

SPORE PRINTS

BULLETIN OF THE PUGET SOUND MYCOLOGICAL SOCIETY
Number 554 September 2019



WILD MUSHROOM SHOW

Derek Hevel

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



Our show dates are **October 26 (12–6 pm) and 27 (10 am–5 pm)**. Just as last year, we are holding the show in the old cafeteria at North Seattle College, 9600 College Way N., the facility just west across I-5 from the Northgate Shopping Center. We like it because it is centrally located on I-5 and will be a shorter commute for most of us. Kim Traverse, Derek Hevel, and Milton Tam will again be the co-chairs this year.

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

We also need YOUR mushroom specimens for our display tables. If you hadn't noticed yet, the fall mushrooms are out really early this year, and many foragers have been finding chanterelles, porcini, and matsutake as early as July. This "altered reality" may be great for us right now, but we are a little worried that the season will end extra early, maybe even before the show. Come mid-October, we strongly encourage members to forage far and wide to collect those late specimens wherever they can be found. A month out, experts have suggested collecting display specimens in the foothills of Mount Rainier, the Olympic Peninsula, and the Washington Coast, but it is impossible to predict when and where our show mushrooms will flush. If you can, please self-organize for a collecting trip in the week or two before the show. We're counting on YOU to make the mushroom display happen!



ANCIENT EGYPTIAN YEAST IS THIS BREAD'S SECRET INGREDIENT

Jacey Fortin

The New York Times, Aug. 8, 2019

In a modern oven in Pasadena, California, this week, yeast that could be as old as ancient Egypt was used to bake an especially aromatic loaf of sourdough bread.

The baker, Seamus Blackley, was experimenting with yeast he had extracted from a 4,000-year-old Egyptian loaf. He was trying to make his own bread using the same ingredients, and some of the same methods, as the ancients.

It turned out well, and Blackley—who is also a creator of the Xbox, a physicist, and a self-professed "bread nerd"—posted the results on Twitter. "The crumb is light and airy," he wrote. "The aroma and flavor are incredible. I'm emotional."

Thousands of people responded in a surge of interest that extended far beyond niche communities of bread nerds and yeast enthusiasts, whose interests traverse science, gastronomy, and history.

Blackley is a thorough hobbyist. He collects wild yeast from medieval forests, is fluent in the language of ancient grains, and takes close-up videos while bread-making so his followers on social media can fully appreciate the texture of good dough.

And he is passionate about ancient Egyptian history.

"It's deeply cool to me," he said in an interview. "I think it's really important, and we owe so much to these ancient people. And often, or maybe always, we tend to think of people living in antiquity as being simple or stupid, and of course that's insane. They were brilliant."

Blackley said he was surprised this week by the enthusiastic reaction to his ancient spores. Something similar happened in April, when he made a loaf of bread using a yeast strain that was said to be 5,200 years old.



Blackley mixed a starter culture with water and unfiltered olive oil.

He had not extracted that yeast himself and could not be sure of its exact provenance. But tweeting about the experience helped him connect with others who shared his interests, including Dr. Richard Bowman, a biologist at the University of Iowa, and Dr. Serena Love, an archaeologist, Egyptologist, and



Maximilian Blackley

The yeast for this bread was extracted from an ancient Egyptian loaf that had been buried beneath a temple during the Middle Kingdom.

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MEMBERSHIP MEETING

Tuesday, September 10, 2019, at 7:30 pm at the Center for Urban Horticulture, 3501 NE 41st Street, Seattle

Our speaker for September is Howard Sprouse, CEO of the Remediators, Inc., and developer of bioremediation technologies since the mid 1990s. As nature's recyclers, mushrooms are able to quickly break down many environmental pollutants. This talk will cover how mycoremediation has been used successfully, the limitations of the technology, and the important place it holds in the future of integrated bioremediation technologies that include fungi, microbes, plants, biochar, and other amendments, if needed, to support the process.



