SPORE PRINTS

BULLETIN OF THE PUGET SOUND MYCOLOGICAL SOCIETY
Number 623 June 2026

IT'S SPRING…DO YOU KNOW WHERE YOUR MORELS ARE? (They may be underground.)

Britt Bunyard

Editor's Picks, *FUNGI Magazine*, Spring, 2026, Vol. *19*(1)

Morels may be the rock stars of the mushroom world—instantly recognizable, globally adored, and capable of sending otherwise sensible adults sprinting through spring forests with mesh bags, baskets, and wild hopes. But the family that gives us these honeycombed celebrities, the Morchellaceae, has a secret life underground. Hidden amount the familiar epigeous morels are four truffle-forming genera you have likely never hears of: *Fischerula*, *Imaia*, *Kalapuya*, and *Leucangium*. (That's right, truffles!)

Heather Dawson

Heather Dawson

Heather Dawson

Heather Dawson

top: Fischerula sp.
bottom: Kalapura sp.

top: *Leucangium purpureum.*
bottom: *Leucangium cascadiense.*

For decades, the odd, knobby subterranean fungi have been culinary curiosities, taxonomic headaches, and ecological mysteries. It wasn't until O'Donnell et al. in 1997 ran early rDNA phylogenies that anyone realized these "truffles" were actually nestled within the Morchellaceae, a surprising result later reinforced by papers by Hansen and Pfister in 2006 and Kovacs et al. in 2008. In other words, the morel family tree has a whole underground branch we've barely understood.

In a recent paper in the journal *Persoonia* (full citation below) a large team of mycologists got together to finally bring this shadowy lineage into the light. Using 41 newly sequenced genomes, multilocus phylogenies, stable isotope ecology, and old-fashioned morphology, they show that the truffle-forming Morchellaceae represent a single evolutionary leap from their above-ground ancestors—one decisive transition to the truffle lifestyle rather than multiple experiments.

Even more intriguing, the authors provide the first direct evidence of ectomycorrhizal symbiosis for the Morchellaceae, documenting natural *Leucangium* root tips on *Pseudotsuga menziesii* (Douglas fir) and showing that stable isotope signatures of *Leucangium* and *Fischerula* cluster tightly with known EMC fungi. Add in the fact the these species stubbornly refuse to grown in axenic cultures, and the case for an EMC lifestyle becomes compelling.

The paper also expends the known diversity of the group, describing new species and new combinations in *Leucangium* and *Imaia* and uncovering additional undescribed lineages from fungarium specimens, rodent scat, and environmental DNA—a reminder that mammals have been doing the sampling for us all along. It's possible you have tried some of these truffles. *Leucangium* cf. *carthusianum* (the Oregon black truffle) is by far the most collected (at least that's the name most often used) and often turns up at truffle fairs and festivals in the Pacific Northwest. I have personally tried them on multiple occasions and am always surprised by their unusual sweet fruity flavor and aroma.

And for readers of *FUNGI* wondering about the much-loved Oregon black truffle, this study makes an important clarification: the North American material long called *Leucangium carthusianum* is **not** the "true" European species. In fact, genomic and multilocus data show that the Oregon black truffle represents multiple distinct lineages, some newly described in this paper and others still awaiting formal names. Because of this, the authors refer to it conservatively as *Leucangium* cf. *carthusianum*, signaling that while it resembles the European species, it is taxonomically different. (Note: "cf." in this usage means "compare with.") In short: the name *L. carthusianum* remains valid for European material, but its use in North America has been a longstanding misapplication that this study finally begins to untangle.

Altogether, Lemmon and colleagues reframe the truffle-forming Morchellaceae as a coherent, evolutionally unified, and ecologically specialized clade: the secretive, aromatic, underground cousins of the world's most famous mushroom. Morels may get the glory, but their truffle-forming relatives are finally getting their story told.

Read more here: Lemmond, B., G. Bonito, R. Healy, J. Van Wyk, H.A. Dawson, C.R. Noffsinger, R. Stephens, A. Sow, J.M. Trappe, T. Orihara, P. Mleczko, V. Kaounas, and M.E. Smith, 2025, "Phylogenomics, trophic ecology, and systematics of the truffle-forming Morchellaceae." *Persoonia* 55: 59–91: https://doi.org/10.3114/persoonia. 2025.55.02.

