

VOL. 1 ISSUE 3 · OCTOBER/NOVEMBER 2022

FALL/WINTER NEWSLETTER

Official Newsletter of the MycoNB Society



Welcome to the Fall/Winter Newsletter

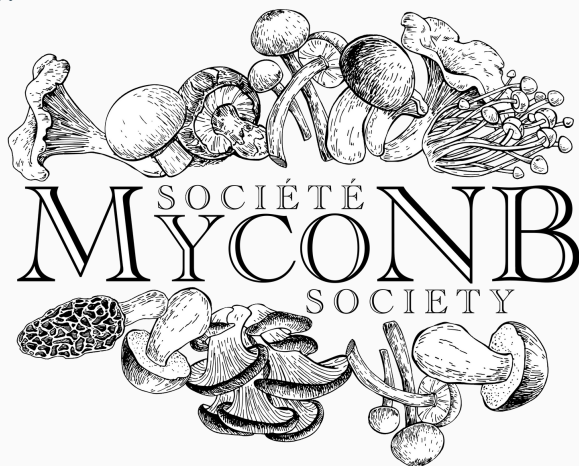
BY NATHAN BROWN

I just wanted to quickly introduce myself. I will be the one helping build the newsletter going forward to help spread some of the weight out in the group. I have been paired up with a few great people who I know, know more about mushrooms than me - but I am still learning and have a great teacher as well. This is a new format to me - and I am thankful to have a team to work along side with. I am originally from England, and have been in Canada since '89. I have spent the last two years getting into plants and mushrooms, and glad now that I can get back into the swing of things since relocating to Moncton.

Please feel free to always contribute to the newsletter as it is your newsletter and you folks make it what it is...I just build it.

I look forward to meeting you as we travel along our mycelium network together.

Nathan



This issue:

Message from the President

PAGE 02

Thank you Letter to a
Wastewater Lagoon

PAGE 03

How to Make Turkey Tail
Tea

PAGE 04

Falling for Fungi

PAGE 05

Mushroom Preservation

PAGE 07

Cultivation - Working on a
Mushroom Farm

PAGE 11

Book Review: Peterson's
Field Guide to Mushrooms
of North America

PAGE 14

Lichens are fungi too!

PAGE 15

Pongteh

PAGE 18

Winter Foraging

PAGE 20

Message from the President

Happy Holidays from Société Myco NB Society, I hope everyone is enjoying their rest and relaxation as we take our cues from nature and pull inward to recharge and relax this cold season. We had a wonderfully successful first year!

I'd like to extend sincere gratitude to everyone who helps to coordinate and execute our Regional Walks, we are excited to bring these forward again for you folks next year.

Our Annual Foray, though we hit a few hiccups in the planning timeline, was a highly charged event, full of excitement and fun. We look forward to moving forward with what we've learned to bring you an even better event next year.

This winter you can look forward to some zoom talks from world wide experts, including the talented and renowned Alan Rockefeller.

Thanks so much to each and every one of you for your joy and participation this year, your passion and love of fungi made for a truly amazing first year for our Society.

Jessika



“I’ve always thought fairies are like mushrooms, you trip over them when you’re not thinking about them, but they’re hard to spot when you’re searching for them.”

JO WALTON



A thank you letter to a wastewater lagoon

Hello Lagoon,

It's been a while. How are you holding up? I can still smell your stinky rank odour from another province over, and while I think back at our time together it makes me smile. While there were good times and bad, I always reminisce about the single day you would change my life forever.

Do you remember?

The sun was shining, and I had just gotten to work on a mild sunny September day. I began like I always do, walking the murky ponds. The bubbling mash of water, oil, and bacteria made for a less than beautiful vista.

As I crested the first lagoon my eyes immediately jumped to a strange smattering of white along the grass by the discharge well. Now lagoon, you and I both know that in wastewater nothing is white; muddy browns and misty greys, sure, but white? No! As I approached the mass, I was worried something had gotten in or had been picked out of the lagoon. But as I approached the long-hidden stipe and shaggy yet melty flaking cap, I realized that the item in question was a huge bunch of mushrooms.

I snapped a few photos and went on my way not thinking too much of it until I was talking to my co-worker later that day. We start chatting and she shows me a picture of a mountain of mushrooms that

she saw growing out of an old stump. I immediately pull out my phone and show her the mushrooms I found not an hour before. After chatting I realized that I was incredibly interested in knowing not only that they were indeed mushrooms, but also what type of mushrooms. I had never really noticed the different styles, colours, or characteristics until seeing two different mushrooms side by side.

After researching for a minute or two I came up with my first IDs: shaggy manes (*Coprinus Comatus*) and honey mushrooms (*Armillaria*). Peering quickly at the clock I realize what I thought was a minute was actually a few hours of research (sorry boss)!

From then on, I've been obsessed. So much so that friends, coworkers, and family all send me random photos of mushrooms they find on their travels.

It's awesome.

I don't know how to thank you. Your nutrient rich soil surrounding your ponds fostered in me a hobby and interest in mycology which I don't think would have happened without you. It's interesting to think if I had not had that day, would I have gone on my first fungi foray in Saint John a year later? Would I have eaten foraged mushrooms? Would I have jumped out of a golf cart when I spotted my first chanterelle?

Listen, all I can say is thanks.