Howard Sprouse

Howard worked as a consultant to Battelle's Pacific Northwest National Laboratory in Sequim, Washington, on projects aimed toward remediation of petroleum hydrocarbons, biological agents, and biofiltration of agricultural runoff. He also worked for the University of Washington as a research assistant conducting fungal ecology research in Olympic National Park. He is recognized in the bioremediation industry as an early commercializer of mycoremediation and is a well known lecturer on the subject throughout the Pacific Northwest. An avid outdoorsman, his interest in mycology began while working trails in the backcountry of Olympic National Park in the 1970s. Howard lives outside of Port Angeles, WA, on the Strait of Juan de Fuca.



Would people with last names beginning with the letter A-L please bring a plate of refreshments to serve after the meeting.

CALENDAR

- Sept. 28 Field trip (see PSMS website)
- Sept. 10 Membership meeting, 7:30 pm, CUH
- Sept. 16 Board Meeting, 7:30 pm, CUH board room
- Oct. 4-6 Field trip (see PSMS website)
- Oct. 8 Membership meeting, 7:30 pm, CUH
- Oct. 26-27 Annual PSMS Wild Mushroom Show, North Seattle College

BOARD NEWS

Luise Asif

Welcome back to another year of all things fungi! The PSMS board is ramping up under the leadership of Derek Hevel, Milt Tam, and Kim Traverse for the 2019 Fall Show the weekend of October 26th and 27th. As usual Lisa Page has done an outstanding job preparing the poster using Stacey Wurster's Artwork. The posters will be ready for distribution at the September membership meeting. This is a callout for someone who is willing take on a leadership role to collect specimens for the show. This entails providing information to the members on the best way to collect and preserve samples,

*Mushrooms
Japanese ladies
Doing an umbrella dance.
As the breeze fans
Its audience the grass
Which clap their hands for more.
Each takes their position
With a serious pose
And when the time is up
Which is just as soon as they are up
They just bow and go to sleep
Right in the midst of the audience!*



—John Tiong Chunghoo



help organize carpools, and suggest locations. If interested, please contact Derek Hevel or Luise Asif. The board is sorry to accept Sweta Agrawal's resignation and is grateful for her dedication and hard work. She will continue to chair the Ben Woo Scholarship Committee, which she has expanded. PSMS welcomes Marion Richards, alternate trustee, to step into Sweta's position both on the board and as chair of the Arts and Crafts Committee. Derek is working hard to have the PSMS cookbook completed by the end of the year. The Ben Woo Foray is scheduled for the weekend of October 19th with an exciting schedule of events planned. The invitation to register went out end of August.

NEW PSMS CLASS OFFERING: BASIC FOREST NAVIGATION

Wren Hudgins
Chair, Field Trip Safety

Want to be safer in the woods? Read on.

Those members attending field trips know that the club has a number of experienced people who have offered to give up their own mushroom hunting time to come to field trips and take beginners out hunting. Not only do these guides give up their time to lead groups on field trip days, but they have also given up time before the field trip starts. For 4 or 5 years now, we have required that the guides take a 4-hour forest-navigation class before actually serving as a PSMS guide.

This year we decided to open this class to “active” (vs “passive”) volunteers, i.e., to those who have actively volunteered to help the club in one way or more. These are the folks who really help us, so we wanted to do what we can to help them. Once we offered it to the active volunteers, there were a few spaces left, and we opened the class up to the general membership. Class size was limited to 15, as we knew from guiding, keeping track of 15 people in the woods is about the maximum for safety. (We actually limit guided groups on field trips to 10.)

The response was encouraging. We filled one class of 15 right away, so we scheduled that one. Then we filled another and scheduled that one also. Those who couldn't get into class #2 constituted a wait list of another 15, so there is third class of 15, not yet scheduled.

We are considering the possibility that this is a class worth offering annually, possibly even a few times annually. The demand seems to be there, and it's a win-win situation in that members get navigation skills and the club gets a stronger and safer membership. The other “plus” is that we have fun. We're navigating through the woods off trail, solo, in pairs, laughing and helping each other along to find that darn waypoint that must be around there somewhere.

