was less stressful than I expected it to be. I was expecting to be bombarded with questions or something like that,” Zinth said, noting they revised their speech three times before reaching the final version. Ultimately, they were asked five questions.

The committee voted to advance the bill, and it’s since passed the House. Now only the Senate’s approval, and the governor’s signature, remain.



The students at Compass School pose in front of their final choice for a state mushroom: the bear’s head tooth. From the left are Nicholas Duprey, Zinth Holder, and Mustapha Tucker, the three Compass students who testified.

UNVEILING INAOSIDE A: AN ANTIOXIDANT DERIVED FROM MUSHROOMS (excerpt)

by Shinshu University, 11 March 2024

Researchers from Japan discovered a new antioxidant, inaoside A, along with three other known bioactive compounds, from *Laetiporus cremeiporus*, an edible mushroom variety. Credit: Atsushi Kawamura/Shinshu University, Japan

Natural products have unique chemical structures and biological activities and can play a pivotal role in advancing pharmaceutical science. In a study published in Heliyon, researchers from Shinshu University have discovered inaoside A, an antioxidant derived from *Laetiporus cremeiporus* mushrooms. This breakthrough sheds light on the potential of mushrooms as a source of therapeutic bioactive compounds.

The search for novel bioactive compounds from natural sources has gained considerable momentum in recent years due to the need for new therapeutic agents to combat various health challenges. Among a diverse array of natural products, mushrooms have emerged as a rich reservoir of bioactive molecules with potential pharmaceutical and nutraceutical applications.

The genus *Laetiporus* has attracted attention for its extracts exhibiting antimicrobial, antioxidant, and antithrombin bioactivities. The species *Laetiporus cremeiporus*, spread across East Asia,

has also been reported to show antioxidant properties. However, the identification and

INAOSIDE A, contd

characterization of specific antioxidant compounds from this species have not been conducted.

In their study, researchers led by Assistant Professor Atsushi Kawamura from the Department of Biomolecular Innovation, Institute for Biomedical Sciences, Interdisciplinary Cluster for Cutting Edge Research, Shinshu University, along with Hidefumi Makabe from the Department of Agriculture, Graduate School of Science and Technology, Shinshu University, and Akiyoshi Yamada from the Department of Mountain Ecosystem, Institute for Mountain Science, Interdisciplinary Cluster for Cutting Edge Research, Shinshu University, recently discovered the antioxidant compound derived from *L. cremeiporus*.

The researchers collected fresh fruiting bodies of *L. cremeiporus* from the Ina campus of Shinshu University. The obtained extracts were concentrated and partitioned between water and ethyl acetate. After this, the extracts were subjected to advanced chromatographic techniques, which led to the successful isolation of inaoside A, a new antioxidant phenolic compound, along with three other well-characterized bioactive compounds, i.e., 5'-S-methyl-5'-thioadenosine (MTA), nicotinamide, and adenosine.

"Our study marks the pioneering discovery of inaoside A from an extract of the edible mushroom *Laetiporus cremeiporus*. To date, there has been only one prior report on the biological function of an extract of *L. cremeiporus*. We are the first to uncover the isolation of an antioxidant compound from *L. cremeiporus*," states Professor Kawamura.

Next, the researchers wanted to determine the structure of the newly found antioxidant compound. For this, they utilized one and two-dimensional NMR and other spectroscopic analyses.

The structure of inaoside A revealed a planar configuration. With a molecular formula of $C_{17}H_{24}O_7$, the compound was found to feature a distinctive ribose moiety, identified as β -D-ribofuranoside through stereochemical analysis. Subsequent investigation into the absolute stereochemistry confirmed the D-ribose

configuration, thereby reinforcing the planar structure of this compound.

The mushroom extracts were then isolated into fractions to determine the antioxidant activities of the four isolated bioactive compounds. These tests highlight the efficacy of inaoside A as an antioxidant agent based on its IC50 value.

What are the objectives of the researchers following the discovery of inaoside? Professor Kawamura says, "We are now focusing on investigating the chemical compositions and biological properties of natural compounds obtained from mushrooms. Our goal is to uncover the potential of edible mushrooms as functional foods through this discovery."

The identification of inaoside A as an antioxidant from *Laetiporus cremeiporus* marks a significant breakthrough in natural product research, highlighting the potential of mushrooms as a source of therapeutic bioactive compounds. These findings may lead to the development of novel antioxidant-based therapies for various health conditions. Further studies should focus on synthetic research and detailed investigations into the biological activity of inaoside A, aiming to harness its potential as a pharmaceutical lead compound.

