

Happy New Year!

To Better Times!

L.I. SPOREPRINT

1973-2021



Follow us on Facebook:

<https://www.facebook.com/groups/longislandmushrooms>

Visit our homepage at <http://limyco.org>

Findings Afield

Tolypocladium longisegmentum

by Roger Eklund



On Nov. 24, 2021 while searching for *Tricholoma equestre* and brushing back leaves with my hiking stick, I uncovered these interesting mushrooms. I was excited to have found what I assumed were *Elaphocordyceps capitata* (renamed *Tolypocladium capitatum*), which I thought I had found about 8 years ago in a mixed tree forest in Ct. I say that I thought I had found *T. capitatum* now, but because I didn't look at the spores back then, they could have been *T. longisegmentum* (the fungus formerly known as *Elaphocordyceps longisegmentis*). The first time I saw the dark brown pimple heads rising above the dead leaves, I didn't know if they were plants or mushrooms. I plucked one and cut it lengthwise, the stem felt tough and woody. I assumed it was a plant and went on searching for *Hydnum repandum*. The following

(Continued on page 6)

Should Mushroomers Think Like Doctors?

By Joel Horman

When my niece was in medical school one of her instructors recommended taking up birdwatching, since he believed that the process of quickly perceiving and assimilating details necessary to be a good birder mirrored that of a good diagnostician. Perhaps the same could be said for mushrooming; with the caveat that even more senses are involved (than in birding) so that smell, touch and taste are all important factors, just as in medicine. And it seems that mushroomers are prone to some of the same errors of “misdiagnosis” as are their medical counterparts.

What these errors are exactly, and how they can be recognized and avoided is the subject of “How Doctors Think”, by Jerome Groopman, a professor of medicine at Harvard and a staff writer for the New Yorker.

Genuine sources of uncertainty are (1) the limitations of current knowledge (the state of the science) and (2) individual ignorance of the science (incomplete mastery of available knowledge). No one can have complete mastery of every segment of either medicine or mycology due to their immense complexity, but it is important to differentiate between 1 and 2.

What Groopman calls “pattern recognition” is a cognitive method that relies on an immediacy of perception without conscious analysis to achieve an identification. This is similar to the process we use when recognizing the faces of friends and others known to us. Many times perception must be augmented by focused thought and analysis, drawing together bits of data to form patterns, often by using shortcuts or “heuristics”. All such mental efforts are prone to errors such as “availability”, the tendency to judge the likelihood of an event by how readily it comes to mind; and “representativeness”, thinking guided by a prototype that ignores contradictory possibilities. These errors, which are not unrelated, come into play even more strongly when unfamiliar problems present themselves.

The availability error leads physicians to mistake symptoms of one disease for another with which they are more familiar or have seen more recently. Once they have fixed upon one possibility to the exclusion of others, they have committed...

(Continued on page 6)

SEE LAST PAGE FOR RENEWAL INSTRUCTIONS

PRESIDENT'S MESSAGE

This is the first issue of the Sporeprint not having Joel as Editor in many years. I thank him for work well done. He is not leaving us but will now focus more on research. I am sure we all wish Andrea the best as our new Editor. Please support Andrea by sending labeled pictures and/or articles to her. She can then choose what to print. I know she will do quite well.

It is now dues time. Most of us have had a dues free year but memberships must now be renewed for 2022. Along with this issue a renewal application is attached for those— the majority of us— who need to renew. (We have quite a few new

members who will not receive a renewal form as they joined late in the year.) Dues have not been raised since 1973. I doubt any other club can say that! If you have any questions, please email me at: owls2@optonline.net.

In a year of diminished socialization, our forays have been a bright spot for many of our members. Despite recent setbacks, we are hopeful that Spring will bring improvement. I miss our annual picnic and Mushroom Day and look forward to the day they can return. So “happy winter to you all”, be safe and I hope to see you along the trails in 2022.

FROM THE EDITOR

As the new Editor-in-Chief of “The Sporeprint,” I want to first extend my gratitude to you all for giving me the opportunity to serve in this exciting position, and to Peggy and Joel specifically for encouraging me and supporting me throughout the transition. Joel’s shoes are big ones for me to fill, and I am fortunate for his willingness to co-edit this newsletter with me during the interim!

I’d like to secondly share with you a little about my journey into LIMC, which I partially blame on a canister of bear spray. Yes, it’s true; my journey into the land of mycology began with a can of bear spray on a partly cloudy day at the end of August, in 2017.

I and my husband, Stefan, who was then my fiancé,

had been checking off the last “to do” item on our list to gain entry into “The Catskills 3500 Club,” which requires prospective members to hike all thirty five Catskill mountains whose peaks penetrate into the alpine altitude of 3500,’ including those mountains that are considered trailless “bushwacks.” In addition, club aspirants must also summit the four tallest peaks during the winter months between December 21 and March 21.

