

# Mycena News



The Mycological Society of San Francisco • October, 2012, vol. 64:02

October 16  
General Meeting Speaker



**Brennan Wenck-Reilly**  
“*Marasmius* of Bolivia”

Brennan Wenck-Reilly is a teacher, naturalist, biologist, photographer and of course, a mushroom enthusiast. He was born and raised in South Lake Tahoe and was exposed to the great outdoors very early on by his active parents. His passion for the outdoors has been a continuous theme throughout his travels and education.

Brennan earned his first bachelor's degree in Cinema from SFSU in 1999. He served in the Peace Corps in Bolivia, 2000-2002 and earned a second bachelor's in Ecology and Evolution from UCSC in 2006. In May of this year he finished his Master's work at San Francisco State University in Systematics and Ecology— with an emphasis in Mycology.

Under the expert mentorship of Dr. Dennis Desjardin, Brennan's current studies took him to Bolivia where he collected and identified mushrooms within the genus of *Marasmius*.

His research will help to expand global knowledge of *Marasmius* as his collections are compared to similar collections from other parts of the tropical world.

In addition, Brennan is active in surfing, rock climbing, and road and mountain biking. You can read more about his work and passions at:

<http://brennanwenck.com>

## MycoDigest:

# Welcome to the Realm of Puffballs!

Stephanie Jarvis



Bring a mask! *Calbovista subsculpta*, San Bernardino Mountains 2008, an edible Sierra Nevada spring puffball. Photo courtesy of S. Jarvis.

This year, when setting out to learn more about the world of fungi, take some time to pay attention to the puffballs. This is a group of fungi that are edible, medicinal (Hobbs 1995) and have extraordinary features. This will be a brief glimpse into the realm of puffballs, also known as the ‘stomach fungi’ or Gasteromycetes. These fungi may not glow in the dark or undergo radical color changes to blue or crimson red, but they are weird, wonderful and are excellent for playing baseball!

There is one main group of puffballs that are within the Agaricaceae: the Lycoperdaceae, or true puffballs. As you may know, there are others, not part of the Agaricaceae, still lumped into this ‘stomach fungi’, or Gasteromycete group. *Scleroderma*, *Pisolithus*, and *Astraeus* are three that often get misidentified as puffballs. However, they belong in the Boletales and are not true puffballs. This is an introduction on where to look for these magnificent fungi, the Lycoperdaceae. With a developed ability to identify these fungi, your curiosity for them will grow and your base of mycological knowledge will broaden. Bring a mask, because this is going to be a sporic mess!

As we focus on Lycoperdaceae and words to describe them in this introduction, one will become more familiar with puffball basics: *Bovista* (small, round and brown), *Calvatia* (big, round and warted), *Calbovista* (big, round, with flat warts), *Disciseda* (small, round, with a sand case), *Lycoperdon* (pear-shaped and mid-sized), *Morganella* (Lycoperdon on a stump), *Mycenastrum* (hard, dark, and mid-sized), and *Vascellum* (Lycoperdon with a diaphragm). Where do we start? Well, start with your col-

Continued on page 3

MycoDigest is dedicated to the scientific review of mycological information.

## PRESIDENT'S POST

### Greetings MSSF Members!

While many of you are waiting for the fall and winter rains to start before venturing forth to forage for fungi, I have been picking many good edibles in San Francisco since May. I gave a talk on urban foraging at the September general meeting, and later in the month at the Academy of Sciences in Golden Gate Park, both of which were well received.

The prince (*Agaricus agustus*), shaggy parasol (*Chlorophyllum brunneum* & *rachodes*), and porcini (*Boletus edulis*) to name a few, fruit during the summer months in San Francisco due to artificial rain provided by the city under the right kinds of trees.

I also had reports of chanterelles being found in western Marin County starting in August, due to the heavy summer fog drip. You just have to get out there and start looking under the right kinds of trees with sufficient moisture and you may get lucky.

