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Happy Holidays



2011

Spore Prints

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PUGET SOUND MYCOLOGICAL SOCIETY

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MEMBERSHIP MEETING



PSMS Annual Holiday Party and Cookie Bash, Tuesday, December 6, 2011, 7:30 pm, at the Center for Urban Horticulture, 3501 NE 41st Street, Seattle

December's membership meeting will feature our famous "Cookie Bash." This annual event is again hosted by your PSMS Board of Trustees and showcases the culinary and creative talents of our club members. Please bring a dish of hors d'oeuvres, other treats, baked goods, or desserts to share. Beverages will be provided. Please come attired in your best fungal-themed jewelry, clothing, and/or hats and be prepared to have a good time. This is a family event, and children are especially welcome.

Enter the art contest! Members of all ages are encouraged to create and bring some form of original art in a fungal theme. Edible entries are preferred, but they are not required. We will select the winners by a popular vote, and prizes will be awarded for the best entries.

We will again have an open microphone and projector, so please share your digital photos and stories with us from your favorite mushroom hunts, travel adventures, or other activities from this past year. Your presentation need not be mushroom-related and could be whatever you wish to share. Please load your photos onto a CD or a USB flash drive and send or give them to Milton Tam or Marian Maxwell before the meeting. Short video presentations on a DVD format are also welcome. See you all at the Cookie Bash!



CALENDAR

- Dec. 6 Membership Meeting & Holiday "Cookie Bash" (early), 7:30 pm, CUH
- Dec. 13 *Spore Prints* deadline
- Dec. 19 Board Meeting, 7:30 pm, CUH Board Room
- Jan. 10 Membership Meeting, 7:30 pm, CUH

YOUR DUES ARE DUE!

Ann Polin



It's that time of year again! The Puget Sound Mycological Society appreciates all of its members and hopes that you will consider renewing at this time. If renewal is not received by December 31, current members will no longer receive a printed *Spore Prints* in the mail, and will no longer have access to the "Member's Only" portion of the website, including field trip information and class registration. To continue your membership and all the benefits it provides, please renew before the December 31 deadline. You may do so by responding to the e-mail that was recently sent out to all members up for renewal (check your junk mail folder if you can't find it in your inbox), OR you may renew online at www.psms.org (click on "Renew Online," log in using your user name and password, and then click on "Pay Membership Dues/Fees" under the heading "Membership Information" and follow the prompts), OR you may send a check (payable to PSMS) to Ann Polin, PSMS Membership Chair, 22265 34th Pl. W, Brier, WA 98036. Dues are \$30 for a single/family membership and \$20 for a student membership. Thanks in advance for your continued support of mushrooming activities in the Pacific Northwest!

FIELD TRIP REPORT, October 22

Brian Luther



Friday night and early Saturday morning, it rained pretty hard at our house at Hood Canal and members who came from Seattle said it was doing the same there. This probably discouraged quite a few people who otherwise would have come to the field trip had it been nicer weather. But the weather improved dramatically as the day progressed and we only had to deal with an occasional scattered sprinkle, at worst, the rest of the day—making for a great outing.

The gate was still locked when I arrived at about 7:00 am, so I walked across the highway and connected with Ranger Rick (his actual name), who opened up the area, turned on the lights and water in the shelter and restocked the nearby bathroom house with supplies. Thanks for such great service, Rick!

Special thanks go to our terrific hosts, Joanne Ireland (with her son Eric) and Tony Tschanz. They arrived not long after I did, and had everything organized and very appealing with delicious goodies and hot coffee in no time.

I asked for a show of hands by new members at my 10:00 am orientation meeting and a surprising number came (around 20), out of 63 or so who signed in. The big shelter (No. 1) was a real plus again this year, giving us the extra room we needed and the big fireplace. I had brought a huge load of firewood in my car, expecting to use it all considering the conditions, but even after keeping the fire going all day long, I had lots left over.

I want to thank both Jerry Stein and Wren Hudgins, who offered to take new members out as groups. It's always nice for newcomers to get that kind of special attention. I encouraged members to take

the 2-mile loop trail in the park and then dive deep into the brush off of the trails. Taking my advice, most came back with substantial collections of both Yellow and White Chanterelles and quite a few Red Cap Boletes (*Leccinum aurantiacum*) as well. Over a hundred different species were spread out on several picnic tables.

