

MushRumors

Newsletter of the Norwest Mushroomers Association

Volume 29, Issue 3

September 8, 2018

Cooking with mushrooms at member meeting

Hello fellow Northwest Mushroomers! It's time for yet another episode of "Cooking with Wild Mushrooms," by yours truly, Jack Waytz. We will once again meet at the most excellent teaching kitchen at the Bellingham Technical College, Building G (home to culinary arts at the college), 3028 Lindbergh Avenue. This date of September 13, 2018, also serves as the September member meeting for NMA. Come prepared to sign up for shifts at the fabulous Wild Mushroom Show on Sunday, October 21, at Bloedel Donovan.

I will be preparing three different dishes featuring different wild mushrooms, and doing my best to give a detailed overview of the art of mixing and matching various herbs, spices, meats and vegetables to compliment each of the uniquely flavored fungi found in our area.

One of the dishes is a seasoned, sauteed chicken breast, with a shallot, garlic, and *Verpa bohemica* mixture in a champagne cream reduction, served over jasmine rice, with olive oil baked asparagus spears.

Hope to see you there. Happy hunting, do your rain dances!

—Jack Waytz



On the right, a *Verpa* dish to savor on Sept. 13. On the left, Jack with *Phaeolepiota aurea*—not to be trifled with. There's a story there: come to the meeting to hear more! Photo of Jack by Buck McAdoo

Inside

What's cooking? Mushrooms at Thursday's Sept. 13 member meeting	1
You're invited to a Sept. 15, foray near Silver Lake	2
<i>Mushroom of the Month</i> : A new little brown mushroom!.....	3
Report from June's Swede Heaven foray, plus a foray list	7
Calendar of upcoming NMA events	9
Wild Mushroom Show: Fun with fungi	10
Volunteer at the show! Many hands make light work	10
Mushrooms and microhabitats: Part 1 in a series	11
Culinary aspects of several PNW morels—and one verpa	13
Verpas with flavor.....	13
Mystery mushroom.....	14

Northwest Mushroomers Association (NMA)
P.O. Box 28581
Bellingham, WA 98228-0581

northwestmushroomers.org
facebook.com/NorthwestMushroomersAssociation

The Northwest Mushroomers Association meets 7–9 p.m. on the second Thursdays of Apr, May, June and Sept, Oct, and Nov, most often at the Squalicum Yacht Club in Bellingham. Please see website for more.

Fungal forays and field trips are generally scheduled for the Saturday after each meeting. To stay apprised of forays, events and more, please join our [googlegroups](#) email list automatically by signing up as a member.

Annual membership dues are general, \$25 (includes families and individuals); benefactor, \$50; and student, \$15. Make checks payable to NMA and mail "Attn: Membership" to the address above. Or use Paypal online at northwestmushroomers.org/join-or-renew-membership/

The newsletter *MushRumors* is published online February 1, June 1, September 1, and December 1 at northwestmushroomers.org. **Club members are encouraged to submit stories, photos, recipes, and artwork.** We appreciate your interest! Submissions should be made three weeks prior to the date of publication; send to chanterellerin@gmail.com.

NMA officers and volunteers

President: Brennen Brown
360nmapresident@gmail.com

Vice President: Jack Waytz
360nmavicepresident@gmail.com

Treasurer: Linda Magee
360nmatreasurer@gmail.com

Secretary: Deborah Gilbert
360nmasecretary@gmail.com

Book and T-shirt Sales: Linda Magee

Membership: Eric Worden
360nmamembership@gmail.com

Foray Chair: Steven Jones
stdojo@gmail.com

Science Advisor: Dr. Fred Rhoades
fmrhoades@comcast.net

Website manager: Erin Moore
chanterellerin@gmail.com

Newsletter layout: Erin Moore

Come all you mushroomers: Fall foray near Silver Lake

by Steve Jones, NMA foray coordinator

Recent rains are awakening fungal mycelium beneath the humus, beckoning mushrooms...and our first fall foray! Again we will be exploring a new place, this time closer to Bellingham at 8154 Silver Lake Road.

The site of an early Whatcom County homestead, it's been generously offered to us as a foray meeting place by its owner, Heidi Doornenbal. She's a weaver and textile dyer, a founder of the Jansen Art Center in Lynden, and has been interested in the native lichens and fungi found on her property. The area encompasses about 100+ acres, and opportunities abound for fungi gathering: meadow walking, second-growth forest exploring, and streambed meandering. Heidi has also offered us the use of her barn/studio as our shelter/potluck area. There's also the option of driving south one mile to the trailhead of the Maple Falls–Glacier Rails-to-Trails to foray there.

If you'd like to carpool, meet at the Sunset Square parking lot, southeast corner near Taco Time, at 9:15 on

Saturday morning. Put a mushroom basket on your car to help identify our group.

Directions: Follow Mount Baker Highway for approximately 28 miles to Maple Falls. Turn left on Silver Lake Road, then in a mile turn right at the mushroom sign into a somewhat hidden driveway. Proceed to the barn on the left (there are two) and park. Coffee will be waiting. Be sure to pack eating utensils and potluck dish along with your mushroom collecting basket. ID books will be available.