Jonathan Allport

How to Make Turkey Tail Mushroom Tea

Conveniently incorporate the nutrients from turkey tail (or other) functional mushrooms powders into your tea with two easy methods for steeping:

Ingredients

- 1 cup of hot water or dairy or nut milk per serving
- 2 grams of functional mushroom powder
- Lemon to taste (optional)
- Ginger to taste (optional)
- Cinnamon to taste (optional)
- Honey to taste (optional)

Directions for tea infuser method:

- Using a teapot, kettle, or saucepan, bring water to a boil.
- Add functional mushroom powder to a tea infuser and place in the hot water or stir directly into the water.

- Allow the tea to steep for at least five minutes (or more for a bolder flavor).
- Pour the mixture into a mug and enjoy!

Directions for French press method:

1. Using a teapot, kettle, or saucepan, bring water to a boil.
2. Add 2 grams per serving of the mushroom tea mixture to the bottom of your French press. For example, if your French press serves six cups, add enough of the mixture to consider the number of cups you are brewing.
3. Pour hot water just to cover the dry mushroom mixture and stir. Allow the tea to steep in the French press for at least five minutes.
4. Then, add the remainder of the boiled water over the mixture.
5. Blend well and add the lid to cover the French press, slowly lowering the plunger after a few minutes of additional steeping.
6. Pour the mixture into a mug and enjoy!





Falling for Fungi

I love summer. I love everything about a forest in summer. The way the plants grow with wild abandon, the colours, the textures, and the busyness of it all. I can spend days, hours, weeks wandering in a summer forest, soaking up all the magic. Like many people, I have mixed feelings about the end of summer, the last of those long bright days. The forest is transformed as late summer arrives. Gone are the million shades of green as plants die in preparation for winter, also gone are so many of the summer birds, off in search of warmer climates.

So what does a late summer forest have to offer? One of the answers is certainly fungi! Fungi are mysterious. They are neither plants, nor animals but something unique and all of their own. They appear out of nowhere, seemingly by magic. I have witnessed a forest floor transformed into a carpet of fungi overnight.

Once you start to notice fungi it doesn't take long to notice that there is an incredible variety of colours (turquoise, violet, saffron), textures (spongy, slimy, smooth), smells (radish, cheese, seafood), and shapes (funnels, cones, coral-like). They are a joy to photograph. They also have really cool names : Destroying Angel, Common Stinkhorn, and Witch's Butter are a few of my favourites.

At first my interest in fungi was purely aesthetic, but as I started to learn more I began to develop a deep appreciation for these much misunderstood and underappreciated organisms. I learned many things including the fact that current research suggests fungi can play a role in reversing some of the damage we have caused to the Earth, including regeneration of soil, rebuilding forests, filtering water, and helping to prevent infectious disease. Pretty incredible! The more I learned the more fascinated I became... I was falling for fungi.

Thinking that others might also be interested in learning more, the small non-profit organization that I work for, The Meduxnekeag River Association decided to host a guided mushroom walk on the Meduxnekeag Valley Nature Preserve. What fun it was! Part nature hike, part scavenger hunt, it was a highly enjoyable day. Bringing together a very diverse group of people, all with a shared curiosity and enthusiasm for Fungi.

Holly Melanson
Meduxnekeag River Association



THE
WORD SEARCH BATTLE

Mushroom

Difficulty: Hard



Play this puzzle online at: <https://www.wordsearchbattle.io/topic/mushroom>

BLACKTRUMPET
BUTTON
CAULIFLOWER
CREMINI
ENOKI

GAMBA
GIANTPUFFBALL
HEDGEHOG
LOBSTER
MAITAKE

MATSUTAKE
MEADOW
MOREL
OYSTER
PORCINI

REISHI
SHIITAKE
SHIMEJI
WOODBLEWIT



Mushroom Preservation

As we head into colder months, the abundance of the fall forage begins to wane. How can we enjoy the flavours of the forest as things become dormant? Preserving your harvest is a great way to continue enjoying these delightful fruits until the spring awakening. Outlined below are several methods of preservation. The most appropriate method will depend on species and their intended use.

Dehydration

The most common method of preservation of mushrooms is drying. This can be accomplished simply by slicing or shredding the mushrooms and laying them out on a screen in the sun, or stringing them up. This requires good air circulation and several days of sunshine and dry conditions. A good investment is a dehydrator, which does a consistent job in a short period of time.

Some species dry better than others. Boletes are by far superior dried compared to fresh in most cases, as their earthy flavours intensify. Black trumpets are commonly dried, as they are often found in such abundance. Honey mushroom species dry exceptionally well - many profess they are almost indistinguishable from fresh after soaking! Lobster mushrooms are good fresh or dried but in different ways - the texture is better fresh, but the flavour is better dried - and sometimes dried is the way to go when they are full of insects (which they often are). Jelly fungus dry perfectly, shrinking to diminutive size and expanding back to true form like nothing happened.

I would not recommend drying chanterelles unless making a seasoning powder of some kind, as the delicate texture is completely lost. There are better preservation treatments for chanterelles, which will be outlined later; however, their delicate flavour profile can lend them to many uses in dried form in both savory and sweet recipes. You could consider dredging them in salt or sugar before drying, then powdering the result.