I don't think we'll teach it again this year (there is no waiting list for next year), but watch for it next year. It's really a beginning forest-navigation class with a primary focus on showing folks how to get back to where they started via compass and GPS. If you already have moderate navigation skills, then this would not be for you. We emphasize the importance of both having and using the compass and the GPS (or GPS phone app).

If you missed these classes this year but still want to strengthen your navigational skills, then there are other options. If you prefer to learn new skills by yourself, there are some good books at REI and probably many places. One I have used is *Wilderness Navigation Handbook* by Fred Touche, but there are many such books, and all the authors know more than we do, so it may not matter which one you select. If you learn best in a class, then REI periodically offers a navigation class, which I took twice. Several years ago, the format was one evening in a classroom and then a full day at Discovery Park. Also the Mountaineers offer a navigation class, approximately the same length. Both the Mountaineers class and the REI class would be more detailed than the one PSMS is offering, but more is better when it comes to navigation skills. We are, after all, a textbook example of how to get lost in the woods—we often don't tell anyone where we are going, we walk off trail, we look down all the time, and we walk in circles.



THIS FUNGUS MINES FOR GOLD, THEN WEARS IT

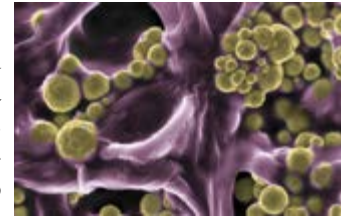
Mindy Weisberger

Livescience.com via

The Spore Print, LA Myco Soc., June 2019

Fungi now have a gold standard.

A pink, fluffy fungus found around the world is literally a gold-digger, collecting particles of precious gold along the thread-like strands that it extends into soil, scientists just discovered.



Fusarium oxysporum.

The gold-crusted fungus, called *Fusarium oxysporum*, doesn't just look fancy; it also seems to benefit from the bling, spreading faster and growing larger than unadorned fungi, researchers reported in a new study.

The scientists used a scanning electron microscope to create highly magnified images of *F. oxysporum* collected in western Australia, revealing the fungus's tendrils liberally encrusted with tiny bits of gold. The fungus is thought to gather the gold through chemical reactions with underground minerals; it dissolves gold flakes using oxidation and then produces another chemical to make the dissolved gold solidify around the fungal threads, the researchers wrote.

However, it is not yet known how the fungus identifies gold, and though gold decoration seems to benefit the fungus, the precise mechanisms of how that works are unclear, according to the study.

Fungi are among the most ancient forms of life; the oldest fossil fungus, recently discovered in Canada's Northwest Territories, is thought to be a billion years old. Many types of fungi degrade and recycle organic matter, and some are known for their interactions with certain metals, “including aluminum, iron, manganese and calcium,” lead study author Tsing Bohu, a researcher with Australia's Commonwealth Scientific and Industrial Research Organisation (CSIRO), said in a statement.

“But gold is so chemically inactive that this interaction is both unusual and surprising—it had to be seen to be believed,” Bohu said. This is the first evidence that a fungus may play a role in moving gold through Earth's surface, and could provide clues for detecting subterranean gold reserves, the researchers reported.

That would be a boon for Australia's gold industry—the second-largest in the world—which is already sampling termite mounds and gum leaves for gold traces that might hint at larger deposits hidden underground, study co-author and CSIRO chief research scientist Ravi Anand said in the statement.

Identifying buried gold deposits through surface traces in fungi, trees, or insect nests is cheaper and less harmful to the environment than drilling is, Anand added.

Commonly found in soils around the world, the species is not something prospectors should look for as the gold particles can only be seen with a microscope. The findings were published online May 23 in the journal *Nature Communications*.



PRESIDENT'S MESSAGE

Randy Richardson

Our continued rains throughout the summer have produced a thrilling abundance of mushrooms. This is mid-August, and we have reports coming in of genera uncommon at this point in the year—besides *Russula*, *Lactarius*, *Amanita*, and different species of *Boletus*. What is unusual to me is that *B. edulis* has been found in all weeks of the summer, as well as hedgehogs, chanterelles, and shaggy manes. Most surprising to me are matsutake and gypsies, both of which seem months early (personally, I struggle to believe what I see).