As per our usual routine, our foray starts at 10 a.m. We will divide into groups and pick sites to explore. Returning at 12 noon or so with our specimens, our identifiers will be available to check and label our finds. Then to the anticipated potluck, which never fails to disappoint.

Mark Sept. 15 on your calendars to celebrate the fall season with our first NMA foray in this beautiful place!

A New Little Brown Mushroom!

by Mark D. Johnson, Richard (Dick) Morrison, and Buck McAdoo

In October of 2015, NMA member Mark Johnson moved to a cabin in the Lummi Nation just northwest of Bellingham. He was still unpacking and moving in as the time for NMA's fall mushroom show arrived, and realized that he had not yet collected any beautiful fungi to contribute to the show. He first scoured the woods behind his cabin before noticing some cute LBMs in the moss right next to the north side of his 1930s-era (and new to him) cabin. Bingo! He collected several and from them got a nice cinnamon spore print.

With no Arora yet in his cabin's library, but with half a dozen general mushroom ID books in hand, Mark sat down with the LBM to key it out. A couple of frustrating hours later, and after much head scratching, he came up empty. "After I went down the tunnel of the keys to *Cortinarius* and came up with a blank, I tried going down the *Inocybe* pathways. Still no prize," he said. "Oh well, perhaps someone in the identifiers group at the show would be able to key it out better than I could. Or maybe it is a new species? At least I had something to share, even if I'm not sure exactly what species it is."

So the LBMs went into a box, nestled in with some damp moss, and got passed along to that year's Northwest Mushroomers wild mushroom show at Bloedel Donovan Park. Identifiers Buck McAdoo and Fred Rhoades had a look, then Dick Morrison, but there was no conclusive identification. With the fall show about ready to open to the public and no time to study Mark's specimens in detail, Dick tucked the box



The find. The new species. Photo by Mark Johnson

with the little brown mushrooms in a safe place for a more thorough examination later at home.

A fortuitous decision, it turned out. From characters revealed under the microscope as seen by Dick, it became evident that this was most likely a *Cortinarius*. Buck was of the same opinion, but was unsure of the species. "Buck made his typically fine description of the collection then dried them for long-term storage and further study," said Dick. The collection was assigned the designation MJ-15-1 so it could be catalogued and its history tracked.

Knowing this was a *Cortinarius*, Dick then contacted mycologist Joe Ammirati at the University of Washington in Seattle, an expert on this genus, sending him Buck's description and a photo of Mark's collection. Joe agreed this was a *Cortinarius*, then asked if the cobwebby partial veil remnants on the upper stipe were yellowish, which Dick's photos of the fresh specimens clearly showed (photo, page 4). At his

Continued next page

request, the dried collection was then sent to Joe for DNA sequencing and evaluation.

In early October 2017, almost two years after Mark's find, Joe emailed Dick that this was a collection of a new species to be named *C. paludosaniosus*. Previously, this mushroom was considered to be a variety of *C. saniosus*, named *var. paludophilus*. The variety name paludophilus means bog or swamp lover in Latin, and refers to its affinity for wet, boggy ecosystems. This name change is an example of how new information can result in a mushroom variety

being elevated to species rank.

In late October 2017, the name and description of *C. paludosaniosus* was officially published in *Index Fungorum*. Mark's find was one of several herbarium voucher specimens listed in the publication and is deposited in the University of Washington herbarium (WTU). A quirk in information exchange lists the collector as R. Morrison, so this NMA newsletter article is intended to give credit for the collection where credit is due.

Fresh specimens of the original Cortinarius paludosaniosus MJ-15-1 found in 2017 in Mark Johnson's yard on the coast in the Lummi Nation, Washington. Photo by Richard Morrison



Look-alike



"Not all LBM's are created equal." *Tubaria furfuracea*, a ubiquitous LBM found a couple hundred feet from this month's mushroom of the month, *Cortinarius paludosaniosus*. Photos by Mark Johnson

Cortinarius paludosaniosus species description

Now that we have learned how Dr. Mark D. Johnson found the *Cortinarius paludosaniosus* and how Dr. Dick Morrison kept track of it through the 2015 fall show, here is the pertinent description. (Note that full descriptions may not be needed anymore since digital photos have become so accurate.):

Caps—2 1/2–3 1/2 cm wide, conical becoming almost plane with an acute umbo. Yellow-red brown and hygrophanous. Context also yellow-red brown.

Gills—also yellow-red brown.

Stipe—3–6 cm long and 3–4 mm thick, cylindrical, at first silky brownish-yellow, later a darker brown. Context yellow-red brown at apex and darker brown near base.

Universal Veil—Yellow, forming complete and incomplete girdles on the stem.

Spores—Ellipsoid to amygdaloid and moderately verrucose. Strongly dextrinoid in Melzer's solution. 8-9 x 5–5.5 microns. Q = 1.52–1.71.

The holotype is from the University of Washington campus in Seattle. It was found in a lawn near conifer and deciduous trees. The name was derived from *Cortinarius saniosus* var. *paludophilus*.

This description is only pertinent because it seems to be the official type description presented

in *Index Fungorum* as #344. The appropriate GenBank number is also provided. This is the first time I have seen a new species presented in *Index Fungorum*, an online site traditionally devoted to taxonomic names. Notice the paucity of detail. For instance only the color of the gills is mentioned and nothing about gill attachment. I can only speculate that the genbank number replaces the need. The information is so minimal that it is hard to compare it with its closest look-alike. On the other hand, the lengthy and often mind boggling

descriptions we have gotten used to, are no longer here to obfuscate the presentation.

