

SPORE PRINTS

BULLETIN OF THE PUGET SOUND MYCOLOGICAL SOCIETY
Number 613 June 2025



LATEST GARDEN TREND: GLOW-IN-THE-DARK PETUNIAS VIA FUNGUS GENES

Tenielle Jordison

<https://www.msn.com/>, May 15, 2025

Imagine plants that showcase bright white blooms by day and glow fluorescent green by night. Well, it's nothing short of a reality for home gardeners across the U.S. now that Light Bio's Firefly Petunia is available at in-person retailers across the country.

These glowing plants are bioluminescent petunias, bioengineered by scientists at Light Bio. You can now not only buy the Firefly Petunias on the Light Bio website, but they are also available to purchase in store at more than 200 U.S. retailers. This comes after online sales proved the popularity of these remarkable plants since their release last year.

Keith Wood, CEO of Light Bio, says this expansion is the start of bringing bioluminescence into daily home life: "My work in developing bioluminescence technologies is well known in the scientific community, but virtually invisible to the general public. It's been incredibly rewarding to bridge that gap—transforming a technical innovation into something people can experience and enjoy in their everyday lives."

Just like AI in gardening, glowing petunias at first seem like something of the future. But, U.S. gardeners can now go along to a selected retailer to pick one up for themselves for \$29.99. The plants are still available online, too, selling for \$39.99 on Light Bio's website.

Their fluorescence is made possible by using isolated genes from different species of luminous mushrooms. This DNA is inserted in the petunias to boost the luminous appearance they already subtly have as a result of their plant metabolism.

The Firefly Petunias were even named one of *Time* magazine's best inventions in 2024, so it's no wonder they're the latest garden lighting idea gardeners are flocking to get their hands on.

As for plant care, you can keep these petunias blooming in the same way regular petunias; by deadheading, providing lots of sun, and keeping their soil evenly moist.

"To dream of mushrooms denotes fleeting happiness, to dream you are gathering them, fickleness in a lover or consort."

—Richard Folkard in *Plant Lore* (1884)

MUSHROOM-DERIVED MATERIAL GROWS ITS OWN STRENGTH

<https://www.technologynetworks.com/>, May 13, 2025

[abridged] Researchers at Empa's Cellulose and Wood Materials laboratory have developed a biodegradable material with properties suitable for multiple applications. Using the mycelium of the edible split-gill mushroom (*Schizophyllum commune*), the team created a bio-based substance that is not only strong and flexible but also requires little chemical processing.

Natural biopolymers like cellulose and chitin are commonly investigated for sustainable material applications. However, enhancing their properties often involves chemical modifications that reduce their environmental benefits. The new method avoids this compromise by working with living fungal structures rather than extracting and altering specific components.



The fungal film reacts reversibly to moisture and could be used for bio-based humidity sensors.

Fungal Extracellular Matrix Underpins Material Strength

The researchers cultivated a strain of *S. commune* that naturally produces high quantities of two specific macromolecules: schizophyllan and hydrophobin. Schizophyllan is a long-chain polysaccharide that forms nanofibers, while hydrophobin is a surface-active protein that stabilizes interfaces between different liquids. These molecules are secreted by the fungus as part of its extracellular matrix, which also includes other fiber-like compounds and proteins.

Rather than purifying or altering these molecules individually, the team allowed the mycelium to grow as a living system. The material forms as the fungus produces and organizes these compounds, resulting in a composite structure with tear resistance and flexibility.

Applications in Films and Emulsions

Two potential uses were demonstrated in the laboratory: plastic-like films and oil-in-water emulsions. The films exhibited good tensile strength, which was improved further by aligning the fungal fibers during growth. The emulsions remained stable over time, a result attributed to the continuous secretion of schizophyllan and hydrophobin. This natural replenishment could make the emulsions particularly useful in food or cosmetic applications, where material safety and edibility are required.



Fluorescent petunias.

