

# SPORE PRINTS

BULLETIN OF THE PUGET SOUND MYCOLOGICAL SOCIETY  
Number 555 October 2019



## COLLECTING FOR THE WILD MUSHROOM SHOW, OCTOBER 26–27, 2019

Derek Hevel

If you haven't heard yet, our annual Wild Mushroom Show will again be held at North Seattle College. North Seattle College is located just west of Northgate shopping center and is easily accessed from I-5. Doors will open to the public at noon on Saturday, Oct. 26, and at 10 am on Sunday, Oct. 27, but we will start the setup process on Friday.

The show is all at once a fund-raiser, a classroom, an eatery, a boutique, a garden, a laboratory, a fun house, and a crafts project! Lots of different mushroom-related activities will charge up your interest in all things mushroom. There will be lectures on truffle hunting and heavy metal accumulation, mushroom cooking/tasting, soup sales, photos of mushrooms, commercial vendors, arts and crafts, and a cultivation table to assemble your own oyster mushroom-growing kit. All these activities help us introduce the public to the incredible diversity of mushrooms and other fungi. But the primary feature is our mushroom display, which includes hundreds of species in as many shapes, sizes, and colors of mushrooms as you can imagine.

In order to create our display, we need everyone to get into the woods and bring back prime specimens of as many mushroom species as possible. 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. We are a little worried that the season will also end extra early, maybe even before the show. Beginning the week of October 21, please collect and bring in every mushroom you can find. Here are some guidelines for doing that:

**Where to Collect:** Find mushrooms on your own or organize a small group to collect at your favorite spots. We strongly encourage members to forage far and wide to collect those late specimens wherever they can be found. In early October, 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. Also, don't forget those urban mushrooms! Look in lawns, gardens, and landscaping. If you can, please self-organize for a collecting trip in the week or two before the show. Email Milton Tam ([miltontam@aol.com](mailto:miltontam@aol.com)) for suggestions on where to go or for some assistance in organizing a collecting trip. We're counting on YOU to make the display happen!

**How to Collect:** Before you go, stock up on plastic containers, foil, and wax paper bags to hold your specimens. Bring a garden trowel to dig if necessary to remove the entire mushroom intact, including underground structures. Then wrap each collection individually and put them in bigger cardboard boxes. Care for them all the way to the show because they will have to stay fresh and intact through Sunday. For example, store smaller specimens separately in their own container with moss or duff, and mist (but not soak) them to keep them fresh and colorful. For geotropic mushrooms (those that quickly reorient their gills toward the ground), including amanitas, stand them upright in empty milk cartons so their stalks don't bend. Also, don't forget the little ones and the most common mushrooms, since everyone assumes someone else will bring them in. Better to have too many than none at all. Delicate inky caps should be collected on Friday or Saturday morning since they dissolve to ink so quickly. For the naturalistic displays, please also bring organic

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# Spore Prints

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PUGET SOUND MYCOLOGICAL SOCIETY  
Center for Urban Horticulture, Box 354115  
University of Washington, Seattle, Washington 98195  
(206) 522-6031 <http://www.psms.org>

OFFICERS: Randy Richardson, President<sup>2019-2021</sup>  
*president@psms.org* (206) 725-2996  
Daniel Winkler, Vice President<sup>2016-2020</sup>  
*me@danielwinkler.com*  
Donna Naruo, Treasurer<sup>2017-2020</sup>  
*treasurer@psms.org* (206) 938-2783  
Luise Asif, Secretary<sup>2019-2021</sup>  
*asiff@hotmail.com* (206) 365-6741

TRUSTEES: 2018-2020:  
Hans Drabicki, Paul Hill,  
Marion Richards Milton Tam,  
Anne Tarver  
2019-2021:  
Derek Hevel, Debbie Johnson,  
Scott Maxwell, Erin O'Dell,  
Molly Swesey

ALTERNATES: Parker Olson, Kate Turner

IM. PAST PRES: Kim Traverse

SCI. ADVISOR: Dr. Steve Trudell

EDITOR: Agnes A. Sieger, 271 Harmony Lane,  
Port Angeles, WA 98362  
*sieger@att.net*

## MEMBERSHIP MEETING

Tuesday, October 8, 2019, at 7:30 pm at the Center for Urban Horticulture, 3501 NE 41st Street, Seattle

Our September meeting features Alison Pouliot fellow of the Australian National University, and her topic will be “From Sinister to Sublime—Fungi, Science & Conservation.”