Cortinarius paludosaniosus has been found in Germany and Spain. The collection found by Mark has also been cited in the original publication. In Europe, it is associated with deciduous trees. Since the name implies an association with *Cortinarius saniosus* I initially thought a full description comparison might be helpful. This is a European taxon perhaps only found in North America by A.H. Smith in 1935.

Matchmaker has a fine description of it. In this case I will forego the full description because there is so little to compare it with.

C. saniosus has a more obtuse umbo, the gills are pale brown at first, the stems taper towards the base, and the stipe apices are silvery white. These seem to be the main differences morphologically. It is often found with birch and willow in Europe, sometimes mixed with pine. The Pacific Northwest Key Council Key and its online version, Matchmaker, seem to be the only North American sources that cover it.

Cortinarius paludosaniosus could be looked at as just another LBM.

—Buck McAdoo



In October 2016, Dick visited Mark at the collection site and found more *C. paludosaniosus* in the damp moss near poplars. Photo by Richard Morrison



Have you always thought that it would be cool to discover a new species of mushroom?

Or have you ever wondered how a “new species” gets discovered then added to the worldwide catalog of fungal species? This newsletter’s Mushroom of the Month article is co-written by NMA member Mark Johnson, who did just that.

LBM sleuthing leads to new species

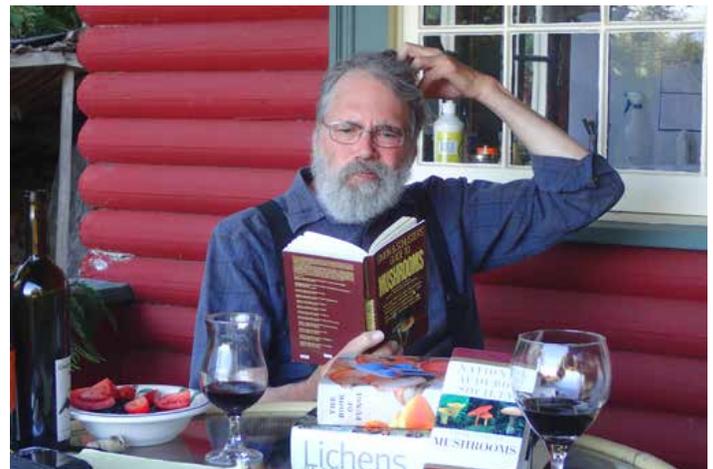
It turns out that my collection of this little brown mushroom or LBM was not the first one of this new species, *Cortinarius paludosaniosus*. Another specimen was submitted from another person at an earlier date. The earliest one becomes the “type specimen” but the ones I found are included in the recording of the new species as a voucher specimen, useful supporting evidence. Still good stuff! And with millions and millions of species out there still unnamed, there is plenty of room for more discoveries.

Did you know: According to Genesis, the first command to Adam in the Christian/Jewish Bible was not about staying clear of the Tree of Knowledge, or about apples and snakes, either. The first command, the first task assigned to humans, was to name all the critters, to be taxonomists! Yep. And we have been naming critters ever since.

It’s very hard to keep up. The number of named species just topped 2 million. Yet that just scratches the surface. Which leads me to LBMs—a term which use once told whether you were part of the mycological “in crowd” or “cool kids” of the time.

Turns out, LBMs are still cool. Want to find a new species? Your best opportunity to discover a new species of mushroom is to follow up on the LBMs you come across (preferably with a gene sequencing lab at your disposal!). Why? Because LBMs are still little studied, there are a lot of them, and there are many we don’t yet know.

Currently (as of July 2018) the CatalogOfLife.org database has just under 140,000 species of fungi in the list of named species in the Fungal Monarchy (my preferred term to “Kingdom”). Compare the 140k named species with the estimates for how many species of fungi are out there. These estimates range



Mark scratches his head in the quest for a name and identity.
Photo by Buck McAdoo

between 1.5 million to 5.1 million species! To simply say the names of that many species it would take a team of readers over eight weeks, night and day, no breaks, with one name said per second.

My hunch is that most of these will turn out to be microbial. But is it also possible that you, a citizen scientist, might find a new beautiful large colorful mushroom and add it to the list of known species? Of course!

If you want to discover a new species but don’t plan on doing an exotic foray to a country that has not received a lot of sampling attention, say, the Congo or Brazil or Borneo or etc., I recommend finding and “keying out” some LBMs. Given the number of predicted species out there, compared to the number of species documented, luck is on your side. The potential for a “citizen scientist” to discover a new species is pretty good. Finding new kinds of organisms is still a pretty fun game.

—Mark Johnson

New Explorations at Swede Heaven Foray

by Martha Dyck

Our early summer foray in June took place in a very accurately named place called “Swede Heaven.” Situated between Arlington and Darrington along Highway 530, it sits in the Stillaguamish River drainage surrounded by deeply forested hills and snowy Whitehorse Mountain.