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CALENDAR

June 1 Public ID clinic, CUH, 4–7 pm
June 6 Field trip (see psms.org members page)
June 8 Public ID clinic, CUH, 4–7 pm
June 9 Summer social (pre-registration; members only)
June 15 Board of Trustees meeting (via Zoom)
Aug. 17 Board of Trustees meeting (via Zoom)
Aug. 18 *Spore Prints* deadline
Sept. 8 Membership meeting, 7:30–9:30 pm, CUH
Sept. 14 Board of trustees meeting (via Zoom)

MAY BOARD NEWS

Peg Rutchik

The board discussed the upcoming Summer Social and decided to keep the admission fee at $10. The group working on the new website has a list of changes and improvements they hope to make in the future. Laurie Wu, Derek Hevel, and Shannon Adams may be contacted with ideas regarding the website. The rental fee for our storage unit has nearly doubled, and as a result, we plan to explore other storage alternatives. The financial strategy work group has not met again. Shannon agreed to schedule the next meeting.

2026 SURVIVOR'S SUMMER SOCIAL

Karen Dawson

Date: Tuesday, June 9, 2026
Time: 7:30 pm–9:30 pm
Where: Center for Urban Horticulture
3501 NE 41st Street, Seattle
Cost: $10 per member
Members only

On Tuesday, June 9, in place of our regular membership meeting, we will have our Summer Social, hosted by the PSMS board. PSMS will provide light finger foods and sweets along with wine, beer, and nonalcoholic beverages. (This is not a dinner.)

The CUH meeting hall, courtyard, and atrium will be open. At this gathering, we will introduce the PSMS officers and committee chairs who are present, so if you would like to meet with them, this is a good opportunity to do so.

In person only - There will be no Zoom recording of the event. Doors will open at 7:00 pm. Check-in will be at the east entrance to the meeting hall.

Preregistration is required to attend. Sign-ups will begin on June 1; you will be receiving a special announcement in your email if you are on the PSMS email list. *Space is limited, so don't delay* signing up after you receive the invitation.

This is a wonderful chance to meet and socialize with other PSMS members. Please join with us as we celebrate last year and look forward to the next.

REPORT FROM THE OUTREACH COMMITTEE

Marian Maxwell

Last month in April (Earth Month), the Outreach Committee was represented at three different events.

On April 24, Scott Maxwell and I were asked to participate in a Science Fair at Apollo Elementary School in Renton. About 250 students with their families attended this event. Students were interested in the photos that we had streaming on a laptop and in building their own bookmark with mushroom stickers. The bookmark also advertised our annual fall show.

On April 26, PSMS participated in an Earth Day celebration with the Seattle arboretum for their spring plant sale. This event was well attended, and there was a lot of interest in the topic of mushrooms. Milton Tam, PeiPei Sung, Cindy Ide, Kate McPeek, Maria Gerace, and I fielded questions for most of the afternoon about PSMS and mushrooms. Milton, Peipei, and Cindy helped attendees to build their own oyster mushroom growing kits, which were handed out for free. Milton had some supplies left over from previous events which provided about 60 kits. Although it was a hit all the way around, the children attending this event were particularly excited about growing mushrooms for the first time.

On April 29, Outreach represented PSMS at the Bellevue College Earth Market Day. Marion Richards, Bob Ewen, Scott Maxwell, and I were at the PSMS table for about 5 hours. Many Bellevue students and some faculty stopped by and were very interested in mushrooms, our booth, and our club.

On May 7 Charles (Chuck) Perkins, Theodora (Teddie) Wu, Scott Maxwell, and I attended the Washington Poison Center's 70th Anniversary Dinner as representatives of PSMS. We learned that the Washington Poison Center is a non-profit, staffed 24/7 that relies on operational funding from the Washington State Department of Health, public and private grants, corporate sponsorships, and individual donations. They are a critical agency in providing medical advice to anyone who experiences a poisoning of any type, including mushrooms. PSMS helped sponsor the event with a $500 donation which will be an annual donation as approved by the Board of Trustees this year. One of the highlights in the live auction was a basket from PSMS with a guided mushroom foray by PSMS Co-Education Chair Wren Hudgins with Dr. Colleen Cowdery (also a PSMS member and employee of the Washington Poison Center), a book donated by Noah Siegel, and some foraging items donated by REI.

