

SPORE PRINTS

BULLETIN OF THE PUGET SOUND MYCOLOGICAL SOCIETY
Number 530 March 2017



GOOD MOLD, BAD MOLD

Leslie Nemo

<http://scienceline.org/>, Feb. 13, 2017

Thirty feet below the streets of Brooklyn, certain old brewery tunnels are now growing mold—thick, stinky, hairy, mottled mold—around and inside wheels of cheese.

These living carpets don't deter Benton Brown, co-owner of the tunnels and the cheese within. "In France, we cut off these crazy rinds and it was the first thing we ate," he says gleefully.

There's a polite name for Brown's business—Crown Finish Caves, a cheese aging facility—but there's no masking what he admits to eating: fungus.

If a gray smudge of fungi appears on the cheddar in your fridge, you'd toss it in the garbage, not your mouth. So why is Brown's mold gourmet, while your refrigerator mold is just gross? What makes a professional cheese-maker's mold different?

Truthfully, not much.

If the right cheese curds from the right milk are at the right temperature, fungi become "the king of the mountain," says Dennis D'Amico, a food microbiologist at the University of Connecticut who studies cheese production. Under the correct conditions, mold spores thrive on proteins, fats, sugars, and the remains of the original bacteria that turned the milk into cheese. As the mold spreads throughout the cheese and its exterior, it continues the transformation that the bacteria started.

So when human teeth finally sink in, they bite into a new set of even smaller active molecules. And if the cheese is blue cheese, where the fungus *Penicillium roqueforti* dwells deep inside, enjoying a slice means consuming living fungi in the middle of their own midday snack.



The fungus *Penicillium roqueforti* has been a constituent of Roquefort, Stilton, Danish blue, Cabrales, Gorgonzola, and other blue cheeses that humans are known to have eaten since approximately AD 50; blue cheese is mentioned in literature as far back as AD 79, when Pliny the Elder remarked upon its rich flavor.



Aging cheese.

The flavors, smells, and textures specific to each type of cheese are due to various combinations of fungus species. A Brie or Camembert, for example, requires at least four kinds of mold. One, *Geotrichum candidum*, produces a sulfur flavor and contributes to the creaminess of the cheese. Another, *Penicillium camemberti* blossoms into a distinct white rind. The symphony of mold makes the final texture and mushroomy, sweaty taste.

But while the concerto is beautiful, the identities of all the musicians remain mysterious.

Identifying all of the active fungi in a cheese is "an endless, endless rabbit hole," says Brown. Most of the moldy cheeses we have today are happy accidents, D'Amico said, the details of which can only be understood with elaborate lab analyses.

In the meantime, cheese agers like Brown stash freshly made wheels in caves and vaults cultivated with ecosystems of mold, using techniques that have been employed for centuries. In recently converted cheese facilities like Brown's, cheese agers calibrate portions of their caves to specific temperatures and moisture levels. Each alcove is dedicated to one kind of cheese. Man-made caves like Crown Finish rely on samples from natural cheese caves to introduce the ideal mold culture into each separate nook.



Suffolk Punch aging in Crown Finish Caves.

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Spore Prints

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ANNUAL BUSINESS MEETING & SURVIVORS' BANQUET

Saturday, March 11, at 7:30 pm (doors open at 6:30 pm for the social hour), at the Center for Urban Horticulture. This replaces our March general membership meeting.

It's time again to gather and congratulate each other for making it through another season of finding, cooking, and eating mushrooms. Sign up online on the PSMS website, psms.org. Seating will be limited, so register early to guarantee your place. You must be registered to attend.



The cost is \$5/person to cover incidentals. As in previous years, the event will be a potluck dinner for PSMS members only, but if your significant other or dinner partner is not a member, you may still include them. We will have a banquet permit, so bring your favorite wine or beer, but no hard liquor, please!