The winners of the beauty contest for the day would be a toss up between the numerous collections of *Laccaria amethysteo-occidentalis*, with its brilliant, deep violet gills, or a lovely collection of *Chrysomphalina chrysophylla* and *Phylloporus rhodoxanthus*, both with gorgeous bright golden gills. The rarest find of the day came in late, just as everybody was starting potluck: young Adrian Lee found and brought to me a collection of *Dendrocollybia racemosa* (which he had already correctly identified). It's a very slight collybioid fungus with numerous distinctive side branches on the stipe which produce conidia (asexual spores). It can form black sclerotia and is also known to decompose old *Russula crassotunicata* sporocarps.

The potluck was wonderful, as always, but we now have about six months to wait for another field trip, since this was my last for the fall season.

Field Trip Hosting Chair Debra Lehrberger has excelled at recruiting and organizing the hosts this year and so extra thanks go to her and all who volunteered or contributed to make these field trips a success. If you've never hosted or helped at a field trip, please come forward—we can always use assistance.



PRESIDENT'S MESSAGE

Marian Maxwell



Winter weather has arrived and the mushroom season is over. We continue to meet throughout the winter, and it is a great time to take care of other business and for social events. (See article on the December "Cookie Bash"!)

Nominations: Our Nomination Committee is seeking candidates for positions on the PSMS Board. If you are interested in running for a position, please contact Patrice Benson (education@psms.org) or Teddy Basladynski (TEDBAZ@gmail.com).

Bylaws revisions: Very shortly, your PSMS Board will be posting some proposed revisions to the PSMS Bylaws on the website. You will receive an e-mail with the link to the current bylaws, as well as proposed changes and how to go about casting your vote for the changes. For those of you who do not have website access, a copy of these changes as well as of the current bylaws will be mailed to your home address for you to review.

Kudos: I would like to extend a BIG Thank-You to the following people for their help during the past year:

- Show Chair *Kim Traverse* and all of the volunteers who helped make our 2011 Wild Mushroom Show at the Mountaineers successful!
- Identification and Field Trip Chair *Brian Luther* for his planning of and support at all of the field trips this last year! This is a tremendous commitment to our club and we appreciate you! And thanks to all the identifiers who assist in naming those fungi!
- *Debra Lehrberger*, for your enthusiasm and diligence in soliciting hosts for the field trips and your care in ensuring that the supplies for the hosts were stocked and available. Having hosts at the field trips is an important social aspect of our club! To all

the hosts: Thank you for stepping forward and making the field trips nicer for all of us!

- *Hildegard Hendrickson* and *Danny Miller* for co-coordinating our Mushroom Identification Clinics for a second year now! This has been a tremendous outreach opportunity to the public!
- *Kim Traverse*, *Carlos Cruz*, *Daniel Winkler*, *Alissa Allen*, *Tim Sage*, *Paul Hill*, *Caleb Bell*, *Wren Hudgins*, *Larry and Adrian Lee*, *Rhys Jones*, *Marilyn Droege*, *Teddy Basladynski*, *Rory Pease*, *Stewart Wechsler*, *Cassie Sheldon*, *Sam Romey*, *Rowena Erhard*, and *all the other PSMS members* who have faithfully attended these clinics to help with identification for the public!
- *Carlos Cruz*, our Vouchering Project Chair, for planning and coordinating our vouchering trips and participation in several Bioblitzs this last year!
- *Ann Polin*, our Membership chair, who does much of the work for our club behind the scenes so that things run more smoothly for all of us!
- *Patrice Benson*, Education Chair, for planning and coordinating our ID classes and *Patrice*, *Hildegard Hendrickson*, *Danny Miller*, *Daniel Winkler*, *Alissa Allen*, and *Cathy Lennebacker*, *Dr. Steve Trudell*, and *Dr. Joseph Ammirati* for teaching classes this past year!
- *Luise Asif*, for the time you put in to Hospitality in making each General Meeting more enjoyable in preparing the coffee, hot water, and laying out the goodies for all of us!
- *Agnes Sieger*, *Spore Prints* editor, for coming out without fail every month with interesting articles to read!
- Webmaster *Evelyn Tay*, for taking care of our website and seeing us through the transfer to our web host!
- *Teddy Basladynski*, for the new website design and all the time that went into it!
- *Sherwood Stolt*, for keeping the mushroom harvesting rules straight for us!
- *Milton Tam*, for doing a great job again in planning our line-up of speakers for our General Meetings and organizing the field trip to Ostrom's!
- *John Goldman*, for your considerable time this past year in keeping our finances in order, overseeing the transfer to the online payment system with our current website in all of its aspects (which were considerable), and chairing book sales.
- *Cathy Lennebacker*, for help with book sales as well!
- *Denise Banazewski*, for reviewing our proposed bylaws changes and ensuring that our changes were clear and concise. Thank you, too, for your direction in working out an online privacy policy and helping us seek answers to some tax and insurance questions.