All in all it was a fun month, talking to people about our club and our passion which are mushrooms and fungi. Thank you to all listed here who helped with outreach last month! We look forward to some additional outreach events this coming fall.

FIELD TRIP REPORT, May 8–10 — Brian S. Luther

We had 61 members sign in with 11 being new to PSMS and on their first field trip. This is the largest group I believe we've ever had at this location, and we really had to squeeze in some of the cars to stay within the free group camp site. Wren Hudgins and I met up in the early afternoon on Friday at this location and spent some time cutting and collecting firewood for the campfire. It was windy most of the day, but calmed down enough in the evening so we could have a campfire after the sun sank over the ridge.

Special thanks to field trip hosts Elise Barrett, daughter Kepler, and Andrew McCrea, who started our Saturday morning off right with breakfast snacks and hot coffee! We were also fortunate to have the use of Dave & Wuqi Weber's portable generator, so it was also easy to make coffee for everyone first thing on Sunday morning. Few members signed up to go with a field trip guide; most went on their own collecting. Thanks to those who volunteered to be guides.

Most everyone did well finding different species of morels both in the burn areas and in natural unburned aareas. Many had good-sized bags full. Because I had to stay watching over things all day, some members thoughtfully shared some of their finds with me. Much of the burn sites were officially off limits, so none of our field trip guides could lead groups into those areas. But there were considerable parts of the burns that were not off limits, where members could forage. Conditions were somewhat dry, so only about 12 species were displayed, and nothing unusual for this time of year.

Brian S. Luther

Morchella snyderi, a "natural" morel often growing in clusters and not found in burns,

Brian S. Luther

An unusual double-stemmed morel found in a burn.

New member Zach Zimmerman spent some time painting one of the morels he found on Saturday. I've included a photo of him with his painting—very nice.

Brian S. Luther

Zach Zimmerman with the painting he just did of the morel he's holding.

The Saturday potluck was at 6:00 pm and as usual was delightful. Everyone enjoyed the food and friendship around the evening campfire, also sharing beer and wine. An excellent start to our spring field trips.

Brian S. Luther

Because of the *Spore Prints* deadline for the June issue and the fact that our newsletter takes a break over July and August, this is the only spring field trip report that will be published here.

A DIRTY LITTLE SECRET: XEROPHILIC FUNGI ARE WREAKING HAVOC IN MUSEUM COLLECTIONS — Britt Bunyard

Editor's Picks, *FUNGI Magazine*, Spring, 2026, Vol. *19*(1)

via Biblioteca Reale, Turin/Wikimedia

Mold on Leonardo de Vinci self portrait.

Elizabeth Anne Brown's "Dirty Little Secrets" in *Scientific American* reveals a quiet crisis unfolding inside museums: the rise of etremophile fungi capable of colonizing and damaging the very objects institutions are meant to preserve.

These organisms are not the familiar molds of damp basements but a suite of halophiles and xerophiles—species adapted to high-salt, low-moisture environments. Museums inadvertently create such niches. Salts accumulate on surfaces through handling, environmental fluctuations, and the slow chemical aging of materials, while storage rooms maintain humidity levels low enough to discourage common molds but ideal for xerophilic specialists. In these marginal microhabitats, extremophiles find conditions that mirror the harsh ecological niches they evolved to exploit.

Xerophilic fungi in particular have been flying under the radar for decades, including species such as *Aspergillus halophilicus* and *A. penicilloides*. Their success in museums stems not only from their tolerance of dryness but from their minimal nutritional requirements. "They devour the organic material that abounds in museums—from fabric canvases and wood furniture to tapestries," explains Brown. They are able to make do with much less as well. "They can easily eke out a living on marble statues and

cont. on page 4

A Dirty Little Secret, *cont. from page 3*

stained glass windows by eating the micronutrients in the dust that accumulates on their surfaces." The very conditions museums rely on to suppress typical molds can, paradoxically, favor these extremophiles.

Climate change further accelerates the problem. Even well-maintained HVAC systems struggle against increasingly erratic weather, and microclimates form in corners, cabinets, and archival boxes. In these pockets, molds capable of digesting paper, textiles, adhesives, pigments, and certain plastics can take hold. Once established, they are extraordinarily difficult to eradicate without risking additional damage to the artifacts themselves.