IN CLEVELAND, MUSHROOMS DIGEST ENTIRE HOUSES: HOW FUNGI CAN BE USED TO CLEAN UP POLLUTION

By Nick Hilden, BBC 16 Mar 2024

The city of Cleveland faces an epidemic of abandoned houses. Crumbling homes number in the thousands. These ramshackle structures are riddled with toxins like lead and dilapidated to the point of no return. And if tearing down and safely disposing of the waste of one such home sounds daunting, imagine thousands of them.

Among the numerous issues that arise, one essential question involves waste: What do you do with the waste material from so many teardown structures, when so much of it is toxic?

"All of the material from demolition—the studs, the floors, cellulosic mass [the primary structural component of plants], and even things like ceiling tiles and asphalt material like roof

MUSHROOMS DIGEST HOUSES, contd

shingles, can be mixed into substrate that then becomes good for growing fungus," says Chris Maurer, founder of Cleveland-based architect firm Redhouse Studio. Through his firm, Maurer has been advocating for the use of substrate to address Cleveland's housing crisis, which is also a health crisis for the city's inhabitants.

Substrate is any material that mycelium—the thready, vegetative part of fungi—uses for nourishment. In other words, fungi can eat the noxious waste from the abandoned homes. Heavy metals and other toxins are extracted and captured in the mushrooms that grow, while the substrate leftovers, including the mycelium, are compacted and heated to create clean bricks for new construction. The resulting "mycoblocks" have a consistency akin to hardwood and, depending on the specifics of the manufacturing process, have been shown to be significantly stronger than concrete.

This is Redhouse's Biocycler program, which is one of many diverse efforts around the world aiming to eliminate pollution, combat climate change, and mitigate its already-looming effects via one of nature's oldest biotechnologies: fungi.

"Effectively what we're doing is diverting tonnage from landfill," says Joanne Rodriguez, founder and chief executive of a similar organization called Mycocycle, which works to recycle construction waste for corporate clients. "... 11 percent of the world's carbon comes from materials in the built environment. By 2027, just from Mycocycle's waste diversion, Rodriguez anticipates carbon reductions "of close to 160,000 metric tons."



Abandoned house in Cleveland—Getty Images

What else can mushrooms do?

While digesting entire houses may seem like a mighty task for the humble mushroom, some species' ability to devour waste and eradicate pollutants – among other characteristics – means they present an oversized opportunity to extract harmful toxins from both our built and natural environments. Along the way they may help to address a spectrum of additional ecological concerns. This is the emerging field of mycoremediation, which researchers assert could also create a "circular bioeconomy" in which less waste and contaminants are produced in the first place.

Its applications are abundant. In Delhi, India, the hope is that fungi will help to clean the infamously polluted air. In New Zealand, mushrooms have been used to filter oil from a canal. Operating across Europe, the LIFE MySOIL project has leveraged mycoremediation to reduce Total Petroleum Hydrocarbons in soil by 90% spanning three pilot sites. The list goes on.

"As primary decomposers in the environment, many species of fungi are designed to break down complex carbon chain molecules like wood, composed of lignin and cellulose," says ecologist Brendan O'Brien, executive director of CoRenewal, a bioremediation non-profit. In order to do so, they produce enzymes to break the bonds of those complex molecules, he says. "They are therefore often able to break down other persistent organic pollutants with similar chemical structures."

Fungi have been observed breaking down pollutants such as petroleum, "forever chemicals" known as PFAS, herbicides, and pesticides. By sequestering and immobilising contaminants like heavy metals in their tissues, fungi can even help eliminate lead.

These clean-up methods could prove a boon to ethnic minority communities who tend to be disproportionately impacted by environmental toxins. Research has shown a direct correlation between minority status and the presence of soil contamination.

CoRenewal works to develop and implement sustainable solutions to restore damaged ecosystems, from post-wildfire regeneration, to cleaning up oil spills, to reducing toxins in the built environment. The organisation began with the mission of cleaning crude oil pollution in the Ecuadorian Amazon using oyster mushrooms, which are well known for their ability to break

MUSHROOMS DIGEST HOUSES, contd

down petroleum and hydrocarbons. They shifted their efforts to post-wildfire cleanup in the wake of Northern California wildfires in 2017, applying fungal materials to prevent toxic ash runoff from entering fresh waterways and regenerate ecosystems damaged by fire. Currently they're testing the effectiveness of this treatment in five wildfire hotspots along the US' West Coast and expect to have results by early 2024.