Thinking we had completed our duties, we mailed in our paperwork a few weeks prior to that fateful August day only to find out that, even though we backpacked Balsam Mountain in February of 2015, we were still required to hike it a second time for a total of 39 climbs.... *(continued on next page)*

**MATERIAL FOR THE SPRING EDITION SHOULD REACH THE EDITOR BY
MARCH 1ST.**

(Submissions may be forwarded by email or via Facebook Messenger)

LI Sporeprint is published quarterly. Material herein may be freely copied by any non-profit organization if appropriate acknowledgements are made and a copy supplied to the editor.



President: Peggy Horman
Vice-president: Jacques Brochard
Treasurer & Membership Secretary: Peggy Horman owls2@optonline.net
Recording Secretary: Carol Capaldo
Foray Chairman: Jacques Brochard
Webmaster: Dale Robins
Science Adviser: Benjamin Wolfe, Asst. Prof., Dept. of Biology, Tufts University

Editor: Andrea Barracca-Rosen bleunotes@yahoo.com / Andrea Michelle (FB)
Contributing Editor: Joel Horman jlhorman@optonline.net
Yahoo Group Coordinator: Maria Saffioti msotolongo@optonline.net
Communications Officer: Richard Capaldo capaldo33@optimum.net
Species Recorder: Roger Eklund
Board Members: Tony Mish

FROM THE EDITOR, continued from page 2.



*View from Balsam Mountain, 3600'
August 26, 2017*

So there we were, back on the top of Balsam, attempting to document our victory with a screenshot of our GPS when we heard something thrashing through the woods from the trailless side of the mountain. I looked at Stefan, and I could tell by his expression that whatever was coming our way was no porcupine or deer.

I slowly reached my left hand back towards the canister of bear spray I had holstered to my pack, and just as my hand made contact with its cold, hard surface, the black silhouette of a large, hump-backed figure rose up from behind the alpine shrubs. I tried to remind myself about all the times I was told that bears want nothing to do with humans, but it didn't help. My heart was pounding in my ears.

I unhitched the canister from my waist-belt, and we slowly began backing down the summit towards the trail and raising our voices to "make noise," but no matter how far we walked or how loudly we talked to each other, the clamoring continued and the shadowy form kept coming closer and closer.

"Why is it still coming closer?" I asked myself, "Doesn't it know we are here? Stefan and I have practically been yelling at one another!"

When we reached the trail, the humped-backed shadow was still about ten yards off. I stood there, gripping the bear spray.

Then, the humped figure finally came clobbering into the clearing, and I suddenly felt very silly.

Standing a few yards down the trail was a big, burly mushroom forager with a huge basket swung over his back, something neither Stefan nor I had not encountered during any of our hiking trips, Catskills or elsewhere.

Whether it was out of relief or out of surprise, Stefan blurted, "Hey, do you have any mushrooms in that basket?" A little giggle escaped my throat as I pretended I wasn't holding the canister of bear spray. I turned around so I could inconspicuously hitch it back to my pack.

"Oh, hi," the man said, "I didn't know anyone else was up here. As a matter of fact, yes, I do." He looked down at his basket and began shuffling through some of his items.

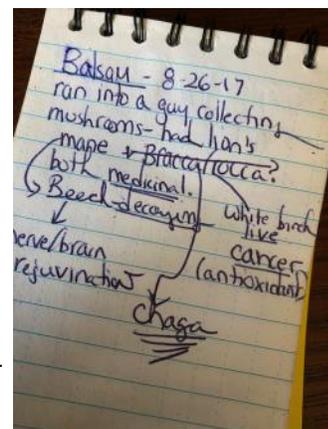
I looked at Stefan, who then inquired, "Can we see them?"

"Um, okay," he said, "One second."

We moved a bit closer, and I admired his necklace- a large, glass mushroom on a hand-woven chain. He had long, frizzy hair, a very full beard, and was wearing hiking clothes. His basket was full of paper bags and colorful fungi.

After a bit more shuffling and some folding down of the tops of several bags, he displayed two mushrooms that were unlike any fungus I've ever seen before. One was very white and spiky like a hedgehog. The other looked like charred wood, like lightning had struck a tree branch.

(Continued on page 4)



FROM THE EDITOR, continued from page 3.

He explained that the first one was called Lion's Mane and that the other was Chaga. He gave us a bit of an overview of their medicinal value and their edibility, and he even pointed out the kinds of trees one should check to find them. While he spoke, I took notes in my "Write in the Rain" pad, and after thanking him for sharing his wealth of knowledge, Stefan and I spent the rest of the day casually strolling, not hiking, back down the mountain, this time in an earnest search for mushrooms. Coincidentally enough, the first one I found was Lion's Mane, *Hericium erinaceus*.