Spore Prints

is published monthly, September through June by the
PUGET SOUND MYCOLOGICAL SOCIETY
Center for Urban Horticulture, Box 354115
University of Washington, Seattle, Washington 98195
(206) 522-6031 <http://www.psms.org>

OFFICERS: Kelsey Hudson²⁰²³⁻²⁰²⁷
president@psms.org
Joe Zapotosky, Vice President²⁰²⁴⁻²⁰²⁶
joezap@me.com
Cindy Brewster, Treasurer²⁰²⁴⁻²⁰²⁶
treasurer@psms.org
Valerie Costa, Secretary²⁰²⁵⁻²⁰²⁷
secretary@psms.org

TRUSTEES: 2024-2026:
Megan Brewster, Clay Dawson,
Amy Foster, Andy Iwata,
Peg Rutchik
2025-2027:
Derek Hevel, Marian Maxwell,
Marion Richards, PeiPei Sung,
Shannon Adams

ALTERNATES: Lifeng Jim, Laurie Wu,
Pamela Pakker-Kozicki

IM. PAST PRES: Colin Meyer

SCI. ADVISOR: Dr. Steve Trudell

EDITOR: Agnes A. Sieger,
sieger@att.net

Progress on updating our website was reviewed, with estimates of approximate cost. The board requested a written proposal and a demonstration for key stakeholders to evaluate the user's experience.

The recipient of the Golden Mushroom Award was selected; this will be announced at the June social. The final applicant for the Ben Woo scholarship was reviewed and was not approved. The applicant will be encouraged to reapply next year.

The code of conduct policy and procedure was reviewed and approved. Finally, preparations for the June social were discussed.

61ST PSMS SURVIVOR'S SUMMER SOCIAL

Date: Tuesday, June 10, 2025

Time: 7:30 pm – 9:30 pm

Where: Center for Urban Horticulture
3501 NE 41st Street
Seattle, WA 98105

Cost: \$10.00 per member

MEMBERS ONLY



On Tuesday, June 10, in place of our regular membership meeting, we will have our 61th Survivor's 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 this event. Masks are optional. Doors will open at 7:00 pm. Check-in will be at the front desk.

Space is limited and pre-registration 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.

CALL FOR ART Exhibitors – Art contest participants attending the June Social will have the opportunity display their piece or pieces.

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

AGAIN, DON'T DELAY. SPACE IS LIMITED.



CALENDAR

- June 10 Membership meeting & survivors' social, 7:30–10 pm, CUH, in person only
- June 16 Board meeting, 7:30 pm, CUH board room, live and virtual via Zoom
- Aug. 8 Board meeting, 7:30 pm, CUH board room, live and virtual via Zoom
- Aug. 26 *Spore Prints* deadline
- Sept. 9 Membership meeting, 7:30 pm, CUH, live and virtual via Zoom

BOARD NEWS

Peg Rutchik

The board had a full agenda in May. Carrie Tribble, curator of the herbarium at the Burke Museum, made a request for a donation by PSMS to assist in funding a new fungal research scientist. After a robust discussion, the request was approved. The Ecological and Conservation Committee is proposing that PSMS support an initiative to promote a state mushroom, linking these efforts to conservation.

FIELD TRIP REPORT: May 3, 2025 Brian S. Luther

We had cool, overcast, and off-and-on slightly drizzly conditions for this, our first spring field trip, but that didn't discourage 186 members from coming, with 55 being on their first. That's the largest attendance and interest we've seen in decades. We were provided with lots of hot coffee and breakfast snacks by our morning hosts Jennifer "Lichen" Bennett & Geneva Sullivan, assisted by Hosting Committee Co-Chair Debbie Johnson. Thank you, ladies, for starting our field trip day out right!

Andrew Graesser organized nine field trip guides, but all the slots filled up fast and many members had to form their own groups going out collecting. Thanks to all who volunteered as guides.

One family of members came back early wanting ID on two large specimens of *Morchella americana* they'd just found nearby. This is one of our blond morels, and these were the only true morels that came in for the day. Many members found Oyster Mushrooms (*Pleurotus ostreatus*), mostly in pretty good condition; however, I spent time throughout the day showing people how to determine those specimens that were decayed and/or bug ridden and needed to be discarded. Also abundantly found was *Trametes versicolor* (Turkey Tails), and a lot of members wanted to know how to prepare it for making tea, etc. Some other look-alike species came in, and I described how you tell the difference. I counted 26 different species of fungi displayed on the ID tables.