While the ability of some fungi to eliminate petroleum is well-documented, there are numerous studies underway to discover what else these mysterious mycelia can do. Their impact on PFAS, chemicals used in everyday items such as cleaning products and waterproof clothing that have been found to negatively impact our health, has been more speculative – until recently. In 2022, researchers at Texas A&M University have developed a technique that allows white rot fungus to successfully break down PFAS

"Bioremediation is more sustainable and cost effective than many other means to treat PFAS," says Susie Dai, a professor of plant pathology and microbiology at Texas A&M University and one of the researchers behind the study. "For example, thermal destruction is commercially available, but it is very energy intensive." She points out that using heat to break down the chemicals can be more cost effective for condensed quantities of PFAS, but that "bioremediation is more viable to be applied at larger scales". Now, her team is searching for fungus strains that have stronger capacities to remove and break down PFAS chemicals.

The elimination of these persistent, increasingly prevalent chemicals may prove to be beneficial to long-term human and environmental health. While the jury is out on precisely what risk PFAS pose to human health, "animal model studies suggested that some PFAS may affect growth and development at large dosages", says Dai. "Other animal studies suggested health risks in reproduction, thyroid function, the immune system, and the liver." And as with contaminated soil, communities of colour are more likely to be exposed to harmful levels of PFAS..

The potential dangers have made the elimination of PFAS a priority among many bioremediation researchers. For another example, a research team at the University of Minnesota is currently putting together a scientific paper on its work to demonstrate that certain fungal species can

"defluorinate" the harmful chemicals, which decreases their toxicity.

"The fluorinated carbon bond chemically is the strongest bond in the world," explains Jiwei Zhang, assistant professor of environment and industrial microbiology at University of Minnesota. "That's why it's so difficult to deal with. But our research – which is still preliminary found that some fungal species can break down this resilient bond. That by itself is a fundamental achievement. Our next step is trying to understand the underlying mechanisms."

As research continues, experts are confident that the potential applications of mycoremediation will expand. "We've only scratched the surface on the capabilities of mycelium. I think mycelium will be the unsung hero of climate change," predicts Rodriguez.

But, warns Zhang, we would be wise to proceed with caution. "Using fungi as a technology for remediating the environment, you might break the eco-balance because you're introducing new bio-conditions to the ecosystem. So you want to be very careful. We're culturing a lot of mushrooms right now and they're getting released into the natural forest environment, and usually the mushrooms released from farms are very competitive. They can kick out other mushrooms. It's a big concern for the conservation of natural mushroom species."

In spite of Zhang's concerns, fungi may still prove to be a boon to humanity's endeavours to live more environmentally-consciously.

For example, Maurer is also experimenting with mycoremediation and mycoconstruction in Namibia, where homes built of mycoblocks offer a potential solution to the country's rampant housing crisis, which is fuelled largely by the growing issue of climate displacement. In fact, Maurer recently built what may be the first ever house constructed entirely of mycoremediated material.

While working in Namibia, Maurer learned about the relationship between termites and a species of Namibian mushrooms called omajowa. The termites gather leaves in their mounds which they use to cultivate omajowa mycelium to two ends. First, the mycelium helps break down the leaf material for easier digestion. Second, it creates a humid environment through which air flows, and thanks to evaporative cooling this essentially provides an air conditioner for the mound. Each year when the omajowa mushrooms sprout from the mounds, Namibians collect and eat them.

MUSHROOMS DIGEST HOUSES, contd

This is the perfect metaphor for various myco-efforts: collaborating with a natural, almost primordial technology for exceedingly practical purposes. Something old—older than humanity itself—becomes something new.

Well, perhaps new to humans. Those mycelium-cultivating termites might beg to differ.

FRANCE'S FAVORITE CHEESE IS FACING AN 'EXTINCTION' CRISIS. NOT EVERYONE IS WORRIED

By Xiaofei Xu, CNN, 6 Mar 2024

When Napoleon first encountered a Camembert cheese, legend has it, he was so delighted he kissed the waitress who plonked it in front of him. Setting aside the inappropriateness of this gesture, the French emperor clearly recognized a winner.

"It is thought to be a white mutant selected from the gray-green species *Penicillium commune* for its color at the start of the 20th century," the Paris-Saclay study said.

Unfortunately, unlike its cave-dwelling fungal counterparts, researchers found that *Penicillium camemberti* has a very low genetic diversity and declined capacity to reproduce sexually.

"Our findings raise questions about the use of limited number of clonal strains for cheese making, which tends to lead to degeneration, limiting the possibilities for further improvement," the study said.

That, according to the CNRS [*French National Center for Scientific Research*] report, means "it is now very difficult for manufacturers to obtain sufficient quantities of *P. camemberti* spores to inoculate their Normandy cheese production."

Fall and rise

Produced in France's northwestern region of Normandy in various forms since at least the 18th century, the cheese—creamy, pungent and gooey—is now regarded as France's favorite.

Which is why recent headlines about Camembert's imminent death due to a fungal crisis have caused panic among fans of this historic fromage. Scientists, it seems, have warned that problems with French cheese's industrial production may have long-term consequences for its future.