Alison Pouliot

Throughout history, fungi have confounded with their dubious connotations, strange appearances, and peculiar habitats. Despite his remarkable contributions to science, Carl Linnaeus appears to have been terribly confused in describing fungi as thievish and voracious beggars. Today we understand that without fungi, life as we know it would be radically different. Fungi regulate the biosphere and support the earth’s ecological functioning. They feed us, delight us, and cure our ills.

Yet across continents and languages, humans remain sharply divided in their regard for fungi, with some cultures revering them and others subjecting them to the wrath of a reckless kick across the field. This has implications for the future survival of fungi. How do fungi find their way into conservation initiatives when they are overshadowed by so-called charismatic megafauna?

This interactive seminar explores how fungi are faring in both the public imagination and global conservation initiatives today. We will examine how fungi are perceived across hemispheres in conservation contexts and engage in a lively discussion of the wider implications for fungi in a rapidly changing world. Alison will also share some anecdotes from her thousand days spent in the forests of 12 countries among the fungi and their followers.

Alison Pouliot is an ecologist and environmental photographer and honorary fellow at the Australian National University. She is especially interested in the “unregarded others” and has a particular penchant for the fungal and the spineless. Alison moves between northern and southern hemispheres to have two autumns each year, guaranteeing a double dose of fungi. Her recent book, *The Allure of Fungi*, documents a forgotten corner of the natural world that is both beguiling and fundamental to life.

Would people with last names beginning with the letters M–Z please bring a plate of refreshments to serve after the meeting.

*There are two types of people who eat truffles:  
those who think truffles are good because they are dear  
and those who know they are dear because they are good.*

—J. L. Vaudoyer.



shape and the moss and duff to showcase them. Derek and his committee are working hard to complete the PSMS cookbook by end of year. The Monday night ID clinic has started again under the direction of Danny Miller. Daniel Winkler has also started the Bridle Trails State Park survey on a two-week rotating schedule beginning the end of September. Most important...don't forget to sign up to help at the annual show

## CALENDAR

- Oct. 4–6 Field trip (see PSMS website)
- Oct. 8 Membership meeting, 7:30 pm, CUH
- Oct. 11–13 Field trip (see PSMS website)
- Oct. 15 Board meeting, 7:30 pm, CUH board room
- Oct. 18–20 Ben Woo Foray, Camp Berachah
- Oct. 19 Field trip (see PSMS website)
- Oct. 22 *Spore Prints* deadline
- Oct-26–27 Annual PSMS Wild Mushroom Exhibit, North Seattle College, 9600 College Way N., Seattle
- Nov. 2 Field trip (see website)

## BOARD NEWS

**Luise Asif**

This year’s fall show is just around the corner, and Derek, Milt, and Kim are busy ensuring that all is in place for a successful event. For the show to be truly successful, we need YOU! If you have questions, contact us at [volunteer@psms.org](mailto:volunteer@psms.org) or sign up online under “events.” Remember we need specimens in good

## Collecting for the Show, cont. from page 1

matter like duff, grass, leaves, bark, and moss. Include a few leaves from the nearest trees or grass for the grass-inhabiting varieties, both for ID and for display.

### Fluorescent Mushrooms for the Glowing Haunted House:

Please keep an extra eye out for mushrooms we can display inside the fluorescent mushroom haunted house! The following species fluoresce in UV light and will make for a great light show: *Hypholoma fasciculare*, *Armillaria mellea*, *Phaeolus schweinitzii*, *Gymnopilus* spp, *Russula* spp, *Cortinarius* subgenus *Leprocybe* and *Dermocybe*, and *Pholiota* spp.

**Record Collection Details:** Put all your finds from one location in one container and add a paper label with your name, phone number, and location. A slip of paper is enough! You can keep your secret edible locations to yourself since we are trying to feed science, not our stomachs. We ask for your name and phone number on the chance that a researcher may request further info, but the written location alone is invaluable.

**Drop Off Your Mushrooms:** Show receiving is on Friday evening after 4 pm and Saturday morning outside the old cafeteria at North Seattle College (go to the SOUTH side of the campus and look for the PSMS signs). The receiving area is just east of the intersection of College Way N. and N. 95th St. We'll be waiting for your mushroom deliveries!