Steve Jones, our foray coordinator, had an aunt, Billie Young-Moore, who’d very generously offered her grounds to us as meeting place when she heard we were in need. What a place! Old fruit trees (she’d had the land since probably the 1940s), mature towering bigleaf maples, and a gurgling stream just below our picturesque potluck area made it a peaceful and restful place to return to with our finds. Mrs. Young-Moore had coffee waiting, and Steve supplied doughnuts. A great start to a June foray! And sunny weather.

Groups scattered in several different directions, mostly driving to other locations off Swede Heaven Rd. Some went to the north up the CC Rd. Some walked up the road and into the adjacent lower foothills. Fungi were found even just below our picnic tables near the stream.

Twenty-three people hunting mushrooms brought in enough specimens to cover a table and spill over a bit into another. Fred Rhoades was helped in ID’ing by Buck McAdoo and Richard Morrison. Several fungi in the *Pleurotus ostreatus* group were found, as well as *Ganoderma*, *Conocybe*, and even apricot jelly (*Tremiscus helvelloides*). I believe one person found a morel. Not a bad showing for mid-June.

The potluck started about 1 p.m. and, as usual in mushroom gatherings, proved delicious, eclectic, and generous. Steve’s parents from Anacortes joined us as did Mrs. Young-Moore, or “Aunt Billie” as she preferred to be called. A celebrated addition to libations was a thermos of hand-brewed beer fermented with turkey tail (*Trametes versicolor*) and reishi fungi, brought to us by the brewmaster himself Matt Jones.

People were reluctant to leave this quiet, green, peaceful place, but finally we got in our cars and departed. Many, many thanks again to Aunt Billie for so graciously allowing us to meet at her home. She shared her beautiful place with us and we are grateful. And also grateful to Steve for initiating it and pulling it together.



Swede heaven foray folks. Photos by Martha Dyck



Foray finds



Identifying the day's discoveries

June foray list

Swede Heaven (Darrington) area—June 16, 2018
Compiled with comments by Fred Rhoades & Buck McAdoo

The area around Swede Heaven, near Darrington, Washington, proved to be a wonderful place to collect, with many, varied habitats. Despite the time of year and rather dry conditions, quite a number of species were found. We should try this area out again in the height of the season this fall.

Gilled mushrooms

? very old *Hypholoma* sp.

? very old *Pleurotus* (Oysters)

Conocybe tenera

Coprinellus micaceous—mica caps

Crepidotus amygdalosporus—a tiny *Crepidotus* that was not put out on the table

Galerina sp.—a Mycenoid species

Gymnopilus sp.

Gymnopilus aquosus

Gymnopilus dryophilus (see photo)—This was the most common gilled mushroom with many fruitings collected by several people; our very own Buck McAdoo, the PNW expert in the “Collybioid” genera, including *Gymnopilus*, remarked that this was unusual due to somewhat larger spores than are typical. He had one of the specimen’s DNA sequenced and it, indeed, fit in very nicely with the sequences of other *G. dryophilus*. Here are Buck’s notes: “*G. dryophilus* has a long fruiting season. As far as looks go, it is right up there with *Mycena galericulata* for variable presentations. And here I got fooled once more because the spores were larger than normal, pushing the collection closer to *G. aquosus*. The stems in this collection were narrower than typical, but the DNA sequencing result from Matt Gordon in Oregon pointed at *Gymnopilus dryophilus* yet again.”

Gymnopilus peronatus—mycelium found only, of the fuzzy-foot *Gymnopilus*: our noxious, invasive species so common in the fall.

Inocybe spp.—four distinct species were found

Lepiota eriophora—small brown scales on white cap, stem scaly without ring

Leptonia gracilipes group?—These small, pink-spored things are next to impossible to identify to species; this one had a 1-cm-wide, dull bluish graybrown cap



Gymnopilus dryophilus. Photo by Buck McAdoo

Mycena amicta—the blue *Mycena* that grows on wood; however, this individual was only slightly bluish brown (they normally vary from brown to blue); it has very distinctive, cylindrical cheilocystidia on the edge of the gill

Mycena sp.

Omphalinoid sp.

Pleurotus pulmonarius—oyster on alder

Pluteus exilis—our deer mushroom (used to be called *P. cervinus* but that is lighter in color and has a smoother stipe)

Pseudolaccaria pachyphylla (previously known as *Pseudoomphalina pachyphylla*; see photo, page 9).

This was an unusual find, rarely seen in this area before. Buck had the DNA sequenced to be sure. Buck notes: “I am not sure why it was moved from *Pseudoomphalina*. ‘Pachyphylla’ means ‘elephant leaf’, most likely a reference to the thickish gills, a hallmark of this species. Again, we thank Matt Gordon for the DNA work.”

Rhodocollybia maculata

Xeromphalina fulvipiles

Non-gilled “mushrooms”

Brie-like blob apparently is bacterial—contains very, very small cells (0.5 μm diameter)

Cryptoporus volvatus—secret compartment conk

Dacrymyces chrysospermus—small, old, dried, orange jelly (witch’s butter) on dead wood; this common species has seven-septate, sausage-shaped spores; usually specimens are much larger.

Fomitopsis pinicola—red belt conk

Ganoderma applanata—artist’s conk

Nidula candida—bird’s nest, old specimen

Calendar of NMA events



A fancy bolete. Photo by Leon Shernoff

Leon is long-time editor and publisher of *Mushroom, the Journal of Wild Mushrooming*. We are excited to have him visiting for this special talk.