Our banquet theme this year is "A Late Winter's Pick-Nic." We encourage you to bring your best picnic-worthy dishes featuring mushrooms, wild or cultivated, and come dressed in your best field-trip attire. Please label your contributions with the ingredients and species of mushrooms used, if any. We will have a short presentation (or two), introduce the newly elected officers and board members for 2017-2019, announce the winner of the 2017 Patrice Benson Golden Mushroom Award for outstanding service to our society, and hand out a few door prizes. This promises to be a fun evening with friends and family, so come join us!

Raffle tickets for an original watercolor by Russian artist Alexander (Sasha) Viazemsky will also be available for purchase. Questions? Please email outreach@psms.org.

CALENDAR

- Mar. 11 Survivors' Banquet & Annual Business Meeting, CUH, 7:30 pm
- Mar. 20 Board Meeting, 7:30 pm, CUH
- Mar. 21 *Spore Prints* deadline

Board News

Luise Asif

Planning is under way for the **PSMS Fall Show** in October; an exact date is still being negotiated. Derek Hevel has volunteered to help chair this year. The **Ben Woo Memorial Foray** under the chairmanship of James 'Animal' Nowak is scheduled for the weekend of October 14. **Mushroom Maynia** under Jamie Notman's direction is scheduled for Sunday, May 20. Sweta Agrawal is promoting the **Ben Woo Scholarship** with an email campaign. The board approved PSMS member James Stallman's scholarship request for his study of *Lepiota* in Hawaii. The **Bridle Trails Study** will start its surveys this month. We need more volunteers to assist. If interested, please contact Luise at fasif@hotmail.com. James Nowak and Milton Tam are planning an exciting **Survivors' Banquet, March 11**. Although Erin and Brady Raymond will be leaving the Board, they are still maintaining the **Blog**. Members are welcome to share pictures and articles. The Board is searching for members with technical knowledge to record membership meetings and help digitalize existing tapes of past meetings.

PRESIDENT'S MESSAGE

Kim Traverse

This month marks the end of my two-year term as President, and I have been generally pleased by all that PSMS has achieved during that period. Every organization faces challenges, and that is true whether the challenges are recognized or not! The Board of PSMS works hard to solve known problems and anticipate challenges that might be lurking ahead. It has been a pleasure for me to work with the Board members of the past two years, and I look happily toward another two years of the same. PSMS has done a sterling job of staying on top of a lot of important things for far longer than the 12 years I have been a member. Good planning and decision making, starting with the founding in 1964, has ensured that PSMS in 2017 is stronger than it has ever been.



Through September, at the Museum of History and Industry on Lake Union, see the exhibition called The Edible City. PSMS lent some artifacts and photos related to mushroom foraging. Thank you to Ron Post and Shannon Adams for working with curator Rebekah Denn on this.

Derek Hevel recently finished scanning all know posters from our 53 years of Annual Wild Mushroom Shows. Our goal is to have a

gallery of images on our website. We are missing a few years so please check if you happen to have any posters from these years. We can borrow, scan, and return them to you before you know it! Missing are 1964, 1965, 1967, 1968, 1969, 1971, 1975, 1976, 1977, 1978, 1979, and 1981

LAWMAKERS HEAR PITCH TO NAME A WASHINGTON STATE FUNGUS Jim Camden

The Columbian, Feb. 22, 2017

Among the down-to-earth topics with which lawmakers dealt last week was the question of whether Washington should have a state fungus.

One bill suggests it should, or at least could. House Bill 1812 asks lawmakers to bestow that honor on the pine mushroom, or *Tricholoma magnivelare*, if we're being formal.

Naming a state anything is often the quest of grade-schoolers who are trying to learn a lesson about how government works, and sometimes get a better lesson in how it doesn't. They get friendly treatment at their committee hearing, because no lawmaker is going to ask a kid a tough question and risk making them cry while TV cameras are rolling.