## BEN WOO MEMORIAL FORAY, 2019 Luise Asif

PSMS is delighted to host the fourth annual Ben Woo Memorial foray Friday, October 18, thru Sunday, October 20, again at Camp Berachah Ministries/Black Diamond near the Crystal Mountain ski area turnoff. Invitations to the membership have gone out.

### Program

An exciting weekend is planned starting Friday evening with gifted mycologist Noah Siegel presenting "A Season of Fungi," an overview of PNW mushroom seasons, followed by fungal culinary artist and author Chad Hyatt with "The Mushroom Hunters Kitchen," a flavorful foray into cuisine featuring wild mushrooms.

Saturday night's presenters will be from PSMS's own ranks. Globe-trotting myco-adventurer and PSMS vice president Daniel Winkler will talk about "The Lesser Known PNW Edibles." He will be followed by mushroom expert, Alpentel explorer, and PSMS education chair Danny Miller presenting "DNA Sequencing for the Dummies" making a complex process easy to understand.

In addition to the lectures, a wide range of informative hands-on workshops is being offered. Advanced registration is required, so sign up online. Workshops take place Saturday afternoon.

- The always popular **mushroom dye workshop** will be conducted by Marion Richards. This workshop has a \$35 registration fee, which includes a silk scarf and yarn samples. Limit is 20 people. Every color of the rainbow can be achieved with some finesse using mushrooms and lichens. Each participant will receive a silk scarf to dye during the class, as well as a sample card created from yarn dyed during the demonstration. Additional scarves can be purchased for \$10.

- The **mushroom photography workshop** will be held by Paul Hill. This two-part workshop will focus on shooting fungi both in the field and in the studio. There is a \$15 fee to register for this workshop, limit 10 participants. Mushrooms can be found throughout the year and make an ideal subject for nature photography. So grab your camera, head out into the woods, and take some great photos with Paul.
- The **mushroom cultivation workshop** will give participants the chance to make your own oyster mushroom grow kits to take home. There is a \$5 registration fee which includes one mushroom kit; additional kits will be available for purchase at the workshop for \$5 each. This is a drop-in workshop, so folks can register for the other workshops and still have time to make a mushroom kit or two. Each kit takes about 10 minutes to produce. Your cultivation host will be Milton Tam, former PSMS vice president, active board member, and PSMS cultivation chair. He will be there to guide you through his unique non-sterile process.

Two new workshops have been added this year for those interested in mushroom cooking and photography.

- In the first, led by Chef Hyatt, you will have the opportunity to work with a master chef to create unique preparations to add to your quiver of recipes. This workshop offers you the rare opportunity to explore creative and unusual mushroom preparations. Registration fee for this class is \$20, limited to 20. Open to all levels of cooking experience.
- The second, led by Shannon Adams, long-time PSMS member and expert in microscopy, will introduce you to the fascinating world seen by the microscope's eye and its usefulness as a tool in identification. Registration fee is \$20, limited to 10. No prior experience is necessary.

The event will wrap up Sunday morning with a walk-through and discussion of the specimens gathered during the foray by our team of expert identifiers Danny Miller, Daniel Winkler, and Noah Siegel.

### Accommodations

Accommodations are dormitory style with separate rooms for women and men. There are typically three adults per room. If you wish to share a room with another individual please include their name on your registration in the notes section. We will do our best to accommodate friends as long as you are all the same sex. Unfortunately, we do not have the facilities for couples or friends wanting to share a room that are of the opposite sex. Bathroom facilities are segregated into separate women's and men's facilities.

There are R.V. and camping spaces available, but no R.V. hook-up services. You are welcome to camp or bring your R.V. However there is no reduction in registration fee. Please make a note of your intentions in the comment's section when you register.

There are also available a few rustic A-frame cabins for groups that want to room together. These cabins have six bunk beds with outdoor plumbing a short walk away and no heat. There is no extra charge for cabin rental.

Bring your own bedding, sheets, blankets, pillows, sleeping bag, towels, and other personal items to make yourself cozy and comfortable. There are no nearby services so bring what you need with you. Don't forget a flashlight, rain gear, and mushroom gathering paraphernalia.

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## BEE-APPLIED, FUNGUS-BASED PESTICIDE GETS EPA APPROVAL

Dan Nosowitz

<https://modernfarmer.com/>, Sept. 10, 2019

In the never-ending quest—by some, at least—to reduce the amount of pesticides used on crops, no idea is a bad idea.