Hopefully this will maintain pace, and we will have a mobbed annual show. So let this be an inducement both to go into the woods for yourself and to volunteer for the show, so we can deal with all the attendees inspired to learn more by what they are seeing.

GET OUT THE SAUTÉ PAN: FALL MUSHROOM SEASON STARTING EARLY IN THE PACIFIC NORTHWEST

Tom Banse

Northwest News Network, Aug. 8, 2019



Pacific Northwesterners who forage for wild mushrooms are noticing that the late summer and fall delicacies are coming in early this year. Edible wild mushrooms are now flooding wholesale markets.

In the maritime Northwest, chanterelles are coming in at least three weeks early. In the Cascade Mountains, porcinis (aka king boletes) and matsutakes (aka pine mushrooms) are poking up earlier than normal too.

“We’re already seeing mushrooms coming in that generally don’t show up until the middle of September,” Charlie Wiley, a commercial mushroom buyer in Southwest Washington and owner of Pacific Northwest Wild Mushrooms, said. “We’ve got pine mushrooms coming in. I can’t remember ever getting them in August.”

Wiley guessed the wild mushrooms were triggered to fruit early by mild, moist summer weather. “It’s shaping up to be an outstanding mushroom crop this year.”

Wiley said wholesale prices are falling fast as pickers bring in big harvests, which means you might want to keep an eye out for specials at supermarkets and restaurants.

The Mt. Hood Meadows Mushroom Festival in Oregon had to be moved up by a week to Aug. 25 because the star attraction is arriving early. It was originally scheduled for Labor Day weekend.

Commercial mushroom foragers hope the unusual early arrival of fall fungi does not lead to an early end of this year’s season as well.

“Hopefully, we’ll still get another flush of things in the fall,” Dena Wiley, a partner in the Pacific Northwest Wild Mushrooms, said. “We count on the October mushrooms to come in for the Thanksgiving holidays.”

MAN RESCUED AFTER OVERDOSING ON WILD MUSHROOMS

Andi Bourne

Seeley Swan Pathfinder, Aug. 8, 2019

SWAN VALLEY, Mont. - On July 30 Seeley-Swan Search and Rescue was called just after 5 am for a 50-year-old man who had reportedly eaten mushrooms on the trail to Upper Holland Lake and was violently ill. The 50-year-old had also sustained a head injury and was rescued by Two Bear Air just before 7:30 am. He was airlifted to Kalispell via Kalispell A.L.E.R.T. His condition is unknown.



Incident Commander Missoula County Sheriff’s Deputy Ryan Dunster said SSSAR got the call at 5:10 am. Tuesday. The man had reportedly eaten mushrooms found on the trail that were orange and brown on the top with white bottoms. He was grunting and convulsing. He had also repeatedly slammed his head into a log, resulting in a large contusion on his head.

Four volunteers from SSSAR responded as well as Swan Valley Emergency Services out of Condon. Dunster also requested Two Bear Air since the party was six miles in on the Holland Lake Trail. Two Bear Air accepted the mission at 5:35 am.

Two Bear Air arrived at 7:08 am. They flew up the canyon to make contact with the party. SSSAR and SVES staged at the trailhead at Holland Lake.

Two Bear Air made contact with the party who was packing out the individual on a homemade stretcher. Dunster said they had only gotten about a half mile toward the trailhead when Two Bear Air made contact.

Two Bear Air lifted the man out and transported him to the landing zone near the Owl Creek Packer Camp. When Two Bear Air landed, they felt his blood pressure was too high to be transported via ambulance. Since Two Bear Air does not transport, Dunster requested Life Flight out of Missoula but it was unavailable. Swan Valley Emergency Services helped coordinate with Kalispell Regional Medical Center’s A.L.E.R.T. Air Ambulance. Two Bear Air rendezvoused with Kalispell A.L.E.R.T and transferred the patient at 7:25 am.

Dunster said he later learned that the mushrooms were hallucinogenic mushrooms that the 50-year-old intentionally ate that night. While he was tripping on the mushrooms, he inflicted the head injury.