Jerky

This is really a type of dehydration preservation. Jerky is pliable and leathery, not cracker dry, and it requires a marinade. You can use any marinade recipe for different results. I would recommend boosting the umami aspects to give that meat-like flavour, using ingredients such as soy sauce, Worcestershire sauce, fish sauce, miso, dashi, Hoisin sauce, teriyaki sauce, sriracha sauce, any fermented sauces such as hot sauce, smoked paprika, garlic, ginger, pepper, etc. Start by slicing or ripping your mushrooms into strips, and boil for 10 minutes in salted water. Drain and place into your marinade while hot, let it marinate 12-24 hours before blotting them dry and placing them in your dehydrator. Your dehydration temperature can be slightly lower (90-110F), and keep an eye on them so they don't overdry (8-12 hours).

Good candidates for jerky are: oysters, maitake (hen-of-the-woods), blue chanterelles or shiitake mushrooms.



A bonus from making jerky is the blanching liquid can be further reduced to a nice stock for making soup or mushroom gravy.

Freezing

An obvious way to preserve mushrooms is freezing them; however, most mushrooms contain lots of water which doesn't always thaw nicely. Most species freeze better after at least partially cooking out the water content, either by frying or roasting. You don't want to use oils or fats when preparing mushrooms to be frozen, and they don't have to be fully cooked. When ready to use, add some fat to finish the cooking process if sauteing.

Another preparation is duxelles, where the mushrooms are minced with shallots and cooked slowly in a pan with a little fat, maybe a splash of wine. The moisture is cooked off and the mushrooms are caramelized. Sometimes I dry them a bit more on a cookie sheet in the oven. Then the mushrooms are cooled on the sheet and placed in the freezer; once frozen, they are broken up and placed in a freezer bag in the freezer to be used as needed. Duxelles are great for adding to omelettes, soups, sauces and stir-fries, or spread on toast.

Pickling

A great addition to your charcuterie, pickled mushrooms pack a lot of flavour and make a great accompaniment or garnish. They do not need a lot of vinegar: 1:2 ratio vinegar to water is usually sufficient. Use a flavourful vinegar such as apple cider for more aromatic mushrooms such as shiitake or maitake, and

a more delicate vinegar, such as rice, for equally delicate mushrooms such as chanterelles or hedgehogs. Choose herbs that pair well, perhaps thyme, bay leaf, or dill. Forager Chef's recipe for Wild Mushroom Conserve is one of my favourites:

Ingredients

- Scant 2 lbs small young mushroom buttons. 28-30 oz will fit a quart jar. Chanterelle buttons are my favourite here
- 3 cloves 7 grams garlic thinly sliced
- $\frac{1}{2}$ cup flavourless oil for sauteing grapeseed or canola
- 1 teaspoon 5 grams kosher salt a generous teaspoon
- $\frac{3}{4}$ cup water
- $\frac{1}{2}$ cup Rice wine vinegar you can also use white wine vinegar, but it will have a stronger flavour
- 2 teaspoons fresh chopped thyme fresh only
- 1 dried bay leaf or use fresh

Instructions

1. Read through the entire recipe before proceeding.
2. Clean your mushrooms by swishing them quickly in cold water while you clean them to ensure they'll have liquid to give up when they hit the heat. Transfer the mushrooms to a tray lined with a few paper towels and allow them to rest and release some liquid. I like to do this overnight in the fridge to allow them to dry out a bit.



- In a wide pan with high sides, or a soup pot, gently heat the oil and the sliced garlic slowly on medium heat until the garlic begins to turn golden. Take your time here, as the more colour you can put on the garlic, the better the finished product will taste. Do not burn the garlic.
- When the garlic is perfectly golden, add the mushrooms, salt and herbs, stir so the salt can help draw out the mushroom liquid, then cover the pan, cooking on medium heat, and allow the mushrooms to give up their juice and halt the cooking of the garlic. The mushrooms should give off a good amount of water.
- Once the mushrooms have wilted and given up their juice, add the water and vinegar, then bring the mixture to a rolling boil.
- Finally, put the mushrooms in a quart jar, pack them down, then bring the liquid back to a boil, and pour the boiling liquid over the mushrooms. Wiggle a chopstick around in the jar to get out air pockets, adding extra pickling liquid as needed. From here the mushrooms can be stored in the fridge and will last for months as long as they're kept under their liquid.