One of the more recent successful attempts was the push by Washtucna Elementary students to name the Palouse Falls the state waterfall.

The state mushroom idea came from a slightly older set, some students at The Evergreen State College, who still got the kid gloves treatment by members of the House State Government Committee. Matthew Hurley told lawmakers the pine mushroom is the perfect fungus for the state to honor because of the symbiotic relationship it has with pine trees, making them grow bigger and faster; it's a food source prized by both the Asian communities and the Salish tribes; and it could boost tourism and help veterans who might be recruited to pick them.

(Apparently someone impressed on Hurley the need to boost multiculturalism, economic benefits, and veterans to catch the attention of various factions in the Legislature. Give the man an A.)

Emily Hall may have gone just a bit overboard when she suggested this fungus—or any fungus—is “an incredible reflection of who we are as a state.”

Committee members refrained from asking the first question that might pop up in their constituents' minds: Why do we need a state fungus? One might equally ask why do we need a state fossil, a state oyster, a state amphibian, or a state endemic mammal?

The second question a constituent might ask—how many states have a state fungus?—also did not come up. Quick, but by no means definitive, research on Google says only Oregon and Minnesota, while Missouri lawmakers considered such a move several years ago but never sealed the deal.



Tricholoma magnivelare.
Will the revered Matsutake be the Washington State mushroom?

BREWERY LAUNCHES PORCINI MUSHROOM BALTIC PORTER ON VALENTINE'S DAY

Press Release, Feb. 14, 2017

Reno, Nevada - What goes better with porter than porcini mushrooms? If you're speaking with Chris Nealon, executive head chef of Montrêaux Golf & Country Club, then the answer is, “Absolutely nothing!” Brewer's Cabinet is excited to bring back the Chef Series beer collaboration this month.



The popular Chef Series began in 2016, where top chefs from renowned Reno restaurants devise a food-friendly beer brewed by Eric Ramin, brewmaster at Brewer's Cabinet. The original concoctions often feature signature flavor profiles and pairings that participating culinary experts are known for.

The first featured brew starting the 2017 series is Nealon's brainchild, dubbed “Little Phat Pig Baltic Porter,” which combines imperial porter infused with porcini mushrooms from the Pacific Northwest.

“I was in Oregon for six years and one of my favorite foods to ‘hunt’ were the delicious, full-bodied porcini mushrooms. I would find them on walks in the woods and around my property,” Nealon recalled. “Porter is my favorite beer style to pair with and drink. It's a match made in beer-loving heaven.”

YEAST IN GUT BOOSTS ASTHMA RISK

Kelly Servick

<http://www.sciencemag.org/>, Feb. 17, 2017

BOSTON - Add a new set of actors to the throng of gut microbes that influence health: fungi. So far, genetic sequencing of the microbiome has largely focused on bacteria, Brett Finlay, a microbiologist at the University of British Columbia in Vancouver, Canada, explained in a session here at the annual meeting of AAAS, which publishes *Science*. But fungal cells have been estimated to be orders of magnitude more abundant in the human body. In 2015, Finlay and colleagues identified four bacteria that seemed to protect Canadian kids from developing asthma. They suspected that these bugs shaped the nascent immune system by bumping up levels of immune-modulating cells in the gut.

But when the group sequenced the gut microbiome in a group of 100 children in Esmeraldas, Ecuador—a more rural setting but with rates of asthma comparable to Canada's—the best microbial predictor of asthma wasn't a bacterium at all, but a genus of yeast known as *Pichia*. Three-month-olds who had it in their feces were more likely to develop asthma by the age of 5. How the yeast might boost asthma risk is far from clear—and it likely interacts with bacterial species to influence the immune system, Finlay says. But the find is new evidence that fungal organisms are not to be ignored. “The technology is there. We can do this now,” Finlay says. “And I think it's going to open up another layer of complexity.”

