

# SPORE PRINTS

BULLETIN OF THE PUGET SOUND MYCOLOGICAL SOCIETY  
Number 545 October 2018



## COLLECTING FOR THE WILD MUSHROOM SHOW, OCTOBER 27–28, 2018, AT NORTH SEATTLE COLLEGE

Derek Hevel

This year our Annual Wild Mushroom Show will be held at North Seattle College! The new location is just west of Northgate shopping center and is easily accessed from I-5. Doors will open to the public at noon on Saturday Oct. 27 and at 10 am on Sunday Oct. 28.

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 and soup, photos of mushrooms, commercial vendors, arts and crafts, and a cultivation table to assemble your own oyster mushroom-growing kit. Updates to this year's show include a new tree-and-mushroom display at admissions, and a walk-in haunted fluorescent mushroom house (spooky!).

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. Beginning the week of October 21, please collect, foster, and bring in every mushroom you can find. Here are some guidelines for doing that:

**Where to Collect:** Find mushrooms on your own at your favorite spots or with organized collecting groups Thursday or Friday Oct. 25–26. Email Derek Hevel ([dfhevel@gmail.com](mailto:dfhevel@gmail.com)) if you would like to drive or forage with a group. Trip information and groups will be announced via email. If you plan to go collecting on your own and could use some gas money, be sure to contact Derek. Also, don't forget those urban mushrooms! They should be everywhere by mid-October. Look in lawns, gardens, and landscaping.

**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 geotrophic 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 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.

**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 5 pm and Saturday morning outside the old cafeteria at North Seattle College (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!



# Spore Prints

is published monthly, September through June by the  
PUGET SOUND MYCOLOGICAL SOCIETY

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## CALENDAR

- Oct. 6 Field trip (see PSMS website)  
Oct. 9 Membership meeting, 7:30 pm, CUH  
Oct. 12-14 Field trip (see PSMS website)  
Oct. 15 PSMS board meeting, 7:30 pm, CUH boardroom  
Oct. 19-21 Ben Woo Foray, Black Diamond Camp  
Oct. 20 Field trip (see PSMS website)  
Oct. 23 *Spore Prints* deadline  
Oct. 27-28 PSMS 55th Annual Wild Mushroom Show, North  
Seattle College  
Nov. 3 Field trip (see PSMS website)

## BOARD NEWS

Luise Asif

A huge thank-you to people who signed up at the last meeting to volunteer for this year's fall show. More people to help are needed! Please volunteer on the PSMS website under "Event Registration." Interested in dye mushrooms? We are looking to expand the Dye Committee. Sweta has agreed to train one or two more people to do presentations at our shows. Contact Sweta Agrawal or Luise Asif if interested. Bloggers are needed to help with the PSMS Blog.

## MEMBERSHIP MEETING

Tuesday, October 9, 7:30 pm, Center for Urban Horticulture, 3501 NE 41st Street, Seattle

Our speaker for October is the renowned Taylor Lockwood with his always entrancing, mind-blowing photographs of wild mushrooms set to music. This year's program includes



Taylor Lockwood

- New photos, old photos, new names, old names.
- A brief history of his early art and music, computer graphics, mushroom illustrations, and stamps.
- Old video never seen before.
- New video, stories, and photos from New Zealand, Australia, Costa Rica, and Borneo.
- Recent equipment inventions and resultant mushroom video/animations.
- Big thoughts about the Earth's history.

plus

- The Finale to End All Finales!

Taylor grew up near Seattle and took to music at an early age. By the time he was 21 he was playing several musical instruments and soon moved to San Francisco to start a band.

In 1984, three bands and several years later, he moved to Mendocino, California, in the middle of the rainy season. In his first week there, he "discovered" mushrooms, bought a camera, and started taking photos. A year later he presented his first slide show at the Los Angeles Mycological Society annual fair.