Dunster recommends that people don’t eat mushrooms without proper identification. While some are edible, others are poisonous and can make someone very sick. He also recognized that, while people do eat hallucinogenic mushrooms, doing it in the middle of the night, six miles away from a trailhead, is not a good decision.



Bread from Ancient Yeast, cont. from page 1

honorary research fellow at the University of Queensland in Australia.

Bowman brews beer, and he got in touch with Blackley to talk about yeast. It was Bowman who devised a way for Blackley to extract yeast strains from ancient artifacts without damaging them.

And Love, who also brews beer, managed to get Blackley access to the artifacts—including ceramics that were once used to make or store beer and bread—from the Museum of Fine Arts in Boston and the Peabody Museum at Harvard.

“I had to submit all sorts of documentation, detail our methods, and show that it’s a nondestructive analysis,” she said. “Once they could see that we weren’t harming the vessels, they gave us permission.”

From there, Blackley used Bowman’s method to flush out samples of yeast that had clung to the porous ceramics for millennia.

Blackley also had a sample of actual bread from the Middle Kingdom, which came from the site of a mortuary temple for the pharaoh Mentuhotep II and is now at the Museum of Fine Arts. “There were three loaves there, as offerings, and the building was built on top of it,” Love said.

Blackley extracted the yeast, took that specimen home, and used barley and einkorn flour to awaken the sleeping spores.

Yeast is a living thing—a fungus. It metabolizes carbohydrates, yielding alcohol and carbon dioxide as byproducts. (The alcohol is handy for the creation of beer, and the carbon dioxide is good for bread, as the bubbles help the dough expand.)

Once they run out of food, yeast spores can go dormant—rather than simply dying—and stay quietly viable for thousands of years until they are extracted, Bowman said.

There is a caveat: It is not yet certain that Blackley baked with an ancient yeast strain on Monday. His extractions may have been contaminated by modern spores.

So Bowman is working to verify the samples. “We need to isolate them, sequence them, and compare the genomes to the modern samples and see the genetic divergence,” he said.

Blackley said that while Monday’s loaf probably did incorporate the ancient strain of yeast, he still considered it a practice round.

“I don’t understand why everyone is so interested in this, but I’m happy that they are,” he said. “It gives us an opportunity to demonstrate good science.”

Once the samples are verified, he hopes to experiment further with baking styles that mimic the methods of ancient Egyptians. He also wants to fine-tune his spore extraction technique.

“It’s a hobby project for all of us,” he said. “This is really in the great tradition of amateur science—people doing something because they think it’s the right thing to do—and I’m very proud of that.”



Maximilian Blackley

“The aroma and flavor are incredible,” Blackley said on Twitter. “I’m emotional. It’s really different, and you can easily tell even if you’re not a bread nerd.”

HOW AUSTRALIA IS SHAKING UP THE TRUFFLE MARKET

Emily McAuliffe

<https://www.bbc.com/>, Aug. 22, 2019

If you asked people to try to picture hunting for truffles, the expensive subterranean fungi, many would no doubt imagine men with dogs going through woodlands in France or Italy.

Given that truffles have been harvested in both countries for centuries, this is understandable. Yet since 1999 they have been joined by Australia, which in just 20 years has become the world’s fourth-largest producer of the most-prized type of black truffle—the French black or Périgord (*Tuber melanosporum*).

Some in the Australian industry, such as Nigel Wood, the owner of Truffle Paddock, a truffle farm in the state of Victoria, even believe that in another decade’s time the country could take the number one position.

While exact country-by-country figures are difficult to come by, given the secrecy that surrounds the “diamonds in the dirt,” Australia is expected to harvest between 14 and 18 tons of French blacks this year.

This compares with an estimated 60 tons last winter in Spain, 30 tons in Italy, and slightly more than Australia in France. (Industry experts say it is notoriously difficult to quantify French production figures due to a lack of data, and accusations that it imports Périgords from Spain that then become “French.”)

What is not in doubt is that selling fresh French blacks is a very lucrative business. Much in demand in the world’s finest restaurants, they can retail for up to \$1,300 (£1,000) a kilogram.

