FUNGIFAMA

NEWSLETTER FOR SVIMS.CLUB

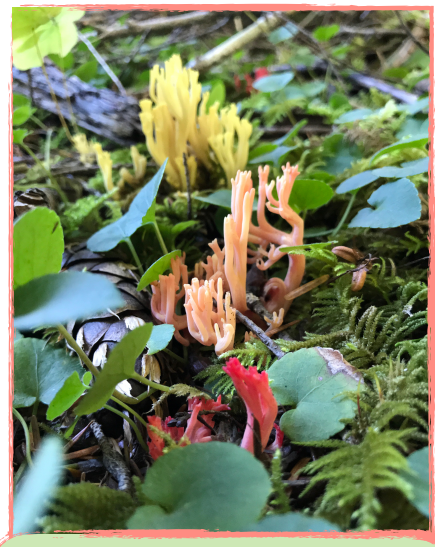
SHANNON BERCH. JOEY TANNEY. STEVE FISCHER. JEFF WRIGHT.
TABITHA JONES. JASON GOWEN. MELANIE HESS.

Welcome to the Winter Season of Fungi!

A great time to brush up on fungal knowledge.

Letter from the Editor

Grab a hot beverage, snuggle into a comfy spot, and get ready to read up on some incredible fungal knowledge! This is a newsletter that is best enjoyed as a return-read. Something fungal to look forward to, on our cold, rainy and non-foraying days. Concise and relevant information on toxicity, ecology, identification markers, new scientific information about fungi etc., is becoming more difficult to weed through. Especially with the extreme number of books, magazines, websites and social media outlets out there. Through accredited, registered societies built by mycologists, we are able to share a wealth of knowledge; myths and mis-information gets happily debunked. Via our seasonal newsletter, we will bring a few nuggets of knowledge to keep you on your toes, produced by both experts & myco-enthusiasts.



Ramaria species

Questions, comments, requests and volunteers to write an article or two... feel free to contact us at fungifama.svims@gmail.com.

Happy Hunting, Melanie Hess

It's interesting to try and imagine how early humans discovered what was edible and what wasn't. Who figured out that when you cooked stinging nettles, the sting would go away completely? How many people had to die before the relative toxicity of wild mushrooms became widely known?

~Kate Christensen

We would like to remind readers of the risk of poisoning when eating unfamiliar fungi. Some mushrooms are acutely toxic and can cause death, whereas others can cause severe organ failure after days. Always cross-reference. Gather intel from multiple resources and/or ask professional mycologists.

Contents

Trees

1. Hemlock
2. Spruce
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Bad Science, Fungal Volatiles, & Intriguing Possibilities

Shannon Berch

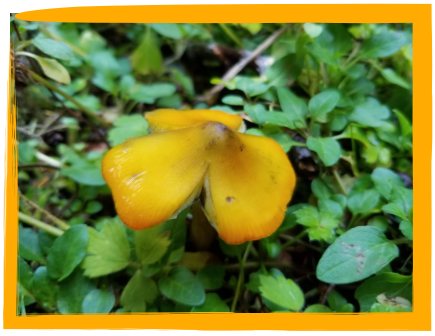
Like a bad smell that just won't go away, some bad science published as an abstract in the International Journal of Medicinal Mushrooms in 2001 lingers on thanks to the popularity of titillating sensationalism on the internet. The bad science, which made claims of spontaneous orgasms in women triggered by the smell of a stinkhorn growing near recent lava flows in Hawaii, should have been thoroughly and permanently laid to rest by an article published in 2015 by Debbie Viess of the Bay Area Mycological Society (BAMS) and recently posted on the BAMS website (http://bayareamushrooms.org/). If you want to know more about this whole silly story, read Viess's definitive account.

As is usually true in the biological world, the real story about fungal odours and volatiles is much more interesting and engaging than any fabricated tale. We are all familiar with the varied odours of mushrooms and truffles. There is a lovely essay about mushroom odours on the New Brunswick Museum's Mycology Web Pages, created and maintained by Dr. David Malloch, a Research Associate of the New Brunswick Museum. Truffles have worked with animals over evolutionary time to signal their presence and readiness for dispersal using volatile organic compounds some of which can even be detected by our limited human olfactory capability. Many sound scientific publications using sophisticated detection approaches, e.g. mass spectroscopy, have documented hundreds of volatile organic compounds in truffles, some formed by the truffles themselves and others by the microbes that naturally inhabit truffles. Now and then, we read that female pigs find truffles because of the pheromone, androstenol, which is produced in maturing truffles. It has even been suggested that humans are attracted to truffles by androstenol but it has also been demonstrated that it is the compound dimethyl sulphide that attracts truffle dogs, truffle hogs and truffle flies (see Tuber melanosporum Wikipedia article).