Author: Jared Scratch Membership Coordinator and Webmaster





Word Search

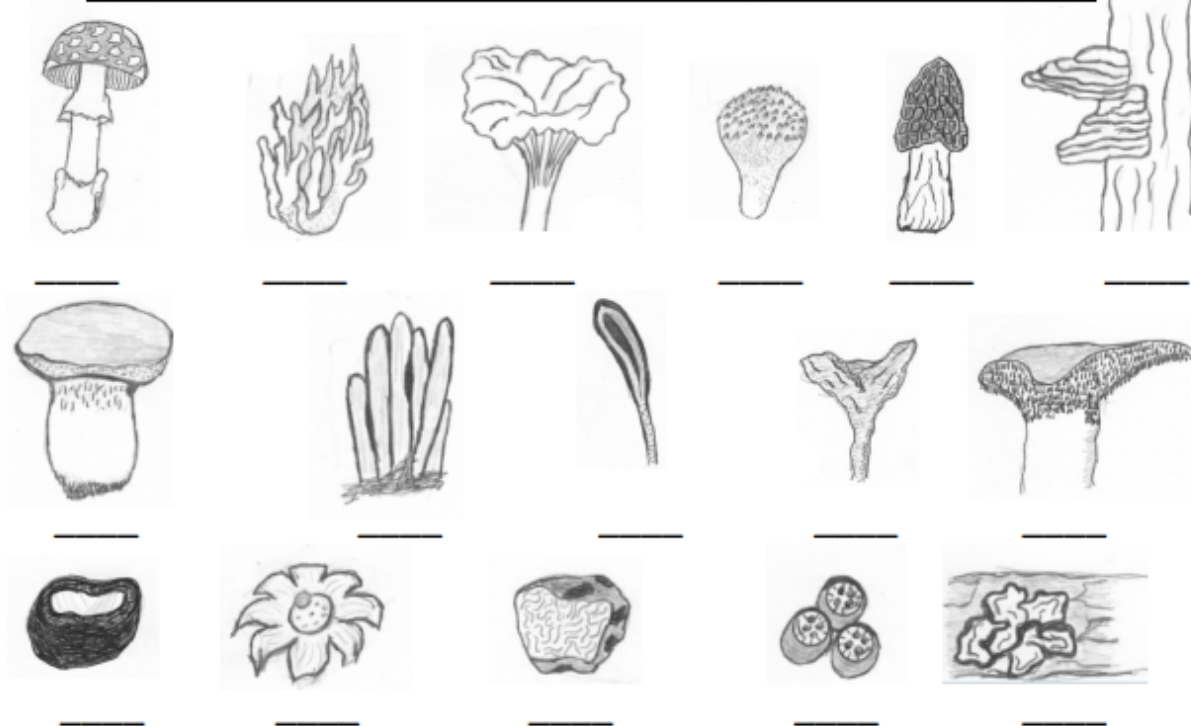
Can you find these Mushroom Types?

S A L E L F I N S A D D L E R
 R C T I B I R D N E S T P A C
 B O H W S E L V P G K F O R J
 T R A A C A S C U P R C E T O
 S A M D N R G N F O N V D H G
 F L A M R T O P F B L G Y T P
 D H N G E H R N B D P R X O Z
 W O I E Z S A E A O V C Z N L
 T H T M Y T K O L C L H I G O
 R H A N S A Q Y L L G E W U B
 U A L D M R P E R S E G T E P
 F Q K E N O V J C L U B I E D
 F E B D R E R A S H K O F Z R
 L M C E F S G E M K X H C I X
 E S P X O W J E L L Y O E F P

1. Coral
2. Bolete
3. Earth Tongue
4. Teeth
5. Puffball
6. Elfin Saddle
7. Cup
8. Amanita
9. Jelly
10. Club
11. Earth Star
12. Bird Nest
13. Morel
14. Polypore
15. Chanterelle
16. Truffle

Hint: Vertical, Horizontal, & Diagonal

Place the Number of the Mushroom type under it's Shape



BONUS: Which type of Mushroom causes 95% of all deadly poisonings? _____

Answers (Left to Right, Top to Bottom): 8,1,15,5,13,14,2,10,3,6,4,7,11,16,12,9 BONUS: Amanita



Cultivation – Working on a mushroom farm... Glam or Goo?

I was super excited to be taking my first internship on a high-volume mushroom farm in Nova Scotia. The farm specializes in hardwood loving species including oyster, shiitake, cinnamon cap, beech, and maitake. I wasn't sure what I was expecting before starting my employment, but I quickly learned that mushroom farming is hard work!

A mushroom farm is different than most farming operations especially because at this location all the growing happened indoors. Additionally, when compared to traditional seasonal farming operations, this indoor type of cultivation is quite different because it revolves around tight weekly schedules and routines. Since fresh mushrooms have such a short shelf life, and for some species, production life span, they need to remain in constant production. This is an advantage to an extent because it only takes two weeks to adjust your crop yield to accommodate higher demand. On the other hand, a disadvantage because if an order cancels short notice, you have mushrooms in the fruiting chambers that can't be stopped and will finish maturing in two weeks (not the case for all species).

It all starts with the substrate production. Since the farm produces wood loving mushrooms indoors (as opposed to the log farming method outdoors) the bulk of the growing substrate is virgin sawdust recycled from a local mill.

I love that industry waste (sawdust) can be turned into a growing medium for food, this is one of the reasons I got into mushroom cultivation. Sawdust is bagged in specially designed mushroom bags and cooked in a huge pressure cooker. It can hold up to 300 ten-pound bags of sawdust. You might think that moving a 10lb bag isn't that much work, but when you must move 300 of said bags, six or seven times in its lifecycle the work begins to add up quickly.

After the sawdust is cooked the perfect amount (to release nutrients and eliminate any competing fungus and bacteria present) it is brought into laboratory to be inoculated. The lab consists of a laminar flow hood with stainless steel work surfaces. The laminar flow hood works by forcing air through HEPA filters (99.9% efficient at getting rid of contamination) that blows across your workstation. So when you are opening each sawdust bag to introduce the new grain spawn (seeds of the mushroom world), you don't have to worry about airborne contamination because you are working in front of the flow hood.

After inoculation, the hundreds of blocks are lifted to the incubation rooms where they are left alone for between 2 weeks and 4 months depending on their species and respective colonization time. Colonization time refers to the amount of time for the mushroom species, once inoculated, to fully take over the sawdust in each bag.



A fungus won't produce fruit bodies until it knows it is running out of food source (or has fully colonized a bag).