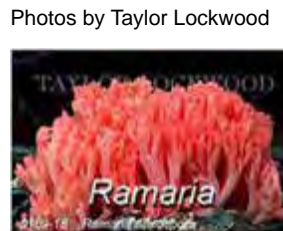
Since then, he has taken thousands of photos and done hundreds of shows in the U.S. and around the world. His work has appeared in the *National Geographic Magazine*, *The New York Times*, the *Washington Post*, and many other publications. His photo of a bioluminescent mushroom was the first mushroom photograph ever put onto a U.S. postage stamp. Like many other amateur and professional mycologists, Taylor is a pioneer in the discovery and appreciation of mushrooms and other fun.

*Don't miss this special treat!*

Would people with last names beginning with the letters L-Z please bring a plate of refreshments to serve after the meeting?



Amanita



Ramaria



Boletus

Photos by Taylor Lockwood

Let the Board know you are interested. The Board is considering offering a first aid session and obtaining a defibrillator to have at field trips. Are you knowledgeable with CPR? If so, please let Erin O'Dell know. Meanwhile work continues on the six strategies outlined in last month's *Spore Prints*.

## HOSTING A PSMS FIELD TRIP: WHAT IT LOOKS LIKE

Carolina Kohler

If you'd like to be a field trip host or have any questions about hosting, please contact Debbie (debjoh13@comcast.net) or Carolina & James (cakahler@ymail.com). Or read on for some more details.

1. A few days before the field trip you will come into possession of the field trip gear (about three 22-gallon bins), which you will get from the hosts who hosted the trip before or directly from the Field Trip Host Coordinators (Debbie & Carolina).

2. The hosts of the previous field trip will let you know which items are running low (paper plates, plastic flatware, coffee, sugar, etc.) and, if necessary, you will restock them (PSMS will reimburse you\*).

3. Shortly before the field trip you will buy breakfast goodies of your choice (PSMS will reimburse you\*). Healthy options are always very welcome!

4. The day of the field trip you will show up at the location before the official "opening" time to set up things for breakfast and have plenty of coffee going.

5. After the morning get-together (which usually takes about two hours), you will be free to go out collecting—this is not an all-day commitment!

6. In the afternoon, after mushroom hunting, you will set up things for the potluck dinner (serving utensils, paper plates, flatware, napkins, etc.). If you don't plan to stay for the potluck, you can still host the morning coffee social and transfer the hosting duties for the evening get-together! Just let us know and we will coordinate this.

7. After the meal you will take note of things that need to be replenished, you will pack the bins, and you will transfer the gear (along with the list of items to replenish) to the person hosting the following trip (the Field Trip Host Coordinators will assist with this).

Hosting a field trip is a great way to get to know PSMS members better, plus you'll be making a wonderful contribution to everybody's mushrooming day...and you will get a mention in our *Spore Prints*!

Also keep in mind that you can host on your own, with someone you know, or you can ask us to set you up with a co-host to share tasks.

We look forward to hearing from you!

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\*Note on reimbursements: PSMS estimates an expenditure of about \$100–125 per field trip. Please keep the receipts of everything you buy, and we will provide you a snail-mail/email address in order to get back your money (in the form of a check).

## THE JURY IS STILL OUT ON THE MAGIC OF MUSHROOM TEA

Christy Brissette

*The Washington Post*

via the *Seattle Times*, Sept. 5, 2018

It wasn't that long ago that mushrooms were for pizza and Portobellas were considered exotic. Now purveyors of Chaga, Lion's

Mane, and Reishi mushrooms are promoting them as enhancements to beverages, not to food. And they're making hefty health claims in the process.

These fungi are becoming increasingly popular in the form of powdered extracts, which are typically used to make mushroom teas and "coffee." In Ayurveda and traditional Chinese medicine, they're classified as "adaptogens" because they're believed to help your body "adapt" to stress. The alleged benefits include boosting energy levels, easing depression, even curing cancer.

But what does the research tell us about these claims? Here's what you need to know before adding these mushrooms-of-the-moment to your health routine.

### The Mushrooms

There are several types of adaptogenic mushrooms, but these are the three that appear to be among the most popular and researched.

*Chaga:* This mushroom grows on trees such as birch in northern climates. Also known as clinker polypore, chaga looks like a clump of dirt with some orange areas. This mushroom has long been used as a folk remedy in Northern Europe. Chaga enthusiasts claim it can increase concentration, reduce fatigue, boost the immune system, and fight cancer.