Having had the privilege and pleasure of truffling with excellent truffle dog teams in BC, the one thing of which I am certain is that aroma detection by truffle dogs inhabits a different realm from my ability to detect aroma. These dogs find tiny truffles with very little aroma and truffles that to me have no aroma at all.

So, if we hold our noses and side-step claims that just smell bad, we enter a world of wonder that scientists are really just beginning to explore. I can think of no reason for a mushroom to smell like almond extract or coconut but that just means that the reason is beyond my ken.

www.bayareamushrooms.org



Left: Hygrocybe sp. Right: Cortinarius violaceus gr.

The Harbinger of Winter, the Last Edible until a New Year: Sarcomyxa serotina.

Tabitha Jones and Jeff Wright

Previously named: Panellus serotina.
DNA de-coding has become more prolific of form for identification, in order to properly categorize fungi within their taxonomical homes.

Common names: late fall oyster, winter oyster, mukitake, olive oysterling

Interesting fact: serotina actually means "late fruiting". Although looks lean towards the generic oyster mushroom (Panellus genus), colouring, texture & DNA say otherwise. Just like your Doppelgänger: if mushrooms look the same, DNA proves where it truly belongs, in the world of taxonomy. Do NOT rely purely on general "looks" with mushrooms! The bruising colours, gill patterns, finite hairs on half of stem, reticulation pattern on stem, porous, sponge, odour etc... ALL of these items together produce a proper ID.

Panellus serotinus (syn. Sarcomyxa serotina)

Description: Saprobic (meaning: decomposer) on recently fallen hardwoods (the eastern term for: deciduous). Growing in shelf-like clusters, alone or scattered. It is shaped like a shell on its side.
Found during late fall/winter throughout the northern hemisphere and common in northern or montane climates. This one is always attached from one side of the cap to a tree trunk, stump, or branch of a tree. Always on deadwood of deciduous trees such as alder and maple, and Jeff W. has seen it on an oak once. Michael Kuo says that occasionally, it grows on dead hemlock.

Pileus/Cap: size = 3 to 11 cm, often semi-circle or shell shaped. The nick-name "Olive Oysterling" is due to its colouring: greenish grey to tan coloured, a lot like olives. One note to remember is that after a rain, its cap can be fairly slimy.

Gills: colouration ranges, but most often will be buff to tan-ish, distinctly yellowish-organgish, kind of "peachy" at times; close blade-like gills, adnate; radiating from attachment point and run down the stubby, lateral pseudostem ("decurrent" gills).

Stipe/stem: absent or if present, laterally attached; yellow to brownish, hairy/velvety.

Flesh: whitish and quite rubbery. No bruising colours to note. It is a hardy mushrooming body, to withstand the cold and damp weather. (Keep that in mind for cooking!)

Sporeprint: whitish. Spores: 4-6 x 1-2 microns. Sausage shaped, smooth, typically amyloid (in dried specimens).

Toxic lookalikes: Luckily it does not have any significant poisonous lookalikes. Once turned over, the gills help identify it vs a lot of our polypores/conks with a porous underside. There are plenty of other shelf-like fungi with different colors: pink, peach, white, grey, tans etc... with distinctive olive and yellow colour combinations as tools for identification, mistaking this for another that could cause gastric distress is unlikely.

Edibility: It is considered edible and is said to represent differing taste from very delicious to very bitter. Possibly depending on how early or late in the season. Many recipes recommend parboiling and sautéing in butter. Cooking low and long, to help break down the chitin (structure, hardiness).

There is conflicting information about the edibility of Sarcomyxa serotina. There is a very informative video by outdoor educator Adam Haritan. Through extensive research and consultation with the (unnamed) German mycologist who made original claims of toxicity, Haritan asserts that he confirmed with the above mycologist that there is no evidence to suggest Sarcomyxa serotina is carcinogenic, though it may contain as do many foods minute traces of carcinogenic compounds.

https://www.mushroomexpert.com/panellus_serotinus.html
https://www.aldendirks.com/1001-mushrooms/13-late-fall-oyster-sarcomyxa-serotina
"Mushrooms Demystified" text (not field guide) David Arora
"Mushrooms of the Redwood Coast" Schwarz & Siegel
Carcinogen debate information retrieved from:
https://learnyourland.com/is-the-late-fall-oyster-mushroom-sarcomyxa-serotina-carcinogenic/
Photo courtesy of https://www.aldendirks.com/1001-mushrooms/13-late-fall-oyster-sarcomyxa-serotina

Hope you have a lovely and safe winter solstice season!