Alarm was raised in January when a recent study by scientists at Paris-Saclay University identified that the main fungus used in creating Camembert and other cheeses was increasingly in short supply due to the industrial production methods used to keep up with demand.

And while that might spell trouble for a variety of dairy offerings, some have taken this to mean that poor Camembert—which is handily sold in its own wooden box—is headed for the grave.

"Blue cheeses may be under threat, but the situation is much worse for Camembert, which is already on the verge of extinction," the French National Center for Scientific Research (CNRS) said in its report about the findings. Elsewhere, another headline warned of a looming "cheese crisis," adding, "say a prayer for Camembert!"

The cheese stakes couldn't be higher. Alongside the Louvre, haute couture and the Eiffel Tower, Camembert is a national treasure beloved the world over—as existential to the French as existentialism.

"What's the typical image of France? A bottle of red wine, a baguette and a Camembert," says Anne-Marie Cantin, a veteran cheesemonger and president judge of the 2023 French national Camembert competition. "It's our national cheese."



Camemberts on display in their distinctive wooden containers. Ludovic Marin/AFP/Getty Images

Old mold

At the heart of the problem is *Penicillium camemberti*, a fungus used in cheesemaking that gives Camembert its white rind and helps develop both the cheese's rich buttery umami flavor and its palpable aroma of unwashed socks.

P. camemberti is, say the Paris-Saclay scientists, experiencing problems reproducing, largely as a result of the pressures of industrial production. Not so much performance anxiety per se, but the

FRANCE'S FAVORITE CHEESE, contd

consequence of an asexual fungal cultivation process that, due to an extreme lack of genetic diversity, is running on empty.

Camembert, and similar cheeses like Brie, were once aged in caves or hâloirs (drying rooms), where naturally occurring mold spores gave them blue or sometimes yellow-brown rinds. At the turn of the last century, *Penicillium camemberti* was introduced, replacing the indigenous mold and creating the uniform white rinds we know today.

It's not the first time Camembert has faced a crisis following the introduction of *P. camemberti*. According to the late Patrick Lance, a British cheese expert who authored a definitive guide to France's cheese, the industrialization and conflict of the last century almost saw it wiped out.

"Two world wars and too much big business nearly brought Camembert to its grave, except in name," he wrote in his definitive 1989 tome "The French Cheese Book."

"And this name has been brought into contempt by failure to protect it against the masses of pasteurized factory distortions of the formula, perpetrated over almost all of France and abroad.

To the rescue, in 1982, came Appellation d'origine protégée (AOP) status, which meant only cheeses made in Normandy could carry the Camembert name. That didn't, however, stop further tussles over whether true Camembert should be made with raw or pasteurized milk.

Those who have experienced the past rises and falls of Camembert seem to be taking the cheese's latest problem in their stride.

"My family has been making Camembert since 1891, five generations... I have never heard of this situation before," Bruno Lefèvre, director general of Les fromageries de Normandie, a regional cheesemakers' association, told CNN.

"It is true that cheesemakers have fought battles against the cheese that didn't have a white appearance," Lefèvre said, adding that the first batches of Camembert his father made, more than 50 years ago, were "blue, white and red."

But from his understanding, the color difference is a result of bacterial pigmentation.

"It's linked to this type of bacterium called *Brevibacterium linens*, which has the ability to form an orange pigment. It is by no means a result of fungus activity," Lefèvre said.

France is currently hosting its annual cheese fair in Paris, gathering major cheesemakers from across the country. Naturally, fading fungus has been a much-discussed topic. Lefèvre said that people he has spoken with were confused about where the fear for Camembert's future was coming from.

"I have made all kinds of Camembert, from more traditional ones to the more industrial ones, I have never encountered issues with my fungus," Lefèvre said.

"This study has been widely reported by the media. Maybe the researchers were trying to make us cheesemakers panic, but so far they have not succeeded," he added.

While the scientists have stood by their claims, they stress that there's no danger that Camembert is vanishing anytime soon. "We always make it clear to journalists that there is no short-term danger to Camembert production," researcher Tatiana Giraud told CNN. "What our articles say is that there is a great homogenization of starters and that this reduces their ability to adapt, nothing more."

American cheese connection

Of course, keeping Camembert alive also means that the cheese's story is also kept alive. Supposedly, it was first created by a Normandy woman called Marie Harel who picked up tips from a fugitive priest from Brie, another bastion of French cheesemaking. After finding favor with Napoleon, it went on to play an unexpected role in World War I, which was commemorated with a statue.

The monument to Harel in the Normandy town of Vimoutiers, was actually first built by an American, according to Camembert expert Anne-Marie Cantin.