Yet the biological challenge is only half the story. Brown highlights a culture of silence within museums, where staff fear that acknowledging mold outbreaks could jeopardize donor confidence or public trust. Without standardized reporting or shared databases, institutions confront these organisms in isolation, repeating avoidable mistakes. Conservators describe the emotional toll of discovering mold on irreplaceable objects, knowing that even successful remediation may leave scars.

Brown ultimately argues for transparency, collaboration, and environmental standards that reflect the realities of a warming world. Extremophile molds are not villains but biologicical facts—organisms responding to the environments we create. For museums, the challenge is no longer simply to control humidity and temperature but to understand the fungal ecologies forming within their walls. Fungi continue to amaze!

RESEARCHERS DISCOVER THE SECRET BEHIND GRAY MOLD'S UNSTOPPABLE SPREAD

Amy Quinton

https://www.ucdavis.edu/, May 20, 2026

Adobe Stock

Botrydis on roses.

Even if you haven't heard of *Botrytis cinerea,* you've likely seen it—slowly growing in your store-bought blueberries, tomatoes, or even on your beautiful orchids. Commonly known as gray mold, the fungus attacks hundreds of plants. For years, scientists have unsuccessfully tried to breed crops that could resist the fungus. New research from the University of California-Davis suggests decades of crop breeding strategies may have overlooked a crucial piece of the puzzle: the pathogen itself.

Two related studies led by Dan Kliebenstein, professor in the UC Davis Department of Plant Sciences, show the problem may lie in a fundamental misunderstanding of how plants and the pathogen interact. The studies were published in the *Proceedings of the National Academy of Sciences*.

An Unexpected Defense

Scientists had long assumed that when different plants are attacked by a fungus, they mount a broadly similar defense— the same basic response with minor variations.

"It's like they might do little decorations on the Christmas tree, but it's always a Christmas tree," Kliebenstein said. The team's findings challenge that assumption. For some plants, it's not a Christmas tree at all. It's a saguaro cactus.

Each plant mounted a response that was fundamentally its own, whether comparing closely related crops or distant ones. That finding alone helps explain why decades of resistance breeding have yielded only modest results.

"It's why we could never figure out how to move information from one plant to help another become resistant, because what one plant is doing doesn't actually do anything for the other plant," Kliebenstein said.

A Human-Like Pathogen

The second study yielded more surprising results. Rather than having a universal "master key" to infect any plant it encounters, gray mold appears to sense what it's growing on and adjusts its attack accordingly.

"The pathogen is like a human," Kliebenstein said. "At some level, it knows it's attacking a strawberry, and there's one set of things it should do. If it's attacking a tomato, it knows it's attacking a tomato and it decides to do something completely different."

In a sense, Kliebenstein said the fungus is "tasting" the difference between a strawberry and a tomato—reading the plant's own chemical defenses and flavors—then countering them.

Reframing the Problem

The two studies could shift how scientists approach disease prevention, Kliebenstein said.

"They suggest that everything we've been trying on the plant or fungus side is probably always going to be doomed to fail, and instead we should be looking at how the pathogen knows what it's attacking," he said.

If researchers can identify the genes the fungus uses to recognize which plant it's attacking, they might be able to confuse the fungus chemically or genetically. A disoriented pathogen could allow the plant's own natural defenses to take over.

"We've been hitting ourselves against a brick wall and we just never thought about this," Kliebenstein said. "Now we might have realized—oh, if we take two steps to the right, the brick wall ends."

It's a strategy that could, in theory, work across many crops at once, in contrast to current approaches that must be engineered one plant at a time.

The stakes are significant. Gray mold causes an estimated 5 to 10 percent crop loss across many fruits and vegetables, affecting everything from grapes and lettuce to soybeans and cut flowers.

Other authors of the studies include Ritu Singh, Anna Jo Muhich, Cloe Tom, Celine Caseys, Jack McMillan, Karishma Srinivas and Lucca Faieta of UC Davis.

WALES POLICE OFFICER WHOSE OWN FORCE CAUGHT HIM TRYING TO IMPORT MAGIC MUSHROOMS IS BANNED FOR LIFE

Noor Qurashi

https://www.msn.com/, May 12, 2026

A police dog handler who was banned for life after his own force caught him trying to import magic mushrooms from the Netherlands has insisted he holds "no bitterness" towards his colleagues.