Fungal Inoculation

By Steve Fischer

Growing mushrooms on logs is a hobby, a passion and some might even say an obsession of mine; but whatever it is, it's a magical, wonderful thing to do and observe. There is so so much to learn and so many questions that don't have exact answers or that have countless different answers that it makes you wonder who and what you should really believe.

Back in 2014-15, I became very inspired by Danielle Stevenson ("DIY Fungi"), who was teaching workshops on growing mushrooms (Thanks Danielle!). I got super excited and experimented with growing Oyster mushrooms in buckets, bags, glass jars and baskets. Throughout the following winter, I grew the mushrooms in a high humidity grow chamber in our basement.

However that wasn't my cup of tea, so I started making my first **King Stropharia bed** outside. I inoculated a number of logs with Shiitake, Lions Mane and Comb Tooth plugs, then the wait began! The King Stropharia bed was successful; however, there was a constant race against the slugs. Who would eat more?! (Unfortunately, they won.)

My first logs didn't produce for a couple years, likely due to my not knowing how to take care of them properly. Even after I learned more about the proper care, the harvest was not great.

In the Spring of 2016 I got a hold of some fresh cut two-foot diameter cottonwood rounds and I built my first mushroom totem! To close the gaps between the rounds I used wet clay so that the bugs couldn't get in to eat the mycelium and then once again, I waited! Nothing happened that fall, but I hoped they would fruit in the spring. Once again, nothing. I finally gave up, after having put in all that work for nothing.

In the fall of 2017 I discovered something that made all the failures of the past no longer matter. My mushroom totem had huge clusters of Oyster mushrooms growing on it, which were perfect and ready to be harvested. At that moment, I was hooked!

Since then I have continued to experiment with different methods from winter through to spring each year; learning and discovering the best ways to grow mushrooms on logs.

In the future I will write another article about "How to grow Mushrooms on Logs" focusing on what I have learned and tried so far!

Keep on shroomin',
Steve Fischer

Resinicolous Fungi or "Why is that bark on the Douglas-fir, black?!" & a mini Xmas tree story

Joey Tanney

On Sunday, I just barely fit an 8-foot-tall Douglas-fir Christmas tree into our small car. Satisfied, I started the engine. As I held the steering wheel, I found that my hands were sticky. I inhaled the familiar and pleasing fragrance of conifer resin followed by a trace of that peculiar tequila-like aroma characteristic of a cheap post-COVID hand sanitizer. But the resin's citrusy, spicy, and pungent bouquet, coming from various monoterpenes such as α-pinene, β-pinene, limonene, myrcene, and camphene, evoked memories of chopping wood, campfires, and other coniferous adventures—a reverie prematurely cut short by the sudden realization that I had not yet started the article on resinicolous fungi that I promised for Fungifama! I drove home with resin on my hands, and my mind.

Fig. 1.

Conifer resin is a mixture of various terpenes and other compounds, which are secreted and stored in resin canals in the bark, phloem, and xylem. Resin composition varies among tree species and even among individual trees, but its general function is protection from invading insects and infecting fungi. Resin ducts offer a passive defence—imagine attempting to chew your way into a fir only to have a face-first encounter with a resin-filled blister. But trees can also form traumatic resin ducts in response to attack or injury. This induced resin can be more toxic, inhibitory, or repellent to various disease- and decay-causing fungi and insects such as bark beetles; it also can be less viscous, allowing it to flow more readily towards the point of invasion or injury. "Pitching out" describes a process wherein a fungus-bearing bark beetle bores into a tree and severs resin ducts, causing a high-pressure flow of resin that repels or kills, encases, and physically ejects the offending beetle (and their hitchhiking fungal symbionts) from the bore hole. The wound is effectively flushed and then sealed by the resin, thus offering both a chemical and physical means of defence.