MUSHROOM POSTAL ITEMS FROM CYPRUS

Brian S. Luther

Cyprus is an island in the eastern Mediterranean Sea approximately equidistant from Turkey to the north and Syria and Lebanon to the east. It's divided into Turkish Cyprus and the Republic of Cyprus (Greek Cyprus), with a long-running dispute between these countries concerning boundaries and jurisdiction. The northern portion, established by Turkey in 1983, comprises approximately 36 percent of the island and is called the Turkish Republic of Northern Cyprus, but by Turkey only. This was condemned internationally and is not recognized by the United Nations. The larger, southern portion of the island is the Republic of Cyprus, which is a European Union nation. The US Congress imposed an arms embargo on Turkey for using US weapons (as a NATO ally) to invade the island in 1974. Tensions have calmed down between the Republic of Cyprus and Turkey, but the entire island is still not united.

The island has amazing natural and man-made beauty with scenic beaches, ancient buildings and artifacts, scenic vineyards, and stunning pristine forests of a species of true cedar (*Cedrus brevifolia*) related to the Cedars of Lebanon, the Atlas Cedar of northern Africa, and the Deodar Cedar of the Himalayas. It's a popular tourist destination. Cyprus has just a few stamps or official postal items with mushrooms, which I thought you'd like to see.

Table I lists the mushroom postal items issued by northern and southern Cyprus. All catalog numbers are from the Scott Postage Stamp Catalogue; M = mushrooms or fungi as the main stamp illustration; MID = mushrooms or fungi in the design of the illustration or in the border or selvage; FDC = first day cover, an envelope (cover) with the stamps affixed and cancelled on the first day of issue, along with a colorful cover illustration (cachet) of the same theme; maxicards = official postcards showing these fungi, along with the stamps and also cancelled on the first day of issue.

Table I. Myco-stamps from the Island of Cyprus.

Date of Issue	Cat. No.	Value	Type	Subject
Northern (Turkish controlled) Cyprus				
3/31/1997	429	15 Bin Lira	M	<i>Amanita phalloides</i>
"	430	25 "	M	<i>Morchella esculenta</i>
"	431	25 "	M	<i>Pleurotus eryngii</i>
"	432	70 "	M	<i>Amanita muscaria</i>
Republic of Cyprus				
3/4/1999	929	10¢	M/MID	<i>Pleurotus eryngii</i>
"	930	15¢	M/MID	<i>Lactarius deliciosus</i>
"	931	25c	M/MID	<i>Sparassis crispa</i>
"	932	30¢	M/MID	<i>Morchella elata</i>
10/5/2011	1158a-e	34¢	MID	Stylized mushrooms (see Comments)

Comments

Northern Cyprus, 1997

As you can see in Table I, Northern (Turkish) Cyprus issued a set of four mushroom stamps in 1997, all very attractive. They also issued an FDC that has a single *Amanita* on the cancel along with three *Amanita muscaria* on the envelope cachet. Stamps put on an FDC always go from lowest denomination to highest, from left to right, and then above and below. But, one oddity about this FDC is that the top two stamps are not in sequence left to right: the 25 BL *Morchella esculenta* stamp was put before the 15 BL *Amanita phalloides* stamp. But this may have been an error just on this individual FDC.



Turkish Northern Cyprus, 1997, Scott 429-432.



Turkish Northern Cyprus 1997 FDC.

Closeup of Turkish Northern Cyprus 1997 FDC cancel and cachet.

Republic of Cyprus set, 1999

The 1999 Republic of Cyprus set shows four edible mushrooms, and the illustrations are really gorgeous. *Sparassis crispa* usually grows at the base of a tree or stump that it's parasitizing and decomposing, but rarely directly on wood as shown on the stamp Scott 931 in this set. Torrejon (2014) says this species is "rare" on Cyprus, but occurs "On stumps and roots of various coniferous trees, autumn and winter." These stamps were also issued in a scarce version with SPECIMEN overprinted diagonally on each in red. The stamps in this set were printed on full sheets with the left selvage having non-postage seals (Cinderellas) of the exact same illustrations as in the set, but smaller and with two different mushroom illustrations on each seal. If only the four stamps alone were purchased, then mushroom stamp enthusiasts would never know about these delightful and very collectible seals.