With that mentality in mind, Canadian company Bee Vectoring Technologies (BVT) has come up with a deeply strange but also fascinating approach. What if we could use fungi to kill fungi? And what if that *first* fungus was applied, not by humans or machines, but by bees?



BVT recently announced that the company had secured EPA approval for its pest control, which is a proprietary product called CR7. The EPA's published statement on the matter says there is no evidence that CR7 is unsafe to either humans or the environment, and also creates an exemption: there's now no maximum level of CR7 residue that can be found on food.

CR7 is just one part of BVT's flagship product, but it's the one that scored EPA approval, so let's start there. CR7 is a strain of a fungus called *Clonostachys rosea*. More specifically, that fungus is what's known as a necrotrophic mycoparasitic fungus, sometimes shortened to simply "mycoparasite." This particular type of fungus is found in nature and actually feeds on other fungi; *C. rosea* is not a particularly picky eater. BVT says that it's not genetically modified, but simply a special variety of this fungus that the company found and grows.

Research over the past couple of decades has shown that *C. rosea* is a voracious bugger and can control diseases caused by a variety of other fungi. Those include *Alternaria*, the genus of fungus that causes early potato blight, black rot on citrus, and all sorts of other awful fungus-based crop problems. But that's not the only one; *C. rosea* has indicated in studies to attack dozens of different problem-causing fungi.

It's probably worth noting that the EPA's ruling has nothing to do with the efficacy of CR7, instead exclusively looking at whether it's safe to use.

In any case! The way BVT wants to use CR7 is wild. They've set up a system of bumblebee hives, and in those hives are replaceable trays. In those trays they put CR7, plus some other stuff, if the customer wants it. The bumblebee walks on the CR7, which attaches to their bodies, and then the bee heads out to do its pollination and pollen collection thing. The bee, in the process of collecting pollen, deposits the CR7 on the flowers. That's done all without the need for water, equipment, energy, human labor, or mechanical energy.

BVT says its system can currently be used for berries (strawberries, blueberries), apples, tomatoes, canola, and sunflowers, with various other crops as a future possibility.

## FIRST CASE OF WHITE NOSE SYNDROME CONFIRMED EAST OF THE CASCADES IN WASHINGTON STATE

WDFW

The first case of white-nose syndrome east of the Cascades has been confirmed by the Washington Department of Fish and Wild-

life (WDFW). The disease was detected in four little brown bats (*Myotis lucifugus*)—or maybe they were Yuma myotis (*Myotis yumanensis*); the two species are difficult to distinguish visually—that were found near Cle Elum in Kittitas County in April. This is the first confirmation of white-nose syndrome east of the Cascade Range in Washington.

White-nose syndrome is an often fatal disease caused by the fungus *Pseudogymnoascus destructans* in hibernating bats. Kittitas County is the fourth county in Washington to be affected by the disease.



This little brown bat found in 2016 near North Bend was the first case of white-nose syndrome in the state.

Since March 2016 approximately 17 cases of white nose syndrome have been reported by WDFW in King County. In all, the fungus was found in more than 40 bats, mostly little brown bats and Yuma myotis. A silver-haired bat (*Lasiorycteris noctivagans*) found near Seattle in 2016 also tested positive for the fungus, and in 2019 it was found in a western

long-eared myotis (*Myotis evotis*). This was the first time *Myotis evotis* had been confirmed with the disease in North America.

In 2017 two little brown bats and two Yuma myotis from Mount Rainier National Park in Lewis County tested positive for the fungus, although no bats in the colony showed signs of having developed the syndrome. The first confirmed case outside of King County, the finding raised fears that the fungus was more widespread than first thought and might be spreading.

In March 2019 a little brown bat found in Pierce County also tested positive for white-nose syndrome.

## HEALTHY BABIES ARE BORN WITH BACTERIA AND FUNGI IN THEIR GUTS

Kent Willis

<http://theconversation.com/>, Sept. 13, 2019

For the past hundred years, scientists have believed that humans develop in a womb that remains sterile and completely isolated from the collection of bacteria, fungi, and viruses that make us sick when we emerge into the outside world. This theory was largely based on the fact that it was very difficult to grow live microorganisms collected from this part of the body in the lab—so scientists assumed there weren't any to find in the womb.

