SPORE PRINTS

BULLETIN OF THE PUGET SOUND MYCOLOGICAL SOCIETY
Number 464 September 2010

ANNUAL PSMS WILD MUSHROOM SHOW, OCTOBER 16–17 AT CUH

Kim Traverse

As I write this, Seattle has been enjoying a week of "Stealth Summer"—cool, cloudy, or foggy mornings and a little bit of sun in the afternoons and evenings. Not too hot but pretty darn dry. Hopefully that is all going to change in September, and with the rains will come the mushrooms. But no matter what the weather does, October brings PSMS to Show Time!

This year will be our 47th, and nothing short of finding two dozen morels in your own yard is as exciting as the PSMS Wild Mushroom Show—two days open to the public and several additional days for volunteers to make the show what it always is. At the membership meeting September 7, we will have posters available and something a little special that I hope everyone will like. So, pray for a wet fall and come to the September meeting ready to sign up for one of the show committees. If you've never volunteered at a show, you are missing out on one of the most fun times that PSMS provides: great people with a noble mission and, always, a hospitality room with the best potluck you'll ever find! See you in September.

ANNUAL EXHIBIT ART SHOW: A Call for Entries

Doug Birkebak

With the abundance of awe-inspiring fungi of the Puget Sound basin in mind, PSMS is again pleased to announce our third juried art exhibit to be part of the 47th Annual Wild Mushroom Show. This is your invitation to blend your mushroom-centered passion with artistic explorations in any media; entries must include a mushroom or fungal motif, with enough realistic information to be identifiable to genus. This is an opportunity to join with local artists, as part of a group show, to further the Annual Wild Mushroom Show's intrigue. Your artwork must be original and be completed within the last 3 years.

An outside artist will jury the show for admittance, in accordance with motif requirements and size and number restrictions (review full prospectus details and entry form on the PSMS website link). First place is $100 plus a one-year membership in the society; second place, $50 plus one-year membership in the society; third place, one-year membership. Deadline for entries is September 30th.

For further questions or assistance e-mail Doug at PSMSART@gmail.com.

2009 PSMS art show winner

BOOK REVIEW

Ron Post

The Kingdom Fungi:
The Biology of Mushrooms, Molds and Lichens
by Steven L. Stephenson
Timber Press 2010. - $34.95

I highly recommend this book as a reference for anyone wishing to pursue mycology as a science, but if you are somewhat less academically inclined and you nonetheless choose to dive into the text, please note that by page 40, you'll be swimming with the aquatic fungi and water molds.

Initially, you may think this book is over your head. Yet, skip the water molds and plunge into the beautiful photographs in the first color-plate section. This will whet your appetite.

Next, a vivid explanation of many of the Ascomycetes is given, including the ubiquitous yeasts. (I learned, to my surprise, that some yeasts are Basidiomycetes, and indeed, most of the yeasts found in the open ocean are Basidiomycetes!)

There follows an excellent 30-page section on Basidiomycetes, which will be familiar to anyone who has consulted a few good mushroom field guides. The author's emphasis is on the agarics. The usual classifications of Hymenomycetes and Gasteromycetes are used, and spore color assumes a primary role in the descriptions. Did you know there are 500 species of *Amanita*? And about 300 *Boletus*?

A nearly 20-page section on lichens follows, and I learned that during the past decade it has become common to think of a lichen as "controlled parasitism" by the fungus on its photosynthesizing partner. Also, you can learn about an astronautical lichen, a Biblical lichen that produces "rain," and tumbleweed or vagrant lichens. The author is clearly taken with lichens, and why shouldn't he be?

Lichens or not, you are now roughly halfway through the comprehensive text. Ahead lie the three types of slime molds (not true fungi) and a very readable chapter on decomposition by fungi. The rusts and smuts (true fungi) are included here.

There are also interesting chapters about humans and fungi, animal connections to fungi, fossil fungi, and topics such as ecology and medical uses of fungi. There is also a woefully short, two-page section on mushrooms in fantasy literature. Unfortunately, no songs about mushrooms are included in this book. That is a shortcoming of many texts about fungi. Another pet peeve about this book is the number of copy-editing errors (from a former copy editor, of course); words are left out here and there.

Yet the excellent photographs and Stephenson's extremely rigorous research make this a wanted addition to any mushroom lover's bookshelf.