Ryan Llewellyn, 41, made an online order for psilocybin early in 2024—later claiming he thought he had purchased mushroom truffles. The package was intercepted by a customs officer on February 15 that year and was found to contain the Class A hallucinogenic drug.

South Wales Police were informed and an officer recognized Llewellyn's name as a colleague, triggering an undercover snare operation.

Llewellyn has now spoken out publicly for the first time since the outcome of a disciplinary hearing—telling the *Daily Mail* he remains "proud" of his service and colleagues but is "disappointed" by the outcome of the investigation.

In February 2024, a "dummy parcel" was created and delivered to his address in Glynneath, South Wales, by a police sergeant posing as a delivery driver, following the interception of the drug.

After Llewellyn accepted the parcel, more officers arrived and arrested him. His mobile phone was also seized. Analysis of his device revealed he had made a Google search on whether it was illegal to buy magic mushrooms brought into the UK.

U.S. TO SLAP TARIFFS ON CANADIAN MUSHROOMS AS GROWERS WARN OF BROADER RISKS FOR AGRICULTURE

CBC/Radio-Canada

https://www.msn.com/, May 13, 2026

The U.S. is about to slap countervailing duties on fresh mushrooms grown in Canada, as Canadian growers warn of broader risks to the farming sector on both sides of the border.

A U.S. Commerce Department fact sheet released this week and shared with CBC by the Canadian Mushroom Growers' Association says that following an investigation, the U.S. government will be hitting Canadian fresh mushrooms with tariffs of between 1.6 and 5 percent.

Countervailing duties are slapped on imports judged to be unfairly subsidized. Similar U.S. investigations have resulted in duties on Canadian softwood lumber for decades.

The Commerce Department launched the investigation in January after being petitioned by U.S. growers who argued that several tax exemptions in Canada mean Canadian mushrooms are unfairly subsidized.

But Ryan Koeslag, executive vice-president of the Canadian Mushroom Growers' Association, says a tax exemption is an "unprecedented" justification for countervailing duties, given that farm products on both sides of the border benefit from such exemptions.

"It's a very normal practice. Countries all around the world have agricultural tax exemptions, and the United States is included in that," Koeslag told CBC News.

Koeslag said that using general tax exemptions as a justification for countervailing duties could open up Canadian and American farm products to more tariffs.

"This not only has a broader implication to Canadian agriculture, but also to the American agriculture producer," he said.

"They've really opened themselves up to having other countries identify that, 'Hey, if the United States is going to start using tax exemptions as a countervail weapon, then we'll do the same against the United States.' So I think it could be a slippery slope for them in the long run."

MINNESOTA MUSHROOM HUNTERS HAUL IN 1,500 MORELS FROM ONE SPOT

Dac Collins

https://www.outdoorlife.com/, May 13, 2026

[abridged] John Holmgren and his wife, Ashley, have been hunting and foraging in the woods around Bemidji, Minnesota, for the past 17 years. One of their favorite parts about spring in the Northwoods is finding and picking the abundant morel mushrooms that pop up around this time. It's also a fun activity to do with their two young daughters, Braelin and Brinley.

The Holmgrens have had some good morel hauls over that time. But one of their best outings in recent memory was Monday, when John and Ashley went picking with John's buddy and Ashley's mom. By the time they left the woods, they had harvested around 1,500 black morels, filling several bags.

"We found some big ones, too. And if we would have gotten this rain that we got last night like four days ago, it would've been something," Holmgren says. "It would have looked like a dang forest of morels … I mean, we could have picked probably fifteen thousand of them."

Speaking with *Outdoor Life* on Tuesday, Holmgren says their huge haul was a byproduct of two key factors: knowing where and what to look for, and waiting for ideal picking conditions.

John Holmgren

From left to right: Mitch Carlson, John Holmgren, Barb Olson, and Ashley Holmgren with their harvest of black morels on May 11, 2026.

UNIVERSITY STUDY FINDS HOSPITAL WASTEWATER CAN DETECT DEADLY FUNGUS MONTHS BEFORE SYMPTOMS

https://www.2news.com/, May 20, 2026


Tristel

Candida auris.