However, recently my team at the University of Tennessee and two other groups showed new evidence that microorganisms are likely present inside the womb during normal development. Specifically, we discovered fungi in the gut of newborns at birth. Our work suggests that fungal DNA and possibly live fungi may cross the placenta from mother to fetus as a normal part of pregnancy.

In addition to being a research scientist, I am also a physician who cares for preterm infants in intensive care. My work got me wondering about when human bodies begin their first partnership with the fungi that naturally live in our guts. Humans all have bacteria and microscopic fungi, like the yeasts that make bread rise or beer ferment, that live in and on our bodies as our partners. In my laboratory we are striving to understand when the bacteria and fungi that live in and on the baby begin to form this healthy relationship.

## Is the Womb Really Sterile?

The question of whether the womb is sterile began several years ago when a team in the maternal-fetal medicine laboratory of Kjersti Aagaard published impressive research revealing the fetus could be exposed to bacteria during pregnancy—effectively debunking the century old sterile-womb hypothesis.

But in the past few months a heated debate has erupted as a group of scientists suggested that researchers, including Aagaard, had mistaken environmental bacteria contaminating their samples for bacteria living in the placenta. They claimed there were not any bacteria in the placenta and that the womb was sterile, as most scientists had originally believed.

Adding more support to her previous findings, Aagaard published a study in August that used a glowing dye to see bacteria in the placenta under a microscope. Another group also published similar findings in humans and mice. These studies and our own lend even more support to the new idea that the womb is not sterile.

But still no one knew when infants come in contact with their first fungi. Before I could understand if this process was going wrong in preterm babies and making them sick, I needed first to learn how it is supposed to happen in healthy babies.

### Detecting Fungi

To address that question, my colleagues and I collected samples of meconium from 37 mature-term babies who were born after 37 weeks of pregnancy. We also collected samples from 34 preterm babies who were born before this stage. Meconium is the sticky tar-like material that babies pass within the first day or two of birth before they produce normal stools.

We then grew the microorganisms from the meconium using oxygenless chambers that mimic the airless environment of the gut. To categorize the microbes, we employed a new technique that uses DNA to identify the genus of microbes in a sample.

To our surprise we found fungal DNA in nearly all the babies—even in preterm infants born after only 23 instead of the normal 40 weeks of pregnancy.

We measured a gradual increase in the amount and kinds of fungi from each baby, depending on how long he or she had stayed inside the mother before birth. This increase over time supports the idea that colonization by fungi is a natural process and that fungi slowly and steadily accumulate in the fetus during pregnancy.

The differences in gut bacteria and fungi between preterm and term babies were very consistent and stark. It was possible to accurately predict whether the meconium sample came from a baby that was full-term or premature.

### Fungi are in the Normal Newborn Gut at Birth

However, one striking difference was that fungi in the genus *Candida* were found in more preterm infants. The gut communities of several preterm infants in our study were dominated by *Candida*—some were almost entirely *Candida*. Unlike the majority of the fungi we studied, which are naturally present in the gut, this made us wonder if having too much of these fungi too early in life might be one of the many causes of preterm birth. Normally *Candida* lives harmlessly in our guts, but it can occasionally trigger yeast infections; if it invades the blood, it can make a preterm infant very sick.

Our team is exploring how fungi begin to colonize the newborn gut and what happens when this process goes awry. While there are many possibilities that remain to be explored, if the formation of early fungal communities does not proceed as usual it could lead to developing asthma and potentially obesity. In order for scientists to understand if this process is not happening correctly, we need to understand how the first fungal communities are supposed to form in newborns. Our study is a key first step down this path.

## ARTIFICIAL CORK SNIFFER

Marc S. Reisch

<https://cen.acs.org/>, Sept. 8, 2019

Is your wine corky? Does it smell like a wet dog and have a flat, dull flavor? If so, you've become a victim of cork taint. A collaboration between a maker of natural cork bottle stoppers and an expert in gas chromatography hopes to banish the problem for good.

The contaminant that turns good wine into sour grapes is 2,4,6-trichloroanisole (TCA), a compound produced by mold. Although cork taint is a centuries-old problem, scientists have identified the culprit only in the past 40 years. TCA gets into cork through an age-old battle of the kingdoms: Plantae versus Fungi.

Cork is the bark of the cork oak tree, also known as *Quercus suber*. Once every 10 years or so, the trees are stripped of their bark. Over a 200-year lifetime, each bark-regenerating tree can provide thousands of wine stoppers.