* * * * *

Authentic soy sauce is fermented in a three-step process with the fungi Aspergillus oryzae *and* Zygosaccharomyces rouxii*, as well as the bacterium* Pediococcus halophilus*.*
—Tom Volk

Spore Prints

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CALENDAR

Sept. 14	Membership Meeting, 7:30 pm, CUH
Sept. 16	Start of Session A, beginner classes, Douglas classroom, CUH
Sept. 25	Field Trip (see website for details)
Sept. 20	Board Meeting, 7:30 pm, CUH
Sept. 21	*Spore Prints* deadline
Oct. 2	Field Trip (see website for details)
Oct. 9	Field Trip (see website for details)
Oct. 16–17	PSMS 47th Annual Wild Mushroom Exhibit, CUH

SOUTH AMERICAN MORELS … IN NOVEMBER

Alexander von Humboldt, Charles Darwin, and other intrepid explorers have traveled to South America. All have been unsuccessful in locating the elusive South American morel. Until now. Join researcher, lecturer, and co-star of the film *Know Your Mushrooms* Larry Evans for this chance of a lifetime to go way off the beaten path in search of morels in the wilds of Argentina—in November, when most of your friends in the North will be seeing the first snowflakes of winter!

Details for this excursion are still being finalized, but the entire week-long trip is expected to cost around US$1,000 once you get to Buenos Aires (tour includes chartered airfare from Buenos Aires to Bariloche in the Andes Mountains, lodging, ground transportation, guides, meals while on forays, and mushroom excursions). Contact Larry Evans at www.fungaljungal.org or Britt Bunyard at www.fungimag.com for additional information.

MEMBERSHIP MEETING

Tuesday, September 14, 2010, at 7:30 pm at the Center for Urban Horticulture, 3501 NE 41st Street, Seattle.

Our guests this month are Darlene L. Peters and Ted Moran who will speak to us on *Native American Uses of Mushrooms*. This should be a great learning experience as well as a fascinating presentation.

Darlene is a member of the Port Gamble S'Klallam Tribe where she is Director of the Career & Education Center at the House of Knowledge. Her personal interests include tribal heritage and weaving. Ted Moran is Port Gamble S'Klallam and Turtle Mountain Chippewa. He is an artist and has always been an outdoorsman.

Ted Moran and Darlene Peters

JUNE BOARD NEWS — Denise Banaszewski

The Board will not meet in July but will meet in August (tentatively August 17). The new website is coming along, and testing should start next week. A big thank you to Russel Wheelwright for all his past and continuing hard work on the new website! If you recall, PSMS was approached last year by the Nisei Veterans to go on a field trip to hunt matsutake, which did not end up happening. This fall, the Nisei Veterans will host their own field trip and will invite a few people from PSMS to attend as identifiers in an individual capacity. After much discussion, the Board determined that we will not allow anyone to sell wild mushrooms (i.e., mushrooms that were picked in the wild) at the Annual Exhibit unless that seller can prove that he/she obtains permits and meets criteria regarding sustainable harvesting practices, which criteria the Board will determine in the future. However, cultivated mushrooms of any type may be sold at the Annual Exhibit. PSMS received cultivation materials, and as there are members interested in cultivation, Milton Tam is now the chair of the new Cultivation Committee. Milt will take steps to get the group going. We have been approached by a few other clubs in Washington about doing a joint field trip in the fall, and are considering our options.

AUGUST BOARD NEWS — Denise Banaszweski

The cultivation group met informally at Milt Tam's and discussed the oyster mushroom cultivation kit that Milt is developing, along with some other ideas for the group's activities. Rates for use of the CUH building, staff, and equipment are going up; in addition, we'll now be charged for parking based on expected attendance at meetings and other events. The Board discussed these increases at length and subsequently moved to increase student membership from $15 to $20 and general membership from $25 to $30 per family, which will go into effect as of Sept. 1, 2010. In addition, the admission fee for the Annual Show will be raised to $9 for general admission and $6 for seniors/students (free for children under 12). The new PayPal function of the PSMS website should be up and running around September 1. Thanks again to Russel Wheelwright for all his hard work! We will have a retreat for Board members and select others (e.g., committee chairs, past presidents, et al.) in January or February to discuss long-term goals for the society. Finally, we would like to host the 2014 NAMA Foray in the Puget Sound area to celebrate our 50 years as a club.

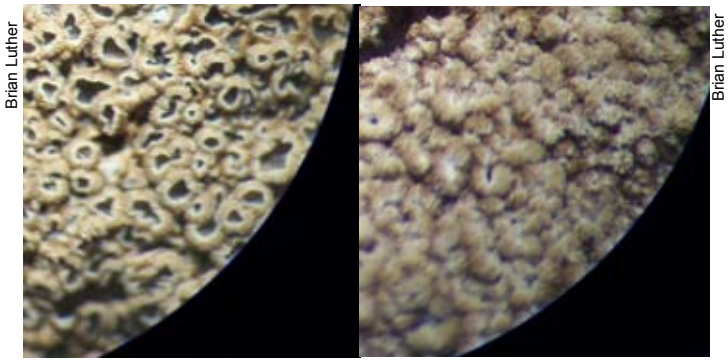
RESUPINATE FUNGUS OF THE MONTH:
Cyphellopsis anomala Brian Luther

Cyphellopsis anomala

This month's featured resupinate is a strange little fungus, as the species epithet "anomala" indicates. Because it's rather peculiar, I'm discussing it in much greater detail than I am others in this series on resupinates.