"An American doctor first came to Normandy after the First World War asking to find the tomb of Marie Harel and later build a statue for her," she said.

"To the surprise of locals, who had struggled to find someone who can speak English, he explained that he had used Camembert during the war to cure patients and wanted to come and thank the inventor."

That statue was later destroyed in 1944 by American bombing during the Normandy landings and it was a group of cheese factory workers from Ohio who made a donation to build a new one after the war, according to Cantin.

FRANCE'S FAVORITE CHEESE, contd

The statue is still standing proudly today in the town square of Vimoutiers in Normandy, with a plaque marking that it is a gift offered by "400 men and women making cheese in Van Wert, Ohio, USA."

Another statue of Marie Harel stands back in Van Wert County Museum in Ohio, quietly marking an extraordinary and cheesy relationship between France and the United States.

FORBIDDEN FUNGI: WHY MUSHROOMS HAVE BEEN BANISHED FROM NATIONAL TRUST MENUS

The Guardian, 19 Mar 2024

Name: Mushrooms.

Age: Approximately 810m years old.

Appearance: Disappearing.

Really? We've driven fungi to the edge of extinction? This is really the end of all life on Earth, isn't it? Hang on a minute, you didn't let me finish.

Sorry, go on. Mushrooms are disappearing from National Trust menus.

That's a lot less scary. Hang on a minute, you still didn't let me finish.

Sorry, go on. Mushrooms are disappearing from National Trust menus because their cultivation is destroying the planet.

I'm so confused. Exactly how much should I be freaking out? Honestly, probably minimal to moderate freaking out. The National Trust has removed mushrooms from its menus amid calls to boycott mushrooms grown in peat.

And why is this? It's because peat is extracted from bogs and bogs are an important way to lock up carbon. Extract peat from bogs and you release CO2 into the atmosphere; approximately 31m tonnes of it since 1990 apparently.

Well, this seems as though it's easily solved. We just need to start eating mushrooms that haven't been grown in peat. About that. The vast majority of mushrooms currently on sale in the UK were grown in peat.

So anyone who buys commercially grown mushrooms is deliberately contributing to the destruction of the planet? Yes. Well, sort of.

Oh, what is it now? I mean, 31m tonnes of CO2 since 1990 sounds bad. But 1990 was 34 years

ago, so that works out at less than a million tonnes a year.

Which is still a lot! It is. But compare this to the meat and dairy industry, which produces 7.1 gigatons of CO2 each year, and you start to build a better picture of which foods are really hurting the environment.

Is this like when people came for my almond milk? Well, that's different. Almond milk actually produces the lowest greenhouse emissions of any dairy-free milk substitute. But it does require a colossal amount of water to make, so people are still within their rights to tut at you whenever you order it.

So it is bad? Not as bad as chugging a pint of cow's milk. Meat and dairy, remember? Essentially anything is better than that.

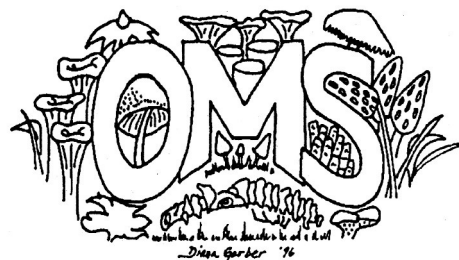
So, the National Trust has presumably removed all meat and dairy from its menus too. Well, some of the National Trust websites still state that you can buy sausage rolls there, so apparently not.

This is an ethical minefield! Am I supposed to eat mushrooms or not? Comparatively, eating a peat-grown mushroom is less bad for the planet than eating a great big juicy steak. But just know that when you do, you will still be leaving our only home in a worse state than you found it. Does that help?

Not at all. Awesome. Great chat.

Do say: "Peat-grown mushrooms are harmful to the environment."

Don't say: "I'd better update my private jet's menu accordingly."



OHIO MUSHROOM SOCIETY

Shown above is the image that appeared on the OMS t-shirt in the mid 1990s. We're hoping an new OMS t-shirt will be unveiled this summer!

GERTRUDE SIMMONS BURLINGHAM: A PIONEER FEMALE MYCOLOGIST

By Bob Antibus

With March being Women's History Month I thought it would be appropriate to highlight the accomplishments of a female mycologist. It is certainly a difficult task to pick just one individual, as women have been making major contributions to mycology, both as amateurs and as professionals, for over 150 years. I will have a couple of links in my Editorial Musings if you would like more resources on women's accomplishments in mycology. I have chosen to write on Gertrude Simmons Burlingham, an amateur mycologist, because I have been familiar with her pioneering studies on *Lactarius* and *Russula* since my early days in graduate school but didn't know a lot about her life. If you have spent time with these genera, you have probably seen her name appended as the authority to the Latin binomial of some species. Her story is fairly typical of the struggle women faced, and to some extent still do, to be recognized and rewarded for their skills and accomplishments.