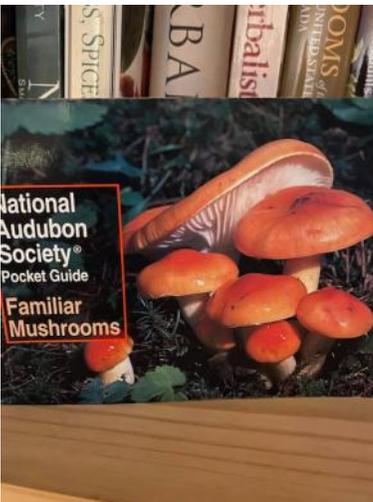
I was hooked, and, for both Stefan and I, the art of hiking was altered forever.

On the way home, we stopped at the Catskills Mountain Keeper in Livingston Manor, and I bought my first book, National Audubon Society Pocket Guide: Familiar Mushrooms. The next morning, I went online and found a website for LIMC, which listed its address as Ridge, the next town over from mine. I called the contact number and a sweet little voice answered. It was Peggy. I explained to her that I just found some mushrooms while hiking upstate and that I was hoping someone could help me identify them, particularly the one I thought was *Hericium*. She told me they couldn't ID them in person, at least not any time soon, but she gave me Joel's email so that I could send photos. I must have sent about 40 different photographs; in fact, my email account prohibited me from sending so many so I needed to share them through my Google Drive account. Joel wasn't happy. In fact, he remarked something along the lines of, "We don't usually ID so many photos, just one or two." But he helped me anyway; he positively identified the *Hericium* along with a few others, and the next thing I knew, a little over a month later, Stefan and I were attending mushroom day at Planting Fields and signing up for the club.

I am eternally grateful for the kindness that Joel and Peggy shared with me on that fortuitous day back in August, just as I am grateful for the forager who shared with me a little part of his world, knocking me into a mycological rabbit hole into which I keep falling deeper. Without their generosity and patience, I would not be here serving as your Editor-in-Chief for this newsletter.



My first Hericium erinaceus, photo submitted to Joel in August 2017



So, dear membership, although my journey began with a canister of bear spray, I wonder, what piqued *your* interest in mushrooms? How did you end up latching onto our club? Send your story to me at bleunotes@yahoo.com. In fact, I'm hoping you will not only send me your stories but also your recipes, artwork, foray finds, growing tips, and anything else mushroom related! I want to thank Joel, Peggy, Roger, and Nick for their contributions to this issue, and I look forward to hearing from more of you in the coming weeks and months so that I can fill the spring issue with as much member-generated material as possible. Our members possess a wealth of knowledge, creativity, experience, and skill; my goal as editor is to provide a forum where we can share this wealth with one another, for as Seneca is noted to have said, "Nothing will ever please me, no matter how excellent or beneficial, if I must retain the knowledge of it to myself. And if wisdom were given me under the express condition that it must be kept hidden and not uttered, I should refuse it. No good thing is pleasant to possess, without friends to share it."



FORAY RESULTS SUMMARY

by Joel Horman

Oct.2, West Hills C.P:

A total of 37 species was rather lackluster for this time of year, and was predominated by Russulaceae with a dozen species, with many *Russula compacta*. There was one Hen and one *Laetiporus sulphureus*.

Oct. 9, Brookhaven S. P:

A vast improvement over the last foray, with a total of 75 species, which included the return of Autumn specialists: *Suillus* (3 species) and *Tricholoma* (4 species). Russulaceae remained in evidence, with a dozen species and *Amanita* with 10. Several Beefsteaks (*Fistulina hepatica*) were found, as well as Hen-of-the-Woods, Trumpets, and a perfect Cauliflower (*Sparassia americana*).



Sparassia americana

Oct. 16, Prosser Pines C.P:

38 species was a bit low, but *Grifola* continued to fruit in good number as did *Suillus americanus* and *S. spraguei*. There were also a few Blewits, and the forest floor was brightened by *Cortinarius iodes* and *C. semisanguineus*. *Mycena pura*, in its many guises, seemed to be everywhere.

(Both the Oct 23 foray at Peconic Hills and the Oct 30 at Sarnoff Preserve were cancelled due to a lack of fungi.)

Nov. 6, Rocky Pt State Forest:

A total of 40 species were collected, although in lower amounts than usual, due in part to the local residents (deer!) having had first dibs. With Autumn in full swing, *Tricholoma*, *Hygrophorus* and *Cortinarius* were the predominant gilled species, while bright yellow *Neolecta carpeta* carpeted the trails and *Thelephora terrestris* and *Laccaria trullisata* trooped over the sand dunes.



A conspicuous absence: where the deer dined..