As Périgord truffles are harvested in the autumn and winter, the season in Australia runs from May until mid August. Geoff Barrett, co-founder and managing director of Oak Valley Truffles in Western Australia, says this gives the country’s producers a huge advantage because they are selling their crop when there are none available from Europe.

Given that fresh truffles have a shelf life of only two weeks, it means that thanks to Australia’s crop, chefs in the northern hemisphere can now sell dishes including the priced ingredient in their spring and summer.

“We export to 31 countries, and don’t have the supply by even half to match the demand from overseas,” says Alex Wilson, head of sales at The Truffle & Wine Co., Australia’s first commercial truffle farm or truffière, and the single largest producer of black truffles in the southern hemisphere.



Truffle Melbourne

Nigel Wood, holding the basket, invites visitors to join him on his truffle hunts.

RUSSIAN MUSHROOM HUNTER “EATEN ALIVE” BY BROWN BEAR AFTER JOKING ABOUT BEING MAULED BY ONE

Dominic Smithers
<http://www.ladbible.com/>

A Russian pensioner hunting mushrooms has been eaten alive by a bear just hours after joking about being attacked and killed by one.

Alexander Korneyev was out picking wild mushrooms when a brown bear savagely mauled him in eastern Russia, just outside the village of Suluk, about 5,300 miles east of Moscow.



Bear hunted down by local residents.

The 66-year-old had only a penknife to try and defend himself against the powerful animal, but was unable to do so and was “eaten alive.” The lacerated remains of the retired railway construction worker were found on a dirt road close to the village.

After discovering Korneyev’s corpse, locals hunted the bear down and shot it dead. It’s said the animal still had the man’s remains inside its stomach.

Residents were horrified at the brutality of the attack and were especially shocked as it is an area where bears “have never attacked humans’ in living memory.”

Speaking about the attack, the head of the village council, Sergey Ryabov, said: “There was blood everywhere. His penknife was broken in half, and there were signs of a fight. His body was lying face down, there was no single untouched spot.”

Korneyev’s death was made even more tragic as he had called his wife before the attack and reportedly joked about being killed by a bear. He is said to have told her: “I’m going to pick mushrooms. If I don’t call you again by 10 am, it means I’ve been eaten by a bear.”

Ryabov said: “It was a joke, but he evoked evil with his words.”

He added: “Alexander loved picking mushrooms. He had a favorite spot just a short distance from the village.”

A video taken by the residents who tracked down and shot the bear, showed the animal’s remains in the undergrowth.

Signs have been posted urging people not to go to the forest or pick mushrooms.

BEWARE OF RUSSIAN BEARS

various sources, Aug. 20, 2019

It’s not just mushroomers. Russians in general have faced a series of bear attacks in recent months. In the past week alone, there have been fatal attacks in Kamchatka and Khabarovsk regions in the Russian far east.

The 289 residents of Takhtoyamsk—a remote fishing and reindeer village on the Sea of Okhotsk, Russia have been under siege from 14 brown bears which have been seen scavenging waste from fish processing. Locals are facing daily warnings from Russian officials who say the bears can attack suddenly.

In the neighboring Kamchatka region, some 62 brown bears have been shot for threatening humans. Two bears were found with the remains of a 41-year-old man in their stomachs.

Another young woman was badly bitten on her neck by a cub in the country’s most easterly region of Chukotka, before a male friend stabbed the bear in the eye to scare it away.

On Bolshoi Shantar off the Pacific Ocean island of Sakhalin, a man sustained fatal injuries as a result of a bear attack. In another two recent cases, bears have terrorized mourners at graveyards. In one case, a beast in the Komsomolsk-on-Amur region dug into a grave and stole the recently buried corpse of a man. The bear was found and shot, but the body has not been found.

These are only some examples. Reports in several Russian regions have said they have never witnessed so many bears encroaching on settlements and attacking people.

One reason is feared to be uncontrolled wildfires destroying the bears’ natural habitat over tens of thousands of square miles in eastern Russia.