Gertrude Simmons Burlingham was born on April 21, 1872 in Lambs Corner in central New York. Being near Mexico, NY, the family farm was clearly in the snow belt of eastern Lake Ontario. She was the only child of Alfred Burlingham and Mary Simmons. Her childhood is thought to have allowed her to spend many hours of solitude exploring the forest of the area. Upon graduation from high school, she attended Syracuse University. I've recently read the biography of the astronomer Maria Mitchell, the most internationally known American scientist of the mid-1800s. It's interesting in that at the time it was felt women were best suited to astronomy and botany. Women were believed to be well suited to the detailed and patient observation as well as non-political nature of these sciences. In any case, Gertrude graduated in 1896 in botany, having studied the morphology of *Asplenium bulbiforme*. Much like my late wife, she seemed drawn to spore bearing organisms.

We don't know how Gertrude developed her interest in mushrooms, but in 1904 she sent specimens of *Russula* to Charles Horton Peck, who responded and seemed impressed. Shortly thereafter she and her partner Louise Hayt moved to New York City, where she enrolled in a PhD at Columbia University and the New York Botanical Garden (NYBG). The noted mycologist William

Alfonso Murrill was a curator at the NYBG at the time. Gertrude did her doctorate on *Lactarius* of the United States. It seems she was the first person in the US to use the feature of iodine staining of spores surface features to assist in separating species. Male mycologists were impressed with her work, but that was of little help in securing a faculty position.

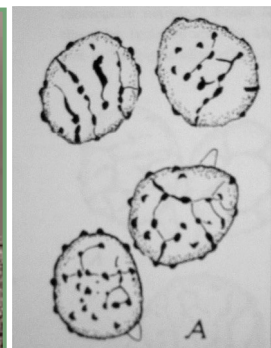
She obtained a teaching job at Eastern District High School in Brooklyn and remained there until 1934. She would use her spare time and summers to collect and correspond with the professional mycologists of the day. She and Louise also bought a place in Vermont where they could spend time collecting and working up mushrooms. After retiring from teaching, they purchased a house in Winter Park, FL where Gertrude could study the wide diversity of fungi in that state. There they became friends and collaborators with mycologist Henry Beardslee.

Louise passed away in 1944, but Gertrude continued to work until she passed away in January 1952. Both are buried Newfane, Vermont.

Although she never had a position in mycology, Dr Burlingham published extensively and described 50 *Russula*, 21 *Lactarius* and 2 *Lepiota* species. Her work on spore morphology also became an important aspect of species identification. *Russula burlinghamiae* and *Entoloma burlinghamiae* are two fungi name in Dr. Burlingham's honor. Unfortunately little recognition is given to Louise Hayt; I'm sure she was a constant source of inspiration and support. Gertrude left her correspondence, notes and 10,000 collections to the NYBG. She also gifted \$30,000 to endow a graduate student fellowship for study at the NYBG.



Gertrude S. Burlingham



Russula placita spores
G.S. Burlingham

MUSHROOM KETCHUP

Recipe by Alan Bergo (foragerchef.com)

Ingredients

- 3-5 lbs wild or cultivated mushrooms, depending on availability (trim woody ends, etc.)
- 85 grams (roughly 6 tablespoons) kosher salt
- 1 tablespoon ground black pepper
- Up to 2 qts water (amounts of natural water in mushrooms will vary)
- 2 Tablespoons minced garlic
- 2 fresh bay leaves
- 1 Tablespoons allspice berries toasted
- 2 Tablespoons chopped fresh ginger
- 1 teaspoon dried thyme
- 10 whole cloves toasted
- 2 tablespoon worchesterchire, or to taste (optional, for color)
- 1 cup apple cider vinegar or white wine, etc, (use your favorite)

Instructions

Crush or chop the allspice and cloves. Pulse the mushrooms in a food processor, being very careful to coarsely pulse them in small batches, as over-processing will give a cloudy sauce.

Combine the ground mushrooms with the salt and remaining ingredients except the water in a stock pot.

Assess the amount of liquid, adding some of the water to moisten until the mixture is wet and slushy (drier mushroom like polypores may take up to 1 qt of water, where boletes and cultivated mushrooms might take half that) Transfer the pot to a burner and bring to a boil, then turn off the heat and leave overnight to cool and infuse. Transfer it to a smaller container that will fit in your refrigerator overnight.

The next day, warm the mushrooms and the liquid. Pour the mixture into a strainer lined with cheesecloth and allow to drain. You may need to work in batches. After the liquid has drained, squeeze the cheesecloth with a few handfuls of mushroom at a time to extract as much liquid as possible.

