

MushRumors

The Newsletter of the Northwest Mushroomers Association

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October - December 2016

A Most Unusual Year For Mushrooms in Northwest Washington, Highlighted by the Annual Fall Exhibit

In a year which saw extensive fruitings of a wide range of fall mushrooms in the first week of summer,

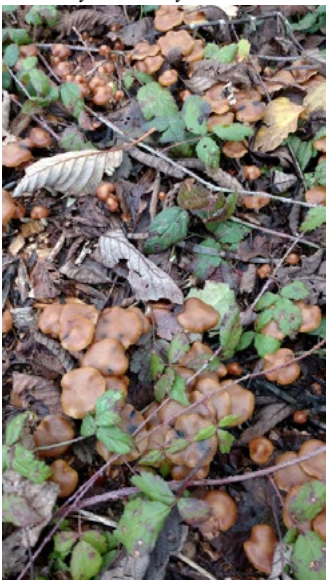
Photo by Jack Waytz



Half of a 25 pound haul of lobster mushrooms, found unbelievably, on July 7th.

and proved to be the stars of the Northwest Mushroomers Association Annual Fall Wild Mushroom Show, to the astounding tune of over 300 species!

Photo by Jack Waytz



A density of *Psilocybe cyanescens* in all stages.

Among the most prevalent groups observed throughout the season, were the inky caps. There were prolonged and multiple fruitings of several species normally found in our area, but not in the numbers found this year. At least one species previously undescribed from the Pacific Northwest was found by both Evan Sanford and me in different locations.

The other group that thrived under this year's conditions was

the oddities were only just beginning. As a result of three consecutive years of extended hot, dry periods during the summer months, even after conditions became ideal with copious rains in late September and early October, there was a marked scarcity of many of the usual mycorrhizal suspects in the various woodland habitats of our area. These unusual circumstances underscore the importance of the health and well-being of the host trees in the symbiosis that exists between these trees and their mycorrhizal mushroom partners.

Saprophytes, however, were undeterred, and after the rains began, they emerged in both abundance and diversity,

Photo by Jack Waytz



Over 3 pounds of perfect chanterelles, and two perfect *Russula xerampelina* buttons, also found on July 7th on a local small mountain.

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the *Psilocybes*. *Psilocybe semilanceata*, the liberty cap, normally a less common variety in our area, was found in significant quantity, and *P. cyanescens* enjoyed fully 3 months of consistent and prolific fruitings throughout our area.

By the time the week of the fall show arrived, the mycological deck had been thoroughly shuffled, and many of the fall mushrooms which appeared in the first week of July were now nowhere to be found.

Little did the intrepid foragers of the Northwest Mushroomers suspect, that another unforeseen element would be added to the fray just in time to impact the collection period in the days before the exhibit. The weather was about to throw us a big curve ball. Friday featured some of the roughest weather that I have hunted in in nearly 30 years of mushrooming. On the Easy Pass trail, torrential rains, accompanied by 50 mile per hour winds, made the process a true wilderness adventure! Although weather forecasters warned of even worse conditions for Saturday, spirits among the group were undampened.

A huge thanks go to the intrepid foragers who braved high winds, downed trees, and heavy rain to assemble the outstanding collections of mushrooms and lichens, as well as plenty of moss and leaves we used to create the jewels of the show; the wonderfully crafted display trays; and entry centerpiece. Without this supreme effort, by members in the most adverse of conditions, it would not have been much of a show.

Thanks to Dianna Del Giorgio and her staff from Cafe Adagio for serving up delicious chanterelle bites to the crowd.

Thanks to Alex Winstead and Cascadia Mushrooms for supplying the kitchen with all of the chanterelles.

Thanks to our speakers: Dick Morrison, Buck McAdoo, and Caleb Brown, whose creative and informative presentations were both well attended and thoroughly enjoyed.

Photo by Mark Johnson



The 2016 Northwest Mushroomers Association Fall Show superstars

CONTACT INFORMATION

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The Northwest Mushroomers Association meets 7–9 p.m. on the second Thursdays of Apr, May, June and Sept, Oct, and Nov. Meeting location is the downtown Bellingham Public Library.

We will inform you in advance of any changes in time or venue. Fungal forays and field trips are scheduled for the Saturday after each meeting. To stay apprised of forays, events and more, please join our googlegroups email list by signing up as a member.

Membership dues are \$15 for families and individuals and \$10 for students. Please make checks payable to NMA and mail "Attn: Membership" to the address above, or use Paypal online at northwestmushroomers.org/join-or-renew-membership/

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NEWSLETTER

MushRumors is published in the months of March, June, September, November, and January online at northwestmushroomers.org. Club members are encouraged to submit stories, photos, recipes, and artwork. Submissions should be made two weeks prior to the month of publication.

For newsletter content or comments, contact editor Jack Waytz above or mail to:
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P.O. Box 28581, Bellingham, WA 98228-0581

Photo by Mark Johnson



Alex Winstead, fearless leader of Bellingham's Cascadia Mushroom Works

Thanks also to our vendors: Melissa Duffy, Jennifer Yates, and Alex Winstead.