From a distance, and even up close with the naked eye, *C. anomala* looks like a nondescript, uniform, pale grayish red-brown resupinate patch growing on wood. But under a hand lens or a dissecting microscope you can see that it consists of hundreds of tiny individual cups that grow together in very dense aggregations, distorting the otherwise round cup outline. These cups are so small that three, at maturity, can fit into the distance of 1 mm. Now that's a tiny cup.

Basically, this month's fungus is a cup-shaped Basidiomycete that's resupinate. I think it's a goofy little fungus because it fakes you out in two ways: it starts out as slightly isolated immature, goblet-like cups, then they all expand and grow together making one resupinate patch. Also, under a dissecting microscope your first thought is that it's an Ascomycete, because it's characteristically cup-shaped or discomycete-like, but one look at a thin section or squash mount under higher magnification on a compound microscope will immediately tell you it's a Basidiomycete.



Microphotographs of Cypheliopsis anomala *showing open cups (left) and closed cups (right)*

History

Originally described by Persoon in 1796, this fungus has been placed in a number of other genera, including *Solenia* (Burt, 1924; Kauffman, 1929; Cooke, 1955), *Lachnella* (Cunningham, 1963), and *Merismodes* (Singer, 1975; Moser, 1978; Breitenbach & Kranzlin, 1986), to name a few. Donk (1931) originally published the name *Cyphellopsis*.

Cooke (1962) put this fungus in the family Porotheleaceae, Reid (1964) placed it in the Cyphellaceae, and Ginns & Lefebvre (1993) put it in the family Cyphellopsidaceae. More recently, DNA analysis done by Hibbett & Binder (2001) found that this species was clearly related to a select group of marine Basidiomycetes. Bodensteiner et al. (2004), also doing DNA research, found that this species worked out to what they called the Nia Clade, showing a close genetic relationship to some marine fungi. It belongs in the order Agaricales, but is placed in the peculiar family Niaceae, which includes salt-water-inhabiting fungi. DNA studies place it in the Euagaric Clade, which means that it's closely related to gilled mushrooms, even though it's resupinate in growth habit. I told you it was strange.

Classification Hierarchy for *Cyphellopsis anomala*

Kingdom Fungi
Division Basidiomycota
Subdivision Agaricomycotina (Hibbett, 2006)
Class Agaricomycetes
Subclass Agaricomycetidae
Order Agaricales
Family Niaceae

Material and Methods

Both thin sections and squash mounts were prepared. Microscopic mounting media and stains included 3% KOH, as well as 3% ammonium hydroxide with either Phloxine as a protoplasm stain or Congo Red as a cell-wall stain. Separately, Melzer's Reagent was used to check for either an amyloid or a dextrinoid reaction.

Description of Collection

Brian S. Luther coll. #2010-218-2. Forming patches several centimeters square on cut, exposed Pacific Dogwood (*Cornus nuttallii)* wood. Seattle, King Co., Washington State. February 18, 2010.

Basidiocarps: 0.3–1.0 mm in diameter when mature, cup shaped from above and stipitate, narrowly funnel-shaped overall and up to 1 mm long from the pointed base to the cup at maturity. When young the fruiting bodies start out isolated and distinct from one another and appear as tiny, narrow goblets, round in outline from above, narrowly goblet or funnel-shaped from side view, with a short, narrow stipe, becoming very densely compacted together at maturity and becoming irregular or irregularly circular in outline (viewed from above) because of the mutual pressure of expanding growth at maturity. At first with only a small central, pore-like opening to the hymenium above, later enlarging, maturing, and exposing more of the fertile area; distinctly hygroscopic, opening and closing based on conditions of moisture. *Sterile exterior* and stipe densely covered with dark brown hairs following the contour of the fruiting body, hairs closest to and overhanging the hymenium appearing frosted with white crystalline material; narrowest point of the funnel shaped base often with a thin layer of black subicular hyphae at the substrate surface. *Hymenium* glassy translucent-opaque, milky white to creamy gray with some distinctive sparkling, reflective, crystal-like material visible on the surface under high power on a dissecting microscope. *Margin* forming a raised lip going over the hymenium, with a very fine layer of obscure unique hairs, much smaller and different than the larger, dark hairs but apparently mixed in. Fruiting bodies soft and cottony to the touch when fresh and easily removed from the substrate. Forming irregular resupinate patches that appear to be grayish brown or avellaneous to dark brown in mass and covering several square inches.