Next, depending on your demand, mushroom blocks are brought up from the incubation room to the fruiting chambers. The change in conditions, for example: light, temperature, and exposure to oxygen, is what will cause a fungus to start fruiting. The blocks are fruited on very tall industrial racks with 8ft high wheels, 50 blocks per rack, so moving these racks takes some strength. Forklifts are used for most of the moving, when possible, but a lot of the work has to be done by hand.

Harvesting is the fun part. Compared to the rest of the work described above, which happens on a weekly schedule, harvesting needs to be done daily. This is to make sure mushrooms are picked at the perfect stage, just before they reach full maturity. At maturity, a mushroom will stop growing larger, and start putting its energy into spore production. At this stage a mushroom's shelf life will be greatly reduced. I have mushrooms at maturity in the grow room producing so many spores (which normally are invisible to the human eye) it looks like it is snowing! Each spore cluster being ejected from the gill surface dissolving in the air before your eyes. Of course, this amount of spore production is not normal but common with species like oyster. Spore deposits make a huge mess in the grow rooms and can even damage mushrooms growing below as spores accumulate on other fruit bodies.

The final stage of mushroom cultivation is the cleaning! After a mushroom block is finished its life cycle, it starts to become susceptible to contamination. The fruiting chambers are perfect environments for fungus and mould. Obviously good for our mushrooms but good for the contamination as well. Therefore, grow rooms are emptied and completely cleaned on a regular schedule. This is the least glamorous part of working on a mushroom farm. Hundreds of old slimy grow blocks are ripped from their grow bags and brought out to the compost piles. The whole room and all the growing racks need to be pressure washed down inch by inch. The slimy spore accumulation on the floor needs to be scrubbed off and washed down the drain. Rinse and repeat...

Other than the obvious dangers of operating heavy machinery, tractors, front end loaders and forklifts, or the workplace hazards of lifting heavy blocks and pushing heavy racks around, the not so obvious danger of working on a mushroom farm is referred to as mushroom farmer's lung. Long term inhalation of spores is very bad for lung health both long term and short term. During my time on the farm, we always wore HEPA filter masks which have filters small enough to catch the spores. You can see spore accumulate on the outside of the filters which need to be changed every month. Breathing in the grow chambers without a mask you can feel your throat burning after just a few minutes as the spore density is so high.



Modern growing operations are designed to combat this by creating negative pressure growing chambers which reduces spores going back into the working environment every time you open the door. Because the room is negatively pressurized, when you open the door air gets sucked into the room preventing spores from escaping.

After all this, you get to bring your harvest to the farmers market and the chefs to show off. It is definitely the best part of mushroom farming. And selling a diverse selection of species draws other fungi fanatics to you so it is a great way to meet like-minded mycophiles. One question remains: is the glam worth the goo?

Brad Robichaud

"September is different from all other months. It is more magical. I feel the strange chemical change in the earth which produces mushrooms is the cause, too, of the extra 'life' in the air – a resilience, a sparkle."

~ Katherine Mansfield



Book Review: Peterson's Field Guide to Mushrooms of North America

As a new myco-enthusiast, I have found that learning to identify mushrooms isn't as easy as it might look. For this reason, I would like to highlight this guide for others who may be on a similar journey.

This field guide really stood out for me because of its layout. Peterson's uses a classification system to narrow down species based on physical characteristics. This can be quite helpful for beginners who are just learning the vast array of mushroom diversity.

It first asks: does it have gills? Then, what color are the gills? How are they attached? And so on, and so forth. This type of classification ends up grouping similar looking mushrooms together in the book. As you go through the steps, it will bring you to a point where you should see mushrooms similar to the one(s) you're trying to identify. You can then compare one to another by looking at the pictures and reading the physical descriptions.

As you become more accustomed to recognizing physical characteristics linked to certain genera, it becomes easier to narrow down the identification of a newly found mushroom.

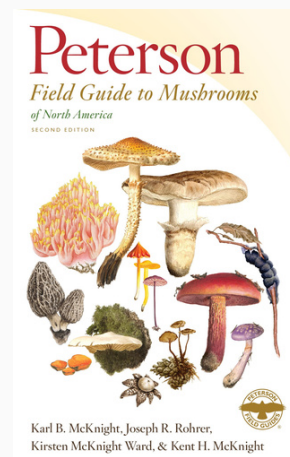
While it does include a broad range of the fungal diversity in our geographical area, it's of course not an exhaustive account of all the species found in

North America. If you're more focused on mushrooms that are found specifically in our area, there may be other guides that are better suited for Eastern Canadian diversity.

I cannot go without saying that if you are new to foraging mushrooms, always check with an expert to verify your IDs before you consume anything. It's best to get a couple opinions to make sure you don't accidentally consume a poisonous lookalike.

I have really enjoyed using this field guide as a tool in my journey to learning about mushroom diversity in New Brunswick. The layout has helped me differentiate mushrooms that share similar physical characteristics to one another, and it has helped me learn common characteristics found within certain genera. As with most things, there is a bit of a learning curve on how to use this book effectively, but with a bit of time, patience, and other great resources (like your local Myco Society), you'll find yourself identifying mushrooms in no time.

Happy Hunting!
Shannon Gardner





Lichens are fungi too!

