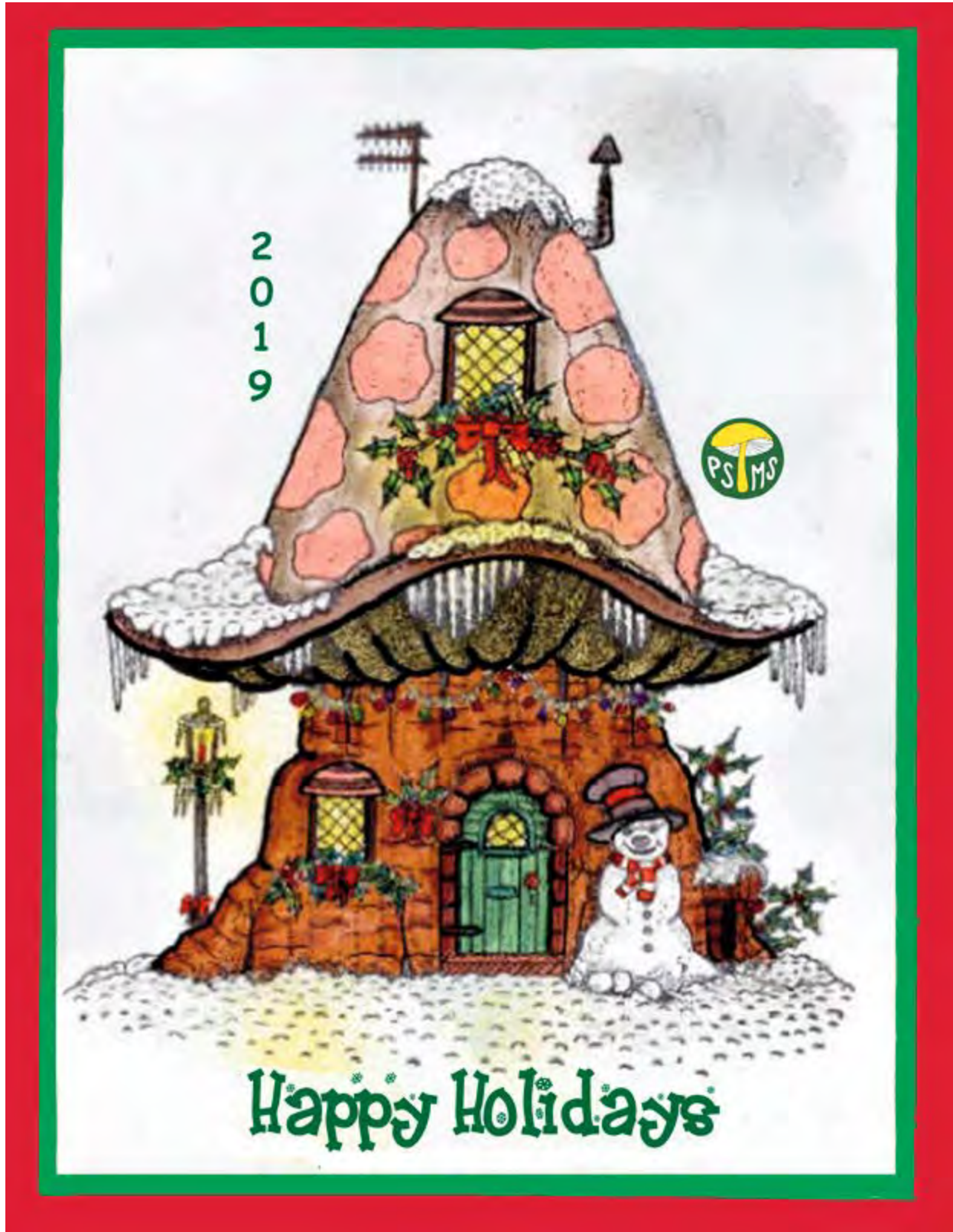


# SPORE PRINTS

BULLETIN OF THE PUGET SOUND MYCOLOGICAL SOCIETY  
Number 557 December 2019



# Spore Prints

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## MEMBERSHIP MEETING

Marian Maxwell

Tuesday, December 10, 2019, at 7:30 pm at the Center for Urban Horticulture.