Cont. on page 4

Resupinate of the Month, *cont. from page 3*

Microstructures: *Hyphal system* monomitic, hyphae hyaline around the hymenium but light brown elsewhere, 2–4 µm wide, thin to slightly thick-walled, clamp connections present, but not abundant and often difficult to see. ***Spores*** 9–10 × 4–4.5 µm, elliptical, smooth, hyaline, inamyloid, with several guttulae and a prominent apiculus. *Basidia* 30–46 × 5–7 µm, cylindric-clavate, hyaline, thin-walled, four sterigmate, with a basal clamp but this can be difficult to see, with numerous inclusions. Narrower immature basidia, basidioles, or cystidiole-like cells seen in the hymenium, mostly less than, but sometimes equal to, or rarely extending slightly beyond the basidia. *Hairs on a narrow section of lip* overhanging the hymenium sometimes present, very obscure, densely packed, hyaline, 3–6 µm wide, septate, inflated below and narrowing to cystidia-like hyphal ends, thin-walled, except at the tip; terminal cells 27–40 × 3–4 µm (with the tips narrower), lanceolate, narrowing to a slightly rounded or sharp apex, and solid at the tip for a length of up to 15 µm, but often much less, clamps not seen. *External abhymenial hairs* very long and slightly to prominently curved following the basidiocarp contour, up to 200 × 3 µm, thick-walled, simple (unbranched), without septa, arising from clamped basal hyphae at different levels on the entire outside surface, brownish to dark brown, smooth below but becoming increasingly rough with crystalline incrustation from the middle section upward; apex slightly pointed to rounded often with an inflated, straight, geniculate or bent tip extending beyond the end of the incrusted hairs, which are thin-walled and noticeably clavate to bulbous and enlarged up to 6 µm in diameter, hyaline and smooth, without any crystalline incrustation at all, thus strongly contrasting with the rest of the hair. Occasionally these hyaline, inflated ends break off in microscopic mounts and are seen separately. Refer to the line drawings.

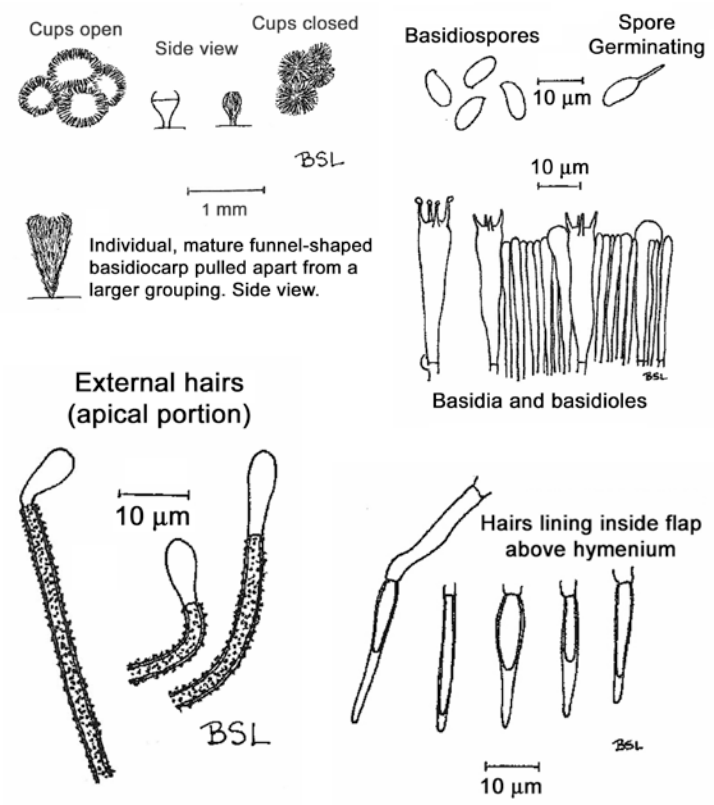
The peculiar external (abhymenial) hairs are a distinctive and unmistakable diagnostic feature of this species. Reid (1964, p. 111, as *Cyphellopsis confusa*) reported that the crystalline incrustation on the hairs is "soluble in potassium hydroxide solution," but I made mounts in 3% KOH and the incrustation was never dissolved. Most likely he used a stronger solution, such as 5% to 10% KOH.

Comments

I find this species off and on throughout the year here in the Pacific Northwest while collecting resupinates, and it's normally on decorticated (no bark) or fully exposed wood. I've only found it growing on hardwood here, but it is known to occur on conifer wood throughout its worldwide distribution. All of the collections mentioned by Redhead (1973) from British Columbia were also only on hardwoods. My most recent collection, described here, was on large exposed cut rounds of our native Pacific Dogwood (*Cornus nuttallii)* here in Seattle. I normally find it on vertical surfaces, almost exclusively, with the cups facing out horizontally, but it does occur in other orientations.