A new study by the University of Nevada-Los Vegas [UNLV] found that testing wastewater from hospital sewer lines can detect drug-resistant strains of *Candida auris* months before patients begin showing symptoms, offering health officials an earlier warning of potentially deadly outbreaks.

The study, published in *Nature Communications*, was conducted in collaboration with the Southern Nevada Water Authority, Southern Nevada Health District, Nevada State Public Health Laboratory at the University of Nevada-Reno, and other institutions.

Researchers found that sampling raw wastewater directly from hospital sewer lines instead of municipal treatment plants helped scientists more precisely identify drug-resistant *C. auris* strains as many as five months before patients showed symptoms.

Candida auris is a drug-resistant fungus linked to serious blood, heart, and brain infections in hospital patients. Researchers said the fungus has shown resistance to many commonly used surface disinfectants and all three types of antifungal medicines. More than one in three infected patients die.

Scientists involved in the project said the findings could help hospitals intervene earlier with treatment and outbreak prevention efforts.

"These findings open a new frontier for hospitals, which will no longer have to rely solely on clues in clinical records or case-by-case testing on individuals who are already ill," said study co-author Edwin Oh, a professor and director of the Center for Water Intelligence and Community Health at UNLV. "Wastewater surveillance provides a non-invasive, facility-scale biopsy of a hospital community. And we can get answers on a daily basis, paving the way for health facilities to save lives by figuring out sooner when pathogens resistant to a standard course of antifungal treatment are present."

The research team said the data collected has already been added to one of the world's largest *C. auris* research repositories. Researchers also plan to begin developing new antifungal therapeutics at UNLV with a long-term goal of creating a vaccine.

The study comes as Nevada continues to experience the largest recorded *C. auris* outbreak in U.S. history since 2022. In 2025, Nevada accounted for 22 percent of the nation's nearly 7,200 reported *C. auris* cases, with 1,605 infections reported to the Centers for Disease Control and Prevention. That equates to 20 times more cases per capita than California, the state with the second-highest number of cases.


https://www.utmb.edu/

Candida auris.

STRAWBERRY FUNGUS MAY HAVE WAITED MILLIONS OF YEARS TO INFECT CROPS

Rodielon Putol

https://www.earth.com/, May 14, 2026

Strawberries and raspberries may be fighting an enemy that was already waiting for them long before farmers ever planted the first crop.

A new study suggests some powdery mildew pathogens did not spread around the world through agriculture, as scientists once believed. Instead, these fungi may have evolved for millions of years on native wild plants before jumping onto newly introduced crops like strawberries.


earth.com

Powdery mildew infection.

Powdery mildew leaves behind the familiar white coating many gardeners recognize, but the damage goes deeper. The fungus steals nutrients and slows photosynthesis while keeping the plant alive long enough to continue feeding on it.

The Fungi Separated before Farming

For years, scientists often assumed that a plant disease emerged in one place and later spread around the globe through trade and agriculture. The new findings challenge that idea.

The researchers looked at the different types of powdery mildew that infect strawberries around the world.

In North America, strawberries are usually affected by a fungus called *Podosphaera shepherdiae*. In Europe and Asia, the disease is caused by a close relative known as *Podosphaera fragariae*.

At first, that may not seem unusual. But when the team studied the fungi more closely, they found the two species had been evolving separately for a very long time.

Using genetic analysis, the researchers estimated that the two fungi split from each other more than five million years ago. That was long before people were growing strawberries on farms or moving crops between continents.

Wild Plants Hosted the Fungus

The findings point to a different chain of events. Instead of the fungus spreading worldwide with strawberries, native fungi likely lived on related wild plants in their own regions.

Michael Bradshaw is an assistant professor of plant pathology at NC State and corresponding author.

"What happened in this case is that the pathogen co-evolved on one host pretty closely related to strawberries or raspberries over millions and millions of years," said Bradshaw. "Then when strawberries or raspberries were introduced to the same area, the pathogen jumped hosts."

Pathogens that Evolved Locally

The finding also fits with the kinds of plants involved. Strawberries, raspberries, peaches, pears, and roses are all part of the same plant family. Because they are closely related, a fungus that

infects one plant may be able to spread to another. The study also uncovered another clue supporting the theory.

"If you're looking under the microscope at these pathogens, the one that infects strawberries in North America looks very different from the one that infects strawberries in Europe," Bradshaw said.