(A reminder from your friendly neighbourhood lichenologist)

Beginner or expert, forager or biodiversity investigator, almost everyone who is interested in fungi quickly learns that these curious organisms display an astounding variety of colour, shape and size. So many different lifestyles too! Even among just the classic edible fungi we see very different strategies:

mycorrhizal species intimately connecting with the roots of living trees (for example, King Boletes and Chanterelles); parasitic or saprobic wood decayers attached directly to trees or logs (such as the Honey Mushrooms and Hen of the Woods); and in the curious case of "Lobster Mushrooms" a mycorrhizal gilled mushroom that fails to develop normal gills and spores having been overrun with a parasitic but delicious little ascomycete.

As you go about your day, musing about the exciting and mysterious ways of fungi and perhaps lamenting the end of another mushroom season, remember this: lichens are fungi too!

While many fungi evolved to team up with trees or to digest dead material, others went in an entirely different direction and evolved to harness the power of the sun in the form a lichen.

For those who do not know, lichens are symbiotic organisms composed of a fungus (mycobiont) and at least one green alga or cyanobacterium as a photosynthetic partner (photobiont). The photobiont produces sugars via photosynthesis, feeding the mycobiont as well as itself, and the mycobiont provides a cozy home in return, often producing specialized pigments and other chemicals (secondary

metabolites) that protect against UV radiation or harmful pests. The scientific names we give to lichens refer to the mycobiont making lichenology a specialized branch of mycology, and lichens fair game for a mycological society.

As a subject of curiosity lichens have lots to recommend them. They come in a variety of colours, shapes, textures and sizes, creating beautiful natural mosaics on trees and miniature forests on bogs and logs. Many species have ecological indicator value, being sensitive to air pollution and habitat disruption. Many species produce interesting colour reactions in response to chemical spot tests. In my opinion, they're just interesting to look at and fun to work with.

From a pragmatic stand point, there are advantages to looking for lichens. You can find some kind of lichen pretty much anywhere, in cities, forests, and seashores growing on soil, rocks, trees and sometimes human-made structures. They are visible and usually recognizable year round, weather permitting. Best of all, they don't require much special care for specimen preparation.

Lichens are evolved to dry out and rehydrate quickly and at frequent intervals, naturally entering a dormant state when dry. In addition to being a pretty interesting and successful strategy, that quirk of lichen biology means that a little air exposure is normally all that's needed to dry a lichen once collected, and the resulting specimen looks very like a



fresh sample (unlike mushrooms).

If you are interested in looking at lichens, you will want a hand lens and access to some identification resource. Posting photos on iNaturalist (www.inaturalist.ca) is a great place to start. It helps to get close up photos of all visible features including surface texture, any powdery (soredia) or cylindrical (isidia) vegetative propagules, fruiting bodies and any hair-like structures. For bushy (fruticose) lichens it can be helpful to take a photo of the attachment point. For lichens with a clear top and bottom (foliose lichens) it helps to include photos of both the upper and lower surfaces if possible. For the more two-dimensional species lacking a lower surface (crustose lichens), microscopy is often required for certain identification. Notes on substrate and general habitat are welcome and sometimes provide critical clues to identification.

There are a few books that are relevant for studying in our region and accessible to beginners. All of these include introductory notes to start you on your journey of lichen discovery.

Common Lichens of Northeastern North America is a portable field guide with a broad smattering of species covering all the basic growth forms.

Unlike most field guides for Northeastern North America, this book exclusively has lichens that occur in the Maritimes instead of being slanted toward the United States or Ontario.

Macrolichens of New England is an excellent book with a great deal of overlap with species occurring in New Brunswick.

It does not include crust-forming lichens.

Urban Lichens just came out last year. I have not yet had the pleasure of reading it, but it should have a good amount of overlap with city-dwelling lichens in our region as well as helpful comments on where to find lichens in an urban environment.

Lichens of North America is a landmark work on lichenology with beautiful photographs and fascinating introductory chapters. Sadly, it is out of print and therefore expensive and potentially difficult to find. It and the updated keys released in 2016 are important works for serious study of lichenology, however the broad geographic scope can be overwhelming for the beginner.

Happy Hunting!

Kendra Driscoll

Curatorial and Research Technician, Botany & Mycology Dept. of Natural History – New Brunswick Museum

Kendra.Driscoll@nbm-mnb.ca

References/Further Reading:

1Kuo, M. www.mushroomexpert.com Accessed: November 2022.

2Brodo, I.M., Sharnoff, S.D. & Sharnoff, S. 2001. Lichens of North America. Yale University Press, New Haven, CT.

3 McMullin, R.T. & Anderson, F. 2014. Common Lichens of Northeastern North America: A Field Guide. Memoirs of the New York Botanical Garden 112. Available to purchase: www.nybgshop.org