*Lion's Mane:* This mushroom is full and fluffy like its namesake, with a white or golden color. It's also called Yamabushitake or Hou tou gu. It is used as food and medicine for a variety of ailments in China, Korea, Japan, and India.

*Reishi:* This mushroom grows on decaying trees and wood. Also known as the Lingzi mushroom, it comes in several colors, although red is the most popular. Reishi mushrooms have been used in Japan and China for centuries for high blood pressure, arthritis, and fighting cancer.

Although you can eat Lion's Mane mushrooms whole, Chaga and Reishi have a woodlike texture and a bitter taste, so they are most easily enjoyed steeped in tea or as a powder added to other foods or beverages. Cooked Lion's Mane has a similar texture to lobster, so it's sometimes used in vegetarian versions of seafood recipes.

### The Alleged Benefits

Despite the widely touted claims of health benefits and centuries of use in traditional medicine, the merits of these mushrooms haven't been proved by science. Here's what the research reveals so far.

*Chaga:* Studies in isolated cells and animals suggest that chaga may help boost the immune system and destroy cancer cells. There haven't been human studies yet to show whether this effect carries over.

The same goes for the purported mental boost and blood sugar-reducing effects of chaga. At this time, not enough is known about the safety and effectiveness for people.

*Lion's Mane:* This mushroom may be beneficial for brain health, although most of the research has been done on mice. Rodent studies suggest that Lion's Mane could prevent damage to neurons caused by beta-amyloid plaques, which occurs in Alzheimer's disease.

A double-blind study of 30 Japanese adults ages 50 to 80 with mild cognitive impairment found that taking three grams of powdered Lion's Mane a day over four months improved mental functioning

*cont. on page 6*

## A REVIEW OF FIELD GUIDES FOR NORTHWEST MUSHROOMERS

Dick Sieger

### Books

Here is a selection of paperback field guides that will help hobbyists identify the mushrooms they encounter in the Pacific Northwest.

*Mushrooms Demystified: A Comprehensive Guide to the Fleshy Fungi*, David Arora, Ten Speed Press, 1986, 2nd Edition, ISBN 0-89815-123-4, cover price \$39.99.

With its more than 900 pages, this book is a little heavy to carry in your mushroom basket, but it will serve you well in your car and at home. It gives descriptions of more mushrooms than any other publication you are likely to find. They are accurate, thorough, and avoid jargon. Descriptions of look-alikes help prevent misidentification. Numerous well-written keys may get you to the right page, but the book is difficult to use unless you recognize most families and genera.



However, it is quite useful in confirming an identification made from another book. Illustrations are few. This is the textbook used in almost all mushroom identification classes, and you'll see it at the elbow of experienced identifiers everywhere. It covers species across North America.

*The Audubon Society Field Guide to North American Mushrooms*, Gary H. Lincoff, Alfred A. Knopf, 1981, ISBN 0-394-51992-2, cover price \$21.95.



This is the book for hobbyists who like to identify mushrooms by looking at pictures. It groups mushrooms by how they look rather than by their scientific groups. Color photos of mushrooms that have similar appearances are shown on facing and adjacent pages. Find a picture that looks like the mushroom in hand and then refer to the detailed, easy to understand text to see if your mushroom is, indeed, the one in the picture.

*Read the description! Read the description! Read the description! Don't depend on the picture!.*

Lincoff spent a lot of time in the Northwest while writing the book, so many pictures are of our local species. The book approaches *Mushrooms Demystified* in the number of species covered, and its 900 pages printed on bible paper will slip into your pocket. It covers North American species.

*The New Savory Wild Mushroom*, Margaret McKenny & Daniel E. Stuntz: revised and enlarged by Joseph F. Ammirati, University of Washington Press, 1987, ISBN 0-295-96480-4, cover price \$19.95.