Republic of Cyprus 1999, Scott 929-932.

Since these seals are not part of the stamps themselves, they're not mentioned in the Scott Catalogue. I show just one example of these seals on a block of four of the more stamps, but the same Cinderellas were printed on the left selvage margin (but not on the right selvage) of the other three stamp sheets as well.



Republic of Cyprus 1999. Left selvage is non-postage Cinderellas (seals) showing the same illustrations as on the stamps.

The official FDC issued for this set has a single *Lactarius* on the cancel and three *Lactarius deliciosus* mushrooms on the cachet as well. There is also an unofficial FDC that's circulating.

Republic of Cyprus 1999 FDC.



Individual maxicards for each of these stamps were also issued, but show actual photos of the mushroom species, each with a matching stamp that goes with the photo, as well as the same *Lactarius* cancel on all of them, just as on the FDC. I depict only one of the four different maxicards here to see what they look like. The Cyprus Postal Services also issued an information brochure about this set of stamps, with descriptions of each species in Italian, English, and French.



Republic of Cyprus 1999, maxicard.

Republic of Cyprus, 2011

There is also a 2011 Fairy Tale set titled "The Hare and the Tortoise" (Scott 1158a–e) with five stamps scattered on the booklet pane showing a continuous illustration. Two cartoon-like stylized *Amanita muscaria* mushrooms are shown here, both on the front cover of the booklet and also inside the booklet with the stamps, but they're not actually on the stamps themselves. They're part of the panorama scene on the stamp booklet sheet. The same mushrooms are also shown on a brochure that was issued for this set, with information in Greek, English, French, and German explaining this fairy tale story and the moral lesson: "He who is modest in life achieves his goals in the end."



Republic of Cyprus 2011, front of "The Hare and the Tortoise" fairy tale booklet.



Republic of Cyprus 2011. (top) inside of "The Hare and the Tortoise" fairy tale stamp booklet with stamps Scott 1158a–e and two stylized *Amanita muscaria*; (left) closeup of mushrooms.

Reference

Torrejon, Miguel. 2014. Annotated checklist of fungi in Cyprus Island. 1. Larger Basidiomycota. *Acta Mycologica* 49(1): 109–134.

WILD BOARS IN THE CZECH REPUBLIC ARE STILL RADIOACTIVE 30 YEARS AFTER CHERNOBYL

Josh Davis

<http://www.iflscience.com/>, Jan. 18, 2017

Authorities in the Czech Republic have warned that wild boars in the southwest of the country are still so highly contaminated with radioactivity after Chernobyl that even after 31 years they may be unsafe to eat.

How the high dosages of radiation have been impacting the wildlife surrounding Chernobyl, following the explosion of reactor four in 1986, has been of intense interest. While the levels of radioactivity

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Good Mold, Bad Mold, *cont. from page 1*

“By making that same cheese over and over, you feed the same ecosystem over and over again,” says D’Amico. Brown watched this growth happen at Crown Finish. It took the caves about a year of repetitive use for enough mold to end up on the finished cheeses, he explains.

This method isn’t foolproof. A soil mold called *Mucor*, which bears an uncanny resemblance to cat hair, thrives in the same environment that desirable cheese fungi need. Brown does his best to keep the *Mucor* out, but sometimes ends up having to throw out unsellable wheels of cheese.

In a way, refrigerators aren’t much different than these cheese caves. Mold spores, which are in the air all the time, land on bricks of cheese in the fridge just like they land on cheese wheels in a cave.