It's the annual PSMS Holiday Extravaganza! Come join us on Tuesday, December 10, for great food, great company, a silent auction, and a fun edible-art competition (must be a mushroom theme) with prizes awarded by general consensus! Bring a favorite holiday finger food to share!



Email invitations with links to register, as well as the cost and more information, will first be sent out after the board meeting on November 18 to those who are signed up to receive emails on either the Yahoo group list or the PSMS broadcast system. Space is limited (sorry, no refunds). This event is for members only (you may register your significant other even if they are not a member) and is not open to the public.

You may submit up to 10 of your favorite mushroom photos from the past year for the slide show. There should be some great photos since this was a stellar year for mushrooms. Photos can be submitted to [photography@psms.org](mailto:photography@psms.org) and should be received by Saturday, December 7th. This event is hosted by your Board of Trustees.

Please send any questions regarding registration to Marian at [outreach@psms.org](mailto:outreach@psms.org).



## CALENDAR

- Dec. 10 General meeting and Holiday Extravaganza, 7:30 pm, CUH
- Dec. 16 Board meeting, 7:30 pm, CUH board room

## BOARD NEWS

Luise Asif



A debriefing is planned to discuss the very successful fall mushroom show. Plans are under way for the Holiday Extravaganza on December 10th. A nomination committee is being formed for the upcoming election in March of new Board members, a Vice President, and a Treasurer. If you have a nomination or are interested in running, please contact Marian Maxwell at [pastpsmspres@psms.org](mailto:pastpsmspres@psms.org).

## PSMS NOMINATION COMMITTEE

It's time to think about nominating candidates for the upcoming general election in February, and we are looking for a general member or two to serve on the nomination committee. We will be seeking candidates to fill five trustee positions on the PSMS Board for the years 2020-2022, as well as candidates for Vice President and Treasurer. Candidates for officer positions should have experience as a general trustee before running for an executive position. The Vice President is responsible for filling in for the President as well as reserving the rooms at the Center for Urban Horticulture for the general membership and board meetings and acquiring speakers for the programs for our general meetings. For Treasurer, the candidate must be a member of PSMS for 4 cumulative years (unless 2/3 of all Board members agree otherwise), knowledgeable about accounting and tax rules and practices, and knowledgeable about the current PSMS accounting software. For more information or to volunteer, email Luise at [volunteer@psms.org](mailto:volunteer@psms.org).







Brian S. Luther

We had excellent weather for our last fall outing, with 112 people signing in. Of these 38 were brand new members experiencing their first field trip. Alexandra Sullivan and Jeffrey Rodgers were doing their first time hosting, and for sure nobody was disappointed with the great selection of breakfast goodies, coffee, and juices they prepared and set out. Alexandra made many of the delicious muffins and assorted snacks herself, and Jeffrey admitted he helped by “doing the dishes.” Fantastic work, Alexandra and Jeffrey—thank you!

Wren Hudgins helped me bring a big load of firewood in his truck, and I kept the fire going almost all day long. Judging from the large number of members hovering around it, the large fireplace was a popular spot in the shelter.

We had our usual 10:00 am meeting, and members were able to sign up with one of five field trip guides—Wren Hudgins, Iain McConnell, Marcus Sarracino, Andrew White, and Joe Zapotosky. At the end of the day five large picnic tables were covered with an assortment of mushrooms from both within and outside of the park. Most everyone found at least some Yellow (*Cantharellus formosus*) or White Chanterelles (*C. subalbidus*), with nearly all in surprisingly good condition for this late in the season. Many other good edible species were also brought in. Paolo Assandri and his wife had a lovely collection of half a dozen perfect Western Matsutake (*Tricholoma murrillianum*) buttons. Not surprisingly, they were both absolutely thrilled.

I was fortunate to have additional ID help throughout the day from Danny Miller and Wren Hudgins. Because specimens from the park required data slips with each, their assistance was greatly appreciated.