Thanks also to the PSMS Board for serving another year, working hard to transfer us to an online renewal system as well as taking care of the day to day business of PSMS.

As you can see there is a lot of effort by all put into making PSMS operate and run smoothly and in taking care of the membership. There is so much work that goes on that most PSMS members don't have the opportunity to see unless they serve on the board! Please take time to thank these people personally and let them know that they are appreciated! Thank you to everyone for volunteering this year, and I am sorry I can't mention *each* person and your contributions. You are appreciated and you help to make PSMS successful in our mission!

Spring: Our coming Spring field trips are being planned. Exciting news: We will also have a foray this coming Spring—a several-day
cont. on page 4

President's Message, cont. from page 3

adventure with lectures, classes, and social time! The cost will be reasonable and will include meals as well as lodging choices. You won't want to miss this! We will have more information in the coming months.

I hope that you have a great Holiday Season with your friends and families.

INTERNATIONAL TEAM TO SEQUENCE GENOMES OF 1000 FUNGI

various sources, Nov. 7, 2011



With an estimated 1.5 million species, fungi represent one of the largest branches of the Tree of Life. They have an enormous impact on human affairs and ecosystem functioning owing to their diverse activities as decomposers and pathogens and to their partnership with host organisms for mutual benefit. To use fungi for the benefit of humankind, an accurate understanding of what exactly they do, how they function, and how they interact in natural and synthetic environments is required.

To bridge the gaps in our understanding of fungal diversity, the U.S. Department of Energy announced November 3 that it has funded a research endeavor called the "1000 Fungal Genomes" project.

In collaboration with the DOE Joint Genome Institute, thirteen scientists from diverse institutions will embark on a five year project to sequence two species from every known fungal family. The project is a first step in creating an encyclopedia of all fungi, which will one day help researchers understand not only what they do, but how they operate.

The 1000 species to be sequenced will be provided by five major culture collections from around the world—the Fungal Genetics Stock Center, University of Missouri, Kansas City; the Robert L. Gilbertson Mycological Herbarium, the University of Arizona; Centraalbureau voor Schimmelcultures Fungal Biodiversity Centre, the Netherlands; the U.S. Department of Agriculture Northern Regional Research Laboratory; and the U.S. Department of Agriculture Center for Forest Mycology Research.

WHAT'S MAGIC ABOUT MUSHROOMS

Richard Maybe

The Wall Street Journal, Oct. 29, 2011



In William Turner's "Grete Herbal" (1576), the first popular, English-language guide to the vegetable kingdom, the botanist was blunt on the matter of mushroom taxonomy. There were, he reckoned, just two kinds: "one maner is dedly and sleeth them that eateth of them and be called todestoles, the other doeth not." Two centuries on, scientists were no wiser about the lives of these mysterious organisms that haunted the shadows and seemed to appear by spontaneous generation. Otto von Münchhausen (1716-74)—a real scientist, but with the same fervid imagination as his tale-telling namesake—had seen fungal spores but testified that he had witnessed them hatching into small insects. Mushrooms weren't plants, he concluded, but the dwelling places of small animals.

The irony is that his wishful observation and skewed reasoning were halfway right. As Eugenia Bone notes in her engaging trawl through the labyrinths of mycophilia ("From the Greek, myco = fungus, philos = loving"), fungi are no longer regarded as plants. They're now allocated to a kingdom of their own, which, in evolutionary terms, is more closely allied to the animal world. Fungal species outnumber plants by a ratio of 6 to 1. They make up a quarter of the Earth's biomass, occurring on every surface and in, or attached to, every other living organism. The planet's life-systems would close down without fungi's ceaseless involvement as digesters, recyclers, biochemical enablers, and a kind of exterior immune system for their hosts.