It causes a white rot, but application of tincture of Guaiac Resin resulted in no appreciable color change that I was able to observe; however, its dark color overall makes it difficult to see any positive (blue) color reaction.

An interesting microscopic feature of this fungus, that I could not find mentioned anywhere in the literature, is a very obscure patch of peculiar hyaline hairs in the lip overhanging the hymenium, very different from those forming the dark exterior of the fruiting body. These are observable on some cups, but elusive on others, perhaps owing to the stage of maturity. (Refer to description and line drawings.) These hyaline hairs are not mentioned in the descriptions of this species given by Burt (1924), Bourdot & Galzin (1927), Lentz (1947), Cooke (1962 & 1976), Cunningham (1963), Reid (1964), Kobayasi et al. (1967), Lindsey & Gilbertson (1978), or Breitenbach & Kranzlin (1986). Because these hairs are both hyaline at maturity and clearly have solid tips, they are distinctive, but very difficult to locate in a mount. They are hard to find mixed with the larger, dark hairs, but I was not able to determine if they are only on the outside lip, or if they continue on the inside, facing the hymenium. Determining this might require embedding the fruiting body in paraffin and sectioning it using a microtome, so that the tissues are not disturbed when a mount is made. I have not studied a type collection of this species, so I can't say if this is a feature overlooked by previous researchers or a character unique to my recent collection. I've been finding this fungus for many years, but this is the first time I've noticed this feature. The function of these hairs could be to help prevent drying or provide further protection for the hymenium because they're like overhead "eyelashes."



Microstructure, Cyphellopsis anomala

Another interesting feature is that the cups are hygroscopic: open in moist conditions, then closing up tight in dry conditions, and again re-opening when moist. I found no reference to this phenomenon anywhere in the literature related to this species. They remind me very much of minuscule Sea Anemones in the way their little hairy cups open and then close tight. This change does not happen suddenly, but rather over a few hours in both dry and moist conditions, but is nonetheless quite striking. This is presumably an adaptation to protect the exposed hymenium when it becomes arid, and to open up wide for maximum spore dispersal in more favorable conditions of moisture. Please refer to the photomicrographs I took of the cups when open and after closing up and my line drawings. Who said fungi aren't clever?

Reid (1964, p. 108), Singer (1975, p. 664), and Breitenbach & Kranzlin (1986, p. 199) all say it has a monomitic hyphal system,

whereas Lindsey & Gilbertson (1978, p. 325) state that it's dimitic and specifically refer to the outer thick-walled hyphae (hairs) as skeletal hyphae, a view not shared by others, including myself.

In his description of this species from New Zealand in his key to species Cunningham (1963, p. 308) gives spore measurements as "8–11 × 3–4.5 µ", but further on in his description (p. 310) he gives them as "8–11 × 5–6.5 µ", so it's not clear which set of measurements he meant. However, the illustration he provided (Fig. 185, p. 310) shows spores that are rather wide, and, calculating a length to width ratio from those, it appears that New Zealand specimens have relatively wide spores. But as pointed out by Burt (1924) & Cooke (1976), the spores for this species can vary rather dramatically in size depending on where the collection was found and also even "in a single collection" (Lentz, 1947, p. 147, as *Solenia ochracea*).

Both Cunningham (1963) and Kobayasi et al. (1967) use Ascomycete terminology by referring to the immature basidia or basidioles in the hymenium as "paraphyses," which unfortunately is somewhat confusing.

The photograph of this fungus shown in Breitenbach & Kranzlin (1986, p. 199, as *Merismodes*) is ochraceous in color, and is not typical of our North American material. I've never seen it look like that here. Almost all reports in the literature for North America go along with the colors I've described above. Also, their photo is a super close-up and you would not get this view without looking under a high powered dissecting microscope, so it's misleading if you're just looking at pictures.

Redhead (1973) focuses on similar fungi from British Columbia (Canada) and provides a key to the common genera and species found there.

Besides my photomicrographs, which I took through a dissecting microscope, some other excellent close-up images of this fungus can be accessed on-line at

http://nzfungi.landcarersearch.co.nz/html/data_photo.asp?ID=33-WNN-95&name=Merismodes~anomala&NAMEPKey=17863

and

http://www.bio-forum.pl/messages/33/310615.html

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JOIN THE CULTIVATION GROUP

Milton Tam

Many old-timers will remember a cultivation group that was active in PSMS a decade or more ago. With key members of the group moving or drifting away, it was gradually disbanded. Recently, however, we received the donation of a small amount of basic cultivation materials and supplies, including a laminar flow cabinet, and there was also a renewed interest in cultivation among a few members. As a result, the PSMS Board of Trustees provided a small amount of seed funding in an effort to revive a cultivation group that could work on projects benefitting the club. A small group of interested members met over the summer to discuss an overall approach and outline more specific projects.