The potluck had a large selection of foods, with some being hot dishes that had either been cooking in crockpots all day or were just prepared. Lots of members pitched in at the end of the day to clean up and put things away, leaving the shelter in top notch condition.

I hope you’ve all enjoyed the fall field trips this year, and I’m already working on organizing and reserving next spring’s events. Wishing all of you health and happiness for Thanksgiving, the holiday season, and the New Year.

## FORAGER DISCOVERS 45-POUND MUSHROOM

Tyler Pletsch

<https://www.theintelligencer.com/>, Nov. 5, 2019

MADISON COUNTY, ILL - In 43 years of mushroom hunting in the Madison County area, a local forager has discovered one of his most significant finds to date.

Gary Vondrasek recently found a 45.5 lb mushroom called Hen of the Woods (*Grifola frondosa*). He believes that it is due to a moisture-rich area at the base of a Yellow Chestnut Oak, which he estimates to be 350 years old. The tree sits near a creek that flows at the bottom of a small gorge. The land is owned by a farmer who lets Vondrasek hunt for mushrooms.

“This find is my life record for that species, at one tree,” he said.

Hen of the Woods, aka Maitake, typically grow to a maximum of about 50 lb, but are more commonly under 30 lb. The fungi can be found in clusters at the base of a tree in late summer to early autumn. The fruit body is composed of clusters of flattened caps that, to some, are reminiscent of a sitting hen. Vondrasek said he is particularly fond of the chestnut flavor.



Gary Vondrasek sits next to pieces of the 45.5 lb Hen of the Woods he found.

## NEW FUNGUS SCARE CLOSES OPERATING ROOMS AT SEATTLE CHILDREN’S HOSPITAL

KOMO News Staff, Nov. 11, 2019

SEATTLE - *Aspergillus* has again been discovered in air samples at Seattle Children’s Hospital. *Aspergillus* is a common genus of mold often found in the air—but it can cause complications for surgical patients, especially those with compromised immune systems.

The latest discovery has closed three operating rooms and two procedural areas, forcing the hospital to postpone some surgeries and divert others to other hospitals, said hospital spokesperson Kathryn Mueller. All 14 operating rooms will be closed later in the week as the hospital investigates the cause of the recurrent problem, Mueller said.

“We are deeply sorry for the impact the air quality issues in our operating rooms continue to have on our patients and families,” she said. “Seattle Children’s remains committed to doing what’s right to keep our patients safe.”

The latest discovery is the second time that the fungus has been detected in operating rooms at Seattle Children’s Hospital. The previous outbreak led to at least five infections and one death, hospital officials said at the time.

It’s not yet clear how the state Health Department will respond to the latest findings.

## FIRE-SPAWNED FUNGI HIDE IN OTHER ORGANISMS

Scienceblog.com.

via *The Spore Print*, L.A. Myco. Soc., Nov. 2019

When a wildfire obliterates a forest, the first life to rise from the ashes is usually a fungus—one of several species that cannot complete its life cycle without fire. How do pyrophilous (fire-loving) fungi survive, sometimes for decades, between fires?

A new study published in *Fungal Ecology* by researchers from the University of Tennessee and the University of Illinois finds that some of these fungi hide out in the tissues of mosses and lichens.

The study was part of a larger ongoing project by a team of University of Tennessee mycology researchers including Karen Hughes, Brandon Matheny, and Ronald Petersen, all faculty members in the Department of Ecology and Evolutionary Biology. They have been studying the changes in the Great Smoky Mountains National Park fungus population since the devastating 2016 wildfire.

“We have this specific group of fungi that we see after a fire; they never occur before a fire,” said study co-author Andrew Miller, with the University of Illinois. “You’re only going to see the fruiting bodies—what most people recognize as a mushroom—after a fire.”

There are several hypotheses to explain where pyrophilous fungi live when they’re not reproductively active, Miller said. Some think the spores drift into a newly burned zone from elsewhere, but how those spores could develop in the absence of fire isn’t clear. Some suggest the fungus is present in the soil, either as a spore or a storage organ that somehow lasts for decades between fires and isn’t consumed by fire.