All this is no more a part of popular understanding than it was in Turner's day. We mostly encounter fungi—beyond a few edible species—as molds and toxins, malign agents of entropy, and view their role in the great scheme of things as being roughly on a par with head lice. But a fresh chanterelle, gold-shawled and apricot-scented in the leaf litter, is another matter, and it was the sensual, slightly dangerous delights of eating the things that first drew Eugenia Bone into this arcane world.

A food writer from Manhattan with metropolitan habits and tastes, Ms. Bone was taught foraging as a child by her Italian family. She learned early to avoid the pallid veil of the death cap and to appreciate the singed-meat, warm-earth savor—what the Japanese call umami—of porcini. It was what she calls her "basic venality" and desire to eat more decadently that led her through a succession of baroque fungus forays and conferences in search of satisfaction.

America is unique in its contemporary mushroom culture. Throughout Europe and Asia, wild fungi are still harvested as a staple food source. They're essential and functional. In modern America they're a hobby and a passion. Mushrooming is cultish, often obsessive, and Ms. Bone the journalist, opting to stalk her subject via its disciples, discovers a world in which the extraordinariness of the hunters matches that of their prey.

She joins in the Illinois State Morel Mushroom Hunting Championship, hoping to learn how to find this most delectable species, "redneck caviar," and falls in with Al, a member of the subset of 'shroomers that she tags "the camouflaged outdoorsmen." Despite the "16-ounce can of Busch beer" in his hand, he points her toward a fundamental shift in perception: Fungi, both literally and metaphorically, are below the radar, inhabiting spaces we don't customarily pry into. She hangs out with Prof. Tom Volk, "the rock star of mycology . . . heavily tattooed, with earplugs and blue bangs," and is riveted by his lectures on how visible mushrooms are only the fruiting bodies of vast mycorrhizal "root systems," crucial components of subterranean ecology. She comes across Californian Ken Litchfield, the "Johnny Appleseed of the fungal world. . . . He likes to spread spores by chewing mature mushrooms and spitting the mash into cracks in wood or over rotting forest duff."

Rather predictably, after forays into fungal superfoods and wonder drugs, Ms. Bone feels that she has to try some hallucinogenic "magic mushrooms" (*Psilocybe* species) at the New Age Telluride Mushroom Festival in Colorado. They don't seem to have much effect, but her account of her preparations (early night, phone calls out of the way, chocolate for breakfast) underlines the one weakness of "Mycophilia." Ms. Bone has a compulsion—a journalist's tic maybe—to elaborate the trivial details of her domestic routine, from airline meals to hairdressing appointments. This would be no more than tiresome if it didn't

suggest the very thing she is arguing against—that the world of mushrooms is, well, eccentric.

Ms. Bone's strength is as a writer of popular science, and her progress along what one guesses was a steep learning curve has made her explanatory prose both lyrical and precise, particularly in her explanation of the indispensable role of fungi in the biosphere. Without them as decomposers, the whole planet would be submerged in dead organisms. Without them as symbiotic root partners—passing on minerals in return for sugars, chemically repelling predators—most plant species could not survive.

Two stories, especially, highlight the extraordinariness of these ancient organisms. There are fungi growing on the inside walls of the decommissioned nuclear reactor at Chernobyl; they are using radiation to produce biochemical energy in the same way that plants use sunlight. There are also fungi that can degrade the hydrocarbons in oil, and others that can generate them, organically and sustainably. Though she begins by looking for a simple gourmandizing high, Ms. Bone ends her odyssey elegantly, discovering that mushrooms may be the most important—and most hopeful—ingredient of life on Earth.

MUSHROOM MISSIONARIES

Datrice Benson led a field trip of UW Biology students on Nov. 3, 2011. They found at least 20 different species on a walk through Seward Park, discussed mycorrhizal relationships, and feasted on chanterelles, which were cooked in the out of doors and devoured on bread. Patrice reports that no mushrooms were collected in the park. They took only photos and left only footprints.

RESUPINATE FUNGUS OF THE MONTH:

The Genus *Diplomitoporus*

© Brian Luther

The genus *Diplomitoporus* is characterized by annual or short-lived perennial basidiocarps that are normally whitish or only lightly colored, by regular to slightly irregular pores, and by a dimitic or trimitic hyphal system. The skeletal hyphae may gelatinize and disappear in KOH mounts in some species, and the skeletal hyphae may or may not be partially amyloid. Cystidioles (sterile hymenial cystidium-like cells) are sometimes present. The basidiospores are usually distinctly allantoid (sausage shaped) or lunate (crescent shaped), smooth, and inamyloid.