The absence of European mildew in North America, and vice versa, suggests these pathogens evolved locally rather than spreading globally.

More than a Strawberry Problem

Powdery mildew is more than a strawberry problem. Different species of the fungus affect wheat, grapes, hops, blueberries, and many other crops. Farmers spend billions of dollars worldwide trying to control fungal diseases each year.

The study suggests scientists may need to rethink how many plant diseases actually begin. Instead of focusing only on foreign pathogens crossing borders, researchers may also need to pay closer attention to native fungi already living nearby. A harmless fungus on one plant species today could become tomorrow's crop disease if agriculture introduces a vulnerable new host.

Bradshaw believes the pattern seen in strawberries could apply to many plant pathogens.

Strawberry Pathogens Could Soon Collide

Ironically, the two strawberry mildew pathogens may eventually meet anyway.

Modern agriculture moves huge amounts of plant material across continents every year. Bradshaw expects these fungi could eventually cross the Atlantic through infected plants or agricultural trade.

What happens after that remains unclear.

"Will these two different organisms mate with each other? Will they infect strawberries more when they're both on the plant? Or will they compete with each other for the host's resources and cancel each other out?"

For now, the study offers a reminder that nature often works in ways people do not expect. Sometimes the threat invading a crop field was there long before the crop itself arrived.

The full study was published in the journal *Proceedings of the National Academy of Sciences*.

"WE ARE NOT STARVING—DON'T EAT DEADLY MUSHROOMS," URGES LATVIAN MYCOLOGIST

https://eng.lsm.lv, May 14, 2026

Perhaps driven by harsh conditions, Latvians have long since learned to prepare even those mushrooms that are considered poisonous elsewhere, but doing so is not safe. Eating boiled poisonous mushrooms is a pure game of chance that can result not only in digestive problems but also in serious, lasting consequences.

Inita Dāniele, a mycologist at the Latvian National Museum of Nature, and Renāte Teterovska, a lecturer at Riga Stradiņš University and a doctor of pharmacy, strongly advised against eating potentially deadly mushrooms on the Latvian Radio program "Zināmais nezināmajā" (The Known Within the Unknown).

This year, the hospital has already admitted its first patient with poisoning from wild mushrooms. In this case, the cause was improper preparation of false morels, which is a relatively common cause of poisoning in the spring.

"False morels can be confused with true morels, which also grow in the spring, but first of all, their growing locations differ—false morels grow more in pine forests, sandy areas, clearings, and sunnier spots. True morels grow in deciduous forests, gardens, and parks," explained Dāniele.

Lukos Large – BY-SA 20

Gyromitra esculenta.

The caps of these mushrooms also differ—the cap of the false morel is wrinkled and resembles a brain in appearance, while the caps of the true morels have longer wrinkles and look more like stretched-out honeycombs.

"Those who have been poisoned say that improper preparation was to blame, but, well, you shouldn't eat those poisonous mushrooms. We're not living in times of famine where we've somehow scraped by until spring, and now the first thing we see has to be eaten. You really shouldn't eat them," the mycologist urged.

She said that she knows of at least 10 different cases where people have been poisoned by eating false morels, but, fortunately, in a relatively mild form and without ending up in the hospital; however, this only means that the true statistics on poisoning could be even more alarming.

Dāniele emphasized that in all the cases she knows of, the people who got sick were knowledgeable individuals who were familiar with mushrooms, and they were fully aware that they were eating false morels.

The toxic compounds found in false morels are water-soluble and volatile, which means that you can be poisoned without even eating the morels themselves, simply by inhaling the fumes while they are being cooked.

The mycologist emphasized that eating poisonous mushrooms is a pure game of chance. Yes, sometimes everything really can turn out fine, but it is never possible to predict this, because the amount of toxic compounds in mushrooms can vary depending on where they grow and many other factors.

"We can't verify how much of the toxic compounds are present or whether, after preparation—boiling and draining the water—everything has actually been washed out of the mushroom. Many people say they boil it three times.

"Well, excuse me, but if you boil your rubber boot three times, you'll get about as much benefit from it as you would from that mushroom," said Dāniele.

The Brainy Imposter

It looks like a morel,
A brain on a stalk,
But it's a false friend
On a walk in the park.
—AI poem

CALIFORNIA'S GROWING MUSHROOM POISONING OUTBREAK IS THE BIGGEST-EVER IN THE U.S.