We were also fortunate to have such efficient and enthusiastic chairpersons of the various key functions in presenting our show to the Bellingham community. They made my job as show chair far easier, and yielded a spectacular result. Everyone who volunteered gave 100% in the execution of their tasks in support of our show. They all deserve a commensurate amount of credit for the success of the event.

A special thanks to our club's science advisor, Dr. Fred Rhoades, who over the past four seasons has perfected the process of sorting, identifying, and labelling the mushrooms collected for our event, allowing those taking part to work

with speed and accuracy to prepare the collections to be placed into the display trays. Also to Pam Borso, whose efforts in blending art, craft, and science in arranging the display trays, led to an astounding finished product. Our displays have never looked better. To Nadine Lihach and her crew at the entrance, for consistently setting the table for our guests year after year, to Harold Meade for his annual terrific contribution at the touch and smell table, a perennial favorite of our attendees, and finally to Vince Biciunas who, as always over the years, wore many hats insuring that our fall exhibit was a truly memorable event.

Photo by Mark Johnson



One of the *Cortinarius* trays. A good example of the stunning displays.

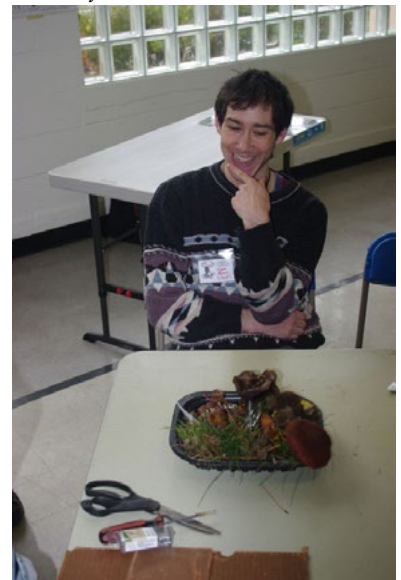
On to the odd things: the prevailing environmental stressors seemed to encourage some mycological anomalies. It was a first for *Phloeomana speirea*, a genus erected this past year. Also, Fred reported a first sighting of *Hemimycena nebulophila*, a tiny white species on horsetails. *Volvopluteus gloiocephalus* doesn't show up that often, but it rather resembles certain *Amanitas*,

Photo by Mark Johnson

and this year it created a stir. *Nolanea minutostriata* was another first for our fall shows. This was a year when many tiny and relatively obscure fungi showed up that normally don't make their way into our display trays. Dr. Trappe reported the same for Oregon.

In all, the 2016 edition of the Northwest Mushroomers Association Fall Wild Mushroom Show, was one of the most memorable exhibits in our club's history, notable as much for its curiosities, as its absences.

Photo by Mark Johnson



Caleb Brown surveys some oversized fruiting bodies of *P. cyanescens*



Our gorgeous entry display

Saturdays' foray at Larabee State Park was lovely as far as balmy sunny weather was concerned, but not so great for mushrooms: the duff was still rather dry. We did get a few small mushrooms, but no truffles. Unfortunately our truffle dog and his owner Robin didn't show up. Fortunately nothing bad had happened to them, they just got delayed in returning from their trip and didn't make it home till Saturday evening, and cell phone reception or the lack thereof, meant we couldn't communicate in time. Hopefully we can reschedule a truffle foray for later in the season.

Photo by Isaac Colgan



Hearty foragers brave the elements at the first foray of the 2016 fall mushroom season
of snapshots of the identification process, which, given the shortage of mushrooms, gave us all extra time to enjoy the potluck.

Here is what we found.

Polypores

- Fomitopsis pinicola
- Laetiporus conifericola
- Polyporus badius
- Trichaptum abietinum (I think, -old specimen with minimal bracket development)

Puffballs

- Bovista pila

Gilled mushrooms

- Agrocybe pediades
- Cheimonophyllum candidissimum
- Conocybe filaris Fr. group, -(deadly poisonous but tiny, Buck McAdoo took it home to work on it as there are several species in this group.)
- Crepidotus mollis
- Crepidotus epibryus (= C. herbarum) (Those teensy little shell-shaped mushrooms on rotting wood)
- Gymnopus peronatus (wood woolly foot)
- Marasmiellus candidus
- Pleurotus pulmonarius
- Psathyrella gracilis group
- Strobilurus trullisatus (the white with yellowish-stiped mushrooms on Douglas fir cones)

Photo by Isaac Colgan



Attention Northwest Mushroomers! After 13 years as the editor of MushRumors, I have decided that it is time to hand over the reigns of editor to an enthusiastic and qualified individual with a desire to be the journalist that represents our fine organization. If interested, contact me, Jack Waytz, via email at: gandalf5926@comcast.net

Mushroom of the Month: *Neottiella rutilans* (Fries) Dennis

By Dick Morrison and Buck McAdoo

At times when you are foraging for large edible mushroom fare, but none are to be found, you begin to notice smaller, often overlooked or ignored fleshy fungi. This was the case on September 9, 2016, when Jack Waytz, Buck McAdoo and Dick Morrison went scouting for the first flush of porcini (*Boletus edulis* and relatives) on the southeastern slopes of Mount Baker. As they trekked up the trail there wasn't a porcini in sight, nor anything else to stir a mycophagist's interest. Jack had quickly pushed on ahead, leaving Buck and Dick some distance behind, so the two laggards began looking for species of more academic interest to photograph and collect for identification. This is when Dick noticed the fruiting bodies of a tiny bright orange, short-stemmed cup fungus just off of the trail. They