Diplomitoporus was first described by Domanski (1970) for two species found in Poland. The genus causes a white rot and is similar to *Antrodia*, but the species in that genus cause a brown rot and are placed in a different family. The importance of rot type in distinguishing these similar genera was reaffirmed by Bernicchia et al. (2010). *Antrodiella* is also similar to *Diplomitoporus*, but has much tougher basidiocarps and very small ellipsoid spores. According to Kout & Vlasak (2010), 17 species are currently recognized in the genus *Diplomitoporus*, 14 of which have been recorded from the Americas (North, Central, and South America).

This month's feature fungus is *Diplomitoporus lindbladii*. It is the third species I've formally reported on from my ongoing Washington State DNR research project studying the resupinate fungi on Cypress Island (San Juan Island Archipelago), Skagit Co., WA.

Description of Collection

Diplomitoporus lindbladii (Berk.) Gilb. & Ryvarden

Brian S. Luther coll. #2011-48-10

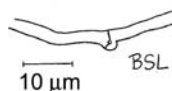
On the underside of a dead fallen branch of Douglas Fir (*Pseudotsuga menziesii*), along the edge of the main logging road from Secret Harbor to Cypress Lake, Cypress Island, Skagit Co., WA. Elevation approx. 400 ft. Collected April 8, 2011.



B. Luther,

Basidiocarp: Fully resupinate, poroid, covering several square inches, adhering tightly to the substrate, up to 3 mm thick, consistency firm and tough when fresh. *Hymenophore* (pores) when fresh "Smoke Gray" overall, becoming "Pale Smoke Gray" toward the margin, and mostly remaining the same color when dried, except for some small areas between the fertile pores and the sterile margin, which become "Warm Buff" to "Chamois" after drying; *margin* up to 5 mm wide, whitish to creamy-whitish when fresh, remaining so when dried and contrasting with the mature pore color, mostly thickly pubescent-cottony; *subicular mat* 0.3 mm thick in section and concolorous with the tubes; *pores* approx. 4 per millimeter on average, but larger pores (up to 0.5 mm) are sometimes randomly seen, mostly round in outline but some slightly elongate, even or uneven on the pore edges and often heavily fringed or beset with abundant skeletal hyphal ends, as viewed under a dissecting microscope; *dissepiments* (tissue between pores) varying from 60–180 μm wide in horizontal section (including the hymenial tissues on both sides), with the internal tissue almost entirely skeletal hyphae; *tubes* up to 3 mm long and concolorous with or paler than the pore mouths. Odor and taste not distinctive. Colors in quotes are from Ridgway (1912). See color habitat photo in the on-line version of *Spore Prints* at www.psms.org.

Microstructures: *Hyphal system* dimitic or somewhat trimitic; *generative hyphae* 2–3(5) μm wide, branching, thin-walled, hyaline, and with some clamp connections, but not on all septa; *skeletal hyphae* 3.5–5 μm wide, unbranched and non-septate, varying from slightly thick walled to very thick walled (up to 2+ μm thick), hyaline individually but lightly colored in mass, smooth,

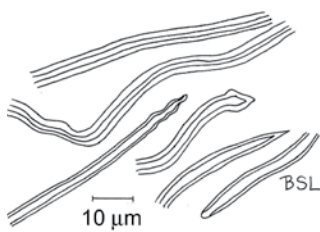


Clamped generative hypha.

weakly amyloid in Melzer's Reagent (this is best viewed in mass under 100x or 400x), becoming dark gray in IKI (iodine-potassium-iodide) solution, unstained and remaining hyaline in Congo Red and Cotton Blue but individual hyphae staining dark purple in Methylene Blue (navy

cont. on page 6

Resupinate of the Month, cont. from page 5



Thick-walled skeletal hyphae and some variation seen in skeletal hyphal tips.



20 x view under dissecting microscope showing fringed pores due to projecting skeletal hyphal ends.