Most everything found was typical for that time of year, but two very interesting or rare species were brought in—*Gyromitra californica* and *Gastroboletus turbinatus* var. *turbinatus*. I had not seen either of these fungi for many years. *Gyromitra californica* (California Elfin Saddle) has very distinctive ribs under the cap running down the stem and is normally found in eastern Washington.



Gyromitra californica.

Brian S. Luther



Gastroboletus turbinatus.

Gastroboletus is a peculiar genus of boletes which evolved to be partially hypogeous, or subterranean. The fruiting bodies look somewhat aborted, with the tube layer having an irregular orientation so that the basidiospores can't just fall, drop out, or be carried by wind to be dispersed, as would be normal for boletes. Instead, the spores are spread only after the mushroom decays and disintegrates or rodents and invertebrates eat some of it and carry them away. It stains blue quickly when cut or bruised. The basidiospores measured $14\text{--}20 \times 7\text{--}8 \mu\text{m}$, and all other characters were consistent for this species and variety. It's normally found in summer through fall, so fruiting in spring is unusual.



Close-up of *G. turbinatus*.

Brian S. Luther

About 20 members stayed for the potluck at 3:00 pm. This ended a very nice first field trip of the season.

FIELD TRIP REPORT: May 10, 2025

Brian S. Luther

Eighty-three people signed in at this location, with about 30 being on their first field trip. Our morning hosts were Dave & Wuqi Weber, who were assisted by Elizabeth Dunham. Everyone appreciated the breakfast snacks and hot coffee they made for us. Thank you!

Ten field trip guides volunteered, organized by Andrew Graesser, with most members attending getting to go out with a guide. Special thanks to those of you who served as guides.

Unfortunately, conditions were very dry in the area and not favorable for finding many fungi. Only 35 species were collected. The only unusual species was *Polyporus squamosus* (Dryad's Saddle), with all of the others being common spring fungi. Concerning edible species, many members found at least a few morels; one clump of Oyster Mushrooms (*Pleurotus ostreatus*) was also brought in, but nothing was in abundance.

A small group of about 15 stayed for the end-of-day potluck. Everyone seemed to have a good time, even though fungi were sparse.



Brian S. Luther

Andrew Graesser (center) head of the field trips guides on May 10, 2025, shown as the group gathered to go out.

FIELD TRIP REPORT: May 16–18, 2025

Brian S. Luther

This group camp allowed members to camp for two nights, if they wanted to. We had 40 members sign in at this lovely, isolated location. It sprinkled or rained on us off and on throughout the weekend, but that didn't diminish anyone's enthusiasm. We planned ahead knowing what the weather was going to be and set up a canopy and stretched a tarp between trees, which helped make conditions a bit better.

Our morning hosts were Pamela Kozicki & Rich Pakker, and what a fantastic job they did bringing all the supplies, extra water, setting out a big selection of breakfast snacks, and making lots of hot coffee Saturday morning. They also added some nice touches, like decorative tablecloths over the picnic tables! Special thanks, Rich & Pamela!

cont. on page 4



Brian S. Luther

Members gathering around field trip camp on Saturday morning, May 17, 2025.

We had more than enough field trip guides for those attending. Thanks to Randy Richardson for overseeing the guides, taking over in place of Andrew Graesser whose wife is expecting their first baby. To those who were guides, thank you!

I'd brought a load of firewood from home on Friday and Julia Benson brought some as well, but we went through that fairly quickly. I had members help me cut more with a chainsaw I brought. In that way, we kept the campfire going all weekend, which provided a little relief from the drizzly conditions we had.

Vern Hodgson & Sunida stumbled on a wild hen turkey sitting on a nest of eggs on the ground near their campsite. It was very protective in its behavior and had its tail feathers fanned to hide the eggs more. It barely moved when we approached, making unusual sounds I had not heard from a turkey before. I got to see it close up and took some great photos of the bird and her clutch, then we backed off right away leaving it alone. We have lots of wild turkeys where we live in Chelan Co., but never previously have I seen a nest or eggs.

Mushrooms were not abundant because conditions had been very dry up to that weekend. Still, members found some morels and a few small collections of Oyster Mushrooms (*Pleurotus ostreatus*), but that was it as far as good edible fungi went. I counted 28 species displayed on a small table, all mostly common for this time of year. But, members also brought in native plants/wildflowers for me to identify.