Photo by Dick Morrison



Neottiella rutilans fruiting bodies in moss and rich forest soil near Mt. Baker, WA. The cups measured about 4-6 mm wide by 2-3 mm high, with stipes 1-2 mm long.

were scattered in with *Polytrichum* and other mosses on rich damp soil in a shallow run-off channel beside the trail. Although Buck couldn't put a name to it at the moment, he and Dick agreed this was a very cool find and would justify some research into the identity. Eventually, Jack returned to meet us, sans porcini or other tasty fungal prospects from his search. However, we departed for home with several fruiting bodies of the little orange cup fungus, as well as a truffle that Buck was excitedly anticipating sending to Dr. Jim Trappe, the renowned truffle expert (but, this is a story for another time).

As there are myriads of these diminutive orange cup fungi, a good key to the ascomycetes was needed. Using Buck's extensive mycological library, one was found in Seaver's classic 1928 book, *North American Cup Fungi*. This led to the name *Aleuria rutilans*. This species was first described and named *Peziza rutilans* by Fries in 1822. In 1879 Gillet placed it in *Aleuria*, the name Seaver used in his 1928 book. In 1889 the Italian mycologist Pier Saccardo erected the genus *Neottiella* and distinguished it from *Aleuria*. In 1960, R. W. G. Dennis, noting that the marginal hairs of the fruiting body of *A. rutilans* were white, transferred it to *Neottiella*, where it currently resides. Over its history, this little fungus has also spent time in other genera, including *Humaria*, *Leucoscypha* and *Octospora*. There are currently eighteen synonyms for *N. rutilans*. To the lay person this might seem like a lot of time and effort spent on such a tiny and outwardly insignificant subject, but not so if you are a fungal taxonomist.

Neottiella species are characterized by small fruiting bodies that are adorned with whitish hairs on the cup margin and exterior surface, have orange colors in the mushroom body and, elliptical reticulate spores, and are associated with *Polytrichum* and other mosses. This contrasts with *Aleuria* species which have larger fruiting bodies, coarsely reticulate elliptical spores with polar protruberances, and are saprobes not associated with mosses. *Neottiella*, *Aleuria* and the other genera named above, are members of the diverse polyphyletic family Pyronemataceae, in the order Pezizales, which currently includes 75 genera.

Here are our notes leading to the identification as *N. rutilans*. The ascocarp fruiting bodies were shallowly cup shaped and measured 3-6 mm wide. They were orange in color with short pallid stems 1-2 mm long and 1-2 mm thick that tapered towards the base. (Note this is at the small end for the species, as ascocarps can range up to 1.5 cm wide; they may also be stemless). The exterior of the cups was of a paler orange and a more woolly texture, and there were white, downy hairs on the cup margins and exterior. Under the microscope the white hairs on the margins turned out to be lance-shaped hyaline setae which were thick-walled and septate with

rounded apices, irregularly curved towards the base, and measured 5-7 microns wide and 120 to 290 microns in length. The setae on the exterior surface of the cups were similar but longer, measuring 135 to 600 microns long. A few of these setae were branched.

The tubular asci housing the ascospores were operculate (had lids that opened at maturity to release the spores), inamyloid (didn't turn blue in Melzer's reagent, a color indicating sugars or starch), and measured 280-380 microns in length. Each ascus held eight spores in a uniseriate, single line arrangement. The spores were elliptical and measured 22-26 x 13-15 microns. The spore walls were roughened by ridges of a partial to well-developed reticulum, and sometimes with a few short warts. Immature spores had 1-2 oil droplets, which were not evident in mature spores. The paraphyses, which are intermixed with asci, were thin walled with slightly clavate apices and turned greenish blue in Melzer's reagent. They were filled with orange inclusions. A lengthwise cross section of the ascocarp revealed the make-up of the vegetative excipulum or 'cortex', also called the textura. This consisted of a single snarled layer of branched, septate, thick-walled hyphae known as the textura intricata.

N. rutilans has a near look-alike and close relative in *N. vivida*. Both are bryophilous (moss loving), often with *Polytrichum*, and the fruiting bodies are outwardly so similar that they are easily confused. The two are best separated by the microscopic characters of the spores: those of *N. rutilans* are enclosed by a net-like ridged reticulum while those of *N. vivida* have scattered warts. Also, *N. vivida* has a two-layered textura compared with the single layer in *N. rutilans*. *N. vivida* further differs in its ability to produce a dense mat of white mycelium on the moss. Although Spooner and Yao found enough variation in spore ornamentation within a single fruiting body that they considered *N. vivida* to be synonymous with *N. rutilans*, this view has not been accepted, and the two are recognized as distinct species. Three other *Neottiella* species with orange discs and whitish hairs on the cup margin are *N. hetieri*, which differs by fruiting on burn sites, often with *Funaria* moss, and in having smaller spores at 14-17 x 8-9 microns, *N. ithacaensis*, which has cups up to 1 mm wide and fruits on liverwort thalli, and *N. aphanodictyon* which differs in its yellowish exterior and presence of long white hairs that form a dentate cup margin. The latter has been found in Alaska. *Octospora humosa* and *O. leucoloma* are two additional small orange look-alike species also found with mosses. They are distinguished from *N. rutilans* microscopically by their smooth-walled spores.