B. Luther,

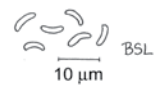
in mass), sometimes irregularly lumpy near or below the hyphal apex, which can be rounded to pointed, acute or acuminate (tapering gradually to a sharp point) to occasionally finely acicular (needle-like), especially those projecting around the pores, often covering the pores and dissepiments, conspicuously gelatinizing and rapidly dissolving in 3% KOH solutions; binding hyphae very obscure, up to 3.5 µm wide (exclusive of callosities, or calluses), appearing solid or nearly so (with only a hair-line lumen, or space), branching, with some irregular lump-like thickenings here and there. *Cystidia* none. *Hymenial* layer narrow. *Cystidioles* 10–16 × 3–4(5) µm, fusoid (spindle shaped) to lageniform (bottle shaped), hyaline and often seen in the hymenium along with basidia and basidioles. *Basidia* 15–22 × 4–5 µm, clavate, sometimes centrally constricted,



Skeletal hyphae stained dark purple in Methylene Blue, 400x.

B. Luther,

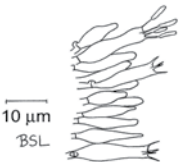
hyaline with a basal clamp connection; *sterigmata* 4, up to 4 µm long. *Basidiospores* 5–6 × 1.5–2 µm, allantoid, thin-walled, hyaline, smooth and inamyloid. Refer to photomicrographs and line drawings.



Basidiospores.



Binding hyphae from contextual tissue.



Hymenial view of basidia, spores, basidioles, and cystidioles

Nomenclatural History

Originally described by the Rev. M. J. Berkeley (1872) as *Polyporus lindbladii*, it was then transferred to *Poria* by M. C. Cooke in 1886. For historical interest, I went back to the original description in the old British botanical journal *Grevillea*, and have copied it here to give you an idea of what descriptions looked like back then.

146. *P. (Resupinatus) Lindbladii*. B. - Pileo resupinato, rigido; margine tomentososo albo demum libero; hymenio griseo, fusciscente; poris angulatis. No. 1623. Car. Inf. Spreading for some inches; of a peculiar grey tint. Pores 1/60 inch wide. The Carolina specimens are a little darker than those originally received from Sweden.

Note how brief and undetailed it is, with no microscopic data at all. Microscopes were not widely used in mycology at that time, and differences noted were mostly all obvious, macroscopic features. The collection number for the herbarium is noted, and the specimen was always available for future mycologists to study.

Pegler (1973, p. 34) keys it out as a resupinate species of *Tyromyces*, as *T. cinerascens*. Both Lowe (1966) and Gilbertson (1974) treat this species as *Poria cinerascens*. Ryvar den (1976) put it under the genus *Antrodia* as *A. lindbladii*. Gilbertson & Ryvar den (1986) transferred it to the current genus, *Diplomitoporus*. Their work—which treats the five species of *Diplomitoporus* known

from North America and includes a key, their distribution records, and detailed descriptions of microscopic structures—should be consulted first when attempting to identify species in the genus found in our area. Breitenbach & Kranzlin (1986, pp. 280–81) provide an excellent description and color photograph of *Diplomitoporus lindbladii*, but treat it as *Cinereomyces lindbladii*. They also state that it has an unpleasant odor—a feature I didn’t notice in my collection. Hansen & Knudsen (1997) give brief descriptions and a key to the four species found in the Nordic countries, including *D. lindbladii*.

Comments

Diplomitoporus lindbladii is not commonly found. It grows on both conifers and hardwoods throughout its worldwide range in the northern temperate zone and South America, but is more frequently found on conifer debris. This species seems to prefer growing on intact conifer bark (Ryvarden, 1976), and at least in Europe is found more commonly during the “winter half of the year” (Breitenbach & Kranzlin, 1986). Breitenbach & Kranzlin (1986) state that the basidiocarps can be either annual or biennial and note the “fringed” margin of the pores I pointed out in the description of my collection and shown in the photomicrograph. In the field it is usually recognizable by its peculiar gray pores, which were even noted by Berkeley (1872), with a much paler margin. As pointed out by Breitenbach & Kranzlin (1986), however, the distinctive gray colored pores are usually seen only on mature basidiocarps. During development, the fruiting body is usually whitish, ivory, or creamy in color.

Gilbertson (1974) says this species is “strongly positive in gum guaiac,” but I found the reaction to be weak. After it was dried I got no reaction at all from Tincture of Guaiac Resin (“gum guaiac”), Syringaldazine, or L-Tyrosine.