At this meeting, we realized that a cultivation group may be inherently difficult to organize and sustain because participants have diverse interests, different approaches to cultivation, and varying levels of experience and expertise. We concluded that there could be two subgroups, a technical group more interested in research projects and cloning mushrooms from wild specimens, and a more general, less-technical group that would be more interested in making kits and growing mushrooms.

We also identified two short-term projects that can immediately benefit the club and/or have a more general educational application. The first is to develop an educational mushroom growing kit,

Cont. on page 6

Cultivation Group, *cont. from page 5*

and the second to develop an educational display, both projects demonstrating a mushroom's life cycle. The educational kit will not require sterilized substrate, so it can be brought into the classroom for assembly by students. The display, which will include photos, diagrams, spore prints, and mushroom-bearing kits, can be presented at our fall show and other events at which we are asked to participate. We also discussed possible outdoor cultivation of mushrooms.

If this project goes forward, we have permission from the City to install a demonstration mushroom garden in a community P-patch in North Seattle, where several species could be simultaneously grown. Longer-term projects will include workshops for PSMS members on cultivation of oyster mushrooms on straw and cultivation of oyster and shiitake mushrooms on logs. As the group acquires more experience, a technical cultivation workshop may also be scheduled.

If you are interested in participating in cultivation group activities and/or attending an organizational meeting, please contact Milton Tam (miltontam@aol.com).

CORTINARIUS SAXAMONTANUS FOGEL

Brian Luther

Professor Joseph Ammirati is doing a study of this group of Corts, including DNA analysis, and wanted me to bring to your attention what this and related fungi look like. Perhaps in your wanderings you can watch for any that might be fruiting.

The species was first described by Fogel (1994). Photographs and descriptions of two related species (*C. magnivelatus* and *C. verrucisporus*) can be found in the report by Castellano et al. (1999). This particular species is distinguished by the heavy, stringy, persistent veil that's golden yellow and by the large spores. It is usually found at mid-elevation in montane forests or at higher elevation in conifer forests in the west, and often occurs in spring or summer.

If you find any species of *Cortinarius* that grow from deep in the ground and usually have to be dug out and that have very large and persistent stringy or membranous veils, please photograph them (if you can), collect them, and take some careful notes on the collection—or at least note where they were found. Then please call or e-mail Joe (cort@u.washington.edu) or me (206-522-1051 or a2zluther@comcast.net). Also, since I go to most of the field trips, be sure to tell me if you see any similar fungi.

Member Sarah Richards found an excellent collection of this fungus at the PSMS Swauk Campground field trip last June. It was brought in to the ID table, where I quickly grabbed it to photograph and take notes on before it got handled any further. The collection was dried and given to Joe for his research. Following is my description of this collection.

Brian S. Luther
C. saxamontanus *coll. # 2010-65-1*

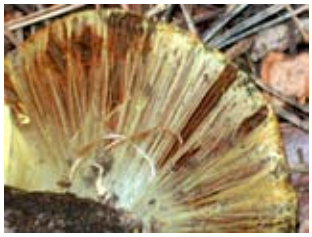
Description

Legit: PSMS member Sarah Richards. Brian S. Luther coll. # 2010-65-11. Iron Creek Road area, near Swauk Campground, off of Hwy. 97 near Blewett Pass, Kittitas Co., WA. Elevation approx. 3,500 ft. June 5, 2010.

Habit and Habitat: Sequestrate and erumpent from conifer duff and soil and dug out of the ground. The closest tree associates were a mix of Douglas Fir (*Pseudotsuga menziesii*), Pacific Silver Fir (*Abies amabilis*), Grand Fir (*Abies grandis*), Engelmann spruce (*Picea engelmannii*), Ponderosa Pine (*Pinus ponderosa*), and Western Larch (*Larix occidentalis*).

Pileus: up to 9 cm wide, convex, becoming plano-convex at maturity, mostly round in outline, pale Chestnut Brown on the disc, lighter yellowish to light brownish-yellow with a slight greenish hue marginally, which often has some reddish-brown blotching, disc with a thin layer of soil and duff adhering firmly, moist and glutinous (sticky) when collected. Margin inrolled at first, remaining so at maturity or becoming plane to slightly uplifted in places, surface smooth and shiny when dried, or with some fine fibrillar material. Context pallid or whitish, unchanging when cut or bruised, or becoming slightly brownish, up to 2.5 cm thick, without any distinct odor or taste.