N. rutilans is commonly found across Europe. In North America it has turned up in British Columbia, Oregon, California, Colorado, Iowa, Wisconsin and New England. It is likely widespread but not always recorded, possibly because of its diminutive size. However, it was surprisingly easy to find reports and photos of it and similar looking small orange cup fungi in an internet search. Although insignificant size-wise, a look into the recent scientific literature involving *N. rutilans* and other fungi in the Pyrenomataceae, shows active research on their phylogeny, ecology, genetics and physiology.

The association of *N. rutilans* with *Polytrichum* and other mosses suggests a close relationship. However, in his early 20th century work, Seaver believed it was likely a saprobe fruiting from dead leaves beneath the moss. Now, research has revealed that species of *Neottiella*, *Octospora*, and related genera found with bryophytes (mosses, liverworts and hornworts), can parasitize the rhizoids (as bryoparasites), or form partnerships as beneficial symbionts (as bryosymbionts). An excellent website on the main groups of bryoparasitic *Pezizales*, edited by Jan Eckstein, can be found at <http://www.octospora.de/>. It includes a key, species descriptions, photographs, and links to research news and information on these genera.

DNA studies by Perry, et al, indicate that the parasitic and symbiotic relationship of these fungi with bryophytes may have evolved independently over a span of time, possibly even being gained or lost more than once. There is also evidence that some species in this group of fungi can engage in a menage a trois by forming a three partner relationship with a cyanobacterium and a moss. Other genera have species reported to form endotrophic infections of ectomycorrhizal basidiomycete fungi on beech trees. The more these fungi are studied, the more their complex life cycles and association with other organisms are revealed.

Taxonomists have struggled using morphological traits to distinguish *Neottiella* from *Octospora* and morphologically similar genera. Some taxonomists have considered *Neottiella* to be synonymous with *Octospora* due to some overlapping characters, even though ascocarps in the latter group have glabrous undersides and smooth spores, whereas ascocarps in *Neottiella* are clothed with soft whitish hairs and the spores are reticulate. Some clarification is given from DNA sequence analysis of the family Pyrenomataceae by Perry, et al., which

supported *Neottiella* and *Octospora* as separate genera, and placed them together in the same clade (clade 4) along with *Leucoscypha* and *Lamprospora*. This work also indicated that *Neottiella* and *Octospora* are not monophyletic in origin. The genera and species in clade 4 have often formed symbiotic relationships with bryophytes, a lifestyle not found in the other clades. As for *Aleuria*, it fell into a more distantly related clade (clade 10), while leading a less eventful lifestyle as a saprobe.

Finally, Buczacki, Jordan, and McNeil all declare *N. rutilans* to be inedible. No mycophagist arises to dispute this. Even if there was an attempt to do so, we imagine it would be hard to discern a flavor or derive much sustenance from such a small entity.

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A note from our club secretary, Linda Magee

Hello, Mushroomers!

Spring is coming and so is the Survivors' Banquet when we greet, meet, eat, and elect our officers for 2017-18. This wonderful annual event, which features a mushroom themed pot luck dinner and mushroom memorabilia raffle, will be held this year on March 18, 2017, at the Bellingham Unitarian Fellowship at 1207 Ellsworth in Bellingham, starting at 5:00 pm. More details will follow in the next edition of MushRumors.

We urgently need members to fill positions for Vice-President; Secretary; Treasurer, and Trustee positions. It is critical that we have a Treasurer. So, please, if you have any bookkeeping/financial experience, step forward to help us keep this organization going strong.

If you can serve in any of these positions, please contact either:

President, Brennen Brown, via email at: 360nmapresident@gmail.com or Secretary, Linda Magee, at 360nmasecretary@gmail.com We will be happy to discuss the time commitment and duties with you.

Thank you, Linda

Erin's Find: *Typhula phacorrhiza* - The Rest of the Story

By Dick Morrison and Erin Moore

An article titled "Erin's Find" in the NMA newsletter (Feb.-Mar. 2016) described Erin Moore's spring discovery of small, light brown fungal sclerotia on plant debris under an edible fig tree near Mount Baker Vineyards, Deming, WA. From the unique jig-saw puzzle shaped epidermal cells of the sclerotia the fungus was identified as *Typhula phacorrhiza*, one of the cold temperature loving fungi known as snow molds. *T. phacorrhiza* is a saprobe, decomposing dead and senescing soft tissues of broadleaf trees and grasses. The sclerotia are produced from vegetative mycelia in the cold to freezing temperatures of fall and winter when host substrate nutrients are used up. Sclerotia are survival structures and lay dormant during the warm, dry weather of summer. In the fall, under cold to freezing temperatures and wet weather, the sclerotia produce thread-like clubs on which sexual reproduction and basidiospore formation take place. When basidiospores land on a suitable substrate, like the fallen leaves and plant debris under the fig, they germinate to produce the vegetative mycelia that invades and begins to decompose them.

Photo by Dick Morrison



Thread-like sexual fruiting bodies of *Typhula phacorrhiza* arising from sclerotia near Deming, WA, October 2016. Red arrows show two light brown sclerotia which have exhausted their nutrients to support sexual reproduction and basidiospore formation.