But one microbe's poison is another one's meat. Fungi always seem to find a way to thrive, so it's little wonder that some have evolved the ability to survive and flourish on conifer resin, an inherently antifungal substrate. Many of these fungi will only grow on resin and nowhere else. Collectively, they are called resinicolous (resin-inhabiting), and they are quite diverse, belonging to various orders and classes within Ascomycota.

My interest in resinicolous fungi came about when I was working on fungi associated with living conifer needles in the Acadian Forest Region for my PhD. I quickly noticed distinct fungal communities associated with specific conifer tissues, for example living versus dead needles, bark on living trees, living branches, dead and attached branches versus fallen branches, and resin flows. Following some injury, for example by sapsucker, boring beetle, or mechanical wounding, the outpouring resin eventually solidifies and becomes a perfect substrate for just the right fungi. This wonderful and unexpected world becomes more apparent with a hand lens or stereomicroscope: yellow stalks bearing globs of spores, black pins sticking up, dark tangles of spore chains, black clams, various cup-like fruiting bodies of assorted colours: yellow, orange, red, green, brown, black, even white-and-yellow cups reminiscent of fried eggs, and more. I should mention that most of these fruiting bodies are less than a couple millimetres in diameter, so you have to think small.

I developed the habit of casually inspecting older resin flows during my collecting trips or dog walks, with the outcome being hunks of solidified resin teeming with fungi brought back to the lab, and my hands, knife, and chisel often coated with recalcitrant resin. The usual suspects were fungi such as Amorphotheca resinae, Bisporella resinicola, Claussenomyces olivaceus, Lachnellula resinicola, Sarea difformis, Sorocybe resinae, Zythia resinae, and some unidentified species (Fig. 1). Many old resin flows had a dense, thick growth of black mycelia almost 1 cm thick —a Metacapnodium species (one of the "sooty moulds"). Under the stereomicroscope, I often saw networks of tunnels running throughout these thick mycelial mats, with plenty of springtails, mites, spiders, nematodes, and other tiny invertebrates using them like highways or for refuge; the fungi had transformed a sticky, toxic deathtrap into a sheltered habitat.

A very common resinicolous fungus on red spruce (Picea rubens) on the East Coast was a species at the time called Sorocybe resinae. It produced dark brown, upright stalk-like structures up to 2 mm tall, called synnemata; the tips of the synnemata give rise to fragile chains of brown oblong spores (conidia). Sorocybe resinae was described in 1815 from Norway spruce (Picea abies) resin in Sweden and I noticed that the spores of my red spruce collections were significantly longer than those of S. resinae: my spores were 11.5–15 µm long and 3–4 µm wide whereas those of S. resinae were only 5.5–11 µm long and 2.5–3.5 µm wide. Intrigued, I went about isolating this fungus by carefully picking up a few spores with a flame-sterilized pin and placing them on the surfaces of Petri dishes containing a few different fungal growth media. The spores germinated and slowly, very slowly, formed tiny, black, wrinkled colonies. I extracted DNA from these colonies, sequenced a few genes, and compared the sequences to the only other previously reported sequences, which were from Sorocybe resinae isolated from Douglas-fir resin in North Vancouver (coincidentally collected by my PhD supervisor, Dr. Keith Seifert). Sequence data and morphology indicated that my

East Coast Sorocybe was an undescribed species. The fungus was ultimately described in 2019 as Sorocybe oblongispora (named for its oblong spores). It was a nice little addition to our knowledge of resinicolous fungal biodiversity and I was happy to see that my resin hobby paid off a little bit.

But I knew all along that the story was not entirely complete. We knew that Sorocybe oblongispora was morphologically distinct from the European S. resinae and we knew that it was genetically distinct from S. resinae collected from the west coast—but I had a hunch that the west coast "S. resinae" was actually different from the European species too. Simply put, I believe the Sorocybe on Douglas-fir is an undescribed species lurking in plain sight, separate from the European and East Coast species.

I moved to Vancouver Island in 2018 with a list of fungi to collect and Sorocybe resinae on Douglas-fir was near the top of my list. Almost immediately upon arriving, I was pleased to see that it was almost impossible to not find Sorocybe when walking among mature Douglas-firs, whose copious resin flows (resinosis) continue to greatly impress me (Fig. 2). The spores on the Douglas-fir Sorocybe are much smaller than its eastern counterpart but around the same size as those of S. resinae from Norway spruce. The next step will be to acquire specimens and sequences of the "real" S. resinae from Sweden to compare with our species. I've requested samples from several European mycologists and wait for them in anticipation.