Nov, 14, Planting Fields:



Strobilurus conigenoides

Although only 29 species were found, they included several uncommon and two new ones. *Cortinarius albobrunnescens*, only published this year, was unexpected. (See the Autumn 2021 edition of this

newsletter.) And the showy *Leratomyces ceres*, infrequent on the East Coast, was in abundance. Two deadly species, *Galerina marginata* and *Pholiotina rugosa* (formerly *Conocybe filiaris*) were also abundant. The two new species were the unprepossessing *Gymnopus putilus* and the long expected *Strobilurus conigenoides*, saprobic on spent Magnolia cones. The only edibles were Wine Caps, and for the culinarily adventurous, the “eggs” of *Phallus ravenelii*.

Nov. 20, Edgewood Preserve:

Our last foray of the year produced exactly 50



Rhodocollybia prolixa v. distorta

species, about par for this site, although again amounts were low. As expected, *Tricholomas* predominated with seven species, including the desirable edible *T. equestre*. Other edibles were *Albatrellus ovinus* (Sheep Polypore) and *Lepista nuda* (Blewit). Interesting because uncommon were *Hohenbuehelia petaloides*, *Rhodocollybia prolixa var. distorta*, and *Tricholoma fumosoluteum*, not encountered here since 2009. *Pseudohydnum gelatinosum* (the Toothed Jelly) made its

third appearance this year, despite not having been collected previously. (Said to be edible but tasteless.) *Mycena stannea* was new to our list, a gray, ordinary looking *Mycena* notable only for its microscopic elements.



Pseudohydnum gelatinosum

HYDNUM REPANDUM OR HYDNUM RUFESCENS?

We have been calling the *Hydnum* we usually find on L.I. *H. repandum* but that seems to be an error, and ours more closely fits *H. rufescens*, which differs by its deeper ochraceous pileus coloration, its salmon colored non-decurrent spines, smaller size, as well as smaller spores. and interior that is pale flesh colored and yellows when exposed. I measured the spores of a recent collection and they were subglobose, 6.5-8 X 5-7, matching the measurements given in Tim Baroni’s Northeastern USA guide, the only guide that includes this species. We highly recommend this guide to our readers.



photo © A. Barraca-Rosen

JH

Think like Doctors? (Cont'd from page 1)

the error of “anchoring.” Mushroomers fall into a similar mental state when they fail to recognize, say, the one *Clitocybe dealbata* masquerading as a *Marasmius oreades*. That is, concentrating on a few features of a case (or a mushroom) and overlooking contradictory information leads to distorted pattern recognition, with possibly dangerous consequences. Medical students are cautioned, “When you hear hoof beats, think about horses, not zebras”; but sometimes, a zebra might turn up.

Another shared error is “diagnosis momentum”: once a diagnosis is made, it is passed on to others with increasing conviction, contradictory data being jettisoned. This medical phenomenon finds its counterpart in misidentifications being perpetuated and persisting for years among various clubs.

What lessons can be drawn from this incisive analysis? I think it is to never jump to conclusions, to be thoughtful, and to ALWAYS CONSIDER ALTERNATIVES. A certain humility in the face of complexity is not out of place. We must discard the old surgical maxim, “Sometimes in error, never in doubt”. Self doubt, and self questioning are more likely avenues to the truth. In the words of one physician, “know not only what people know, but how they know it”.

***Findings Afield*** (Cont'd from page 1)

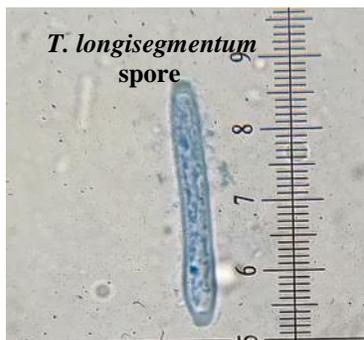
year I went back to that same spot in the Ct. forest and found them again, this time realizing that they were fungi, because I had seen them in a field guide.

T. longisegmentum is macroscopically identical to *T. capitatum*. The only way to tell them apart is by the size difference of their spore segments. Joel looked at my spore pictures and realized the spore size matched *T. longisegmentum*- a species new to our list- in Timothy Baroni's Northeastern guide. The long, tube shaped spores are huge! The segmented spores measure 40-65 X 4-5 microns, more than twice the length of *T. capitatum* spores.

Both species have yellow, solid stems and tan/orange round heads when young.

Stems become hollow in age, yellow on stems becoming dingy, and the head becomes dark

brown with more prominent pimples. We now have to confirm that we really have *T. capitatum* here by measuring the spores, which Joel says we haven't measured before. These are ascomycetes that parasitize another ascomycete, *Elaphomyces granulatus* (deer truffle). Another one on our list that parasitizes the deer truffle is *Elaphocordyceps ophioglossoides* (now *T. ophioglossoides*). The stems of these parasites can reach up to 4 inches.