SPECIAL SPEAKER! Nov. 8, Erica Cline, “Mycorrhizal fungi and restoration/succession into disturbed areas” 7–9 p.m., Squalicum Yacht Club

Fall Mushroom Class (registration closed)
Sessions meet Tuesdays, Sept 18, 25, Oct 2, 9, 16, 23
7–9 p.m., upstairs at the ReStore

SPECIAL PLACE!

Sept. 13, Jack Waytz, “Mushroom Cookery”
7–9 p.m., Bellingham Technical College, kitchens
on campus, culinary building, Building G

SPECIAL OPPORTUNITY!

Oct. 11, Jack Waytz, “Mushrooms and
microhabitats,” 7–9 p.m., Squalicum Yacht Club
Please come tonight to volunteer your time Oct
21 to help create the always wildly successful,
Wild Mushroom Show

SPECIAL MEETING!

Oct. 25: Leon Shernoff, “Boletes of North
America,” 7–9 p.m., ReStore, upstairs

2018 Wild Mushroom Show

Oct. 21, 12 noon–5 p.m.

Bloedel Donovan Park, Bellingham

Phaeolus schweinitzii—dyer’s polypore, old specimen
Polyporus badius—black-stemmed polypore
Szygospora mycetophila—Collybia jelly
Xerocomellus “zelleri”—Zeller’s bolete is now a complex
of species; this was likely the true *Xerocomellus zelleri*
Tremiscus helveloides—apricot jelly

Slime mold

Ceratiomyxa fruticulosa

Lichens

(of the many that were seen—these were collected)

Lobaria pulmonaria

Peltigera membranacea

Hypogymnia enteromorpha



Pseudolaccaria pachyphylla. Photo by Buck McAdoo

Wild Mushroom Show: Our favorite ‘fun with fungi’ event

by Vince Biciunas

29th Annual Wild Mushroom Show

Sunday, October 21, 2018, 12–5 p.m.

Bloedel Donovan Park

2214 Electric Ave

Bellingham, WA

Our favorite “fun with fungi” event is in the planning stages and it’s time to mark your calendars and plan on a wild mushroom weekend. For those of you new to all this, we’ll set up tables, signage, and our colorful displays on the morning of Sunday, October 21, starting at 8 a.m., take a group photo at 11:30 a.m., and open the doors to the public at 12 noon, sharing our finds until 5 p.m. It usually takes about an hour to clean up, and then at 6 p.m., club members will celebrate with a pot luck supper, a restful wind-down after a busy weekend.

And to make it all happen, club members start out on Saturday, October 20, by going mushrooming to all our favorite secret, or not-so-secret!, mushrooming places, and collect complete specimens in pristine condition, each one packaged individually, and transported and delivered, between 5 p.m. and 8 p.m., to the pavilion in back of the Bloedel Donovan Community Building. Our identifiers will sort and identify to genus that evening, and then in the morning the fresh mushrooms will be ready to place into display trays. This Saturday event is always a good time to familiarize yourselves with mushrooms, help the identifiers, and share some snacks with your fellow club members.

Want to help out this year? Come to the meeting October 11, sent a text to show co-chair Richard Mollette at 360-927-5890, or email co-chair Vince Biciunas at vince.biciunas@gmail.com.

Hands and eyes needed at the October 21 mushroom show

All of the various aspects of the show are chaired by volunteers. These individuals need your help!

- Pam Borso can use **more hands** in setting up the mushroom displays on Sunday morning. You don’t have to be an expert to set up the pre-identified mushrooms and tags. An artistic touch helps.
- Eric Worden will need **some help** at the club memberships table, signing up new members.
- Linda Magee might need **extra hands** selling t-shirts and books. Martha Dyck might need a few **helpers** with the kids’ table.
- Dick Tobias needs **helpers** setting up the dramatic centerpiece display at the front door.
- And most mundane of all, we need someone hale and hardy to fill and bring the trays with wood chips on Saturday, pick up and return to storage locker the heavy supplies on Friday and again Monday, and someone (or two) with box cutter and broom and pick-up truck to manage the sorting cardboard boxes, then flatten and dispose of to recycling on Monday, and sweep the floors as we go. Are you that hero? Just say so!

Pavilion talks during the mushroom show

Exciting talks are scheduled for the Bloedel Donovan Building Pavilion. It’s easy to arrange your volunteer hours around one or more of these talks to make sure you catch your favorites!

1:00 p.m. to 1:45 p.m.—Dick Morrison, Edible Mushrooms and Poisonous Look-Alikes

2:00 p.m. to 2:45 p.m.—Fred Rhoades, Mushroom Ecology

3:00 p.m. to 3:45 p.m.—Caleb Brown, All Things Psilocybin

4:00 p.m. to 4:45 p.m.—Buck McAdoo, Mushrooms of Columbia

Mushrooms and Microhabitats: Part 1

by Jack Waytz

This the first in a series of articles in which I will furnish my own detailed observations of the preferred habitats of both the most desired edible mushrooms found in our area, and others of scientific interest. These articles explore the complex relationships and forest ecology of mushrooms and other forms of life with which they share the forests, fields, and alpines.