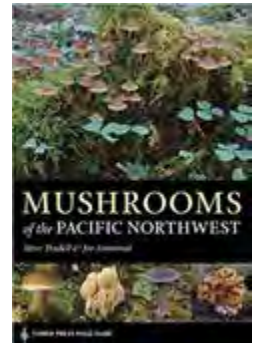
The limited number of mushrooms in this book makes it especially useful for beginners. The species described are those most frequently found in our area and include just about all the best edible mushrooms and those to avoid. If you are just collecting for the table, these are the mushrooms you most want to know about. Technical details



are limited, so you can read about species in narrative form with information that gives you confidence about which mushrooms to keep and which ones to pass up. The "Mushroom Poisons" section is recommended for its simple language. The book doesn't include psychoactive mushrooms in the genus *Psilocybe*. This book is restricted to mushrooms that fruit in the Pacific Northwest.

*Mushrooms of the Pacific Northwest*, Steve Trudell & Joseph Ammirati, Timber Press, 2009, ISBN 13:978-0-88192-935-5, cover price \$27.95.

Lots of species are covered using recent names cross referenced with traditional older names. Dr. Trudell planned to write a field guide decades ago, so he started photographing mushrooms and refining his technique. It shows. Complete descriptions aren't included, but lengthy ones separate one species from another. Along the way you will learn interesting things about a species and about the group it belongs to. Edibility information isn't always given, but one wouldn't consider eating those anyway.



Older field guides use older names. The field guides reviewed here, except *Mushrooms of the Pacific Northwest*, use many names that have been retired. Mushroom names are changing rapidly these days. Quick and cheap molecular testing has given mycologists the ability to see fungi in a new way. Previously, they were classified by their form, spore print color, microscopic structures, and chemical tests. Some groupings are no longer valid, requiring new names.

Mushroom names may have changed, but the mushrooms themselves have not!

*What's in a name? That which we call a rose  
By any other name would smell as sweet.*

### Other Resources

*A Field Guide to Edible Mushrooms of the Pacific Northwest*, Daniel Winkler, Harbour Publishing Co., 2011, 10: 1-55017-542-4, cover price \$7.95.

This fills the need for a good pocket guide. It's a durable and waterproof pamphlet with 50 mushrooms likely to be encountered in the Northwest. Fine photos accompany concise descriptions and edibility symbols. Beginners will be comfortable using it.

*Mushrooms of Idaho and the Pacific Northwest: Volume 1: Discomycetes*, Edmund E. Tylutki, University of Idaho Press, 1993, ISBN 0-89301-062-6, cover price \$13.95.

Here's a valuable little paperback for identifying the Ascomycetes one frequently encounters in the spring—morels, false morels, cups, and others. For these, the book is easier to use than other field guides. It includes gray-scale photos. See "Errata" for name changes and look on page 13 for a key.

*Mushrooms of Idaho and the Pacific Northwest, Volume 2, Non-Gilled Hymenomycetes*, Edmund E. Tylutki, University of Idaho Press, 1987, ISBN 0-89301-097-9, cover price \$13.95.

Easier to use than more complete field guides, it is helpful for identifying our common local non-gilled Basidiomycetes—boletes,

chanterelles, polypores, corals, club fungi, and more. It includes ample keys, gray-scale photos, and some color plates.

### **Pacific Northwest Key Council**

*Easy Key to Common Gilled Mushrooms*, 2nd ed., [ldcohenesq@gmail.com](mailto:ldcohenesq@gmail.com), PNWKC, 21082 SW Meadow Way, Tualatin, OR 97062, \$3.50 + postage.

This set includes two heavy-weight 11 × 17 pages. A key to mushrooms is arranged in 5 rows and 8 columns. Select a row that matches the features of the mushroom in hand and follow it to the column with its spore print color. A box then gives illustrations, brief descriptions, and a genus name. Knowing a mushroom's genus is the first big step to identification! Bewildered by mycological jargon? The front of the guide to mushroom descriptions has a page with more than 200 illustrations of mushroom features with their corresponding names. The back has an index of feature names with numbers that refer to the illustrations.

<http://www.svims.ca/council/keys.htm> has keys with a series of choices that lead one to a species name and a detailed description. They are designed for inexperienced users and include many of the known species in the PNW. The keys can be used online or downloaded. A "Key to Keys" guides one to a genus where one can find species in that genus. Some pictures are included. Free.