Reduce the liquid until roughly 4 cups remain (or until you like the flavor; it should taste a bit like light soy) then pour into a labeled container, chill and refrigerate until needed.

The ketchup will keep for a long time.

Notes

You'll notice there's Worcestershire in here. While not traditional, it doesn't change the flavor, and is mostly there for color. I use it only for mushroom species that will give a dark juice. Omit if you make this with chicken of the woods, chanterelle, hedgehog, dryad saddle, or other mushrooms that give a light colored juice.

MOREL SEASON

By Bob Antibus

We know morel season has arrived as my social media pages are full of folks proudly displaying their treasures. I'm seeing everything from single, thimble sized morels to blankets covered with giant specimens set out like Lake Erie Perch ready for the filleting board! But how did these folks convey their success prior to social media? Fred Steiner is our town historian and former editor of the *Bluffton News*. Well, apparently it was common practice for the editor to receive reports from the field. Below are two, of many, stories typical of Fred's combing of the achieves. The reports below are from April 1954 and 1946 respectively.

* * *

Charles Hilty doesn't mind mowing the grass at his South Main street residence when the results are as surprising as they turned out to be last Saturday. Pushing away at the lawn mower, he stopped when he spotted a mushroom right in front of the whirling blades. A search of the vicinity yielded more than 50 of them and provided a tasty evening snack for the family.

* * *

MUSHROOM REPORTS continued to come to the News office this week when Roy Klingler of Riley street and his father, John, of North Main told of finding between 200 and 300 woods mushrooms in two hours of hunting. All averaged three inches in size and were the sponge variety. The large haul filled a five-gallon can about $\frac{3}{4}$ full.



From *Fungi of Maryland* by Mary Elizabeth Banning

EDITORIAL MUSINGS

Picking an appropriate woman to recognize for Women's History Month. I elected to select Gertrude S. Burlingham as she was a true pioneer, and typical of many female amateur scientists of the late 1800s. Despite having a PhD, she was not afforded an opportunity to serve in a professional role. Her work with *Lactarius* was insightful and garnered her the respect of many of her contemporary male professional mycologists. If you would like to explore the story of women's contributions in the study of macrofungi in the 1800s I strongly suggest reading [The Fungi-Mad Ladies of Long Ago](#). Another great resource of women in mycology both past and present is the Winter 2020 issue of *Fungi* (13:4) published by Britt Bunyard.

I felt with Earth Day looming that the piece on Cleveland and mycoremediation was timely, as was the article on spent substrate. I personally break mine up and add it to the compost bin.

Several folks sent stories on Camembert cheese. It was interesting to read that people from Van Wert, Ohio had donated a monument to France. I live not too far from Van Wert and locals tell me it was once the proud home of Liederkrantz cheese. This Limburger-like cheese was brought to Ohio in the 1920s by Emil Frey a Swiss cheesemaker. It was, apparently, very pungent, reportedly the favorite cheese of the poet W.H. Auden! Production of the cheese ended in Van Wert in 1981 after a fire damaged the plant. Forgive me if I am not too broken up about not having had an opportunity to try it. However, for those of you now curious it is available from Chalet Cheese of Monroe, WI at \$5.65 for 6 ounces.

Finally, I was interested to see that Vermont has now joined the states with official state mushrooms. Come on Ohio. Although I made a request for suggestions about two years ago, none of you have been in touch.

Happy hunting!

FORAY REPORTS

Sunday 21 April 2024 Mini Foray in Delaware Co.

By Lonelle Yoder

The chilly weather (or perhaps my warning that we might not find any morels) may have kept many of the folks who registered for this foray from showing up, but a few hardy souls braved the weather and dim prospects for this first mini foray of the season. The 20 acres of private property, consisting largely of reclaimed farmland and young woods sprinkled with honeysuckle, had little to offer so early in the year, but there were enough mushroom finds to keep us looking, and we were rewarded with sightings of wild ginger in flower, white trilliums, and other dainty spring ephemerals.

First-time forayer and new OMS member Erin McIntyre spotted our one morel find of the day! Or rather, half a morel, as the top had been chomped off by some critter. It was, nevertheless, an exciting find on an otherwise sparse hunting day.

Many thanks to Martha Bishop for driving in, piles of books in tow, to help with identification; to OMS member Phil Tyl for his impeccable punctuality, and to Erin McIntyre for her enthusiasm and sharp eyes.