The hyphal system is usually described as dimitic in the majority of references I consulted, but Pegler (1973, p. 34) says it’s “dimitic with binding hyphae,” and Lowe (1966) and Gilbertson & Ryvar den (1986) say it’s trimitic. In his original Latin description of the genus *Diplomitoporus* Domanski (1970, p. 191) says it’s “systemate hypharum dimitico,” meaning it possesses a dimitic hyphal system. In fact, that’s part of what the generic name means. Only after careful observations of the deepest contextual tissue on this collection did I see any virtually solid, branched hyphae that resembled binding hyphae. They are present but are not obvious and are difficult to observe. I found no illustrations of the binding hyphae for this species in the literature, so I’ve provided line drawings of them here. Presumably the binding hyphae react the same as the skeletal hyphae in the presence of KOH, but I did not confirm this.

The most diagnostic feature of this species is that the skeletal hyphae gelatinize and disappear in KOH mounts. This phenomenon is so amazing* that I’ve coined the term *lyohyphae* to describe these hyphae, just as cystidia that dissolve in KOH are referred to as *lyocystidia*. Another example of a genus with lyohyphae is *Laetiporus*, which has binding hyphae that dissolve in KOH (see Luther, 2008). The generative hyphae of *Diplomitoporus lindbladii*

*I’ve seen a lot of fascinating things happen with fungi, but this is right near the top. I would like to take a moment to explain a great teaching technique to demonstrate this, as follows. Obtain a tiny piece of this species from an herbarium. After rehydrating it in ethanol, then water, mount a very thin section (made under a dissecting microscope) of this fungus on a slide in water only. After adding the cover slip, lightly tamp with a pencil eraser to splay the tissue out, blot excess water from the

footnote cont. on page 7

can also be affected by KOH and can swell considerably. This may partially explain the difference in observations concerning whether this species has a dimitic or trimitic hyphal system, because KOH mounts will swell, distort, or even obliterate hyphal features, as pointed out by Ryvarden (1976, p. 83). Because of this, microscopic mounts should always be made using basic mounting media other than KOH, if you suspect you have this species, so that no changes in the hyphae take place for initial observations.

The amyloidity of the skeletal hyphae seems to be variable in this species. Some authors (Lowe, 1966; Gilbertson, 1974) make no mention of the skeletal hyphae being amyloid at all, while others (Breitenbach & Kranzlin, 1986; Gilbertson & Ryvarden, 1986; Hansen & Knudsen, 1997) note weak or variable degrees of amyloidity; Pegler (1973, p. 34) reports a “strongly amyloid” reaction. The skeletal hyphae of the collection featured here do show an amyloid reaction when mounted in Melzer’s Reagent, but it is weak and not nearly as pronounced as Pegler observed. Judging the degree of amyloidity on a continuous scale I would consider very pale blue to be lightly amyloid (as in *Mycena* or *Amanita* Sect. *Lepidella*), darker blue-gray to be distinct, and only dark violet or almost blackish to be strong (as in *Bondarzewia* or *Russula*). Because we’re not dealing with a finite reaction, deciding the degree of amyloidity is quite subjective. I compared the following three iodine-based mounting media to see if there were any differences: Melzer’s Reagent, IKI, and a 2% tincture of iodine in ethanol. All resulted in basically the same color reaction, but the last two caused a slightly darker gray color than Melzer’s Reagent.

I discovered that Loeffler’s Methylene Blue stained the skeletal hyphae purple (refer to on-line photomicrograph) when other mycological cell-wall stains completely failed to stain at all.

Fusoid cystidioles are often found along with the basidia and basidioles in the hymenium. They’re mentioned in the literature for this species by Lowe (1966), Ryvarden (1976), Gilbertson & Ryvarden (1986), and Hansen & Knudsen (1997). Gilbertson & Ryvarden (1986) even provide illustrations of these, but do not give any measurements. Lowe (1966) is the only author who gives partial dimensions saying they’re “about 4–5 μ in diameter.” As a result, I’ve given complete measurements in my description above.

This is a really interesting resupinate polypore, and I’m always delighted to find it.