As usual, we had a wonderful potluck dinner at 5:00 pm Saturday, with many tasty dishes. I didn't hear a single complaint about the weather, and everyone said they had a good time out in the woods with friends.



Wren Hudgins

Errata

In the article "Alarming Studies Strongly Indicate a Connection Between Eating *Gyromitra Esculenta* and Cases Of ALS" published in the May *Spore Prints*, I mistakenly said that *Gyromitra montana* and *G. gigas* used to be in the genus *Discina*. This is incorrect.

—Brian Luther

ARTIST'S CONK: A 69-Year Story Wren Hudgins

Bruce Jensen grew up in the Lofall area of Hood Canal in the 1950s and 1960s. In the summer of 1965, Bruce and two friends, Jim N. and Joe T., all about 15 years of age, took their boat west across Hood Canal and into Dabob Bay. They went ashore to explore and found an Artist's Conk (*Ganoderma applanatum*) on a tree about three feet up from the ground. One of the three noticed the underside of the conk had some writing so the boys detached it from the tree, and Bruce took it home and put it on a shelf where it stayed for the next 60 years, until May 12, 2025.



Mycoweb

Ganoderma applanatum.

Ganoderma applanatum is a woody conk which, if left undisturbed, can grow for decades. It is both saprophytic and parasitic, primarily causing white rot which breaks down both cellulose and lignin, causing slow structural weakening. The fungus will enter a tree through wounds in the bark or damaged roots, and once inside, will start to colonize the heartwood and/or roots. The top of the fruiting body is usually a dull brown color and the underside, the hymenium, is white. A close look at the hymenium reveals small, closely packed tubes which appear on the surface as pores. The spores, which are brown to rusty brown and numerous, develop inside these tubes. While living, this fungus will grow a new outer tube layer every year. When you scratch the pore surface, you expose inner tissues to air (oxygen). Phenolic compounds in the tissue are then oxidized and immediately turn brown. Essentially, this is a wound response on the part of the fungus.

The specimen that Bruce Jensen and his friends found in 1965 had a fairly long message etched into the pore surface. The message is mostly intact although two small fragments have broken off from the main fruiting body and a few small sections are missing. Since it might be difficult to read the writing from the photo, I will reproduce it here, using underscoring to indicate missing text and parens to indicate my best guess as to what the missing text said.



Writing on artist's conk.

AUG 25 - 26, '56

____ SEARLE, DON OLSON, ____ U AND GUY HARPER. WE ALL (GOT) LOST HIKING IN BACK OF THE CABIN, BUT WE GOT OUT OK. WE WATER SKIED THANKS TO DON OLSON BOAT RENTALS CO. ALSO (WE) ATE UNTIL ENTIRELY BLOATED. A GOOD TIME WAS HAD BY ALL.

The inscribed date means that the message had been written 9 years before Bruce Jensen found it, making the fungus 69 years old. There are several aspects to this story that pique one's interest.

- The conk had to be freshly dead. Had it died long before, the hymenium would no longer have been white and responsive to bruising. Had the conk been alive, it would have grown another tube layer on top of the message, covering it. So the timing of this event was "just right."
- Often these conks are hosting many insects which can destroy the integrity of the fruiting body and the message on the hymenium. However, this message is intact after 69 years.
- The conk was growing at about the 3-foot level, which means that the creator of the message had to lie on his back, under the conk, and inscribe the message upward onto the pore surface.

One person mentioned in the message is Don Olson. After listing the names of the hikers, there is a reference to water skiing "... thanks to the Don Olson Boat Rental Co..." I tried to look up the Don Olson Boat Rental Co., but found no trace of it, so it's possible this is a joke. Perhaps the hikers arrived at this cabin on Don Olson's boat and did a little water skiing behind it.

Very few inscribed conks arrive at age 69 intact without insect treatment and preservation efforts. It took lucky timing, and then insects and humans had to leave it alone for 9 years. After that, Bruce had to take care of it for the following 60 years. Bruce first offered his specimen to the Burke Museum. They declined but referred Bruce to us and we enthusiastically accepted. The specimen is quite fragile and PSMS VP Joe Zapotosky, who is an excellent woodworker, will glue the two separated fragments back to the main fruiting body, and then he'll create a plexiglass case so that we can display this specimen while also protecting it.