Evan Bush

https://www.nbcnews.com/, May 15, 2026

[abridged] California's monthslong spate of mushroom poisonings, in which four people have died and 43 others have bee hospitalized, has become the largest known outbreak of its kind in U.S. history, experts say.

Three cases were reported earlier this week, long after the typical growing season for the mushrooms behind the illnesses, leaving public health officials and mycologists puzzled about why the poisonings have been so widespread and what is causing the trend.

The three newest cases were among a family that had picked mushrooms in Napa County on Saturday, became sick Sunday, and was hospitalized at Stanford Medical Center, according to Dr. Christine Wu, Napa County's public health officer.

Since the outbreak began in November, affected patients have ranged in age from as young as 19 months to as old as 84, according to the California Department of Public Health [CDPH]. Cases have come in clusters, with at least six involving families who likely shared the same batch of foraged mushrooms. Four people have received liver transplants, according to the state's poison control system.

Poisoning cases have been reported in more than 10 counties in the San Francisco Bay Area and along California's central coast. After cases began to spike in late fall, California health officials warned people not to eat any foraged mushrooms.

"This is definitely a much larger-than-usual outbreak. It is lasting longer and going much further into the year than we'd have anticipated," said Heather Hallen-Adams, the toxicology chair of the North American Mycological Association. " I don't think we can really put a finger on why."

Anne Pringle

Amanita phalloides.

The primary culprit behind the poisonings is the invasive Death Cap mushroom, which is also called *Amanita phalloides*. A second mushroom, called the Western Destroying Angel, or *Amanita ocreata*, is responsible for a few cases. In an average year, about 50 cases of *Amanita* mushroom poisoning are reported nationwide—a total California has nearly hit on its own already. Five new cases have been reported this month.

"What's unusual about that—the season for Death Caps would typically be December and January," said Anne Pringle, a professor of mycology at the University of Wisconsin-Madison. "Why is this happening?

"It's interesting and frightening," she said.

SLIME MOLD WINS BBC WILDLIFE PHOTOGRAPHY AWARDS FOR 2026

Magda Patynska

https://www.discoverwildlife.com/, May 20, 2026

A striking macro photograph of a slime mold by Jon Appleyard has taken the top spot in the competition, run by *BBC Wildlife* in partnership with the Guyana Tourism Authority.

BBC Wildlife Magazine

Winning photograph by Jon Appleyard.

The competition was launched in 2024 by *BBC Wildlife*. This year, the judges were the magazine's editorial team and independent wildlife photographer Andy Parkinson, who called the photograph a "work of art." He also noted Appleyard's exceptional dedication and technical ability.

"Slime molds are incredible little organisms, yet we can crush them underfoot without even realizing they exist," says Parkinson.

"This image opens a window onto an extraordinary, miniature world that most of us will never see, and reminds us that life exists in many different forms. You cannot question any ethics here, nor ask if the photo was staged. All you can do is marvel at the expertise."

ONE MAGIC MUSHROOM DOSE COULD REWIRE THE BRAIN AND BOOST WELL-BEING, NEW STUDY SUGGESTS

Kelsey Kryger

https://www.aol.com/, May 6, 2026

From Lion's Mane mushroom capsules to mushroom coffee, there's no doubt that fungi have made their way into the spotlight for a vast range of health benefits. Now, a new study published in *Nature* suggests that a single dose of psilocybin—the active ingredient in magic mushrooms—could lead to measurable changes in the human brain, along with lasting psychological benefits.

Researchers studied 28 healthy adults with an average age of 41 with no prior experience taking psychedelics. First, participants received a 1 mg dose, low enough to act as a placebo, before taking a 25 mg dose one month later. Using EEG and MRI scans, researchers tracked brain activity and structure from one hour up to one month after dosing.

The imaging focused on how water moves along nerve pathways in the brain, a marker of structural integrity. Results suggested certain neural tracts became denser and more robust after the higher dose. One month later, participants also showed improvements in cognitive flexibility, psychological insight, and overall well-being. These changes were linked to subtle shifts in prefrontal-subcortical pathways, which play a key role in how different parts of the brain communicate.

This will be the last newsletter until September.
Have a great summer!