Erin McIntyre and half a *Morchella Americana*. Photo by M. Bishop

*Substrate = soil (s), leaf litter (l), wood (w), or other (o)

Foray Leader: L Yoder, M Bishop		County: Delaware		Date: 04/21/2024	
Scientific name	Common name	Substrate*	Notes		
Fungi					
<i>Agrocybe praecox</i>	spring fieldcap	o	found on mulch pile; not native to property		
<i>Cerionopus squamosus</i>	dryad's saddle/ pheasantback	w			
<i>Daedaleopsis confragosa</i>	maze polypore	w	tentative ID - very old specimen		
<i>Exidia sp.</i>	witch's butter	w	dry specimens forming black flakes		
<i>Galerina marginata</i>	deadly galerina	w			
<i>Morchella americana</i>	yellow morel	s			
<i>Peziza sp.</i>	cup mushroom	o	found on mulch pile; not native to property		
<i>Pluteus cervinus</i>	fawn mushroom	s			
<i>Poronidulus conchifer</i>	little nest polypore	w			
<i>Schizophyllum commune</i>	splitgill	w			
Slime Mold					
<i>Lycogala epidendrum</i>	wolf's milk slime	w			



OHIO MUSHROOM SOCIETY

2024 CALENDAR OF EVENTS

Advance registration is required for all forays. All registrants must be current OMS members.

Mini-forays are subject to cancellation and/or rescheduling due to weather and other conditions. Check the OMS website for the most current information. Group size is limited; be sure to contact the host in advance to register.

SUMMER FORAY July 26 - 28 at Zaleski ODNR Complex near Lake Hope State Park.
Registration information TBA

FALL FORAY Sat, Sep 28, 10 AM - 3:30 PM at Holden Arboretum; same immersive ID format as last year (limited to 15 OMS & 15 Holden members)
Registration information TBA

MINI FORAYS

Information on how to register will be posted as details become available—check the website for the latest updates

Sat 1 June, 10 AM-12 PM in Hamilton Co.

Register via Crystal Davidson: crystaldavidson@ohiomushroomsociety.org

Sat 15 June, 12-3 PM in Darke Co.

Register via Kyle Canan: kylecanan@ohiomushroomsociety.org

Sun 30 June, 1-3:30 PM in Loraine Co.

Register via Debra Shankland: debrashankland@ohiomushroomsociety.org

Sun 21 July, 1-5 PM in Geauga Co.

Sun 21 July, 1-5 PM in Hancock Co.

Sat 10 Aug in Hamilton Co.

Sat 17 Aug, 10 AM - 1 PM in Lorain Co.

Sat 21 Sep in Huron Co.

Sun 22 Sep, 1-3:30 PM at NE OH location TBD

Sat 28 Sep in Preble/Butler Co.

Watch for announcements of **pop-up forays** in central and SE OH this summer when mushrooms are fruiting in response to rain events! OMS members will receive notification by email.

DICK GRIMM MEMORIAL BANQUET Sun 27 Oct at 12 PM, Location TBA

Non-OMS 2024 Forays and Events

NAMAMX 24 - August 3-9 2024 in Valle de Bravo, Mexico — minnesotamycologicalsociety.org

44th Telluride Mushroom Festival - Aug 14 - 18 in Telluride, CO — telluridemushroomfest.org

NAMAZona 2024 - August 22-25, 2024 - Strawberry, AZ — arizonamushroomsociety.org

11th Annual Northwoods Foray - Sept 5-8 in Cable, WI — wisconsinmycologicalsociety.com

2nd Ohio Mushroom Festival - Sept 12 - 15 in Hammondsville, OH — ohiomushroomfestival.com

24th Annual Gary Lincoff Memorial Foray - Sept 20-21 in Western PA — wpamushroomclub.org

62nd Annual NAMA Foray - Oct 31 - Nov 3 in Randle, WA — nama.org

New Member/Membership Renewal Form

Name: (printed) _____ Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ Email Address: _____

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

____ \$15.00 annual family membership

____ \$150.00 life family membership

Both types of membership include our bi-monthly newsletter, The Mushroom Log, which will be emailed to you as well as available on the members-only portion of our website in perpetuity.

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

How did you hear about our group? _____

OMS will not share your information with any other group, business or individual, ever.

LIABILITY RELEASE AND PROMISE NOT TO SUE:

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

Signature: _____ **Date:** _____

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

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CALL FOR SUBMISSIONS

Have you read or written something interesting and fungus-related that you think other members would enjoy? Please send it to Bob Antibus for consideration for future newsletters!

We welcome any submissions, from anecdotes to scientific reports.

Ohio Mushroom Society *The Mushroom Log*

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The Mushroom Log, the official newsletter of the Ohio Mushroom Society, is published bi-monthly throughout the year.

Contributions of articles and ideas for columns are always welcome. Articles may be edited for length and content.

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www.ohiomushroomsociety.org