Wren Hudgins (left) receiving old artist's conk from Bruce Jensen (right).

BEN WOO SCHOLARSHIP AWARDS FOR 2025

PeiPei Sung

Each year, the Ben Woo Scholarship Fund supports promising work in the field of mycology, with a focus on research that contributes to our understanding of fungi in the Pacific Northwest. The two winners for 2025 are introduced below. As the chair of

the scholarship fund, I want to thank all eight applications who submitted projects. Your curiosity, dedication, and passion continue to inspire our community.

2025 Scholarship Awardees

The first awardee is **Marielle (Mari) Wilson**, a PhD candidate at the University of British Columbia who is investigating partial mycoheterotrophy in *Botrychium* ferns—an ancient genus with a mysterious relationship to underground fungal networks. Mari's project uses stable isotope analysis and fungal DNA sequencing to identify potential nutrient exchange between fungi and these seed-free vascular plants. Her work will expand our knowledge of plant-fungal symbioses beyond flowering plants and help uncover overlooked ecological partnerships in forest ecosystems.

The second is **Matthew Koons**, a longtime PSMS member and dedicated volunteer who is continuing his community science research combining microscopy and DNA barcoding to improve fungal species identification. Through careful field documentation, specimen photography, and collaboration, Matthew's work strengthens connections between amateur and professional mycologists while supporting fungal biodiversity and conservation efforts across the region.

On behalf of the club, we look forward to seeing how both projects evolve and to sharing their findings with PSMS members and the wider mycological community. Congratulations, Mari and Matthew!

Scholarship Review Panel

This year's Ben Woo scholarship review panel consists of

- *Dr. Steve Trudell*, PSMS Scientific Chair
- *Milton Tam*, former board member, popularly known for his educational oyster mushroom kits, whose thoughtful consideration and experience are central to the integrity of the selection process.

Additional thanks to *Danny Miller*, PSMS Education Chair, and *Daniel Winkler*, author and international myco-explorer, for your continued support as scholarship committee members. Thank you to our membership for spreading the word, submitting applications, and building community together.

How is the Ben Woo Scholarship Funded?

The scholarship is made possible through these sources:

- An annual \$2,000 allocation from the PSMS general fund
- A \$1,000 matching contribution from Dr. Steve Trudell
- Proceeds from PSMS silent auctions
- Individual donations from members and supporters like you.

To contribute to the Ben Woo Scholarship Fund and help sustain future research in mycology, contact grants@psms.org.

Who Was Ben Woo?

Ben Woo (1923–2008) was a founding member of the Puget Sound Mycological Society and a passionate advocate for education, community science, and fungi. He is particularly respected

cont. on page 6

Ben Woo Scholarship Awards, *cont. from page 5*

for his work on the identification and classification of *Russula* species. A gifted teacher and lifelong learner, Woo shared his deep knowledge of mushrooms through countless forays, lectures, and mentorship. His warm and generous spirit left a lasting impression on generations of mycology enthusiasts.

Beyond his contributions to mycology, Woo was a professional architect who played a significant role in shaping Seattle's Chinatown-International District. He worked to preserve the cultural and historical character of the neighborhood while advocating for thoughtful, community-centered development.

The Ben Woo Scholarship was established to honor his legacy of learning, stewardship, and service. It supports emerging researchers whose work reflects Ben's commitment to curiosity, public engagement, and the natural world.

CALL FOR ART VOTING

Calling ALL PSMS members: Please keep your eyes out for an email invitation to vote on the art submissions you like best. Voting will close on June 5. Hopefully, we're not too late here.

We were looking for two-dimensional artwork (any media) that might be used for a show poster, a logo, or PSMS memorabilia.

Judging criteria: Originality, composition, technical merit, color value, and emotional response. (Some or all of these criteria may apply depending on the medium or media and perceived intent.)

A MUSHROOM BOOK FOR PACIFIC NORTHWEST FORAGERS

Dick Sieger

It's summertime, so there won't be a lot of mushroom hunting to get in the way of learning about mushrooms. *The Fifth Kingdom: An Introduction to Mycology* gives one a bookshelf of mycological information. It covers all facets of mycology with many, many illustrations and clear, often friendly, text. Have a question about fungi? Check out the index. Want a self-taught mushroom class? Check out the table of contents. Poring through *The Fifth Kingdom* is like hanging out with a professional mycologist. Here are a few examples to give you a feel of what you may find.