Fig. 2.

So, all of you keeners—the next time you are out in the forest, make a point of taking a close look at the ubiquitous Douglas-fir resin flows that have turned black from fungal growth. Appreciate the variety of different cups and stalks and other fruiting bodies and use a hand lens to spot the possibly undescribed Sorocybe species. Above all, marvel at this extreme habitat conquered by an equally extreme group of organisms: the resinicolous fungi.

Thanks to Richard Winder for his helpful proof-reading.

Figure captions

Fig. 1. A. Zythia resinae apothecia (cup-like sexual fruiting bodies) on Douglas-fir resin. B. Sarea difformis apothecia on red spruce resin. C, D. Bisporella resinicola synnemata on red spruce resin. E. Unidentified cf. Ciliolarina sp. apothecia on Douglas-fir resin. F. Claussenomyces olivaceus pycnidia (asexual fruiting bodies) on red spruce resin. G. Sorocybe cf. resinae synnemata on Douglas-fir resin. The two white, slimy apothecia belong to what I believe is an undescribed species in the family Tympanidaceae, currently under investigation.

Fig. 2. My favourite colony of resinicolous fungi on a Douglas-fir in Metchosin, with intrepid collector Myles Tanney and frequent depositor Birdie the German Shorthaired Pointer in the background. Note the extensive black mycelia on the resin.

Monograph of Orbiliomycetes (Ascomycota) based on vital taxonomy. Part I + II.
Baral H.O., Weber E. & Marson G. 2020

National Museum of Natural History Luxembourg, 1 752 pp.

Whether you are aware of it or not, while combing the forests for mushrooms you inevitably brush past members of the class Orbiliomycetes. Species often produce small (<1 mm diameter), translucent, waxy, very thin, disc-like fruiting bodies (apothecia) that can be a wide variety of colours, often white, cream, yellow, orange, or pinkish. Apothecia are commonly found on decomposing wood on the ground and dead branches that are still attached to the tree. Remarkably, some of these modest fungi are notorious predators—catching and consuming nematodes, rotifers, amoebae, and other tiny invertebrates by employing sticky traps. Perhaps the most dramatic method is the use of

constricting rings. When an unsuspecting nematode (a worm-like invertebrate) crawls through one of Orbilia's constricting rings, the ring cells react to its touch and rapidly expand, ensnaring the nematode. The hungry hyphae then begin consuming their hapless prey.

When it comes to the taxonomy and ecology of Orbiliomycetes, and ascomycetes in general, Hans-Otto Baral ("Zotto") is among the most knowledgeable and respected mycologists around. The breadth and depth of his knowledge is astonishing, and he collaborates with an untold number of mycologists worldwide. Zotto's 30+ years of extensive, meticulous, and passionate collecting and studying of Orbiliomycetes have recently culminated in the publication of this much-anticipated monograph. These two volumes hold a whopping 1 752 pages, involving the treatment of more than 500 species that are richly illustrated in more than 1 000 plates. These authoritative tomes dive deep into all things Orbiliomycetes: taxonomy, nomenclature, morphology, molecular biology, ecology, history and more. The incredible detail and scale of this monograph is quite simply amazing.

The Monograph of Orbiliomycetes is available through the National Museum of Natural History Luxembourg for 150 €, which includes both volumes and postage. It's the perfect Christmas gift for that budding orbiliomycetologist, curious mycologist, or person on your list who "has everything". Instructions on ordering this once-in-a-lifetime contribution to mycology can be found at the following link: https://www.mnhn.lu/science/monograph-of-orbiliomycetes/

Believe it or not, the link above will also allow you to download both volumes in their entirety (100 or 200 DPI resolution)—for free!

History in the Making: Citizen Science & Amanita Phalloides

Jason Gowen

Amanita phalloides, the "Death Cap"

It seems we hear about this mushroom a lot. In the news, on social media, myco groups, discussion on the radio.

When doing mushroom identification at various regional festivals and events, there are usually a lot of questions from the general public about death caps. This curiosity is for a good reason, as it's certainly a species any prospective mycophage would want to be familiar with, if only to know what to avoid. Many people have concerns for their pets or children being poisoned by death caps.

Every time a news article about Amanita phalloides goes to print, the identification groups on social media see an influx of people wanting to know if the mushrooms in their yard are (in particular) death caps. Usually they aren't and the person asking moves on, though for some it kindles a curiosity about mushrooms that leads to a new hobby and adds to the ever increasing number of Islanders taking an interest in mushrooms.