The major difference is that kitchen molds generally produce a “basement, musty flavor” that isn’t appreciated in the cheese community. “If it was, we’d harness it,” says D’Amico. Instead, cheese-making literature indicates the preferred mold qualities to be “barnyardy,” “gamey”, or even “human feet” like.

Some of those descriptors might flare nostrils, but Brian Keyser promises there’s more to a cheese flavor than stench. The owner of Casellula, a cheese-centric restaurant in New York, Keyser says other flavors are playing in every cheese—some sweeter, some saltier. “When those flavors are in balance— that’s how you get pleasure,” he explains. “But you have to get used to it.”

Keyser is so accustomed to cheese rot that household mold doesn’t faze him. “If I was blindfolded, I’m not sure I’d be able to tell if household black mold was on a brie—I’ve never tried.”

And nor should you. D’Amico advises against eating fungi that grows on cheese at home, mostly because these unidentified, uncultured species might cause allergic reactions. As with most cheeses, there’s a simple solution: cut off the yuck. “If you cut mold away to the depth where the cheese tastes good again, you’re probably back to square one,” he says.

The Mayo Clinic and U.S. Department of Agriculture mostly agree. The softer the cheese, the easier it is for mold to penetrate the entire sample and bring potentially dangerous bacteria with it. So if a soft cheese like ricotta is moldy, consumers should toss the whole thing out. But if it’s a more solid cheese like cheddar or Gorgonzola, hacking off the offending portion and proceeding to munch is fine.

If the mold in your home is creeping up your walls and not your cheese, those spores are something else. They tend to appear with unusually high levels of moisture in the building, like flooding damage that hasn’t dried or a poorly ventilated bathroom. Most only become a problem for people who already have allergies or lung problems.

For the most part, Brown thinks the American aversion to mold is just a cultural fear, one he grew up with as well. U.S. palates tend not to welcome mold like many foreign palates do. Part of the challenge for American cheese makers, Brown explains, is finding a cheese style that hearkens back to European classics but without the heavy mold Americans tend to reject.

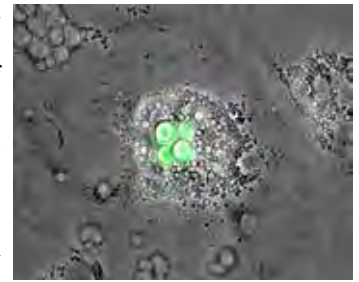
Cheese, after all, “is just fermented dairy,” Brown says. “Though my mother would be disgusted by that.”

HOW BIRDS SPREAD CRYPTOCOCCOSIS WITHOUT GETTING SICK

<https://knowridge.com/2017/, Feb. 19, 2017>

New research shows that a particular white blood cell within the bird’s blood system, called a macrophage, is able to completely block the growth of *Cryptococcus neoformans*.

The fungus can grow slowly within the bird’s digestive tract, but if it tries to invade the bird’s body then the immune system immediately destroys it—which explains why healthy birds can still help spread the infection.



Bird macrophages infected with the fungal pathogen Cryptococcus neoformans.

“Understanding where the disease comes from and how it spreads is critical. If we can learn how some animals are able to resist infection we might be able to gain insights into how we can improve the human immune response to this fungus,” says team leader Simon Johnston from the University of Sheffield.

This work, published in *Nature Scientific Reports*, was carried out in collaboration with the University of Birmingham and is part of a much larger international effort to understand, fight, and ultimately eliminate cryptococcosis.

“We are now working with leading scientists from all over the world to try and understand where this pathogen came from, how our bodies fight it, and what we can do to help our own immune system defend us from this fungus and other related infections.

Radioactive Boars, *cont. from page 5*

are still deemed too high for people to return to the region, the animals have been flourishing. Numbers of moose, deer, and boar have rocketed, and wolves have even returned, indicating that the radiation has been no barrier to life.