Chapter 15, "Fungi Exploiting Microscopic Animals," tells us that there are some 150 species of "carnivorous fungi." Species of the genus *Haptoglossa*, for instance, shoot barbed harpoons at unfortunate nematodes.

Chapter 4, "Kingdom Eumycota (True Fungi) Subkingdom Dikarya," has illustrations of some Laboulbeniales, weirdly shaped fungi that attach themselves to insects. Some of them seem to know left from right—they will be found only on one side of a particular left limb.

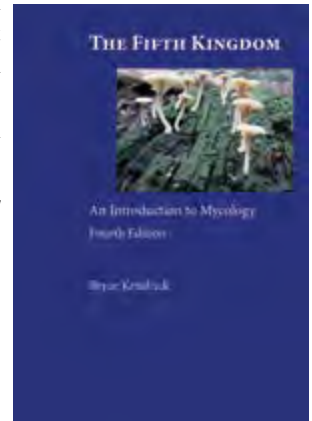
Chapter 18, "Fungi as Food: Mycophagy," says that one of our local species, *Lactarius deliciosus*, the saffron milk cap, was mentioned by Roman author Pliny and is represented in frescoes in Pompeii.

Chapter 10, "Fungal Genetics—Mendelian and Molecular," explains in conversational English a subject that has become so important in mycology.

Chapter 21, "Mycotoxins in Food and Feed," says that a common mold, *Aspergillus flavus*, produces a powerful carcinogen, aflatoxin. Twenty parts per billion are allowed in foods such as peanut butter. Dr. Kendrick, who is a mold specialist, writes, "I personally believe that no detectable aflatoxin should be permitted."

See Dr. Kendrick's web site <https://www.mycolog.com/> for his samples of text and illustrations.

The Fifth Kingdom An Introduction to Mycology, Fourth Edition, Bryce Kendrick, Hackett Publishing, 2017, \$55.95.



AUSSIE FAMILY SUFFERS HUGE VET BLOW AFTER DOG CONSUMES TOXIC MUSHROOM IN THEIR BACKYARD

Sophie Coghill

<https://au.news.yahoo.com/>, May 14, 2025

An Australian pet owner is warning others to keep an eye out for a type of fungus commonly found in Aussie backyards after her dog endured days of "erratic" behavior from interacting with the mushrooms.

Tara Bree told Yahoo News she first noticed something wasn't right with her three-year-old dog Border Collie on Saturday morning, with the dog being "wobbly" and appearing "dazed and confused" when she let him inside her home in NSW's Southern Highlands. She rushed him to the vet, with his symptoms varied and "confusing."

"He was unbalanced...and he was unable to empty his bladder," Tara told Yahoo News. "His penis was spasming...it actually looked like someone had drugged him....it was all very strange."

Despite the vet taking blood and urine samples, it was still unclear what had happened to her dog. Only after a process of elimination, and a thorough search of Tara's backyard, did they get their answer. Tara's dog had come in contact with a Honey Fungus—a type of mushroom that contains toxins dangerous to both dogs and humans.

Tara was initially instructed to take her dog home after several hours, but once there he again quickly displayed "erratic" behavior—zooming up and down her backyard, and crashing into a shed.



Unfortunately....a piece of tin stored in the shed severed a tendon in the dog's leg.

Tara has since paid more than \$4,600, with the surgery costing \$1,100 and general vet costs mounting to \$3,500.

Poisoned Border collie and Honey Mushroom that poisoned him.

NEW CLINICAL STUDY SHOWS PROMISE IN TREATING PARKINSON'S WITH DRUG FOUND IN MAGIC MUSHROOMS

Julia Musto

<https://www.independent.co.uk/>, May 15, 2025

Could magic mushrooms be the secret ingredient for helping patients with Parkinson's disease?

Researchers at the University of California at San Francisco say that using the hallucinogenic drug psilocybin—found in magic mushrooms—can help to improve mood, cognition, and motor symptoms for people with the degenerative movement disorder.