Lamellae: immature lamellae not seen, adnexed, thin, up to 8 mm wide, fragile, semi-crowded, dark rusty at maturity.



C. saxamontanus
showing close-up of veil.

Veil: very pronounced, thickly cortinate or thread-like and radially arranged, individual strands or groups of strands sometimes breaking and easily separable, mostly forming a more or less continuous or uniform layer, but not membranous, strikingly light golden-yellow with a pale greenish cast for most of development on the outside, but paler (whitish) internally, with heavy deposition of mature spores on the inside surface and eventually becoming mostly rusty owing to abundant spores, extending from cap margin and attaching to the stipe from 2½–3 cm above the base.

Stipe: up to 6 cm long × 1.5–2.5 cm thick, terete or narrowing slightly upward and slightly enlarged before the bulb, concolorous with cap margin or paler, fibrillose from velar remains, dry, not sticky; base with a slightly marginate bulb, up to 3.5 cm wide, rapidly narrowing or becoming napiform; context concolorous with pileal flesh, mostly unchanging when cut or bruised.

Basidiospores: 12–16 × 8–9.5 µm, dark brown, slightly thick walled with pronounced ornamentation.

Macrochemical tests: Pileal cuticle and context becoming Chestnut Brown or Mahogany with application of 3% KOH. Stipe context (both upper and lower areas) not reacting noticeably with 3% KOH. Veil tissue dark brownish in 3% KOH, but the mature veil I tested was covered with spores. Reaction of pileal and stipe context insignificant to ferrous sulfate, and 30% ammonium hydroxide gave a negligible reaction overall as well. Flesh becoming pale blue (positive for extracellular polyphenol oxidase enzymes) after a few hours of application of tincture of Guaiac resin.

References

Castellano, Michael A. et al. 1999. Handbook to Strategy I Fungal Species in the Northwest Forest Plan. USDA Forest Service,

Pacific Northwest Research Station. *General Technical Report PNW-GTR-476*.

Fogel, R. 1994. Materials for a hypogeous mycoflora of the Great Basin and adjacent cordilleras of the western United States. II. Two subemergent species *Cortinarius saxamontanus,* sp. nov. and *C. magnivelatus*, plus comments on their evolution. *Mycologia 86*: 795–801.

EDUCATION AT PSMS — Patrice Benson

Sign up now for the FIRST of three series of introduction-to-mushroom classes being offered this fall and winter. The classes are suitable for beginners and consist of four weekly classes taught by experienced members of PSMS. The classes are being held in the Douglas classroom at the Center for Urban Horticulture on Thursdays (except where noted) from 7–9 pm. The cost for each series of four classes is $40, and the classes are available to members only. The cost of membership is $30 per year. The series covers basics of mushroom hunting , identification, common mushrooms of the PNW, mushroom toxins and toxic mushrooms, and mushrooms as a hobby (cooking, arts and crafts, etc.). The room holds 40, so the classes are limited to that number for each series.

The beginning series dates are as follows:

Beginning A: Thursdays Sept. 16, 23, 30, Oct. 7

Beginning B: Thursdays Oct. 28, Nov. 4, 11, Wednesday 17 (The last class is on Wednesday at the recommendation of CUH because of a big Husky game Thursday evening.)

Beginning C: Thursdays Jan. 13, 20, 27, Feb. 3

There will also be an intermediate series in the spring:

Intermediate A: Thursdays Feb. 10, 17, 24, Mar. 3

To register, send a check for $40 for **Beginning A** series to

Patrice Benson
3818 Cascadia Ave. S
Seattle, WA 98118

The mushroom identifier series is in full swing. We will have some great identifiers coming out of this group. Thanks to all who are volunteering to take this training. Questions may be e-mailed to me at

Patrice.benson@comcast.net

PRESIDENT'S MESSAGE — Marian Maxwell

Welcome back! I hope your summer was relaxing and you are returning anticipating the fall season and the fruiting of the fungi!

We have a wonderful program at this month's meeting. Be sure to come, you won't want to miss it. In addition we start our fall forays at the end of this month with an exciting line-up over the season, thanks to Brian Luther's efforts in coordinating them for us! Patrice Benson (Immediate Past President, Education Chair, and Board member) has been busy planning and scheduling identification classes for our members. Advanced identification classes started in August; beginning identification classes start this month. Milton Tam is busy with our monthly programs, starting a new cultivation group, and taking care of vendors for our annual exhibit. Thank you to Milton, Patrice, Pacita Roberts, Luise & Safdar Asif, Ed Sakai, John Hall, and Ron Post for representing us at the Mushroom Festival in Lacey on July 24 and 25. Danny Miller has volunteered to represent us at the Shadow Lake Frog Frolic on Sept. 18, and Maria Gerace has volunteered to be a PSMS representative at the Seattle Tilth Festival on Sept. 11. PSMS will be donating raffle baskets to these events for these organizations. Hildegard Hendrickson will soon be starting the ID clinics again at the CUH on Monday nights.