Classification Hierarchy

- Kingdom Mycota
- Division Basidiomycota
- Subdivision Agaricomycotina
- Class Agaricomycetes
- Subclass Agaricomycetidae
- Order Polyporales
- Family Steccherinaceae
- Genus *Diplomitoporus*
- Species *lindbladii*

margin with filter paper, and then observe it, working your way up to the high-dry (400X) objective. This gives you a good field of view, so don’t move up to an oil immersion objective. Locate and observe a specific clump of skeletal hyphae, then add a small drop of 3% KOH to the edge of the cover slip. Within seconds the skeletal hyphae will suddenly wiggle a bit, curl up, and *totally disappear* right before your eyes. Magic ! It would be interesting to know exactly what these skeletal hyphae are composed of—certainly not chitin, which is unaffected by KOH. The lycostidia of the resupinate genus *Tubulicrinis* also dissolve in KOH (see Luther, 2010).

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TRUFFLE TROUBLES



Too Few in Italy - Truffle hunters of Italy are in despair. Their elusive prey has been rendered even more difficult to unearth this autumn following a baking summer when temperatures hit record levels. This year’s harvest threatens to be one of the poorest in decades. Even seasoned fungi-seekers have seen nothing like it, with some parts of Tuscany going 61 days without rain.

The price of the highly prized white truffle has more than doubled. And not only is there an acute shortage of truffles, the quality is also considered poor by cognoscenti. Consumers are having to resort to buying small 5 g fragments of the fungi, the sort of pieces usually reserved for putting in oil and condiments.

—Jamie Doward, *The Observer*, Nov. 5, 2011

Too many in Australia - In contrast to the white truffle problem in Italy, growers of black truffles in Australia are facing a bumper season, which has led to an oversupply, driving prices down. While there is an oversupply in Australia, growers claim international markets are crying out for more truffles and want to start a vigorous advertising campaign.

—ABC News, Nov. 11, 2011

SLOVAK MUSHROOM MACHANKA (Sour Mushroom Soup)

Barbara Rolek

<http://easteuropeanfood.about.com/>



Slovak sour mushroom soup—machanka—is a meatless soup served for Christmas Eve *velija* supper and also any time fasting is required, like Advent and Lent. It's a hearty soup made with woody dried mushrooms that have been reconstituted.

Ingredients:

2 ounces dried *Boletus edulis* mushrooms (porcini)
2 cups plus 4 cups water
1 whole medium onion, peeled,
plus 1 large onion, thinly sliced
Salt and black pepper to taste
¾ cup sauerkraut juice or to taste
¼ cup plus 1–2 tablespoons canola oil (or butter if not fasting)
¼ cup all-purpose flour
½ cup all-purpose flour mixed with 1 cup water

Preparation:

In a medium bowl, place mushrooms and 2 cups warm water. Cover with plastic and let soak overnight. The next day, remove the mushrooms from the soaking liquid without disturbing the sediment at the bottom and chop them into small pieces.

In a large pot, carefully pour in soaking liquid without disturbing the sediment at the bottom, the chopped mushrooms, 4 cups water, whole onion and salt and pepper to taste. Bring to a boil, reduce

heat and simmer 1½ to 2 hours or until mushrooms are tender. Remove onion and add sauerkraut juice.

In a small skillet, brown ¼ cup flour in ¼ cup oil until dark brown and add to soup, whisking until smooth. Temper the mixture of ½ cup flour and 1 cup water by adding a little hot soup into it, whisking until smooth. Pour the tempered mixture through a strainer into the hot soup, stirring constantly.

In a large skillet, add 1–2 tablespoons canola oil and brown sliced onion until dark. Add to soup at serving time. Pour into a heated soup tureen or heated soup bowls.

This recipe comes from Charlotte Pribish Conjelko of Indiana. Prep Time: 15 minutes. Cooking Time: 2 hours. Total Time: 2 hours, 15 minutes. *Serves 4 to 6.*

THANKS

Doug & Tambra Birkebak



big thank you to everyone who participated in the 3rd Annual Juried Fine Art Exhibit at the Mushroom Show. We had some beautiful pieces of art submitted from Seattle, Burien, Everett, Oregon, Illinois, Virginia, and Ontario. 1st Place went to “Another Man’s Treasure” by Kelly C. of Oregon, 2nd Place to “Bracket Fungus on Stump” by Kathryn C. of Ontario, and 3rd Place to “Tip Toe” by Wendy W. of Seattle. All winners received a one year membership in PSMS, and 1st and 2nd place winners received \$100 and \$50, respectively. We look forward to next year’s submissions for the 4th Annual PSMS Juried Fine Art Exhibit!



See you next year!

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