That could be good news for the more than one million Americans living with Parkinson's. It's the second-most common neurodegenerative disease after Alzheimer's disease, and the number of people who are diagnosed in the U.S. is expected to double by 2040.

"We are still in very early stages of this work, but this first study went well beyond what we expected," Dr. Ellen Bradley, an assistant professor and associate director of UCSF's Translational Psychedelic Research Program, said in a statement.

Bradley was the first author of the paper which was published earlier this month in the *Nature* journal *Neuropsychopharmacology*.

Psilocybin works by entering the brain using the same receptors—which facilitate the transfer of chemical signals from outside the brain to the inside—as serotonin, a hormone that is important for regulating mood and other brain functions. Researchers say the drug also leads to other changes in the brain, although they don't yet fully understand how all these effects may lead to improvements in symptoms. Several studies have indicated that people with Parkinson's disease have serotonin dysfunction.

In the first time a psychedelic has been tested on patients with any neurodegenerative disease, participants of their research tolerated magic mushrooms without serious side effects or worsening symptoms.

It was a small trial, including just seven men and five women with the neurodegenerative disease [who were given] a 10 milligram dose, followed by a dose of 25 milligrams two weeks later. The patients completed eight psychotherapy sessions before and after they took the drugs, and were evaluated for any changes.

Some people experienced anxiety, nausea, and elevated drug pressure. But, these symptoms were not serious enough to require medical intervention.

Overall, there were improvements in mood, cognition, and motor symptoms at follow-up appointments after a week and a month.

"Physically, I feel better than I did 2–3 years ago," Jeff Deming, one of the participants of the study, told CBS News.

"Many people don't realize this, but mood symptoms in Parkinson's are linked to a faster physical decline," Bradley said. "And they are actually a stronger predictor of patients' quality of life with Parkinson's than their motor symptoms."

The researchers theorized that psilocybin could provide relief from symptoms of the disease, or that feeling better could help

them socialize and be more active.

Now, they are conducting a larger trial, with a more diverse group of patients. They'll also incorporate the use of neuroimaging tools and noninvasive brain stimulation. With the aim of enrolling 100 participants, they are working at a second site at Yale University. Funding for the study is backed by an anonymous donor and the Michael J. Fox Foundation for Parkinson's Research.

"The vast majority of brain diseases still lack interventions that change the course of illness," Dr. Joshua Woolley, the study's senior authors and an associate professor at UCSF, explained. "We can often treat the symptoms, but we don't alter the trajectory or prevent decline. Now, that's beginning to change. These results raise the exciting possibility that psilocybin may help the brain repair itself."

*Ignorance more frequently begets confidence
than does knowledge*

— Charles Darwin, *The Descent of Man*

A SYMBIOTIC GUT FUNGUS WARDS OFF LIVER DISEASE IN MICE

Walter Beckwith and AAAS*

<https://www.hepmag.com/>, May 12, 2025

Researchers have found a new ally in the fight against a serious liver disease: a symbiotic gut-dwelling fungus that produces a molecule shown to be capable of reversing disease progression in mice. The findings may inform future therapeutic approaches to treat metabolic dysfunction-associated steatohepatitis, a highly prevalent disease. [The study findings were published in *Science*.]

Metabolic dysfunction-associated fatty liver disease now affects roughly one in four adults worldwide, making it the most prevalent chronic liver condition and a pressing global health issue. The more severe form, known as MASH, can lead to cirrhosis and liver cancer. Yet this disease currently has only one approved treatment, highlighting an urgent need for new therapies.

Emerging evidence points to the gut-liver axis—especially interactions with the gut microbiota—as a driver of MASH progression, but the role of gut fungi remains poorly understood. What's more, because there are no standardized methods for cultivating the diverse fungi found in the gut, conventional laboratory techniques have failed to identify fungal species capable of adapting to and growing within the intestinal environment.

To overcome this limitation, Shuang Zhou and colleagues developed fungal isolation chips (FiChips)—a culture technique that mimics the natural fecal environment in situ—enabling the successful growth and isolation of fungal species that cannot be cultivated using conventional methods.