<http://www.alpental.com/psms/PNWMushrooms/PictorialKey/index.htm> has pictorial keys for use with your web browser. It's wonderful for beginners. Read the instructions and it's much more likely you'll meet success. Free.

<http://www.svims.ca/council/matchmaker.htm> provides the Match-Maker program for Windows and Mac. The program, developed by volunteers, may be downloaded without cost. MatchMaker users identify species by entering any combination of features, macroscopic and microscopic, to narrow possibilities down to one or several species. The program has complete descriptions of 4,000 species and includes 5,700 photographs. Beginners are urged to use the option "Show Common Only" for simplicity. Free.

### **North American Mycological Association**

<http://www.namyco.org/> poisonings tab has a drop-down list of mushroom poisoning subjects. Free.

<http://www.namyco.org/toxicology/identifiers.html> provides a table of volunteer identifiers sorted by region. Free.

### **Bryce Kendrick's *The Fifth Kingdom Online***

<http://www.mycolog.com/fifthtoc.html> will tell you anything you want to know about fungi and then some. It's written by a teacher who's the author of excellent textbooks and that shows. Free.

## **MUSHROOM MARAUDER UNMASKED**

**Rick Kova**

<http://www.poconorecord.com/>, Sept. 15, 2018

I will never forget the time when I found cauliflower mushrooms growing along the base of two old tree stumps in a wooded forest near my home.

Cauliflower mushrooms not only are rare but are considered a delicacy by



many mushroom connoisseurs. The two cauliflower mushrooms that I had discovered were about the size of grapefruits and when mature can reach the size of a large head of cauliflower.

Feeling greedy, I wanted the cauliflower mushrooms to grow to their maximum size, so I decided to hide the globular delicacies by making concealed shelters using sticks and branches. I then covered up the fabricated mushroom cages with plenty of lush green fronds of ferns. They were so well concealed amongst the forest floor that I had to look twice to find them.

To locate the mushrooms, I inconspicuously marked several nearby trees to be used as navigational reference. On the return hike back home, I daydreamed about eating cauliflower mushrooms and how clever I was to hide them in those mini-woodland shelters.

One week later had passed and it was time to collect the cauliflower mushrooms. I gathered up my wicker basket and large mushroom knife, and then hiked to the exact location near the marked trees.

I walked toward one of the two familiar looking tree stumps and noticed that the covering of fern fronds had been removed, and my crafty cage made of sticks and branches was tossed to the side. I knelt to the ground and could not believe my eyes as the base where the cauliflower had grown was perfectly sliced off with a sharp knife. "You got to be kidding," I trembled.

With one cauliflower mushroom sacrificed and in the hands of another mushroom collector, I would still be content with walking out of the woods with the other cauliflower mushroom inside my basket. Not so fast, as the second tree stump shared the same horror story. The "mushroom bandit" had struck again using the same "toss and slice" modus operandi.

Who can do this to me? There were several feelings that immediately engulfed my body with first being disbelief, then anger followed by embarrassment and laughter. Later that day, I had shared the story with my family and friends who all said that they could not believe someone had found those hidden mushrooms.

The circle of life has some surprising turns along its course, and what happened a few years afterwards proves that true to that statement. While standing in a long line at the local Walmart, a man standing next to me commented about a bag of mushrooms that someone across from us had placed in their shopping cart.

"Why buy mushrooms when you can pick them?" he said. "I am an avid mushroom picker myself and cannot remember if I had ever purchased mushrooms from a store," I replied. We continued talking about wild mushrooms and eventually asked where each of us resided. "I live up in Mountain Top," he said. "My house is near Lake Blytheburn," I shared.

"What street?" he asked. I told him the street and he immediately replied, "I'm your backwoods neighbor. It is hard to see our homes because of the tall trees." There's a lot of edible mushrooms in the forest near our homes, I commented. "I know, I search there all the time." Cauliflower mushrooms came to mind, and I then shared my story about finding two cauliflower mushrooms a few years ago near my house, then hiding them with branches and ferns.