The boars in the Czech Republic, however, are far from the disaster site, and yet are still seemingly picking up the radiation. This is probably down to how the fallout from the explosion spread across Europe. With strong southerly and easterly winds in the aftermath, the fallout contaminated over 100,000 square kilometers (38,600 square miles) of land, mainly across the Ukraine, Belarus, and Russia. But the contaminated material reached much further afield, having been detected in sheep as far west as Wales.

It seems that the wild boar have been particularly vulnerable due to their insatiable taste for fungi. The mushrooms growing in contaminated soil on the forest floor have apparently been concentrating the radioactivity, which the pigs have then consumed with delight, causing the cesium to build up in their bodies.

Three melanin-containing fungi—Cladosporium sphaerospermum, Wangiella dermatitidis, and Cryptococcus neoformans—actually increase in biomass and accumulate acetate faster in an environment in which the radiation level is 500 times higher than in the normal environment.

HUNT FOR HAVEN FOR WORLD'S RAREST MARSUPIAL, THE TRUFFLE EATING GILBERT'S POTOROO

Lisa Morrison & Andrew Collins

<http://www.abc.net.au/>, Feb. 21, 2017

The Gilbert's potoroo is the size of a rabbit and lives almost exclusively on Australia's native truffles—making it one of the pickiest, oddest animals in a land of strange creatures.

The hunt is on for a new home for the world's rarest marsupial, the Gilbert's potoroo, off Western Australia's south coast.

The marsupial was believed to be extinct until a small population was discovered at Two Peoples Bay near Albany in 1994.

Since its rediscovery, efforts to safeguard that stronghold population of about 40 animals have suffered several setbacks, and the species is on the brink of extinction.

The population at Two Peoples Bay Nature Reserve plummeted to an estimated six potoroos after bushfires razed 90 percent of the mammal's habitat in 2015.

Gilbert's Potoroo Action Group chairman Ron Dorn said the area could be uninhabitable for potoroos for up to 20 years.

Hard to Find a New Home

The first translocated colony, established in 2005 on Bald Island off the coast of Albany, is thought to have reached saturation point at about 60 animals.

Carpet pythons have been a problem at a second translocated population established within a fox and feral cat-free enclosure at Waychinicup National Park in 2010.

Last year, Michaelmas Island, off the coast of Albany, was chosen for a third translocation effort.

Hopes were high a small number of potoroos might thrive on the island, but two of the four potoroos died, according to the Department of Parks and Wildlife (DPaW).

"We found that potoroos stayed out of the limestone terrain and stayed only on granite, which occupies only a third of the island," a DPaW spokesperson said.

"As the two rescued potoroos were very thin, it appears there was not enough food to sustain them."

The two male potoroos were captured, held in captivity until they regained their lost weight, then released in unburnt bushland at Two Peoples Bay Nature Reserve.

"Monitoring has shown that they are doing well and that each of them has settled close to a female mate," the DPaW spokesperson said.

Finding the Perfect Potoroo Habitat

As well as preferring granite over limestone, potoroos are fussy eaters, with truffles making up 90 percent of their diet.

The island chosen for the next translocation must be big enough to support a viable breeding colony, have an abundance of food, and be free from foxes, cats, rats, mice, and pythons.

"They really make it very tough for us to help them survive," Dorn said.



He hopes the perfect potoroo haven could be among the Recherche Archipelago, a group of 105 islands between Esperance and Israelite Bay.

Funding Boosts Efforts to Save Marsupial

DPaW anticipates it will take about a year to assess islands for their potential to support potoroos.

"If there is very good evidence that suitable cover and food are plentiful and that the risk of predation is sufficiently low, the earliest transfer of animals would be in winter 2018," the DPaW spokesperson said.

The latest attempt to boost the potoroo's offshore population and improve the species' chances of survival was allocated \$250,000 in Federal Government funding last year.

The Gilbert's Potoroo Action Group received the funds after Gilbert's potoroo was added to the National Threatened Species trajectory list in 2016.