Tolypocladium is a diverse genus of fungicolous fungi, within the family *Ophiocordyciptaceae*, includes saprotrophic soil inhabitants, plant endophytes, pathogens of insects, and parasites of hypogeous fungi. First used by the Austrian mycologist, W. Gams in 1971, describing *T. inflatum*, to date, *Tolypocladium* comprises 41 worldwide species. Most species are mycoparasites of *Elaphomyces* (deer or false truffles). *Elaphomyces* (49 species worldwide) are ectomycorrhizal with various trees, mostly oak or pine. The fruit body grows only an inch or two underground and is an important food source for squirrels and other rodents, relying on these timid woodland creatures to spread their spores.

I went back with Anthony Sama to Phragmites Park a few days later to collect more *T. longisegmentum* specimens to dry for voucher specimens for the NYBG fungarium . The trees where they were growing near are oak, poplar, and what I think are juniper or cedar. Phragmites Park is located in Centerport on the north side of 25A, across from Betty Allen Twin Ponds Nature Park. When you find these mushrooms you have to use a knife to carefully extract it with it attached to the host *Elaphomyces*. The attachment is quite fragile and the false truffle is encased in dirt and thin rhizomes. The false truffles are usually very small, about an inch around, and crumbly. The park is tiny but has many different trees including maple, grey birch, black birch, white pine, and tulip poplar. And horrific amounts of poison ivy and ticks!



SEEING RED

by Nick Sarin

Although advancements and improvements in DNA testing have made our understanding of the fungal world clearer than ever, it has also created a need to reexamine American species whose classifications have been historically based on type-specimens from Europe and Eurasia. One such example is our understanding of the species, *Amanita rubescens*. We now know that this is the name of a European species, and, that while it may be appropriate to refer to all American blushing *Amanita* as *Amanita amerirubescens*, it is better to refer to this species as a “complex” or “cluster” of unknowns. The renowned *Amanita* expert, Ron Tullos, has written the following about *Amanita amerirubescens*, which can be found on his website <http://www.amanitaceae.org>: “The reader is advised that this page is disappearing and is being replaced by pages representing eastern North American rubescent that we are learning are genetically distinct.” The current webpage, in the meantime, is serving as a repository for collections yet to be genetically sequenced. Tullos lists seven species, some which have been given temporary codes and others which have already been assigned species names. Listed in their current order are the original seven, with sp06 being absorbed in to another code and the addition of three related blushing species, thereby bringing our current *Amanita amerirubescens* group to nine species.

- A. aureosubucula - “golden under thread”; yellow lower annular surface
- A. sp-amerirubescens02 - white universal veil
- A. rubescens var. alba - all white
- A. sp-amerirubescens04 - yellow universal veil
- A. sp-amerirubescens05 - “Slender American blusher”
- A. sp-amerirubescens06- absorbed into another code
- A. maryaliceae - grey universal veil
- A. flavorubens - yellow universal veil, yellow stipe
- A. ostendemihii - rare, close to A. var alba
- A. umbilicata - rare, a single source



It is truly remarkable that so many genetically different species can share so many common macroscopic features, further proving that life on earth and its evolution is extraordinarily complex. And yet, the truth remains that the mushrooms themselves care very little about what names we humans assign them.



JANUARY: FOR OPTIMISTS ONLY

excerpted from Mushrooming on Long Island, by Dom Laudato, former LIMC President, 1996-2005

January can be brutally cold on Long Island, with long spells when the temperature remains in the ‘teens and then sinks to the single digits for what seems like ages. The icy winds contribute to the discomfort engendered by these dismal days and nary a mushroom can be found. Yet some mushrooms make their appearance when conditions are opportune. By this, I infer that January on the “Island” can also provide a window of balmy, unseasonably warm, spring-like days; the kind of days that fool one into believing that the warmth of spring is about to be ushered in while the nasty, frigid weather of winter is poised to be kicked out.

It is during these warm spells that I ven-

ture forth into my favorite nearby woods in search of the Oyster mushroom, *Pleurotus ostreatus*, and any other Oyster in this complex of mushrooms. There is no discernible taste that can be detected when comparing the various *Pleuroti*. Therefore I collectively rate them all very good to excellent.

Optimum fruiting conditions are prerequisite for encountering oyster mushrooms in January, as is persistence, optimism and lots of luck. Mild weather conditions are not the only rule during January on Long Island, which means that all the other factors that support mushroom growth must be present and operating precisely when the

(continued on page 8)

January: for Optimists Only (Cont'd from page 7)

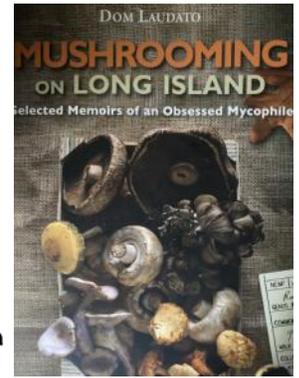
mushroom hunter arrives on the scene. This is certainly a difficult assignment, although given the above conditions, if one visits the trees that have provided Oysters during the warmer months, the odds of a successful January encounter increases slightly in favor of the forager.