All this publicity has led to an extremely large number of people keeping their eyes out for Amanita phalloides. While this has led to an increase in the number of "false alarm" type ID questions, and drummed up some old myths and phobias about mushrooms, it's also led to new data about the regional range of this fascinating species.

As one example, in late October 2020 a member of one of the local mushroom identification groups posted photos on Facebook for an ID request of a mushroom they had found in the Comox Valley. The first visual impression from the photos was that it was Amanita phalloides, which had previously not been recorded on Vancouver Island outside of the Greater Victoria area. I reached out to the person posting and suggested they voucher the specimen for documentation. I contacted Shannon Berch and some other local mycologists to inform them of the find. Kent Brothers was able to meet with the discoverer to collect a specimen and document the site. This specimen has been sent to the herbarium at University of British Columbia (UBC) for sequencing and preservation. Island Health released an advisory to the general public shortly after informing them that death caps had been found growing in the Comox area. This was a fantastic example of how social media, properly used, can be a great resource for getting people involved with the science of mycology!

Following these events, there seems to be increased public interest in tracking the species and a number of previously unrecorded locations in the Victoria area have now been revealed to me. Most recently, on Saltspring Island, which also has had a specimen collected that is now in transit to UBC for further analysis.

With luck, this trend of increased public interest, as well as practical use of social media will continue to contribute to our understanding of the regional distribution and expansion of Amanita phalloides. It's difficult for individuals with the knowledge and desire to study such things to cover an area as large as Vancouver Island, but in the age of smart phones it's possible for anyone on the island to snap a picture and post it to one of our local identification pages at the click of a button. While photo identification may not always be reliable, these recent events have shown that it is enough to get the ball rolling when the right people are watching.

I look forward to seeing where things will go from here.

Side note, by editor: Citizen science for the glorious win, but founded on the insistence and direction of local mycologists and serious mycological enthusiasts. From an outsider's view, initially, Dr. Shannon Berch identified the first A. phalloides on Vancouver Island. She sent it to be de-coded DNA-wise, and the spiral effect it had on SVIMS & our communities, was (and is) incredible. Many members of SVIMS volunteered to remove the fruiting bodies in Fernwood, Oak Bay, Uplands... day after day, for many seasons. Even more volunteers distributed posters of public warnings of A. phalloides from Victoria to Sidney. The local municipalities declined to help for a long time, until the consistent concern of local mycologists and a death got their attention. Now, we have Island Health giving out warnings of a new area on Van Isle! How amazing is this community, where we have volunteers for keeping our communities aware, safe & educated!

Some of the Tools and Gear, for the Great Outdoors

- Knife - for defence as well as to extract fungi
- Brush (Boar's hair is hardy for wet, rough conditions/substances)
- Whistle - to communicate with your pals, or to help Search & Rescue find you...
- Wax paper – allows the mushrooms to breath so you can ID them later

- Magnifying glass - for IDing smaller visual keys
- Paper bags, baskets, storage box (breathability present) = non-mushy mushrooms
- Bright coloured weather appropriate clothing - especially in fall, when others will be hunting!
- Comfortable, sturdy and moisture proof footwear
- Rain gear
- Bear spray - for the cougars, bears, wolves and humans
- Water and non-perishable snacks
- Personal locator beacons you can find at MEC, London Drugs, Amazon and many other retailers. **A PLB is an invaluable tool when you travel beyond the boundaries of cell service and will send emergency responders your GPS location.**

It is safe to say that one of the *most important* things to remember is to have a "check in time" with someone who is NOT coming along on a foray with you. This means they need to know what area you will be going to, what route you'll be taking (loosely) and when you want to be back by… latest. Personal Locator Beacons, GPS apps/devices, survival and first aid kits should be on your person (including extra batteries).

Happy Foraying & Foraging!

Thank you to all our volunteer writers & editors!

PDF available on svims.club site, or by email to:
svimsvicepresident@gmail.com

Mushrooms! Where do I find educational material for my own studies?

A List of Books, Websites and Forums
by Melanie Hess, 2020

Poisoning First Response

If you think someone may have eaten a poisonous mushroom: *stay calm*. Call the 24h hotline of DPIC (Drug and Poison Information Center) at 604-682-5050 or 1-800-567-8911, and contact your physician or local health care provider.