*Quercus suber* defends itself against fungal attack by producing phenolic compounds. The fungi defend themselves in turn by methylating the phenolics into less toxic compounds, such as anisole. TCA is generated when anisole reacts with chlorine in the environment or when the bark is treated with a chlorinated antimicrobial compound. Estimates are that 1–7 percent of wine is tainted.

So far, at least, no one has found a way to remove TCA from cork. Better cork cleaning and processing have minimized the problem, but short of going to plastic or screw-on aluminum caps, both of which many respectable wine lovers eschew, no one has found a surefire way to guarantee that each and every cork is TCA-free.

Enter Amorim, Portugal's largest cork supplier. The company sought out gas chromatography expert Ellutia, and together they have developed the NDtech, a custom system that can test individual stoppers for the malodorous meddler.



NDTech artificial cork sniffer in action.

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## Artificial Cork Sniffer, cont. from page 5

Winemakers, Amorim says, can use “the supreme guardian for wine” knowing that if any TCA is in the cork at all, it’s at a level low enough to preserve the wine’s bouquet. The guarantee came at a cost: more than \$11 million went into the design and development of the system, Amorim says.

Andrew James, Ellutia’s marketing director, says years of research went into reaching the necessary analytical detection limit, a mere 0.5 nanograms/liter. The first prototype in 2011 could detect any cork with more than 5 ng/L. In 2015, Ellutia installed the first commercial testing line for Amorim, where 60 gas chromatographs now ferret out wine-ruining corks. Rejected corks—those with 0.5 ng/L or more—go to other uses, such as for flooring or gaskets.

During a day’s testing, each sniffer can test 34,650 corks a week. That’s a rate of 1 cork every 16 s, James says. The real corker will be if Amorim can achieve its testing goal of 1 every 10 s, or more than 3.3 million a week.

## CALIFORNIA TRUFFLE

Marc S. Reisch

<https://cen.acs.org/>, Sept. 8, 2019

Thanks to Bella the border collie, folks at the Otellini Truffle Orchard in California are claiming they are the first to succeed in using a scientific approach to grow the European delicacy in the US. The American Truffle Company, which is building an empire of partnerships with US truffle orchards, says it inoculated with black truffle fungus the Otellini orchard tree where Bella found the lusty subterranean growth.

PRNewsfoto/American Truffle Company



*Robert Chang, Managing Director and Chief Truffle Officer of American Truffle Company, with Bella and her find.*

Cultivation according to “strict scientific protocols” sensitive to the orchard’s

microclimate and soil conditions accounts for the resounding success, the company says.

The specimen that Bella dug up in December weighs 108 g. Typically, Périgord truffles weigh between 30 and 60 g. At current prices, Bella’s find is worth about \$285, a thousand times as much as a wine bottle cork stopper.

## FEWER SWISS MUSHROOM IDENTIFICATION CENTERS, MORE POISONINGS

<https://www.swissinfo.ch/>, Sept. 14, 2019

As mushroom lovers head to the woods, there is also increased activity in the dwindling number of mushroom inspection stations.

“Every year we count 20 to 30 fewer [identification center’s]—that’s 5–10 percent less,” Marionna Schlatter, spokeswoman for the Association of Official Mushroom Control Bodies, told Swiss public radio, SRF.

Since 1992, cantons and municipalities haven’t been obliged to provide such inspection bodies, where trained mycologists go through baskets and weed out poisonous mushrooms from harmless and edible ones.

However, some cantons and municipalities have continued to offer such a service until the inspectors retire, for example. They then cut the job to save money. Today there are still about 350 stations.

The umbrella organization fears that if developments continue like this, there will be more cases of poisoning. Schlatter, herself a mushroom inspector, speaks of a “ticking time bomb.”

The association has already noticed that people who go mushroom hunting in areas without an inspection center prefer to send in photos of mushrooms of which they’re not sure. Many people also share photos on social media, asking for help in identifying mushrooms.

This can end fatally, Schlatter says. She adds that mushroom apps should be treated with caution, since the same mushroom can look different, depending on its age, the nutrient content of the soil, and the kind of the growth.

“It’s almost impossible for an app to detect that,” she says.

If poisoning is suspected, 24-hour advice is available on Tox Info Suisse’s emergency hotline 145. This year Tox Info says it has seen an extraordinary number of mushroom poisonings or suspected cases.