Using this method, Zhou et al. identified 161 fungal species from human fecal samples across China. Among these, *Fusarium* spe-

*American Association for the Advancement of Science

Fungus Wards Off Liver Disease, *cont. from page 7*

cies—particularly *F. foetens*—demonstrated the ability to survive in oxygen-free environments and colonize the gut. It also appeared widely in global human microbiome datasets.

In a mouse model, the authors discovered *F. foetens* could safely reverse MASH disease progression. Mice on a high-fat, choline-deficient diet treated with *F. foetens* showed notable improvements in liver health, including reduced liver weight, lower liver enzyme levels, and less pronounced hepatic steatosis, inflammation, and fibrosis.

Exploring the underlying mechanisms of this effect, Zhou et al. discovered that a secreted fungal metabolite—FF-C1, which is produced by various fungi—inhibited an intestinal enzyme linked to metabolic disorders known as CerS6. It effectively reversed the progression of MASH in mice.

The findings of Zhou et al. point to the fungal microbiome as a rich, untapped source of compounds that may have therapeutic potential,” write Lora Hooper and Andrew Koh in a related Perspective. “The results from this study should inspire further investigation of the human fungal microbiome to unlock the potential of these microscopic medicinal chemists.”

MISSOURI BOY FINDS GIANT MOREL NEARLY THE SIZE OF HIS OWN HEAD

Joey Schneider

<https://fox2now.com/>, May 10, 2025

MISSOURI - What started as a casual trip in Missouri's spring woodlands turned into a once-in-a-lifetime morel mushroom moment for a lucky family.

Jeremiah Wixson and his son, River, were exploring a rural area in central Missouri on April 30 when they spotted a massive morel mushroom, nearly the size of River's head, among a cluster of dozens. “I think we hit the motherload!” River exclaimed at the time.

Jeremiah and River are seasoned morel mushroom hunters, but this particularly find stood out as truly exceptional.

“I have been hunting morels since I was 10, so for 26 years, and have never seen anything like it,” Jeremiah tells FOX 2.

A photo from the day shows River smiling proudly while holding the enormous morel, which appears more than twice the size of his hands and nearly as long as his head. For comparison, most morel mushrooms only grow around 1 to 4 inches tall, according to FarmAndDairy.com.



Jeremiah Wixson.

River Wixson and haul.

Jeremiah shared the photo of their discovery in a Morel Mushroom Reports Facebook group, where the post quickly made waves, earning 14,000 likes, 700 shares, and nearly 1,000 supportive comments.

“We will probably never see anything like it again, but to get to share that experience with my family is something I’ll never forget,” said Jeremiah.

In total, the father-son duo picked 48 morel mushrooms that day and spotted at least 40 others in the area, which they chose to leave behind.

WILD MUSHROOM RAGOUT Michael Blackwell

This stew makes an excellent entrée when served over polenta; it is also delicious served alongside roast pork or any number of vegetable soufflés and great accompanied by thick slices of crusty bread.

Ingredients

½ cup	Hot water, for soaking dried mushrooms
½ oz.	Dried mushrooms, boletus, morels, or shiitake
3 Tbsp	Butter
2 Tbsp	Extra virgin olive oil
1 cup	Coarsely chopped onions
2 lbs	Fresh mushrooms, preferably local wild mushrooms, quartered or sliced
2 Tbsp	Minced garlic
1 tsp	Dried thyme, crushed
1 tsp	Minced fresh rosemary
¼ cup	Dry sherry
1 cup	Heavy cream
2 Tbsp	Brandy
2 Tbsp	Fresh lemon juice
½–1 tsp	Salt
⅛ tsp	Freshly ground black pepper
⅛ tsp	Ground nutmeg



Instructions

Place dried mushrooms in small bowl, cover with hot water, and let soak for 15–20 minutes to soften. When soft, finely chop mushrooms and reserve soaking liquid.

In large, heavy pot, heat butter and oil over medium-high heat and sauté onions until browned. Add mushrooms and garlic and sauté until tender, about 3–4 minutes. Add, soaked, dried mushrooms, soaking liquid, herbs, sherry, and cream. Cook about 8 minutes or until reduced and lightly thickened. Add brandy and lemon juice and cook another 2 minutes. Season with salt, pepper, and nutmeg to taste.

Serves 6.



*This will be your last Spore Prints until September.
Have a nice summer!*