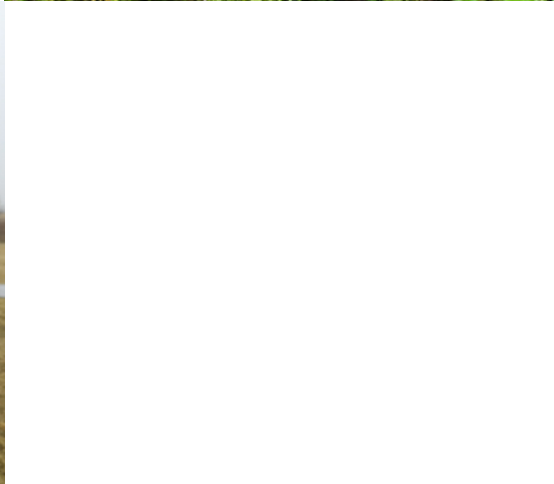
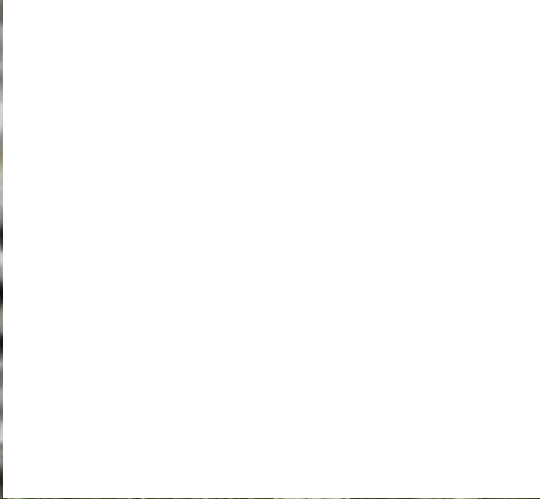
4Hinds, J.W. & Hinds, P.L. 2007. Macrolichens of New England. Memoirs of the New York Botanical Garden 96. Available to purchase: www.nybgshop.org

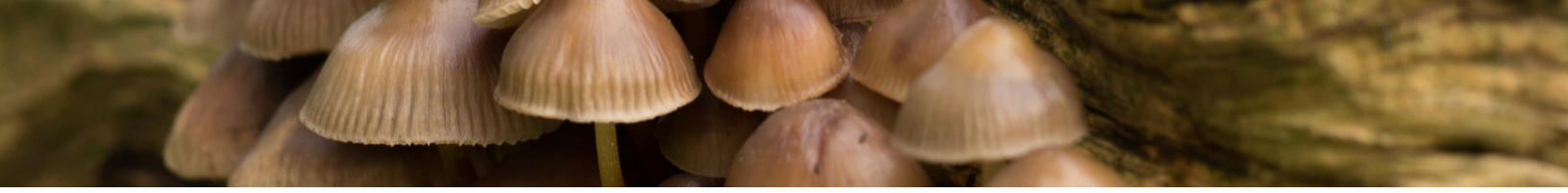
5Allen, J.L. & Lendemer, J.C. 2021. Urban Lichens: A Field Guide for Northeastern North America. Yale University Press.

6Brodo, I.M. 2016. Keys to Lichens of North America: Revised and Expanded. Yale University Press, New Haven, CT.



From left to right - Top to bottom: *Physcia stellaris*, *Ramalina americana* - fallen off a tree onto city sidewalk, *Peltigera leucophlebia* on a stump Kennedy Lakes Protected Natural Area, Tree trunk on a rainy day - *Xanthoria parietina* + *Physcia stellaris*, *Stereocaulon*





Pongteh



Since starting my exploration into the world of mycology, my options for edible mushrooms have broadened significantly. I often find myself thinking of different ways in which I could use them in plant-based meals. Some mushrooms make remarkable substitutes for meat or seafood, without sacrificing the umami we love.

As winter approaches, I'm craving warm, comforting food that reminds me of home. And what could be more heart and belly warming than grandma's recipes? One of her signature dishes is Pongteh, a Peranakan/Baba Nyonya braised meat dish from Malaysia, where she was born.

For the uninitiated, the Peranakan/Baba Nyonya are a people whose heritage features a unique blend of Chinese and Malay cultures, with a touch of European influence due to colonization. The intertwining of these cultures over centuries gave rise to a deliciously complex and flavourful cuisine, one of which I will share below.

Traditionally, chicken or pork is the main ingredient in Pongteh. However, for this recipe, I'm substituting meat with Lion's Mane mushrooms.

Don't worry, this is an easy recipe suitable for the laziest of cooks. Furthermore, it makes wonderful leftovers; in fact, it arguably tastes even better the next day!

Ingredients (Serves 2)

- Approx. 2 cups of lion's mane mushroom (dried or fresh)
- Approx. 1-1½ cup dried shiitake mushrooms
- 8-10 garlic cloves
- 8 shallots or 1 medium red onion (diced)
- 2 Tbsp light soy sauce
- 1 Tbsp dark soy sauce
- 1 cinnamon stick
- 1 star anise
- 2-3 Tbsp taucheo (sub. with doenjang or red miso)
- 1 Tbsp gula melaka (sub. with brown sugar)
- 1-2 Tbsp vegetable oil for frying
- 2 cups of mini potatoes (or 2 medium potatoes)
- 1 cup of shiitake mushroom water
- 1 cup of plain water

Steps

- Quarter or halve mini potatoes until pieces are of equal size and bake them at 400 °F until the surface is lightly crispy (or fry until gently browned).
- Soak dried shiitake mushrooms in water until soft. Retain the shiitake mushroom water for later use in the recipe.
- Blend onion/shallots and garlic into a paste.
- Mash taucheo into a paste (skip if using doenjang or red miso).



- eat oil in a saucepan and fry cinnamon stick and star anise until aromatic (approx. 30 seconds).
- Add the onion/shallot and garlic paste, fry until aromatic (approx. 2-3 mins).
- Add taucheo, gula melaka, light and dark sauces. Stir and fry for 30 seconds.
- Add lion's mane and shiitake mushrooms. Stir to coat with the sauce mixture and fry for 2-3 minutes.
- Add 1 cup shiitake mushroom water and 1 cup plain water.
- Add mini potatoes and stir to coat with the sauce mixture.
- Cover and simmer for 15-20 minutes, or until the sauce mixture thickens.
- If not salty enough, add more taucheo or light soy sauce to taste. Stir and simmer for a couple more minutes.
- If you would like the sauce to be runnier, add water.
- Serve with white rice or bread.