From the beginning of my forays into the great Pacific Northwest after arriving from Texas more than a decade ago, as I ventured out into the lowland forests and alpines of our area, I began taking note of the ecological intricacies of habitat suitable for and peculiar to each different species of mushroom I discovered.

In the fall of 2003, having already cataloging the habit features of many of the most desired edible mushrooms, such as chanterelles, king boletes, lobster mushrooms, and matzutakes, I began to notice how the fruitings of all wild mushrooms were contingent upon a very specific set of engrammatic properties within the forest ecology.

One of my first revelations was finding the raspberry slime mold, *Tubifera ferruginosa*, about 2 ½ miles up the Galbraith Mountain living on a 4-inch-long by 1-inch-wide piece of wood on a steep upslope on the logging road that leads to the communication towers at the top of the mountain. At first assessment the environment which allowed this fungus to fruit didn't seem overtly complex. But looking closer, I saw it was. A myriad of factors had come into play: the exact time of the year, the rainfall of the prior week, the surrounding vegetation, relative humidity, temperature, the relative decay of the piece of wood, the species of tree of the wood. And the unknown. Although I searched the entirety of that logging road, looking for habitat markers which most closely matched those of the spot where this fungus was found, I found no other examples of the raspberry slime mold. In fact, in the following 15 years since I observed this fungus, I have never seen it again anywhere in our area.

That small piece of wood was my first conclusive evidence that wild mushrooms and their ability to fruit were the product of highly complex microhabitats.



Raspberry slime mold. Photo by Buck McAdoo

Weather, rain, and oyster mushrooms

In regard to the flourishing of wild mushrooms, all microhabitats are governed by a common element: the weather. In fact, some microhabitats are created by unusual weather patterns. It isn't only that mushrooms need rainfall to successfully fruit: what's important is when the rains come, how much, and the relationship between rainy periods and dry periods.

One of the more unusual habitat observations that I have made came in the fall of 2005, again while hiking on Galbraith Mountain. After several days of steady rain and temperatures in the high 60 degrees F in the first week of September, the skies cleared and morning temperatures dropped to the high 40s to low 50s, with no wind and a relative humidity of near 100%. These conditions produced a fog layer that persisted for three consecutive mornings, settling about 6 feet above the ground on Galbraith. On the fourth day, the fog gave way to sunny, dry weather, and revealed a most awe-inspiring sight. Exactly where the fog line settled along the trees, every dead alder snag had a thick shelf of oyster mushrooms (*Pleurotus pulmonarius*), beginning to fruit! It's a phenomenon that sadly I have subsequently never again observed. But basically, these weather conditions, or close to them, both in the spring and fall in our area, herald in the fruiting of the delicious oyster mushroom.



Western yellow chanterelle. Photo by Jack Waytz

Habitat markers for finding chanterelles

For habitat markers for chanterelles, it is fairly easy to describe the exact habitat features I have observed in the lowland forests of our area that are conducive to the appearance of *Cantherellus formosus*, the western golden chanterelle. In truth, the habitat markers for truly robust fruitings of this mushroom are met in all normal years in the Pacific Northwest.

Venture into the woods seven days after the first fall rains that actually traverse the canopy and soak into the forest floor, and you will find fresh, young buttons peaking through the duff and moss: on the tenth day, they will be full sized and ready to harvest. Your choice of woodland habitat must feature a configuration of the Pacific rain forest with more Douglas fir and western hemlock than western red cedar. The forests which seem to have the greatest density of chanterelle fruitings are intermediate second-growth forests from sea level to 1500 feet elevation, with the average age of the Douglas firs between 60 and 80 years old. In my experience, forest of this type yields a better chanterelle harvest than old-growth forests of similar species makeup.

Once among the Douglas firs look for areas of reduced, direct sunlight and featuring sword ferns, salal, and thick and luxuriant ground mosses, specifically the moss, *Hyloclmium splendens*, with its flat, leafy fronds. This seems to be the favorite moss of chanterelles. Make certain that you search well along the trunks of fallen trees and underneath smaller snags, as chanterelles like to hide where moisture persists. At this point,

and as long as rains come regularly and no freezing temperatures come to the area, the chanterelle fruiting will persist, sometimes through Thanksgiving. Note, too, that in the same conditions, I have seen fruiting bodies growing directly off of cut stems.

The habitat and markers for the remarkable white chanterelle, *Cantherellus subalbidus*, as they occur on the eastern slopes of the Cascades, are different from the western goldens from the west side of the Cascade crest. Far less moisture is needed for white chanterelles to fruit, the fruiting bodies sometimes reaching two pounds a piece! The age of the trees are similar, but in addition to Douglas firs, there are also Pacific silver fir, mountain hemlock, and ponderosa pine in the favored forests. Generally, white chanterelles will fruit all the way to 4000 feet in elevation as well, sharing the habitat with matzutake, which follow them—but overlap—so that both can be found on the same foray. Ground cover in the areas in which they are most commonly found is far sparser than what we are used to on the west side. Unlike the western goldens on our side of the crest, the growth habit white chanterelles are more like *Russula brevipes*, pushing up dirt as they emerge. Despite this, because of the paucity of ground cover, once you have a frame of reference after finding a few in good years, hunting them is like shooting ducks in a barrel. In 2013, after the 3 ½ hour drive to get to my favorite hunting grounds, it took me 90 minutes to amass 3 five gallon buckets full, about 45 pounds. Once You find your own secret and favorite hunting grounds, of course!