He burst out loud with laughter and chuckled, "So, you're the guy who tried to hide my mushrooms with branches and ferns! I was continually watching them grow since they were the size of my fist, and never expected anyone to find them," he continued.

*cont. on page 6*

## Mushroom Tea, cont. from page 3

compared with a placebo. More research is necessary, however. Also note that the study was conducted at a mushroom research institute in Japan funded by a mushroom producer.

Lion's Mane also is purported to help manage depression and anxiety. One human study involved 30 menopausal women randomized to eat either cookies with Lion's Mane extract or placebo cookies without the extract for a month. At the end of the study, there was no significant difference between the two groups for changes in menopausal symptoms, sleep quality, or depression. There did appear to be significant differences in self-reports of palpitations and motivation favoring the Lion's Mane group.

Only animal studies have looked at Lion's Mane's impact on diabetes, ulcers, Crohn's disease, nervous system injuries, liver health, heart disease, and cancer prevention and treatment.

**Reishi:** Studies on its health benefits have had mixed results. A small study of 10 people found that taking a Reishi mushroom supplement for 10 days increased the levels of some antioxidants in the blood, which suggests potential heart health benefits. A follow-up study of 18 people taking Reishi mushrooms for a month didn't replicate these results.

Research also shows mixed results for the effects of Reishi mushrooms on blood sugar and cholesterol levels, with one study finding that Reishi mushrooms led to lower blood sugar and cholesterol levels, and another study finding no significant impact.

There isn't enough evidence involving Reishi mushrooms and cancer to recommend them as a first-line or alternative treatment. Current research suggests that when study participants undergoing cancer treatment took Reishi mushroom supplements alongside their chemotherapy and/or radiation, the effectiveness of their treatments increased. However, some participants experienced insomnia and nausea.

### The Risks

Although these mushrooms may be "natural," that doesn't make them harmless. For example, Chaga is high in oxalates, compounds that reduce nutrient absorption and could damage the kidneys in large amounts.

Any of these mushrooms could interact with medications, supplements, or herbs you're taking. Always talk to your doctor before trying a new herb or supplement.

### The Bottom Line

There's no evidence that buying mushroom teas, coffee blends, and extracts will lead to health benefits. Eating a variety of mushrooms such as shiitake and cremini along with plenty of other vegetables is better for your budget, and comes with stronger evidence for disease-fighting potential. All varieties of mushrooms are low in calories, contain some vitamin D, may have gut-health benefits, and give a rich umami flavor to your meals. My money is always on a variety of whole foods over single supplements.



## Marauder Unmasked, cont. from page 5

"When I saw your crafty coverings, I had no choice but to pick them on the spot," he smirked. We laughed, introduced ourselves, and shook hands. Eventually, the long grocery line ended with me at the checkout counter.

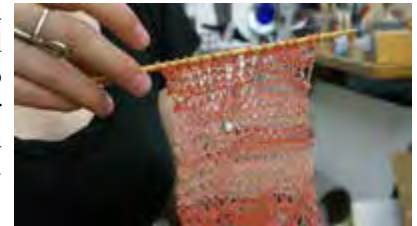
The drive home was quite comical and ironic that the case of the missing mushrooms was finally solved by meeting the actual "mushroom bandit" himself, while standing in a grocery line commenting about packaged mushrooms in a shopping cart. I learned the hard way, and from that day onward I now practice what I preach when it comes to picking mushrooms.