In a Kamchatka nature reserve, this trainee ranger was ambushed and killed by two bears that had earlier killed another bear.



Kronotsky Nature Reserve

OAKLAND BECOMES THE SECOND CITY IN US TO DECRIMINALIZE ‘MAGIC MUSHROOMS’ AND OTHER PSYCHEDELIC DRUGS

WQAD Digital Team
<https://wqad.com/>, July 29, 2019

(CNN) - You may not see them popping up in dispensaries yet, but Oakland just allowed the use of “magic mushrooms” and other natural psychedelics.

On June 4, 2019, Oakland’s City Council voted unanimously to decriminalize the use of ‘shrooms and other natural psychedelic or hallucinogenic drugs, including cacti, becoming the second city in the country to take this step.

The drugs still aren’t necessarily legal, but the resolution means police cannot impose criminal penalties for using the natural drugs or use any city funds to investigate or enforce the criminal penalties. Even people currently being prosecuted for these kinds of drugs are now off the hook, according to the resolution.

MEDICINAL PSYCHEDELIC MUSHROOMS INCH CLOSER TO OREGON BALLOT

The Corvallis Advocate, Aug. 9, 2019

Next year’s ballot may include the choice to make the active ingredient in psychedelic mushrooms legal for therapeutic use.

This week the measure received a draft ballot title, the Oregon Psilocybin Service Initiative, after the petitioners turned in over 1,000 signatures. The next step requires getting over 100,000 signatures so the matter can be referred to voters.

If voters approve, patients would not be able to make a purchase and leave a dispensary like they can with cannabis. Instead, doctors could send patients to a licensed facility to be guided through their trip by a facilitator. In recent trials psilocybin, the active ingredient

in psychedelic mushrooms, has been shown to be helpful treating patients that have not responded to other treatments for certain kinds of anxiety and depression.

The measure requires the Oregon Health Authority to research the effects of psilocybin on mental health over a two-year period. OHA would then structure a regulatory framework for implementation in 2023, and then oversee the manufacture of psilocybin medications and facilities after that.

DENVER ROASTER CONSIDERS ADDING MAGIC MUSHROOMS TO COFFEE

Ryan Haarer

<https://www.9news.com/>, Aug. 8, 2019

DENVER, Colo. - Strava Craft Coffee got an early start in the CBD market in 2016. Now, almost all the beans they roast are infused with CBD from hemp. President and CEO Andrew Amot now hopes to get a jump start on psilocybin mushrooms which were narrowly decriminalized by Denver voters earlier this year.



Psilocybe semilanceata.

“I believe psilocybin will follow the same path as cannabis did and it will be widely accepted and legal. And hopefully commercialized,” Amot said. “Not commercialized prematurely but so there is trust and transparency and reliability in products on the market.”

Amot wants to offer a coffee that allows customers to microdose. The coffee would include a dose so small that users would not feel high. Instead, a daily dose, he said, could have a more long-term impact on one’s mental health and well-being. There have not been extensive studies to prove this, but recent studies have shown that the drug has potential to treat people with mental health disorders.

“If it’s proven that psilocybin does not deliver value or that the risks are too high, it’s not a product that we want to bring to market,” Amot said, hoping for favorable studies. “I have been offered resources in order to help us begin exploring and I do intend to explore that personally. If I have a positive experience that will only encourage me to continue.”

NEW DISCOVERY USING FUNGI COULD LEAD TO THE DEVELOPMENT OF EFFECTIVE RADIATION-PROTECTIVE DRUGS

<https://www.news-medical.net/>, Aug. 7, 2019

Thanks to fungi, researchers have made a new discovery that could lead to the development of effective radiation-protective drugs for workers cleaning up nuclear contamination zones like Fukushima and Chernobyl. The discovery could also help astronauts travel to Mars, where severe radiation remains the greatest obstacle.

The study, “Chronic gamma radiation resistance in fungi correlates with resistance to chromium and elevated temperatures, but not with resistance to acute radiation,” was published Aug. 6 in *Scientific Reports*. It was led by researchers at the Uniformed Services University of the Health Sciences (USU) in collaboration with the Center for Radiological Research at the Columbia University Irving Medical Center.