“The pyrophilous fungi that we found had never been documented for the Smokies before this, in spite of focused collecting by three generations of University of Tennessee mycologists,” said Hughes. “Fire has been repressed in the Smokies for 100 years, so where were these fungi hiding? For one pyrophilous species, it seems to exist inside mosses and lichens.”

The team collected mosses, lichens, and soil samples from burned and unburned areas in and around the Great Smoky Mountains National Park after the 2016 wildfire.

To determine if the fungi were inside the mosses and lichens rather than riding along on their surfaces, the researchers disinfected the moss and lichen samples before testing their innards to see if any fungi were inside.

The team found DNA from pyrophilous fungi inside the surface-sterilized mosses and lichens from burned and unburned areas. They also found DNA from pyrophilous fungi in the soils inside and outside the burn area. That latter discovery is interesting, Miller said, since pyrophilous fungi do not fruit outside a burn zone. The presence of their



*Bonfire scalycap, Pholiota highlandensis, a pyrophilous mushroom.*



DNA there might suggest they’re persisting in the soil as fire-resistant spores.

Another possibility is that some of the fungal spores from the burned areas drifted into the unburned zones, leaving a DNA “signature” in the soil, Hughes said. The DNA might persist there longer than the spores could survive in the soil, she said.

“I see the moss or lichen as a protective capsule that gets burned away in a fire and the fungus is not severely harmed,” said Daniel Raudabaugh, a postdoctoral scientist with the University of Illinois. “It will burn that outer coating off, and the fungus falls onto the soil and then starts growing.”

The researchers say there is more to learn about how the fungi persist in the environment. “There are some things that we still don’t understand, such as how pyrophilous fungi live for decades inside mosses and lichens between fire events,” Matheny said. “However, evidence suggests that these fungi have taken up residence inside these other organisms on the forest floor, tree trunks, or the tree canopy, which has contributed to their lack of detection by traditional means.”

## FUNGUS THAT MAKES SNAKES LOOK LIKE MUMMIES TURNS UP IN CALIFORNIA

Nicoletta Lanes

<https://www.livescience.com/>, Nov. 6, 2019

Snake fungal disease—a newly emerging malady that infects snakes and causes their skin to crust, eyes to cloud, and faces to swell—has been spotted in California for the first time.

According to the California Department of Fish and Wildlife (CDFW), the infected California kingsnake was found in May in Amador County in the Sierra Nevada by a member of the public who brought the “emaciated and suffering” animal to a wildlife care center. Tattered skin clung to the animal’s warped face, making the cloudy-eyed snake look more like a mummy than a living creature.



*California kingsnake (Lampropeltis californica) with clinical signs of snake fungal disease, collected from Plymouth, Amador County, California, in late May 2019.*

Scientists first characterized snake fungal disease in 2008 and learned that the infection is caused by a fungus called *Ophidiomyces ophiodiicola*, according to CDFW. Since then, researchers have found the infectious organism in 30 snake species in the U.S. and Europe, in 23 U.S. states, and in one Canadian province. Snakes can pick up the fungus through abrasions in their skin or physical contact with infected snakes. A severe infection causes the skin to become bumpy and molt repeatedly, while the affected snake’s face may become too disfigured for the animal to feed properly. The weakened snakes tend to rest in open areas, vulnerable to the elements and nearby predators.

While *O. ophiodiicola* is the leading cause of skin infection among wild snakes, the infection is often mild and doesn’t kill the affected animal, according to the U.S. Geological Survey, which speculated that “environmental changes may be behind the “recent emergence of severe and fatal infections in some snake populations”



Snake fungal disease poses a threat to dwindling snake populations, including the timber rattlesnake and the federally threatened eastern massasauga, according to the CDFW statement.

As of yet, officials don't know how the disease might impact snake populations in California. Just this week, the fungus was detected in tissues from a dead Florida water snake found by the CDFW in Folsom, Sacramento County.

Right now, the top priority is to make sure humans don't spread the fungus to snakes across the state. Officials encourage the public to report any sightings of snakes with skin sores or unusual behavior, but avoid handling or disturbing the animals.