## ALGA/FUNGUS TEXTILE WINS BIODESIGN CHALLENGE

<https://news.fitnyc.edu/>, June 30, 2018

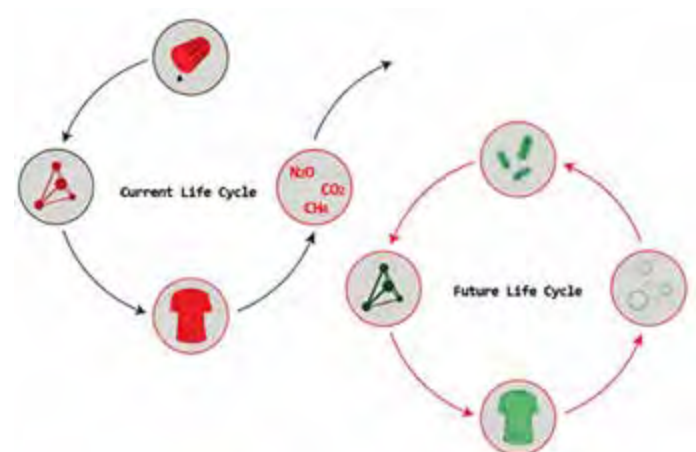
A team from the Fashion Institute of Technology (FIT) has won the 2018 Biodesign Challenge for their novel techniques to grow a material made out of alginate (algae) and chitosan (fungi).

Rather than looking at this material solely as a molecular structure, they examined it through a fashion designer's lens. As a result, they extruded it from a syringe as a filament and knitted this "yarn" into fabric. As part of their presentation, they showed a small T-shirt they hand-knit from the yarn.



The team began with observations about the wastefulness of fashion: "It's the second most polluting industry," they noted in their presentation. They then spent months experimenting with different formulas of the biomaterial, curious to see how much it would stretch. They tested an early version of the knitted filament in FIT's textile testing labs, where they discovered, to their surprise, that it stretched 70 percent beyond its original length. They also customized a 3D printer to make a mesh version, which stretched 50 percent.

The resulting textile, though not ready for production, represents a step toward a closed-loop life-cycle system for fashion, as the fabric is not only biodegradable but could be used as a nutrient for growing more materials.



## NEVER EAT THE “CLEAN” PART OF MOLDY BREAD

Gene Kim & Shira Polan

<https://www.businessinsider.com.au/>, Sept. 20, 2018

We’ve all been there. The loaf of bread you bought a couple weeks ago is starting to grow mold and you’re wondering “Maybe I can just cut the part where I can see the mold and eat the clean part.” It turns out, even though you cannot see it, your whole loaf of bread could be teeming with fungus.



www.kidspot.com.au

You’re all ready to make the sandwich of your dreams. Turkey, tomato, and Swiss on a bed of romaine lettuce sandwiched between two slices of sourdough. Classic.

Oh no, what’s this? Mold? But look, good news. The mold’s only on part of the bread. So, I can just cut that away and be fine, right?

There’s no such thing as a “clean” part of moldy bread. That’s because mold is a fungus, like mushrooms. The caps on the surface are easy enough to spot. But there’s a vast network of subterranean “roots” called hyphae that you can’t see.

So let’s take another look at that bread of yours. Maybe you can just grab another piece from the same loaf. Well, that’s not such a great idea, either. Because by the time mold sprouts its fuzzy head, what you’re really seeing is the reproductive part of the mold called sporangia. Each sporangium releases tens of thousands of spores.

So, even though you can’t see it, that entire loaf could be teeming with fungus.

But it seems like such a waste to just throw it out. After all, you eat mold on purpose all the time, like the mold that goes into making cheese, soy sauce, and even life-saving antibiotics like penicillin. Eating a little bit on your bread can’t be that bad, right?

Ultimately, it’s a gamble. Just like eating a wild mushroom, many are fine. But some can be deadly.

Mold is the same way. There are thousands of different species of mold—many of which are harmless to humans. But since so many types can sprout up on food it’s nearly impossible to know if what you’re eating is safe.

*Cladosporium*, for example, can sometimes trigger allergies but is generally harmless. Whereas other molds, like *Penicillium crustosum*, produce harmful poisons called mycotoxins. An elderly couple in 2005, for example, was admitted to the hospital after eating a can of soup contaminated with this kind of mold. They had severe muscle tremors but eventually recovered.

But other molds, like *Rhizopus stolonifer*, can have permanent effects. And you might recognize this mold since it commonly grows on bread: blue-green, with black splotches, and super fuzzy. In rare cases, it can prompt a deadly infection called Zygomycosis, which causes your blood to clot and can, ultimately, starve your cells of oxygen to the point that they die.