The Threatened Species Strategy Action Plan, launched in 2015, aims to protect 20 Australian mammals most at risk of being wiped out.

This week, federal Environment Minister Josh Frydenberg included the Gilbert's potoroo on a prospectus inviting businesses and philanthropists to donate \$500,000 over three years towards conservation efforts.



DETECTING POTENTIALLY HARMFUL MYCOTOXINS IN BEER

<http://canadafreepress.com/>, Dec. 14, 2016

Beer is one of the world's most popular alcoholic beverages. But, made with barley, brews can contain low levels of mycotoxins, which are produced by fungi that can contaminate grains. Although not a major health threat, the industry needs to minimize the risk of contamination. Now scientists have developed a portable sensor that can help. Their report appears in American Chemical Society's *Journal of Agricultural and Food Chemistry*.

Because of its alcohol content and the high temperatures required to make beer, most consumers might assume that contamination by biologically derived compounds is not an issue. But mycotoxins can survive the brewing process and end up in the final product. Some mycotoxins have been shown to cause genetic damage in cells and cancer in animals. Currently, methods to detect mycotoxin contamination in beer are costly and require in-laboratory analysis. Sweccha Joshi, Teris van Beek, and colleagues wanted to come up with a less expensive, portable alternative.

Building on technology used to detect mycotoxins in grains, the researchers developed a biosensing chip that can bind these compounds when they are present in beer samples. The team also could reuse the chip 450 times before it started to fail. Testing on commercial beer and barley showed that the portable instrument detected levels as low as 0.2 nanograms/milliliter of ochratoxin A and 120 ng/mL of deoxynivalenol, respectively, the estimated safe limits for these mycotoxins.

MUSHROOM DUXELLES

Myra Zaman

Fungifama, So. Vancouver Is. Mush. Soc., August 2012

Duxelles is a finely chopped mixture of mushrooms, onions, and herbs sautéed in butter and reduced to a paste. It is mainly used as a stuffing or as a part of the sauce or as a garnish. Duxelles can also be filled into a pocket of raw pastry and baked as a savory tart.

The following ingredients yield 2½ cups of mushroom duxelles.

Ingredients

- 1 lb mushrooms, finely chopped
- 1 large onion, finely chopped
- 1/3 cup butter
- 2 cloves of garlic, minced
- ½ cup white or red wine
- 2–3 Tbsp lemon juice,
- ½ bunch parsley, finely chopped
- Salt and pepper to taste, (1½ tsp salt creates a desirable taste for me)



Mushrooms

I generally prefer either crimini mushrooms or dried Chinese mushrooms. I find them tastier and meatier than regular white mushrooms and affordable compared to the other wild or cultivated varieties. However, there is no limitation to the mushroom type in this recipe. Keep in mind that duxelles made with wild mushrooms will have stronger taste and depth than that made with white or brown mushrooms.

Wine

You can use either red wine or white wine. The red wine just complements dishes where duxelles is used with red meat and game, such as lamb chops, pork chops, pork tenderloin, and venison. For recipes with poultry, such as mushroom stuffed chicken breast, and for quiche, tarts, and quick breads, I find duxelles made with white wine pairs better than the red.

Method

In a big skillet, preferably non-stick, melt the butter and add the onions. Sauté the onions on medium heat for a minute, then add the mushrooms. At this stage, add the salt and cook on medium heat until the mushrooms are tender to bite, and almost all the liquid in the pan evaporates. This will take about 5–8 minutes. Do not forget to stir occasionally for even cooking. When the mushrooms are tender to bite and almost cooked, add the garlic, and cook the mixture for one more minute. At this stage there should be barely any liquid in the pan. Deglaze the pan with wine, reduce heat to medium low and continue cooking the mixture until all the wine is reduced. Turn off the heat. Add the lemon juice, pepper, and parsley; mix well and adjust the seasoning. Serve it either hot on a slice of bread or cool it down for future use.



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