There's no danger of humans catching the disfiguring snake disease, though. "There is no evidence that snake fungal disease is transmittable from snakes to humans," the report added.



## URBAN APARTMENTS CAN HOUSE MORE DIVERSE FUNGI THAN HUTS IN THE RAIN FOREST, STUDY FINDS

Hunter Moyler

*Newsweek*, Nov. 7, 2019

Cleaning chemicals used in urban homes create environments fertile for the rampant growth of fungi, while homes deep in the Amazon have fresher air and contain organisms that are more "natural" for humans, according to a study from Rutgers University.

The study, published Monday in *Nature Microbiology*, found that the more urbanized a settlement was—meaning the more densely populated—the more diverse the biomes of the settlement's homes and its inhabitants were, especially when it came to fungi. Thus, in their efforts to make their homes more clean or sterile, people living in urban areas may be actually making them more prone to certain kinds of fungi and bacteria.

To conduct the study, researchers examined the microscopic materials in homes as well as the bodies of those homes' inhabitants.

According to the study's abstract, the research covered homes in settlements along an urbanization "gradient." In other words, the study took a look at homes including and between the extremes of the so-called urban/rural divide. The range extended from "a remote Peruvian Amerindian village to the Brazilian city of Manaus," according to the study's abstract. Manaus is the largest urban center in the Amazon basin, with a population of nearly 2 million residents. Other cities, including one consisting of small houses that all lacked indoor plumbing and another medium-sized town with "more modern amenities" were also examined.

Although the urban dwellers reported cleaning their homes more than those living in rural settlements, researchers found that surfaces in the urban homes "had a greater diversity of fungal species associated with human skin," according to the press release. Urbanites were also found to have a greater diversity of foot fungus than their rural counterparts, despite the assumption some may have that the urban homes were "cleaner."

The research sheds light on some of the disadvantages of urbanization, which is associated with many of the health problems people in more developed countries and areas face today. According to the Rutgers research team, increased urbanization usually goes hand-

in-hand with fewer infectious diseases but is also associated with "obesity, asthma, allergies, autism, and other disorders." Further, urban dwellers' microbiomes—the helpful bacteria in our bodies that help digest food and perform other functions—are drastically less diverse than those of rural dwellers.

The study's authors said more research is needed to explore the effects of urbanization on the health of humans, a species originally adapted to live as hunter-gathers in small groups.

"We are just now starting to quantify the effect of cutting ourselves off from the natural environment with which we as humans co-evolved and of replacing it with a synthetic environment," study co-author Rob Knight, a professor at the University of California-San Diego, said. "What's next is to identify the specific differences associated with urbanization that have a health impact and to design interventions to reverse them."



## THIS FUNGUS TURNS FLIES INTO ZOMBIES, THEN IT STARTS MAKING CANNONS

Liam Mannix

*The Sydney Morning Herald*, Nov. 6, 2019



*The fungus kills the fly and then grows out of its abdomen.*

Science brings us many wonders: lasers, the space shuttle, penicillin. We can now add one more: a fungus that turns houseflies into zombies and then builds tiny cannons to shoot other flies.

The secrets of this horrible fungus were unwrapped by researchers based in Denmark and the Netherlands, who published their work—complete with formulas for calculating the velocity and kinetic energy of a fungus cannonball—in the *Journal of the Royal Society Interface* in October.

The "fungal artillery," as the researchers call it, is owned by the parasitic fungus *Entomophthora muscae*. It has generated a plethora of scientific papers due to its strange behavior.

*Entomophthora muscae* lives off houseflies, feeding off them, reproducing inside them, and eventually killing them.

"If you notice a fly with its legs up, lying on its back or even stuck on the fly screen and it has not moved for a day or two, it's worth having a closer look," says Dr. Teresa Lebel, a fungus researcher based at the Royal Botanic Gardens.

To spread, *Entomophthora muscae* has developed a complex—and disgusting—method of attracting new hosts.