“There have already been around 200 more poisonings or suspected cases this year than at the same time last year,” says Katharina Schenk, senior physician at Tox Info. “These include first poisonings with the dangerous Death Cap mushroom.”

The inspectors are calling on the government to reconsider the mushroom identification centers as a public service and to adapt the Federal Act on Foodstuffs accordingly.

However, the government sees no need for action. Consumption is a private matter, it believes, and the consumption of mushrooms “for private domestic use” is also a question of personal responsibility.

## MUSHROOMS MAY LOWER RISK OF PROSTATE CANCER

Natasha Persaud

<https://www.renalandurologynews.com/>, Sept. 10, 2019

Consuming mushrooms several times a week might help lower a man’s risk of prostate cancer (PCa), according to new research published in the *International Journal of Cancer*.

In a study of 36,499 Japanese men (ages 40–79 years) from the Miyagi and Ohsaki prefectures, PCa developed in 1204 (3.3%) over a median 13 years. Men older than 50 years who habitually consumed mushrooms once or twice a week or, better yet, three or more times per week had 8 percent and 17 percent lower risks of PCa, respectively, than men who ate mushrooms less than once weekly. The association persisted regardless of PCa stage or intake of vegetables, fruit, meat, or dairy products. The study lacked information on intake of dietary supplements.

“Since information on mushroom species was not collected, it is difficult to know which specific mushroom(s) contributed to our

findings. Also, the mechanism of the beneficial effects of mushrooms on prostate cancer remains uncertain,” said lead author Shu Zhang, PhD, of the Tohoku University School of Public Health, in Japan, in a journal news release.

Large amounts of the antioxidants L-Ergothioneine and glutathione reportedly exist in shiitake, oyster, maitake, and king oyster mushrooms, the investigators noted. White button mushrooms are thought to have anti-cancer activity. In addition, preliminary studies indicate that extracts of mushrooms such as *Agaricus blazei*, *Agaricus bisporus*, *Trametes versicolor*, *Cordyceps militaris*, and *Coprinus comatus* inhibit cell proliferation in PCa cell lines and possibly restrict progression to castration-resistant disease, the investigators wrote.

## MOTION TO PREVENT SALE OF MAGIC MUSHROOMS DEFEATED BY VANCOUVER, B.C., COUNCIL

<https://www.cbc.ca/>, Sept. 12, 2019

The Vancouver, B.C., city council struck down a motion Wednesday night to deter and prevent the sale of psilocybin mushrooms, psychedelic fungi also known as magic mushrooms.

The motion from Councilwoman Melissa De Genova linked the sale of the mushrooms, which are classified as an illicit drug in Canada, to the widespread money laundering in the province identified in a 2018 report by ex-Mountie Peter German.

“I want to make sure that we are definitely deterring money laundering,” said De Genova during Wednesday’s council meeting.

She says that many cannabis dispensaries have paid for business licenses in cash amounts of tens of thousands of dollars and fears that allowing the sale of an illicit substance like mushrooms leaves open more avenues for money laundering.

Magic mushrooms contain hallucinogens, usually psilocybin and psilocin, which can cause people who use them to see, hear, or feel things that are not really there. They may also experience anxiety, fear, nausea, and muscle twitches.

## TWO POLICE K9 DEATHS THIS YEAR DUE TO WILD MUSHROOMS

Holly Matkin

<https://defensemaven.io/>

Stevens Point, WI

Sept. 10, 2019



<https://imageproxy>

Stevens Point Police Department (SPPD) K9 Luna died from multiple organ failure on Sept. 4, two days after she mistakenly ingested wild mushrooms.

The two-and-one-half-year-old Belgian Malinois’ health deteriorated rapidly after she suffered “multiple seizures” on Sept. 2, the SPPD said in a Facebook post.

“At [approximately] 2:00 am on Sept. 4th Luna took a turn for the worse and it is with profound sadness that we must report that the Stevens Point Police Department lost one of their own, and without a doubt, most beloved member this morning,” the agency’s post read. “Luna died of multiple organ failure.”

Hours after her death was announced, SPPD raised an American flag “in honor of K9 Luna’s service to the City of Stevens Point and Portage County,” the department said in a later post. The flag flew for 24 hours before it was lowered and presented to Officer Ballew, the Stevens Point *Journal* reported.