For years, scientists have been trying to develop effective drugs that would counter the harmful effects of radiation for people exposed to high levels over a long time, for example, following acts of terrorism, clean-up of a nuclear power plant accident, or astronauts on long-duration deep space exploration missions. Scientists working on these countermeasures have generally assumed that human cells react the same way to sudden acute doses of radiation as they do to continuous prolonged exposure, explained Dr. Michael Daly, a pathology professor at USU and the study’s senior author.

Having studied radiation-resistant microorganisms for the last 30 years, Daly and his team already knew yeasts and other types of fungi react to radiation much like human cells because they are both composed of cells in which the genetic material is DNA, made up of chromosomes. They also share many common physiological and genetic mechanisms. Therefore, they focused their efforts on studying these yeasts—95 different strains to be exact.

They analyzed the ability of these yeasts to resist gamma radiation over time in comparison to how they survived one acute blast. What they discovered was the cells did not cope with different radiation exposures the same way. The researchers believe that understanding the mechanisms for these responses to radiation could be translated to how human cells respond to radiation over time.

NEW ZEALANDERS WARNED ABOUT THE CONSUMPTION OF “SEXY PAVEMENT LICHEN”

The Guardian, Aug. 14, 2019

Botanists in New Zealand are warning the public not to consume lichen growing on footpaths and shady rocks throughout the country, after misleading stories about its stimulatory properties spread rapidly online.



INaturalist.org

Xanthoparmelia scabrosa.

The lichen in question is *Xanthoparmelia scabrosa*, a species that grows only in New Zealand and the Pacific, most often in urban areas.

University of Otago lichenologist Dr. Allison Knight dubbed the common species of local lichen the “sexy pavement lichen” after discovering it was being promoted as a natural alternative to Viagra in online markets, especially in China. She said there are hundreds of places selling it in pill and powder form on the Chinese online marketplace Alibaba, where it retails for anywhere from US\$12–300 per kilogram

Knight said most of the products available online were made up of 80 percent Viagra and 20 percent grass clippings. Lichen found on footpaths can also be tainted by inner-city pollutants such as dog urine and excrement, car exhaust, arsenic, mercury, and lead.

To her knowledge no rigorous testing had been done of the “sexy pavement” lichen to prove its efficacy or safety for human consumption.

“It hasn’t ever really been tested, and it is somewhat toxic, so it is not advisable to consume it. It is a precursor to Viagra; however,

cont. on page 8

Sexy Pavement Lichen, cont. from page 7

large quantities could indeed be very harmful,” Knight told *The Guardian*.

New Zealand botanist Dr. Peter de Lange also derided the therapeutic qualities of the fungus, telling the Newsroom website that its effect on sexual function could be opposite of what was hoped for.

INDIA MUSHROOM HUNTER DRAGGED AWAY AND EATEN BY A TIGER WITH ONLY HIS HEAD AND LEGS RECOVERED

<https://en.brinkwire.com/>, Aug. 18, 2019

It wasn't just bears that mushroom hunters had to beware of this summer.

A schoolteacher was dragged away and eaten by a tiger while he was collecting mushrooms near a tiger reserve.

Only the head and legs of Manoj Dhurve, 23, were recovered after the horrific attack in Madhya Pradesh in central India on Tuesday. His remains were recovered from a dense section of forest on the same evening, sparking panic in the area.

Dhurve is the second teacher to fall prey to a tiger in Madhya Pradesh in five years, according to *The Times* of India. He went to the edge of the forest at 11 am to forage for mushrooms near the Pench Tiger Reserve but had not returned by sundown.

The villagers became worried and started searching for him, finding his sandals first at 8.30 pm. They then traced the drag marks on the ground to the remains of the village teacher's body.

The Khawasa forest department was informed, and a search party went hunting for the tiger, which has still not been found.

Officials have told the villagers they will trap the tiger and move it to a secure location. They also said they would provide financial assistance to Dhurve's family.

Locals fear the growth in the tiger population has seen a number of the big cats move out of the reserve into the forest.

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