When an *Entomophthora muscae* spore settles on a housefly, it germinates, cuts through the fly's exoskeleton, and begins infecting the poor creature. Then the fungus heads for the fly's brain, where it starts manipulating the fly's behavior.

*cont. on page 6*

## ***Entomophthora muscae*, cont. from page 5**

The fungus will force the fly to crawl upward, typically to the top of a branch, flower, or stem. It will spread its legs and wings—perhaps to become as noticeable as possible. Then it drools a glue-like substance, likely manufactured by the fungus, that sticks it hard in place.

Only then will the fly die.

The fungus will continue growing inside the corpse, digesting the fly, eventually covering the creature's body in puffy white filaments. For reasons scientists still don't quite understand, these dead fly corpses are extremely attractive to other houseflies, who inspect, touch, and sometimes try to copulate with the cadaver. This is exactly what the fungus wants.

The fungus grows tiny cannon-like stalks, tipped with a fungal spore, through the dead creature's abdomen. When set off by motion from other flies, these cannons explode, spraying fungal spores on any other fly unlucky enough to be nearby. Other fungal spores can float up into air currents and be carried onto prey further afield.

This explosion is surprisingly powerful, firing off spores at a velocity approaching 10 meters per second.

To find out—and in the hope the cannon could be repurposed to attack other pests—the team of scientists decided to do the only logical thing: they built their own tiny fungus cannon, out of a rubber-like tube with a tiny plastic bullet jammed in the top.

A syringe slowly squeezed water into the tube, building up pressure behind the projectile until it shot out the top.

The scientists tested a variety of different cannons: ones large and small, ones with light and heavy projectiles, and ones using different fluids to provide the explosive force.

Over dozens of test-fires, the researchers developed a series of mathematical formulae to predict the exact trajectory of the fungal cannon, taking into account wind resistance and gravity. They found the right size for the fungal cannonballs, big enough to travel a long distance but still small enough to be caught and carried by the winds onto other victims.

The researchers say they hope the research can be used to develop fly-killing traps. It is also, as Lebel says, “just really cool.”



## **HOW AN INSANE DEMAND FOR TRUFFLES IS LEADING TO SABOTAGE, FRAUD, AND DEATH**

**Hailey Eber**

Nypost.com, June 2019, via

*The Spore Print*, L.A. Myco. Soc., Oct. 2019

Gabriele Caporale had taken precautions. One afternoon in 2009, he put a muzzle on his cocker spaniel before they went out to search for valuable white truffles in the hills of Perano, a town in Abruzzo, Italy, about 160 miles east of Rome.

Lately, saboteurs had been leaving meatballs laced with poison in the forest, with the aim of killing rival truffle hunters' dogs.

The muzzle was meant to protect his spaniel from scarfing up the dangerous treats.

Caporale and the dog bounded through the forest, and the pup stopped to lap up some water from a puddle on the ground. A few moments later, the dog suddenly lost interest in the search for fungi and his breathing became heavy and labored. Caporale scooped the dog up in his arms and rushed back to the car. As he drove off, the dog stopped breathing completely. By the time they reached the veterinarian, the spaniel was dead.

The vet said strychnine, a colorless, odorless agent that farmers use for pest control but has no purpose in the wild forest, was to blame. Aware that truffle hunters had grown savvy to the use of meatballs, the poisoners had likely placed a few drops in the pool of water the dog had drunk from, sending the innocent animal into respiratory distress.

The discovery of truffles, especially enigmatic wild white truffles, is so “vanishingly rare” that hunters resort to “brutal forms of sabotage,” Ryan Jacobs writes in his new book, *The Truffle Underground: A Tale of Mystery, Mayhem, and Manipulation in the Shadowy Market of the World's Most Expensive Fungus*.

Since ancient times, truffles have been prized for their unique, earthy flavor and intoxicating aroma. There are hundreds of different truffle species, but only a few have any value in the culinary world. White truffles (*Tuber magnatum pico*) and black winter truffles (*Tuber melanosporum*) are considered the best—true luxuries.