Knowledge of the *T. phacorrhiza* life cycle made it possible to anticipate the emergence of the sexual stage clubs from sclerotia in the fall of 2016. As cold, rainy weather began, Erin periodically checked under the fig tree, and "bingo," around the third week of October she found a smattering of the little clubs emerging from sclerotia. Although this fruiting didn't result

in the large number of little clubs that can sometimes be produced, still, the fungus didn't disappoint. Thus, its life cycle under the fig tree was begun, again, for the coming year.

Lummi Island Heritage Trust / Northwest Mushroomers Association Foray October 8, 2016

By Fred Rhoades

A number of stalwart Northwest Mushroom Association members joined the always-avid group of Lummi Heritage members for the foray this year. It was a wet day but plenty of things were found including an interesting, small *Nolanea* (tentatively identified by Buck McAdoo as *N. occidentalis*). We laid out the specimens by genus and according to the preserve site they were found in. As had been true throughout this past season, some of the more commonly abundant (of species) genera such as *Cortinarius*, *Lactarius* and *Russula* were noticeably absent or in much lower numbers than usual. The foray culminated in a delicious potluck lunch. For a brief video review of some of the things seen check out: <http://www.liht.org/news-blog/mushroom-foray-mcadoo>

Photo by Buck McAdoo



Nolanea occidentalis

* = newly recorded species this year

Otto Preserve

Ampulloclitocybe clavipes
Annulohyphoxylon multiforme
*Bondarzewia mesenterica
Calocera cornea
Chlorophyllum olivieri
Clitocybe sp.
Coprinus comatus
Fomitopsis pinicola
Ganoderma applanatum
Ganoderma oregonense
Geastrum saccatum
Gomphidius oregonensis
Gymnopus confluens
Gymnopus dryophilus
Gymnopus peronatus
*Hemimycena delicatella
Heterobasidion annosum
Hypholoma fasciculare
Hypomyces lactifluorum
Lepiota clypeolaria
Lepiota rubrotinctoides
Leucoagaricus leucothites
Leucopaxillus gentianeus
Lycoperdon perlatum
Marasmiellus candidus
Mycena filopes
Mycena galericulata
Mycena purpureofusca
*Nolanea occidentalis ?
Paxillus involutus
*Pholiota squarrosoides
Piptoporus betulinus
Polyporus badius
*Rhodocollybia butyracea
*Rhodocollybia sp.

Photo by Buck McAdoo



Pseudolaccaria pachyphylla

*Roridomyces roridus
*Russula sp.
Russula xerampelina
Stereum gausapatum
Stereum hirsutum
Strobilurus albipilatus
Strobilurus trullisatus
Stropharia ambigua
Trametes versicolor
Xerocomellus chrysenteron
*Xeromphalina campanella
Xylaria hypoxylon

Baker Preserve

Agaricus 'moelleri'
Agaricus hondensis
Clitocybe nebularis
Clitocybula atrialba
Coprinellis micaceus
Fomitopsis pinicola
Gymnopus peronatus
Hypholoma fasciculare
Lepiota rubrotinctoides
*Leucocoprinus brebissonii
Lycoperdon perlatum
*Lycoperdon pyriforme

Bowman Bay Dilly Foray, November 12, 2016

By Vince Biciunas

Photo by Buck McAdoo



Bolbitius titubans

Margaret and Claude Dilly made it happen yet again. Despite rainy weather in Bellingham, Deception Pass and Bowman Bay showed only a slight drizzle in the morning, a bit of sun by noon, and then a blustery blow for an hour or so, but only after we were on our way home.

A bountiful variety of mushrooms filled the tables keeping Margaret and other identifiers busy. Lawrence Millman, visiting us from Boston, and our guest speaker at our previous meeting, joined us. Buck McAdoo, Erin Moore, Christine Roberts, Harold Mead, and Jim Fackler also helped get the names on the great variety of specimens brought in. We had

lots of agaricus, shaggy parasols, armillariella mellea, suillus, russulas, clitocybes, and many more.

Besides the 35 Northwest Mushroomers members, we were joined by 15 members of the Snohomish Club, and that made for a very tasty and bountiful pot luck lunch.

Thanks to Claude for keeping the stove piping hot, and Foray Chair Christa Simmons, for keeping our foray supplies

Photo by Vince Biciunas



Happy forayers amidst their bounty.

in order, and especially, a big thank you to Margaret and Claude Dilly, our ever reliable November Foray at Bowman Bay hosts. It was a beautiful day and a beautiful place, to be outside and collecting fungi.

Photo by Buck McAdoo



New to science! A previously undescribed *Leucoagaricus* mushroom, in the *rubrotinctus* group.

Recent Rash of Poisonings by *Amanita Smithiana*

After three individuals in Oregon suffered kidney failure upon consuming *Amanita smithiana*, thinking that it was matsutake, Mike Beug, an authority in mushroom toxicology, has added a brief 3 picture power point presentation to his web site, describing the differences between *Tricholoma magnilevare*, the American matsutake mushroom, and the potentially lethal *Amanita smithiana*.