And it’s not like bacteria where a little heat will eliminate the threat because high temperatures won’t break down the mycotoxins.

Since you have no clue which one you’re about to put in your mouth, ask yourself: “Is it really worth the risk?”

## KIM JONG UN LAVISHES 2 TONS OF PRIZED MUSHROOMS ON S. KOREA AS PEACE TOKEN

<https://www.rt.com/>, Sept. 20, 2018

As the latest three-day inter-Korean summit continues, North Korean leader Kim Jong-un has sent a lavish gift and peace offering to his southern counterpart in the form of highly-prized Pine mushrooms (*Tricholoma matsutake*).

“While the president and his wife continued to stay in the North, Chairman Kim Jong-un’s gift arrived here. Two tons of pine mushrooms arrived at Seoul Air Base early this morning,” Press Secretary Yoon Young-chan told a press briefing Thursday, as cited by the Yonhap News Agency. The current peace talks mark the fifth inter-Korean summit and the third this year alone.

South Korea’s President Moon Jae-in ordered that the mushrooms be distributed to members of the families who have been separated from their loved ones in the North. Roughly 4,000 elderly South Koreans will receive about 500 grams each before the Chuseok holiday next week.

“I hope the mushrooms, with the scent of North Korea intact, may offer some condolence,” *Moon said*.

Pyongyang made similar gestures in 2000 and 2007, following visits from South Korean presidents Kim Dae-jung and Roh Moo-hyun respectively.

The shipment sent to President Roh Moo-hyun was valued at \$2.6 million. At one time the mushrooms fetched a price of \$650 per kilogram, but prices have fallen significantly in the interim.

Pine mushrooms, known by the names Songyi in Korea and Matsutake in Japan, are notoriously difficult to grow and require highly specific conditions for a decent crop. This climate-dependent scarcity makes them akin to truffles, with hunters dedicating huge amounts of time and energy into locating the mushrooms in the wild.



tamingredients.com

*Pine Mushroom*  
(*Tricholoma matsutake*).

## Kudus To Erin

*Dear PSMS,*

*I just wanted to thank the author Erin Raymond for her wonderful articles about dyeing with fungi, especially Dyer’s Mazegill, which I have been discovering recently on my fungi forays on the Isle of Mull on the west coast of Scotland. I’d assumed that these techniques were probably long-forgotten so was delighted to see how very much alive they are and also the wonderful colours—our ancestors were so smart!*

*Erin’s articles have really enriched my appreciation of these fungi and added a new dimension to my interest.*

*Best wishes,*

*Chris Austick*

## MUSHROOM RECIPE WINS NATIONAL CONTEST

<https://www.wifr.com/>, Sept. 11, 2018

ROCKFORD, Ill. (WIFR) - A local woman won a national recipe contest, and because of it hundreds of senior living residents will have that recipe on the menu.

Lu Bartosiak lives at Cherryvale Place, one of hundreds of Enlilant communities around the country. Lu was chosen out of more than one hundred entries nationwide for the Enlilant recipe contest. And now Lu's stuffed mushroom recipe will be served at Enlilant communities' menus across the U.S.

### Stuffed Mushrooms

*Prep Time: 1 Hour*

**Lu Bartosiak**

*Serves: 4-5*

#### Ingredients

20 large white button mushrooms  
1 lb bulk pork sausage (aka breakfast sausage), browned  
8 oz cream cheese, chopped into small cubes  
1 bunch green onions, chopped  
1/2 to 1 cup milk  
Parmesan cheese (optional)

#### Directions

1. Pre-heat oven to 350 degrees.
2. Brown sausage and crumble well.
3. Drain sausage from skillet leaving a thin coat of oil, and sauté onions in oil until slightly wilted.
4. Return sausage to pan with onions and cream cheese.
5. Over low heat, stir sausage, onions, and cream cheese until well blended.
6. Remove stems from mushrooms and stuff each mushroom cap with sausage mixture.
7. Top with Parmesan.
8. Add milk to bottom of baking dish, place mushroom caps on top and bake until heated through and mushrooms are beginning to leak their water (20-25 min.).



*Bon Appétit*

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