Make a note of where the mushroom was found (habitat and location), when it was eaten, how much was consumed (and by how many people).
If possible, save a sample of the mushroom. A whole intact mushroom (including the base) is ideal. Refrigerate the sample in paper or wax paper– not a plastic bag. Photos of the fresh mushroom may be useful in identification – be sure to show both the upper and under side of the cap.
If you suspect a serious poisoning, seek medical care immediately. Apparent mushroom poisoning may be due to food spoilage or other causes.
Handling mushrooms with care will not cause poisoning – wash your hands afterwards with soap and water. Alcohol-based hand sanitizers do not remove many toxins, and may in fact carry them through the skin.

Introducing fungi to children
http://www.britmycolsoc.org.uk/
http://www.namyco.org/books_for_young_people.php

Fun Sites for the Kids, puzzles, games, experiments
The Fungus Among Us
http://www.virtualmuseum.ca/~mushroom/ English/index2.html

RESEARCH, Web Links & Free Online Resources for Identification of your Fungal Finds, some created by Mycologists (=no myths & misinformation involved)

Pacific Northwest Key Council – Identification keys to mushrooms of the Pacific Northwest
Matchmaker - Dr. Ian Gibson, a member of SVIMS, has created an electronic synoptic key for the PNW. Downloadable to PC, android etc.
Pictorial Key to Mushrooms of the Pacific Northwest - created by Danny Miller, an incredible scientist & frequent Mycological speaker for SVIMS.
E-Flora BC Fungi – A fungal overview by Michael Beug & many others accredited scientists
Mushroom Expert – Michael Kuo's extensive essays and identification keys
Mushroom Observer – A massive creative commons library of mushroom photos, with crowd-sourced names
Forest Service BC – Guidelines for mushroom foragers
SVIMS checklist of local species - Dr. Ian Gibson creates a list of local species, 93% of which are in local Herbariums. Downloadable for your own enjoyment. Months of fruiting, notes, common vs uncommon... locally identified mushrooming bodies on our monthly forays. The lists indicate frequency of sightings of specific species.
Local Fungal Events List - Juliet Pendray SVIMS member and Mycologist, creates a list of events from various clubs, societies, associates etc, for your viewing pleasure
Myoweb - Fungi found all over, sometimes not relatable to our regional species.
r/mycology – The most active subreddit dedicated to mushrooms, mostly edible
Ways of Enlichenment – A premier resource for understanding lichenized fungi
Mushrooms Up! – Beatty Biodiversity Museum's visual catalogue of significant edible and poisonous mushrooms edible mushrooms of BC
Radical Mycology – Practical mycology focussed on cultivation and bioremediation
Wild Mushroom Recipes - just that :)

Tom Volk's Fungi
http://www.tomvolkfungi.net/
Canada's Species: Fungi
http://canadianbiodiversity.mcgill.ca/english/ species/fungi/index.htm
FUNGI Magazine
Britt Bunyard PhD, publisher, editor-in-chief
LOCAL CLUBS, with accredited Mycologists as members:
www.svims.ca. www.namyco.org. www.vanmyco.org

693 words

A list of text books for Mycology, specific for our region:

"Mushrooms of the Pacific Northwest" Trudell & Ammirati
"Mushrooms of the Redwood Coast" by Schwarz & Siegel
"Mushrooms Demystified" Arora. NOT just the field guide.
"North American Boletes" Bessette, Roody & Bessette
"Amanitas of North America" Bunyard & Justice
"The 5th Kingdom" Bryce Kendrick.
"The Outer Spores: Mushrooms of Haida Gwaii" Kroeger, Kendrick, Ceska & Roberts

http://www.namyco.org/refbooks.php

Facebook Groups/Discussion Forums:

- South Vancouver Island Mycological Society
- Interior B.C. Mushrooms; Identification, Discussion, & Information
- Vancouver Island Mushroom Identification & Info Group
- Slime Mold Identification & Appreciation
- Mushroom Edibility & Discussion
- Pacific Northwest Mushroom Identification and Information Forum
- Mushroom Parasites
- Inland Rainforest Naturalists
- Vancouver Foraging Connection
- Mushroom & Lichen Dyers United
- Field Naturalists of Vancouver Island
- Vancouver Island Mushroom Picking

INSTAGRAM

@yellowelanor @_svims @vanmyco
@welcome_to_mushroom_hour ***a podcast!***
@mycopigemnts @florafungiandfibre
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