White chanterelle. Photo by Jack Waytz

Culinary Aspects of Several PNW Morels—and One Verpa

by Jack Waytz and Buck McAdoo

The Pacific Northwest suddenly appears loaded with different morel species. This is not due to new species being found, but rather DNA sequencing which can now separate species that were more or less lumped together before. Prior to this taxonomic ‘revolution’ we had simply referred to all blonde morels as *Morchella esculenta* and all dark brown morels as *Morchella elata*. It is now likely that neither occurs in the Pacific Northwest. Instead we now have a plethora of new names with a few more waiting in the wings.

In this article I will endeavor to describe the ones Jack has eaten along with appropriate photos.

But before we embark I would like to point out that Michael Kuo of Illinois and Philippe Clowez of France were both instrumental in modernizing the morel taxonomy. When they began to initiate their new species concepts, they realized they might be describing the same species with different names. Enter Kerry O’Donnell, a DNA expert who sequenced the collections of both. This was of paramount importance as DNA sequencing results can vary from one explorer to another. Different methods of sequencing can also produce different results. O’Donnell was a big step in the right direction.

Verpa bohemica—This differs from true morels by having a wrinkled cap that hangs like a skirt over the



Verpa bohemica. All photos by Buck McAdoo



Morchella brunnea

Verpas with flavor Years ago, when the knock on eating Verpas was a supposed concentration of MMH (monomethyl hydrazine), I wanted to try them, at least once, to see if they, like nearly all of the other wild mushrooms that I have eaten, had a unique and captivating flavor that could be brought out, with precisely the right combination of accompanying herbs, spices, vegetables and proteins. Buck furnished me a recipe that featured a sauteed chicken breast, and a Verpa champagne cream sauce, but that was all that I remembered about it. This year, with an outstanding crop of *Verpa bohemica* at the foot of the Galbraith Mountain, it seemed a good time to revisit the flavor of this mushroom.

I took the basic recipe that I had gotten from Buck, and improvised based on some combinations

that I had used for true morels. I sauteed the chicken breast in coconut oil, with a dry rub of salt, pepper, cayenne pepper, roasted garlic granules, curry powder, paprika powder, and finally, rolled them in flour. For the Verpas, I used sliced shallots and chopped garlic, sauteed them in butter until golden brown, then added the mushrooms. I sauteed them until well cooked, applied salt, pepper, and tarragon to them, turned up the heat, added about $\frac{3}{4}$ cup of champagne, allowed it to cook mostly off, then added heavy cream, and allowed to simmer until it thickened. I served the mushroom mixture over jasmine rice, with the chicken breast and baked asparagus spears.

Buck, my wife and I were all astonished how good the flavor was. This was my big culinary surprise of the year. —Jack Waytz

stem. The cap margin is totally unattached. It fruits in Whatcom County from about mid-March through April starting when the nettles are 10 inches high. We find them in cottonwood swamps. Their culinary history is controversial. It is generally believed that ingestion leads to an accumulation of heavy metals over time. You don't want to be too greedy. Mike Beug points out that they are 'poisonous to many,' leading to gastrointestinal upset. My hunch is that they are poisonous to a few.

Whatever. Just eat one fried *Verpa* at first to see how it goes. Never eat them raw. This goes for true morels as well. On the positive side, Jack cooked up a batch this past spring that rivals any true morel dish I ever had.

Morchella brunnea—This is a moderately sized brown morel from non-burn sites in eastern Washington that can reach 9 cm tall. Although usually associated with hardwoods, Kuo suspects it can be found in non-burn coniferous forests as well. This is where these were found last spring. They were rather small as a group and had brown vertical ridges that darkened to nearly black in age. Their closest relative is known only as Mel-8, yet to be formally described. Mel-8 has glabrous pits between the ridges while *Morchella brunnea* has faintly tomentose pits. In fact, the photo here might be of Mel-8.

Here is a winning recipe from Jo Ann Groth, produced at our spring morel foray of 2018: Finely chop up a pile of the morels. Then chop up a third of this pile in onions, a third of the pile in green peppers, and a final third in tomatoes. Sauté all together in peanut oil or butter. A simple but very elegant dish.

I have found that all of the morels in what was earlier designated as the *M. elata* group, the natural non-burn site black morels, are all very similar in flavor. Their flavor is earthy yet subtle, and are

excellent as either a garnish for a good filet mignon, a great addition to a good soup, or in combination with various vegetables. One of the more versatile wild mushrooms for the table.

Morchella snyderi—Yet another dark brown morel associated with mountain conifers from eastern Washington. The ridges start out pale brown when young becoming smoky brown to black in age. According to Kuo, they can reach 14 cm in height. The best way to recognize them is by their deeply grooved or lacunose stems. Cap colors can vary from the dark brown seen here to red-brown, blonde, grayish ochre to grayish green. Stem bases are mostly clavate. This is just one species we have called *Morchella elata* in the past.

My remarks above in *M. brunnea* apply to this variety as well, with one notable exception: because of the large stature, these morels are suitable for stuffing, which opens up an entire additional realm of possibilities for the table. There are dozens of recommendation for exactly with what, to stuff your morels.