Truffles are typically the size of small rocks, and the bigger they are the more valuable they're considered. In 2014, a 1.89-kilo white truffle from Alba—one of the largest ever found—sold for \$61,250 at Sotheby's in New York.

It's difficult to estimate the size of the truffle market as a whole, given that much of it takes place off the books, but Jacobs says the European market alone is worth around \$330 million, and it's growing rapidly alongside increased demand.

At the same time, harvests in recent years have been unpredictable, seemingly due to climate change, making the industry increasingly ridden with crime and fraud.

Originally, pigs were used to search for truffles, but they tended to eat their bounty. Now hunters rely on dogs, which are happy to just get a piece of salami as a reward for finding a truffle.



Remo Damosso, a veterinarian with a practice near Alba, estimated he sees three or four poisoned dogs per week during the truffle-hunting season from September to December, killed by everything from rat poison to shards of glass. Truffle-hunting dogs are also regularly stolen.

“Some hunters sleep with their dogs,” Jacobs writes. “Others have paid for expensive security systems.”

Hunters can report stolen pups to local authorities, but there's usually little local police can or will do. Often, hunters won't even report a crime, as there's a tacit understanding that certain risks must be accepted.

"It's a form of terrorism," Damosso told Jacobs. "If your dog gets killed by poisoning, then you will not go to the forest anymore."

And dogs aren't the only ones who end up dead.

In December 2010, Laurent Rambaud was living in fear. Rambaud worked as a bank administrator in Grignan, a quaint village in southeastern France. To earn extra cash, he cultivated black truffles in his family's orchard. (While white truffles are only found in the wild, black truffles can be carefully cultivated by planting an oak tree sapling inoculated with fungal spores.)

But, that year, neighboring farmers were waking up to small mounds of dirt signaling that someone had been digging on their property. The farmers were hesitant to work with police, lest they call attention to their own truffle business and admit there were possible thieves among their neighbors.

"The people there seemed to labor under the illusion that there were no crimes in their quiet, cloistered little village," Jacobs writes.

Rambaud and his father feared they'd be targeted next. They'd already encountered trespassers in their groves. A strange car had once approached Rambaud beneath the trees, getting dangerously close to him before speeding away. At another point, someone had broken into his mother's car.

So, on the night of Dec. 20, when Rambaud saw a tall silhouette on the edge of the grove, he didn't hesitate. He took out his 12-gauge shotgun and fired, hitting the man in his thigh. The trespasser staggered back to his feet but Rambaud fired again, killing the man.

When the police arrived, they identified the victim as Ernest Pardo, whom the authorities had hired as an informant. Now, it appeared that Pardo was one of the thieves he had been hired to help catch, but he'd also been unarmed, and his wife was expecting their third child when he was killed.

The village was divided over what Rambaud had done and what the appropriate punishment was. In 2015, he was sentenced to eight years in prison, though he's expected to only serve part of that time.

"The village's abundance of truffles made the private community more hermetic, even paranoid about what might walk out of the shadows," Jacobs writes.

Pulling the truffles out of the ground is only the first opportunity for criminal activity. It also happens later in the marketplace.

Alba is considered one of the best truffle areas, and dealers often label their goods as being from there when really they're from elsewhere in the Mediterranean.

"The number of 'Alba' truffles sold globally each year far outpaces the region's—and even the entire country's—estimated supply," writes Jacobs, who equated the practice with labeling a bottle of wine from Virginia as a Sonoma Valley Pinot Noir. He recalled talking with a major Romanian truffle dealer who said one of his best clients was an Italian shop called Alba Tartufi. Naturally, he writes, "the shop doesn't advertise any Romanian truffles on its website."

At least those truffles were the same species as the famous Alba truffles.

Many commonly found truffle species have little to no value in the kitchen, including some commonly cultivated in China that look quite similar to black winter truffles but, according to one dealer, "smell and taste about as good as a battered tennis ball."

In 1998, one of the world's largest truffle companies, Urbani Tartufi, got caught mislabeling their produce when Italian officials discovered 47 tons of Chinese truffles in the company's warehouse.