Riverside County, CA

Aug. 30, 2019

Sheriff’s Department K9 Officer Windy died after contracting Valley Fever while handling a tracking call in a desert area of Riverside County in May 2019.



<https://imageproxy>

She ingested Valley Fever fungal spores during a track and became ill. Her condition worsened and she was medically retired from the department. She passed away two weeks later as a result of the illness on July 25, 2019.

K9 Officer Windy.

K9 Windy had been with the Riverside County Sheriff’s Department for five years and served as a tracking bloodhound. She had a total of 50 documented finds.

## NEW COMPANY TO GROW GIANT SLABS OF “MEAT” FROM MUSHROOMS

<https://ecovative.com/>, Sept. 5, 2019

Ecovative Design recently announced it is setting up a new company, called Atlas, “fully dedicated to developing the best structures to replicate the texture and feel of whole cuts of meat such as steak and chicken.” Their technique is based on mushroom mycelium, the threads that make up the “root” of a mushroom.

Breakthroughs that allow labs to ferment the small molecules like iron-rich heme that give meat its meaty flavor ushered in an era of plant-based burgers. But by far, the most valuable parts of an animal (82 percent by value)—and the biggest impact in terms of changing consumption (75 percent by volume)—are whole cuts of meat.

The answer to growing a steak is its structure, the intricate arrangement of muscle fibers and protein that gives a ribeye its desire or a chicken breast its appeal.

Conventional food processing technologies can’t mimic the structure of meat. But certain mushrooms, when grown in a precise manner using the Ecovative Design’s patented Atlas™ Food Platform, show promise of delivering that critical meat-like texture.

About a year ago Ecovative Design started out to grow a myco-based steak with the end goal of developing the technology to produce any type of whole cut meat from steaks, to chicken breasts, to bacon.

They started creating bacon samples in the company kitchen last fall. The results proved that mycelium could produce whole cut organic structure. But the organisms, developed from mushroom strains that were previously optimized to replicate the properties of structural materials like leather, were too tough.

Ecovative began prospecting for new strains with other textures and fiber orientations. The results were promising, and over the summer they hired a chef and an in-house food scientist.

They are now starting to recruit a team and capital for the new Atlas™ Food Co.

## Ben Woo Memorial Foray, cont from page 3

### Meals and Check-In

Meals are served in the main lodge. There will be dinner served Friday night, Saturday breakfast, lunch, and dinner. A sack lunch will be provided for those going off site all Saturday on their own forays. Sunday breakfast will be served before checkout. There are refrigeration and kitchens available for those with special dietary needs or for those that just want to cook their own meals.

Check in begins at 3:00 pm on Friday, October 18, and checkout is at 11:00 am Sunday morning, October 20. You must be out of your room by 11:00 am, but you may linger on the property to forage for the remainder of Sunday.

### Attendance Requirements

Every person attending must be a current PSMS member with up to date dues. Sorry no unexpected visitors and no pets except service animals.

### Ben Woo Foray contacts:

James Nowak: 206-354-9015 [contact@terra-fleurs.com](mailto:contact@terra-fleurs.com)  
Luise Asif: 206-365-6741 [fasif@hotmail.com](mailto:fasif@hotmail.com)  
Marian Maxwell (for registration questions or problems):  
425-235-8553 [outreach@psms.org](mailto:outreach@psms.org)



## GOLDEN CHANTERELLE PUFFS

Louise Freedman

[www.mssf.org/cookbook/chanterelle.html](http://www.mssf.org/cookbook/chanterelle.html)

### Ingredients:

- 1 cup chicken broth
- ½ pound chanterelles, minced
- ½ cup (1 stick) butter
- ½ tsp. salt
- 1 cup unbleached all-purpose flour
- 3 eggs



### Preparation:

Preheat the oven to 450°F. Heat the chicken broth in a heavy medium saucepan. Add the chanterelles, butter, and salt and allow the mixture to come to a boil. Add the flour, stirring constantly until the mixture is smooth and almost leaves the sides of the pan. Remove from the heat. Beat one egg at a time into the mixture.



Drop tablespoons of the dough onto a buttered cookie sheet, spacing the spoonfuls about 2 inches apart. Bake at 450°F for 15 minutes or until they are firm and golden. Cool the puffs on a rack.

Makes about 35 puffs. Serve with white wine, if desired.

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Seattle, Washington 98195



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