Morchella tomentosa—When you hear Jack talking about 'the Grays' this is what he has in mind. This is a late season burn site morel, occurring at high elevations even into September, according to Kuo. It is easy to identify because of its velvety dark gray stems. If cut in half vertically, the context is snow white. Generally considered a high elevation morel, Jack has found it around intense burn sites. The ridges may become eroded in age, but the stems retain their fuzzy look. At maturity the caps are blacker than the stems.

From the culinary perspective, this mushroom is, in my humble opinion, not only the very best tasting of the morels, but one of the best of all of the edible wild mushrooms. In my experience, all of the burn site morels are generally more flavorful than all of the 'naturals.' The big grays, found after the other burn



Morchella snyderi



Morchella tomentosa



Morchella americana

site morels have come and gone, are not only superior in flavor to the rest, but the texture, crisp as baby bok choy, also allows for some incredible culinary creations. Some of them are bigger than a fist, and this morel is easily the best for stuffing. Here is my very favorite recipe for just this occasion. One of the very best recipes that I have ever tasted: <http://emerils.com/124486/kicked-stuffed-morels>.

Morchella americana—This is what we used to call *Morchella esculenta* before. Now considered the commonest blonde morel in North America, Beug notes that it can be found in burn sites, mixed hardwood-conifer woods, old apple orchards, along railroad tracks, or with white ash back east. I once found a huge fruiting in Bellingham in an alley fruiting out of beer soaked cardboard.



Morchella importuna

Note that the ridges seem more gnarly and disorganized than for other morels. According to Beug, they can reach 22 cm tall. Specimens with bloated stipes used to be known as *Morchella crassipes*.

These blondes are overall much less commonly found in our area than are the blacks and, as the naturals go, along with *M. frustrata*, are the best tasting of the bunch. Prepare them with any of the recipes already mentioned in this article, and you will be more than satisfied with the results.

Morchella eximia—Perhaps our most common eastern Washington burn site morel. *Morchella carbonaria* is now considered to be a synonym. When you hear the term ‘greens’ or ‘pinks’, this is most likely the species being referred to. Cap colors can vary from

brown to blonde to olive brown or even the flesh color you see here. Found in burn sites from 3,000 to 6,000 feet, it seems to have a preference for burnt cedar. They can reach 20 cm in height. Ridges are vertically oriented and become eroded in age.

Morchella frustrata—My hunch is this is just one of several morels Jack has found out in the San Juan Islands in the spring. It is known to be with madrone, but also can be found with douglas fir, ponderosa pine, and in mixed woods with oaks. In the past it has been known as ‘that mountain blonde morel’. The name ‘frustrata’ derives from its combination of blonde morel coloring with the stature of a black morel.

Morchella importuna—Often found in suburban settings with bark mulch, garden beds alongside roads, and even on bare soil at construction sites, this specimen was found in wood chips right in Bellingham. Dr. Dick even had a pleasant conversation with the property owner. The name ‘importuna’ derives from its inconsiderate growth habit. It tends to invade gardens, planters, and wood chips, thereby

disrupting the overall landscaping plan. The ridges are grayish tan when young, soon becoming dark brown to almost black in age. The pits and ridges are vertically oriented and regularly laddered. Avoid eating those next to roads. They tend to pick up lead from passing exhaust fumes.

This is one of the more interesting mushrooms in this group. It appears wherever the soil is significantly disturbed, and wood chips are put down over that soil. They appear early in the spring season, and only the

first spring after reconfiguration. They are as beautiful as any morels that I have seen in the wild, and I have found them as big as 8 inches tall! Sadly, this mushroom is the proverbial sheep in wolf’s clothing. In other words, it is all but flavorless. It looks great in your food, and the texture is there, but be ready to be somewhat heavy handed with your seasoning, and surround it with flavorful, high quality complimentary ingredients.

Bibliography

Michael Beug, *Ascomycete Fungi of North America*, 2014. Published by University of Texas Press, Austin, TX.
Michael Kuo, Revision of *Morchella* Taxonomy, *in press* at Mycologia.

Mystery mushroom! Sustenance

Cantharellus striatus Defridge

An April Fool mushroom courtesy Buck McAdoo. Who can tell us the real name? Clues from the original scientific description by Chas Gilmore:

Odor: Farinaceous when soggy, otherwise pleasant, sometimes deliriously so, with an odor of carob, cinnamon, allspice, and honey.

Spore Print: Tawny. Lingblumssen claimed to have found small nodules resembling raisins in spore prints of *Cantharellus striatus*. Much of his pioneering work is now suspect.

Other: Flesh of cap turns blue when bruised, orange when boiled, purple when beaten, and green, red, or yellow when thrown against a tree. Melzer's reagent adds nothing to the flavor or appearance of the spores.

Edibility: A chef's choice. *Cantharellus formosus* places a distant second in my opinion. *Cantharellus striatus* var. *hiatus*, a variant found locally, has a distinct taste of blueberries, sometimes having a nutty, sweet flavor. This fungus can be safely eaten raw.



Photo by Buck McAdoo

Send us your mystery mushroom photo

Do you have a mystery mushroom to submit to the newsletter? See if you can stump our remarkable membership. Any and all entries entertained. Next newsletter deadline is December 1, 2018.