During these warmer spells, I have not detected the tiny black beetles that usually scurry in the depths of the broad, sharp gills of the Oyster. In conformance with the many fine descriptions of *Pleuroti* found in mushroom guides, these insects can serve as an additional identification tool, especially for the beginning mycophile.

A January warm spell begins the search; its fulfillment might be a basket of cheer!

January Mushrooms:

- *Collybia dryophila*
- *Exidia glandulosa*
- *Flammulina velutipes*
- *Ganoderma applanatum*
- *Panellus stipticus*
- *Pleurotus ostreatus*
- *Tricholomopsis rutilans*
- *Tubaria furfuracea*



From our Members & the Public



Agaricus crocodilinus
By Dale Robins



Hypomyces chrysospermus
By Julia Maresca



Fomitopsis betulina
By Rachel Pike



Tylopilus felleus
By Leah Seymour



Laetiporus Cincinnatus
By Amanda Agati



Hypholoma fasciculare
By Andy Greller



Armillaria mellea
By Andy Greller





Cooks' Corner

Caramelized Onions with Wild Foraged Mushrooms

by Andrea Barracca-Rosen

This recipe, which is a variation on a recipe located on Hank Shaw's website, <http://www.honest-food.net>, is a staple in my household because it is versatile and can be made ahead of time. My favorite way to use it is to pile it on top of a burger along with some melted Jarlsberg cheese, but I have also paired it with steaks, served it on crostini as an appetizer, and made it the star ingredient in my wild rice stuffing.

Ingredients:

- Butter
- 2 Vidalia onions, peeled and sliced thinly from root to tip
- Himalayan pink salt
- Several sprigs of fresh thyme
- 1 tbsp local honey
- Fresh foraged wild mushrooms (Grifola frondosa suggested, but Stropharia, Pleurotus, and Panellus also work well).

Directions:

1. Start by caramelizing the onions. Heat 2 tablespoons of butter in a large sauté pan over medium-high heat. When it's hot, add the onions and toss to coat. Cover the onions, turn the heat down and cook slowly for about ten minutes, stirring occasionally.
2. Once the onions have softened, sprinkle salt over them and let them cook some more; keep covered. When they are just starting to brown, add the thyme and honey. Cook until the onions turn a nice brown color.
3. When the onions are done, transfer them into a covered dish, and wipe out the pan. Then, add the mushrooms to the pan and turn the heat to high. Sear the mushrooms until they release their water. When the water has almost boiled away or when the mushrooms begin to brown, add some butter and sauté hard until the mushrooms are nicely browned. Salt them as they cook.
4. Mix cooked mushrooms into the onions and serve.

Roasted Squash with Wild Rice and Mushroom Stuffing

by Andrea Barracca-Rosen

A few autumns ago, I had some decorative squash topiaries on my porch steps that, somehow, managed to get through the season without deer or squirrel interference. With

Ingredients:

- 1 large pumpkin/winter squash (i.e., L.I. Cheese Pumpkin, Hubbard, Speckled Hound, Jarrahdale, Cinderella, etc.)
- 3 cups of Wild Rice (such as Lundberg's Wild Blend)
- 2 cups of bone broth (chicken bouillon can be substituted)
- ½ cup of water
- Pre-cooked and uncased ground Italian sausage
- Gruyere cheese; 1-2 cups, shredded
- Fresh parsley
- Dried sage
- Olive oil
- Salt and pepper, to taste
- Pre-cooked caramelized onions with Grifola frondosa (see recipe above)

Thanksgiving behind us and the winter holidays on the horizon, I began looking into ways to "upcycle" these decorations instead of throwing them into the compost. After all, they were still in really good shape. This is a recipe I threw together for that purpose. I hope you get to try it!

Directions:

1. Preheat oven to 375 degrees
2. Clean the squash; cut a lid into the top, and remove seeds
3. With a brush, coat the inside of the squash with olive oil, salt, and pepper. Replace lid on squash.
4. Place squash on a sheet pan, add some water to the pan, and roast the squash at 375 degrees for about a half hour (Watch the squash carefully; do not let it get too soft).
5. Meanwhile, make the rice as instructed on the package, but use bone broth and water as the liquid.
6. When the rice is cooked, mix it in a large bowl with the sausage, onions, 1-1.5 cups of Gruyere, and mushrooms. Add dried sage, pepper, and salt to taste
7. Add the stuffing mixture into the squash, top with more cheese, and roast for another 10-15 minutes. Watch the squash carefully- you do not want it to get too soft or it will collapse.
8. Once the cheese has melted and reached a nice brownish color, remove the squash from the oven, slice into 2-3" sections, and serve. Garnish with fresh parsley.