By: Callum Soong





Winter Foraging

By Jessika Gauvin

With fall now at an end, and winter at our door step, it doesnt mean that foraging has to stop. Just because certain mushrooms are no longer available, winter also has a wealth of mushrooms providing the temperature co-operates, and plants that can still be foraged during this time. Here are a few things to consider and what you can find during the winter period. Enjoy and stay safe and warm.

Important Considerations

Even though in our climate, the winters can be very harsh and cold, that does not mean that we cannot still gather food and medicine. It is very important to note, however, that many creatures depend on winter food much more than us, so we would do good to be mindful of this, especially when it comes to things like nuts and berries.

I like to forage in the winter when we have periods of thaws, as this increases the likelihood that we will find winter mushrooms, which are by far my favorite thing to forage. Look for temps above 5-10C for 72 hours for ideal mushroom foraging. Some mushrooms do grow all year long, like woody polypores.

Pleurotus ostreatus

- Grows in large clusters, primarily on dead hardwoods.
- Decurrent gills coming from a lateral stipe (usually lateral, depending on growth it can be more central)
- White spores
- Grey/brown cap surface





Lepista nuda

- Starts out purple but turns brownish on the cap surface as it ages. It almost always retains tones of lavender, even when brown.
- Cream to lilac colored spores.
- Crowded gills.
- Exannulate (this means no annulus/no partial veil).
- A soil decomposer, grows commonly in leaf litter.



Flammulina velutipes

- Grows in clusters on dead hardwood, especially elm and maple.
- White spores.
- Exannulate.
- Fuzzy stipes, especially towards the base.
- Slimy/sticky caps (this can dry out but if you remoisten it, you can feel it again)





Medicinal Mushrooms

We can also hunt for medicinal mushrooms that grow all year long, or that are preserved by the cold temps. Keep in Mind that your mushrooms should be free from slime, discoloration, mold and that they should smell nice.

Some medicinals I like to forage for in the winter are - *Trametes versicolor* (Turkey Tail), *Ganoderma applanatum* (Artist Conk), *Fomes excavatus* (Tinder Conk) and *Fomitopsis betulina* (Birch Polypore). Chaga is another medicinal mushroom commonly foraged for in the winter.

Turkey Tail

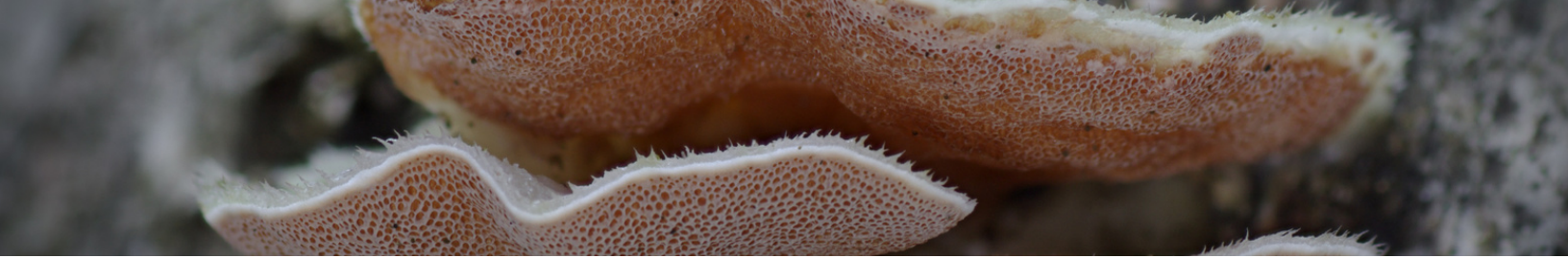
- Thin, with zones of highly pigmented color and very small pores on the underside (2-3 per mm)
- Wood decomposer, growing mostly on dead hardwood trees, especially birch.
- Rich source of antioxidants and polysaccharides.



Artist's Conk

- A relative of Reishi, shares rich polysaccharide content.
- Wood decomposer, found on decaying hardwood trees.
- Zones of brown colors, white pore surface that bruises dark (this can sometimes be affected by cold temperatures)
- Brown tubes, rich smell, perennial fungus.





Notes on Polypores

- Many polypores are nutrient dense and full of medicinal compounds but you must still be aware of exactly what polypore you are working with. Many sources state that there are no toxic polypores but this is not true, *Hapalopilus nidulans* is a deadly toxic polypore that you should be aware of.
- Many polypores have only a few studies done on them, every few months I find new information on polypores that I previously thought had no medicinal potential, keep your eyes and ears open and keep looking into it.

Other Edibles/Medicinals we can forage in the winter

- Usnea
- Rosehips (high in vit c and makes a lovely nourishing tea)
- Hawthorn (an excellent tonic for the heart)
- Cattail, burdock, chickory, dandelion roots (ground must be somewhat thawed for this one and you must know beforehand where it is growing)
- Acorns, Dock and Maple tree seeds (you can make a beautiful flour with these things, with some processing)
- Wintergreen leaves and berries
- Cranberries

Next Issue will be in the Spring of 2023. Keep safe and stay safe and we will see you all in 2023 for more mushroom hunting!