The mushroom pictured here is *A. smithiana*, found by myself on a late season hunt on the eastern side of the Cascades while searching for matsutakes and white chanterelles. It was raining steadily that day, and the normal cottony texture associated with *A. smithiana* was rendered more smooth by the rain, and as clearly visible in the photograph, some brown streaking on the cap. This mushroom is easily two and a half times larger than the normal fruiting body of *A. smithiana*, and was found withing a foot of a cluster of matsutake buttons. From above, these mushrooms were indistinguishable from one another. This is an extremely dangerous situation for the novice forager. Make certain to give them a good smell. If you don't get the cinnamony, strong earthy aroma, leave it alone!

Photo by Jack Waytz



A. smithiana: beautiful, but deadly.

This year we found approximately 309 species at our show, including 16 lichens and 3 slime molds that were displayed, brought in by attendees or identified from collections held back for further work. This is a surprisingly large number considering the weather folks were collecting in, the generally poor quality of the specimens brought in and the relatively unproductive season so far.

Fifteen of the count (the * species in the list) were species that had not previously been collected for the show. Most notable among these were the white version of the fly *Amanita* (*Amanita muscaria* var. *alba*), two unusual oyster-mushroom-like fungi (*Hypsizygus ulmarius* and *Pleurotus dryinus*) and two different forms of the rarely collected, former genus *Volvariella*. These were once regarded as two species in this genus but are now lumped into one species in a newly segregated genus, *Volvopluteus gloiocephalus*. After the show I identified an interesting *Hemimycena* (a genus of small white *Mycena*-like mushrooms), likely to be *Hemimycena nebulophila*. If you were the one who collected this tiny (2mm cap) white mushroom on a dead horsetail stalk, please let me know where you found it as this is a first report for Washington and I would like to more completely document the herbarium specimen.

Among the gilled mushrooms, the saprobes (decomposers) dominated although there were still relatively large numbers of mycorrhizal species (symbionts with tree roots). Among the saprobes, *Mycena*, *Lepiota* and Collybioid genera were particularly abundant. Among the mycorrhizal things, the usual dominant genera, *Russula* and *Cortinarius* were fairly diverse although not numerous for any one species. Other mycorrhizal genera such as *Inocybe*, *Tricholoma*, *Lactarius* and *Hygrophorus*, though present, were in much lower numbers than might otherwise be suspected. Mostly, the non-gilled mushrooms were fewer than usual although there were a considerable number of polypores. Boletes were notably absent. Chanterelles were diverse but in low numbers. These two groups are largely mycorrhizal.

The relative dearth of mycorrhizal species, usually abundant in the early season, is the big surprise. What has caused this? My personal feeling is that it has to do with a combination of weather-induced environmental conditions resulting particularly from the extremely hot and dry summer of 2015 and the July 2016 early, rain-induced fruiting of a few mycorrhizal things. Chanterelles (*Cantharellus formosus*) and lobster (*Hypomyces lactifluorum* on mycorrhizal *Russula brevipes*) were collected in July and there were other mycorrhizal species fruiting then, perhaps being fooled by the odd turn of weather.

Below are some comments by others who did some of the identifying:

Buck McAdoo — "I worked on Collybioid, *Cortinarius*, *Amanita*, and *Armillaria*. In the Collybioid collections there were as many *Strobilurus* [cone lover] as *Gymnopus*. All four of our west coast members of *Strobilurus* were there. Nice collection of *Gymnopus villosipes*, *Gymnopus confluens*, *Connopus acervatus*, and *Rhodocollybia butyracea* var. *ochracea* nom. prov. that seems to be spreading faster than it can be named. As for *Cortinarius*, I was amazed at how many different species there were. I still had about eight collections to look into when I felt I needed to switch to another genus just to be more productive. (Those last eight would have taken hours to key out without any sure rate of success.) To get names for these *Cortinari*, I used the Key Council Key, the new Redwood book by Noah & Christian Schwarz, my own past photos, and Steve Trudell's [& Joe Ammirati's] guide. I know I missed a few, but generally feel all right about most. There was a beautiful purple *Cortinarius* I couldn't put a name to. As for *Amanita*, I nailed all of them. It was a good collection including the dramatic *A. pachycolea* and *A. muscaria* var. *alba* from the Lake Wenatchee area. I hadn't seen that for 25 years! The *Armillarias* were tricky because they had all aged, and so all seemed the same. Fred and I agreed that most were *Armillaria solidipes*, although the brown stipes on many could indicate *Armillaria nabsnona*. They all seemed to merge together, and Tom Volk's key involving microscopic characters might have been needed to do them all justice. Alas there was no time for that, but I thought our team of identifiers did a superb job, evidenced by the fact we got all the species on the tables 20 minutes before the opening bell."

Christine Roberts — "We had fewer species of *Russula* this year than usual, but the collected were lovely with

three of the brightly colored ones Erin brought in, which always look so cheerful in the display. As usual there were gobs of *Russula xerampelina*. We should perhaps have another place to use the spares. Lots went on the touch and smell table (Harold says the kids enjoy breaking them), and more on the front display and a couple on the edibles tray. Any ideas?"

Dick Morrison — "I think this is first time *Xeromphalina campanelloides* has been at the show. It is considered a rare mushroom."