FINDING THE MOTHER TREE

Discovering Wisdom in the Forest

By Suzanne Simard and reviewed by *Joel Horman*

Suzanne Simard is well known in biological research circles, and has been since her original PhD research article was published in 1997 in the prestigious science journal *Nature*, prompting the editors to coin the now well-worn phrase, “the wood-wide web”. A review in the same issue by the eminent ecologist Sir David Read described her work as for the first time demonstrating “unequivocally that considerable amounts of carbon- the energy currency of all ecosystems- can flow through the hyphae of shared fungal symbionts from tree to tree, indeed, from species to species, in a temperate forest.”

Since then, Suzanne Simard, professor of forest ecology in the University of British Columbia’s Faculty of Forestry, has gone on to publish further research investigating details of these processes and their effect on the overall long term health of the forests. Much of this research has been painstakingly carried out, not in pristine labs, but in the northern forests themselves, requiring profound dedication as well as demanding physical effort and endurance. The labor was so exacting that the one attempt to secure convict labor was aborted by the convicts striking in adamant complaint.

Born into a traditional British Columbia forestry family that practiced selective felling rather than clear-cutting, Suzanne developed a deep love for the forest, and distaste for commercial clear cutting that motivated her research. This is her account of the progression of this research over the years, interwoven with the events of her life, an autobiography that is painfully frank, revealing her inherent shyness and timidity, particularly in confrontation with the older school of male foresters who disliked having their long established practices questioned. Driven by the quest for quick profits, they believed in cultivating a monoculture of a single fast-growing species, and when Simard’s research eventually belied this approach, demonstrating that an intact forest community provided enhanced protection from disease and increased growth, she was ignored or ridiculed.

Her inspiration begins when, at the age of 20, she works a seasonal job for a logging company, assessing the health of newly planted spruce seedlings in a clear-cut area, and finds that they are doing poorly compared to nearby native subalpine fir seedlings. Examining their roots, she finds the latter encased in brilliant yellow hyphae, while the planted spruce seedlings are naked, and makes a mental connection with the similar looking hyphae seen when she unearthed a *Suillus* mushroom. She is inspired both to report that the planting efforts are a failure and to proceed to the library to begin research on mushrooms.

She never looks back, and despite opposition and hardship (including several grizzly encounters) begins her meticulous and ground-breaking research, demonstrating the role of mycorrhizal fungi in providing a connective network that permeates the forest floor, creating a community that shares resources and signals the presence of insects and other predators. Central to this community is the “mother tree” an aged matriarch that can selectively succor her offspring. (This title is a poetic touch, as the mother tree is not necessarily female.) This is, in her words “a world of infinite biological pathways”.

(Recent criticism from the mycology community stresses that Simard and others research is “phytcentric” i.e. plant-centered, and diminishes the mycorrhizal network as a mere pipeline when it is in reality a collection of “multiple fungal individuals who are not necessarily fusing into one network”.)

Her body of research is well respected worldwide and has had a significant impact on inspiring further examination of this extraordinary network, which initially was disbelieved. Simard mentions that eventually some younger foresters accepted her vision, but they were in the minority. The senior members of the profession maintained a scornful distance, and clear-cutting continues in the Canadian forests, which statistics show is more at risk than those of Brazil. Progress here will only proceed, as one wit said of science, “funeral by funeral.”

As noted above, this work is an autobiography, so we learn about Simard’s life story, her family, marriage and eventual divorce, her children, and her protracted, eventually successful treatment for breast cancer. In her story, as in her beloved forest, everything is connected.

- To listen to her lecture on the topic “How trees talk to one another” access https://www.ted.com/talks/suzanne_simard_how_trees_talk_to_each_other?language=en#t-28486.
- For a list of publications, go to <https://simardlab.forestry.ubc.ca/publication/>