I'm particularly excited about our upcoming show on October 16 and 17! A special thank-you to PSMS member Lisa Page Ramey (lisapagedesign.com) for her time and efforts on a beautiful poster for our show this year! We will be handing out show posters for distribution at the September meeting. Kim Traverse, our show chairman, has been working behind the scenes on the upcoming show (please contact him to volunteer). Debra Lehrberger and I have been working on publicity for the show. John Goldman has been taking care of our financial health and bills for our operation and working with Cathy Lennebacker in ordering books and apparel for sale (sneak preview: new hats!). Russel Wheelwright continues to work on the PSMS website PayPal option. Molly Bernstein has been updating our website, and Ann Polin has been adding new members to our group as they join (an updated roster as of August is posted on the website member's page).

We will be having a Fungal Bioblitz at the Arboretum on Oct 28. Stay tuned for more!

Things are cooking. It's just that if you aren't in the kitchen, sometimes you don't see it.

EXPENSES AND FEES — PSMS Board

Recently, the Center for Urban Horticulture notified the PSMS Board that their facility rental rates for 2011 will increase as much as 30%.

In addition, CUH has created new parking fees because they are being charged for parking by the UW, so that on an average meeting night parking will cost us an extra $75.00. In addition, the meeting hall rental costs will be $60.00 more next year than in 2010. Other meeting costs such as security, room rentals, and charges for food served, etc., will go up as well. In 2009, basic operational expenses for the club (not including our annual show or book sales, which vary and depend solely on volunteers) exceeded membership fees collected.

After careful consideration at the last Board meeting, the Board voted to increase annual dues from $25 to $30 for individual and family memberships and from $15 to $20 for student memberships. This is still a good value when all the benefits of membership are considered: monthly meetings with guest speakers and refreshments, a monthly newsletter, spring and fall weekend field trips with identifiers and hosts (coffee and treats provided), a PSMS office, library, and website, and admission to the annual wild mushroom show. These benefits to PSMS members are for the cost of about three movies per year. As a side note, membership fees have not increased for seven years.

In addition the Board voted to increase admission to the annual show from $7 to $9 for adults and from $5 to $6 for students and seniors; children under 12 years of age will still get in free.

This will not completely cover the increased costs to PSMS, but will serve to bring us more in line with current expenses; the difference will be made up by book sales and the revenues from the annual exhibit.

THE TRUE GURU

A mushroomer went to a guru and sought
Gems of wisdom as to what he ought
To prepare for the table, when he was able,
And what, out of wisdom, he ought not.

The guru emerged from a trance-like state
(Induced by a fungus he often ate)
And delivered these words I repeat to you.
If they prove not true, sue the guru!

"First, of course, from amanitas abstain
"Some will lead you to perish in pain.
"You might try a caesarea or a coccoli*,*
"But if they do you in, don't blame me!

"Beware also the little brown things,
"Especially those whose stems sport rings.
"And mind you stay clear of lepiotas small,
"And I wouldn't consume any cort at all.

"You can eat some boletes that stain a deep blue,
"But I'd know just which ones if I were you.
"The Chlorophyllum *is best passed by.*
"It will only make you wish you could die.

"Beware of the peppery russulas and Lactarius,
"And G. esculenta*, even more nefarious.*
"And although Agaricus *is often delicious,*
"Some are not, and you'd best know which is."

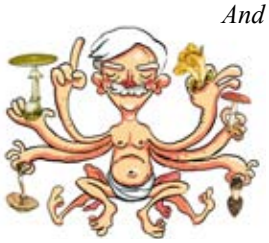
"Now hold it, guru!" the mushroomer swore.
"I'm not sure I can take any more.
"Your puns are atrocious, and what's even worse,
"You've left me few choices without some curse.

"Isn't there one simple test to be had
"That will separate the good from the bad?"
"Of course!" said the guru, "It is just so!
"And I think it's a secret that you should know.

"Watch what squirrels and rabbits eat,
"And toss those species out in the street.
"But follow a guru back to his lair,
"And whatever he eats, you can try if you dare."

With that the guru took a generous munch
Of a nice phalloides *he had saved for lunch.*
"These are not," he said, "to everyone's taste,
"But I do hate to see them go to waste."

Now, a guru would never lie, you see,
But they have different stomachs from you and me.
And it's perhaps safer to trust a good field guide
(Writ by some guru who hasn't died).



— Harley E. Barnhart, *Spores & Stipes*
North Idaho Mycological Association

Puget Sound Mycological Society
Center for Urban Horticulture
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Seattle, Washington 98195

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