They had been purchased for \$20 per kilo and looked nearly identical to European black winter truffles, which, at the time, were worth about \$400 per kilo. To pass off the Chinese truffles, the company would mix them in with genuine ones, so a chef might sample a portion of a shipment and find them satisfactory. In some instances, they even went as far as spraying the Chinese truffles with a synthetic truffle fragrance or dyeing their skins with food coloring, as some Chinese truffles appear more brown than black.

"Unless you have a microscope or a mycologist, it's very, very hard to tell what it is," Rosario Safina, a former Urbani distributor in the US who was unwittingly an accessory in the fraud, told Jacobs. "All those guys are the biggest crooks in the world."

The company's reputation and business took a hit after the bust, but today Urbani still remains one of the biggest companies in the truffle market. "That scandal was really kind of brushed under the rug," said Jacobs.

Outright theft, not just fraud, is also common and sometimes on a very large scale. In 2005, thieves in Provence scaled roofs and used night-vision goggles and rope ladders to break into a middleman's warehouse and nearby groves, stealing nearly \$100,000 worth of black truffles. The thieves were never caught.

"It was shocking because clearly it was the work of an organized group of criminals who had done surveillance, as you would in, say, a diamond heist on the French Riviera," said Jacobs.

So what's a gourmand to do?

"Even at a really nice restaurant in Manhattan, I would check the menu carefully and I would ask questions," he said, though he also noted that the best chefs work hard to source their truffles from reputable people they trust.

And, if those 10 grams of shavings atop your pasta that you've just paid \$200 for aren't incredibly delicious, don't assume your taste buds are to blame.

"If you have really fresh truffles ... you really feel like you've entered into another plane of existence," said Jacobs. "It really is an earth-shattering, transformative experience."





## SKILLET STUFFED SHELLS

**Anna Stockwell**  
*Epicurious*, Nov. 2018

### Ingredients

18 jumbo pasta shells (about 6 oz.)  
1½ tsp kosher salt, divided, plus more  
2 TBs extra-virgin olive oil  
½ lb crimini mushrooms, thinly sliced  
1 tsp freshly ground black pepper  
½ cup dry white wine or vermouth  
5 oz. baby spinach  
6 garlic cloves, thinly sliced  
2 TBs unsalted butter  
3 cups marinara sauce  
½ tsp crushed red pepper flakes  
2 cups whole-milk ricotta  
3 oz. finely grated Parmesan (about 1 cup), plus more for serving  
3 TBs finely chopped oregano, divided

### Preparation

Cook shells in a large pot of boiling salted water, stirring occasionally, until very al dente, about 9 minutes; drain. Run under cold water to stop the cooking; drain again.

Meanwhile, heat oil in a large skillet over high heat. Add mushrooms and cook, stirring occasionally, until they release juices,



Chelsea Kyle

then are dry again and nicely browned, 5–6 minutes; season with black pepper and 1 tsp salt. Reduce heat to medium, add wine, and cook, stirring, until reduced by half, 1–2 minutes. Add spinach, cover, and cook until beginning to wilt, 1–2 minutes. Uncover and continue to cook, stirring occasionally, until spinach is completely wilted and most of the liquid is evaporated, 2–4 minutes more. Transfer mushroom mixture to a large bowl; reserve skillet.

Cook garlic and butter in reserved skillet over medium-high heat, stirring occasionally, until garlic is fragrant and beginning to brown, 2–3 minutes. Add marinara sauce and red pepper and bring to a simmer over low heat. Cook, stirring occasionally, until warmed through, 6–8 minutes.

While sauce cooks, add ricotta, 3 oz. Parmesan, 2 TBs oregano, and remaining ½ tsp salt to mushroom mixture and stir to combine. Spoon about 2 TBs ricotta mixture into each shell. The shell should be filled to capacity but not overstuffed.

Nestle stuffed shells into hot sauce in skillet. Cover and cook over medium heat until shells are warmed through, 4–6 minutes. Remove from heat and let sit 5 minutes.

Sprinkle with Parmesan and remaining 1 TBs oregano.

*Serves 4*

**Season's Greetings!**  
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