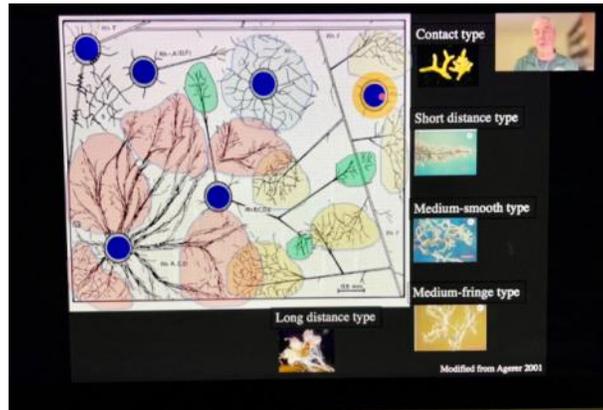


-2021 NEMF VIRTUAL CONFERENCE

Mycorrhizal Networks from a Mycocentric View— a lecture by Dr Thomas Norton

by Joel Horman

For all those who failed to attend this groundbreaking online conference, here is a summary of Dr. Tom Horton’s (SUNY Syracuse ESF) presentation which can be viewed as a necessary corrective to the phytocentric view presented by Susan Simard (see p.6) which, while now well established, minimizes the role of fungi.



other individual of their own only for mating purposes. This however is selective, carried out only with compatible mating partners.

The accompanying screenshot depicts the result of actually mapping these individual fungal mycelia, demonstrating that only a single fungal species attaches to a particular tree’s root tips, (blue circles) but these fungi are made up of

Dr. Horton’s first point was that while liquid transport in trees takes place in dead cells (xylem) that are essentially empty tubes, like straws, and powered by the negative pressure caused by transpiration, this is not the case in fungi. The fungal mycorrhiza which colonize plant rootlets are made up of several layers of mycelia, individual cells with walls of chitin that are perforated by microscopic pores which permit movement via chemical processes.

An additional critique of the idea that various species of fungi join together to form the so-called wood-wide-web is the known fact that fungal individuals (known as genets) of one species never join hyphae with another species, and do so with an-

different morphotypes, differing in the extent of their networks. The “contact” types are very close to the nutrient source, e.g., leaves, *Russula* being one example. The short distance types (e.g., *Lactarius*, *Thelephora*), and the “medium-smooth” type (*Amanita*) have a slightly more extensive network. The “medium-fringe” type (*Cortinarius*), shown in pink above, can extend to 3 meters, while the long distance types (*Suillus* & *Rhizopogon*) were shown to extend as far as 10’s of meters.

These hyphal types do not fuse, and seem not to directly compete, for the most part ignoring each other, except in the case of a parasitic species, like *Chroogomphus*, which is parasitic upon *Suillus*.

QUOTATIONS FROM NOTEWORTHY BOOKS

“Because photosynthesis on land inevitably entails water loss, plants need a mechanism of absorbing water from their surroundings and transporting it through the plant. In terrestrial ecosystems, water, along with nutrients such as nitrogen and phosphorus, resides mainly in the soil. Living plants develop roots that spread their thin, finger-like projections through the substrate, taking up both water and nutrients. Actually, for most plants, much of the work of nutrient uptake is carried out by fungi that live in close association with roots. Rhynie plants (primitive 400 million year old plants) didn’t have well-developed roots, relying instead on thin filaments called rhizoids to anchor them to the ground and absorb water. But the fossils show that more than 400 million years ago, land plants already lived in close association with fungi, exchanging food for nutrients. *In the absence of this partnership, Earth’s green revolution might never have occurred.*” ..

A Brief History of Earth Andrew H. Knoll 2021

WELCOME NEW MEMBERS

- | | | | | |
|-----------------------------|-----------------|--------------------------|----------------------|----------------|
| Jennifer & Vincent Patalano | Sigrid Jacob | Reichert Devon | Stephen Flynn family | Bernie Frohnen |
| Alan Towson & Maria La Rose | Regan Humphreys | Madeline & Thomas Phelan | Rose Martins | |
| Mark Neff & Lizz S. Porto | Rick Amatalli | Nancy Lipira | Louis Lipira | Grace Zhao |



<u>IN THIS ISSUE</u>	
Findings Afield	<u>1</u>
Should Mushroomers Think Like Doctors?	<u>1</u>
President's Message	<u>2</u>
From the Editor	<u>2-4</u>
Foray Results Summary	<u>5</u>
Seeing Red	<u>7</u>
January: For Optimists Only (excerpt)	<u>7</u>
From Our Members and the Public	<u>8</u>
Cooks' Corner	<u>9</u>
Finding the Mother Tree	<u>10</u>
2021 NEMF Virtual Conference	<u>11</u>
Quotations from Noteworthy Books	<u>11</u>
Welcome New Members	<u>11</u>

"Next time you walk through a forest, look down. A city lies under your feet."
Anna Ching
 from "Arts of Inclusion, or How to Love a Mushroom"
<http://press-files.anu.edu.au/downloads/press/p111121/pdf/ch019.pdf>



LONG ISLAND MYCOLOGICAL CLUB
 11 RAMBLEWOOD RD.
 RIDGE, NY 11961

**IF A RENEWAL FORM IS INCLUDED WITH THIS MAILING KINDLY
 COMPLETE IT AND MAIL IT IN WITH YOUR FEE BEFORE JAN 31.**