Erin Moore — "It's cool that we had two collections of *Volvopluteus*, that's a rare one for the Northwest and fun to see. Yet other genera showed low abundance and diversity: there were just two *Hygrocybes* species, for example--though on the Saturday after the show, students at an NCI mushroom class collected two more, *H. carnea* and *H. bakerensis*, near Baker Lake. Many mushrooms seemed simply pooped out from an unseasonal July-August mushroom flush."

Jack Waytz — "First year ever that I don't remember seeing *Boletus fibrillosus* or *B. smithii*. I actually found a couple of *B. smithii*, but it was on Monday before the show, and although I cleaned them and put them in the fridge, they were goo by that Friday. No *Polyozellus multiplex* this year, and another one that we have perennially, *Porphyrellus porphyrosporus*, was also absent. Additionally, after 5 consecutive years with *B. edulis* var. *grandedulis* didn't come up. Overall, really a crappy year for the fleshy pored fungi. On a separate note, I brought in a very nice collection of *Trichloma equestre* that apparently didn't find it's way to the display trays." [Ed Note - added to list]

Jeremy Ferrera — "I found one of the specimens [of *Volvopluteus gloiocephalus*] in Bloedel Donovan Park while trying to find the annual *Stropharia aeruginosa* with Jack. It's one of those weird years. I think mornings were unusually cold in the summer, and now it seems unusually warm these days. That makes for a strange season.

2016 Show species list

* = found for the first time in 2016

GILLED MUSHROOMS (214)

Agaricus arvensis
 Agaricus augustus
 Agaricus campestris
 Agaricus moelleri
 Agaricus sp.
 Agaricus subrutilescens
 Amanita augusta
 Amanita constricta
 Amanita gemmata
 Amanita muscaria
 Amanita muscaria var. alba *
 Amanita pachycolea
 Amanita silvicola
 Armillaria cepistipes
 Armillaria nabsnona
 Armillaria solidipes
 Atheniella adonis
 Atheniella aurantiidisca
 Chlorophyllum olivieri

Chlorophyllum rachodes
 Chroogomphus tomentosus
 Clitocybe deceptiva
 Clitocybe dilatata
 Clitocybe fragrans
 Clitocybe trulliformis*
 Clitopilus prunulus
 Connopus acervatus
 Coprinopsis atramentaria
 Coprinopsis lagopus
 Coprinus comatus
 Cortinarius brunneofulvus
 Cortinarius caperatus
 Cortinarius cinnamomeoluteus
 Cortinarius clandestinus
 Cortinarius crassus
 Cortinarius glaucopus
 Cortinarius griseoviolaceus
 Cortinarius limonius
 Cortinarius orichalceus
 Cortinarius pseudoarquatus
 Cortinarius pyriodorus
 Cortinarius semisanguineus
 Cortinarius smithii

Cortinarius subfoetidus
 Cortinarius substriatus
 Cortinarius superbus
 Cortinarius traganus
 Cortinarius vanduzerensis
 Cortinarius violaceus
 Cortinarius sp.
 Cortinarius sp. (subgenus Phlegmacium)
 Cystoderma amianthinum f. rugosoreticulatum
 Cystoderma fallax
 Cystodermella cinnabarina
 Entoloma medianox *
 Entoloma sericatum
 Entoloma sp.
 Floccularia albolaripes
 Galerina marginata
 Galerina sp.
 Gomphidius glutinosus
 Gomphidius oregonensis
 Gomphidius subroseus
 Gymnopilus penetrans
 Gymnopilus ventricosus
 Gymnopus confluens
 Gymnopus peronatus
 Gymnopus villosipes
 Hebeloma incarnatum
 Hebeloma praeolidum
 Hebeloma sacchariolens
 Hebeloma sp.
 Hemimycena delicatella
 Hemimycena nebulophila ? *
 Hemipholiota populnea
 Hygrocybe laeta
 Hygrophoropsis aurantiaca
 Hygrophorus deceptiva
 Hypholoma capnoides
 Hypholoma disperum
 Hypholoma fasciculare
 Hypsizygus ulmarius *
 Inocybe geophylla
 Inocybe grammata
 Inocybe hirsuta var. maxima
 Inocybe kauffmanii
 Inocybe lanuginosa
 Inocybe lilacina
 Inocybe mixtilis
 Inocybe rimosa
 Inocybe sororia
 Inocybe sp.
 Laccaria amethysteo-occidentalis
 Laccaria bicolor
 Laccaria laccata
 Lacrymaria velutina
 Lactarius deliciosus group
 Lactarius glyciosmus
 Lactarius kauffmanii
 Lactarius luculentus var. laetus
 Lactarius luculentus var. luculentus
 Lactarius obscuratus var. obscuratus
 Lactarius pallescens
 Lactarius pseudomucidus
 Lactarius pubescens var. pubescens
 Lactarius rubrilacteus
 Lactarius rufus
 Lactarius scrobiculatus
 Lactarius sp.
 Lactarius sp.
 Lepiota castaneidisca
 Lepiota clypeolaria
 Lepiota flammeotincta *
 Lepiota josserandii
 Lepiota magnispora
 Lepiota rubrotinctoides
 Lepista nuda
 Leratiomyces ceres
 Leucoagaricus leucothites
 Leucocoprinus birnbaumii *
 Leucocoprinus brebissonii
 Leucopaxillus albissimus
 Leucopaxillus gentianeus
 Lyophyllum decastes
 Lyophyllum semitale
 Macrocystidia cucumis
 Melanoleuca cognata
 Melanoleuca melaleuca
 Mycena capillaripes
 Mycena epipterygia var. epipterygia
 Mycena galericulata
 Mycena haematopus
 Mycena leptcephala
 Mycena maculata
 Mycena pura
 Mycena purpureofusca
 Mycena quinaultensis
 Mycena robusta
 Mycena sanguinolenta
 Mycena stipata
 Mycena strobilinoidea
 Mycena sp.
 Mycena sp.

Mycena sp.	Stropharia caerulea
Mycena sp.	Stropharia hornemannii
Nolanea cetrata *	Tapinella atrotomentosa
Nolanea minutostriata *	Tricholoma aurantium
Nolanea sericea	Tricholoma equestre
Paxillus involutus	Tricholoma focale
Phaeolepiota aurea	Tricholoma magnivelare
Phloeomana speirea	Tricholoma moseri
Pholiota agglutinata	Tricholoma pardinum
Pholiota astragalina	Tricholoma pessundatum
Pholiota aurivella	Tricholoma saponaceum
Pholiota decorata	Tricholoma sulphureum
Pholiota lubrica	Tricholomopsis decora
Pholiota mixta	Tricholoma sp.
Pholiota spumosa	Tricholoma sp.
Pholiota squarrosa	Tubaria furfuracea
Pleurocybella porrigens	Volvopluteus gloiocephalus *
Pleurotus dryinus	Xeromphalina campanella
Pluteus cervinus	Xeromphalina campanelloides *
Pluteus longistriatus *	Xeromphalina cornui
Psathyrella gracilis	Xeromphalina fulvipes
Psathyrella umbonata	NON GILLED FUNGI (76)
Psilocybe cyanescens	
Rhodocollybia butyracea var. ochracea nom. prov.	Boletus calopus
Russula adusta	Boletus fibrillosus
Russula aeruginea	Boletus mirabilis
Russula brevipes var. acrior	Chalciporus piperatus
Russula brevipes var. brevipes	Leccinum arctostaphyli
Russula cascadenis	Leccinum scabrum
Russula cerolens	Suillus caeruleus
Russula cessans	Suillus lakei
Russula dissimulans	Suillus luteus
Russula eleaodes	Xerocomellus chrysenteron
Russula fragilis	Xerocomellus zelleri
Russula grisea	Cantharellus formosus
Russula murrillii	Cantharellus subalbidus
Russula occidentalis	Craterellus tubaeformis
Russula olivacea	Gomphus clavatus
Russula silvicola	Turbinellus floccosus
Russula sphagnophila	Turbinellus kaufmanii
Russula versicolor	Clavariadelphus ligula
Russula veteriosa	Clavariadelphus truncatus
Russula xerampelina	Clavulina coralloides (= C.cristata)
Russula xerampelina var. isabelliniceps	Ramaria stuntzii *
Russula sp.	Ramaria armeniaca *
Sarcomyxa serotina	Ramaria abietina
Schizophyllum commune	Ramaria acrisiccenscens
Strobilurus albopilatus	Ramaria conjunctipes
Strobilurus trullisatus	Ramaria cystidiophora var. cystidiophora
Stropharia ambigua	Ramaria rubrievanescentis

Ramaria sandaracina var. euosma
Ramaria velocimutans
Ramaria spp.
Sparassis crispa
Auriscalpium vulgare
Hericium abietis
Hydnellum aurantiacum
Hydnum repandum
Phellodon atratus
Sarcodon imbricatus
Lycoperdon perlatum
Lycoperdon pyriforme
Scleroderma cepa
Scleroderma citrinum
Vascellum lloydianum
Geastrum saccatum
Crucibulum laeve
Nidula candida
Calocera cornea
Dacrymyces chrysospermus
Pseudohydnum gelatinosum
Tremella mesenterica
Tremiscus helvelloides
Bjerkandera adusta
Bondarzewia mesenterica
Fomes fomentarius
Fomitopsis officinalis
Fomitopsis pinicola
Ganoderma applanatum
Ganoderma oregonense
Gloeoporus dichrous
Heterobasidion annosum
Jahnporus hirtus
Phaeolus schweinitzii
Piptoporus betulinus
Polyporus badius
Porodaedalea pini
Trametes hirsuta
Tyromyces chioneus
Chondrostereum purpureum
Phlebia tremellosa
Stereum gausapatum
Stereum hirsutum
Aleuria aurantia
Chlorociboria aeruginascens
Gyromitra infula
Helvella compressa
Helvella vespertina
Hypomyces lactifluorum

lichens (16)

Alectoria sarmentosa
Cladonia chlorophaea
Evernia prunastri
Hypogymnia imshaugii
Hypogymnia inactiva
Lobaria pulmonaria
Parmelia sulcata
Parmotrema arnoldii
Peltigera brittanica
Peltigera neopolydactyla
Platismatia glauca
Ramalina farinacea
Tuckermannopsis orbata
Usnea dasopoga
Usnea subfloridana
Usnea sp.

slime molds (3)

Slime mold plasmodium on Fomitopsis
Slime mold slime (plasmodium) on Phlebia
Trichia varia *