The first council meeting of the new season was very productive. It combined the regular monthly council meeting with the annual budget meeting for a day-long event. I want to welcome back Roy Coto to the council. He was elected by a plurality vote of the council to a one-year position as a counselor. He is filling a position left vacant by Brother Mark Folger, who stepped forward to accept the position of Mycena News Editor, and he's doing a great job.

Three volunteer positions remain vacant on the council: Education, Social Media Coordinator, and Scholarships. Check out the position descriptions on the last page of this issue of the Mycena News and on the MSSF website, members-only section, under "File Archives". You may be just the person to fill one of those very important positions.

The Mendocino Foray Camp 9-11 November is on schedule and nearly sold out. If you have not yet registered for this event, do it now! Space is limited.

We started selling raffle tickets for the beautiful mushroom design, queen size, 25-t-shirt quilt at the September culinary dinner and general meeting. Ticket sales have been brisk, and we plan to continue selling tickets until the last day of the Fungus Fair in December. Get your tickets while they last: 1 for \$5.00, 3 for \$10.00, and 7 for \$20.00, see Curt for tickets. (Quilt value is \$500.00.)

I hope to see many of you in the forest soon or at a future MSSF event.

~Curt Haney  
[president@mssf.org](mailto:president@mssf.org)

## CULINARY CORNER

It's time! September started the Culinary Group's cooking and dining season with our annual potluck. And it's tempting to say it was the very Best. Potluck. Ever! I had hoped to include recipes for several of the dishes, but the only cook who came through by Mycena News press time was Curt Haney. So thank you, Curt, for the delicious casserole, and for sharing your recipe with us. It's at the bottom of this article (p. 5).

The mushroom quilt to be raffled off at the Fungus Fair was on display, and it's gorgeous. Don't miss a chance to be in the running for this special collector's item. See more about the quilt, and when and where to buy raffle tickets, next door in the President's Post and on p. 5.

### OCTOBER DINNER: A SALMON FEAST

Date: Monday, October 1

Time: Business meeting at 7 p.m., with appetizers to follow and dinner at 8.

Location: San Francisco County Fair Building, Golden Gate Park, 9th and Lincoln.

Lou Prestia and Tom Sasaki are the captains. The menu is:

- Salad
- Cedar planked salmon
- Braised greens
- Rice
- Dessert

**Reservations are required** by September 26, to give the cooks time to plan and shop for the dinner. We keep our reservation numbers at a maximum of 60. To make reservations online, go to the web site, [mssf.org](http://mssf.org). Select the calendar and click on the event, or go to the members' area and click on "event registration". The fee for the dinner is \$16, or \$15 for seniors. You may also call Bill and Carol Hellums at 415-347-7444 if you don't have online access. And you can email [culinary@mssf.org](mailto:culinary@mssf.org) if you have questions.

### NOTES FOR FIRST-TIMERS

Be sure to bring your own tableware and table covering, as the venue does not provide linens, dishes, utensils, glassware, etc. Also, bring your favorite dinner beverage.

All members of MSSF are welcome! However, if you plan to come regularly, we ask that you join the group and pay the \$10 membership fee. This can best be done on-line when you renew your membership in January.

## Mycodigest continued

lecting gear. When gathering puffballs, bring tissue to wrap up old messy fruitbodies full of spores, and place these wrapped specimens in paper sacks for safekeeping. Take extra precautions to avoid getting these messy spores in your lungs. Hunt with a hand lens to look closely at macro features like cracks, scales, tufts, spiny tips and rhizomorphs. Also, bring a knife to cut them open and look inside. Cutting them in half from top to bottom can help in terms of ruling out what may or may not be collected. If saving a collection for further analysis, you may want to have a fruit dehydrator handy. These fungi have the ability to rot and smell like stinky socks if they are not thoroughly dried. When learning the puffballs beyond their genus, you will need to collect young and fully mature specimens, use a microscope, and do some additional homework.

As the fall rains come and the ground swells with life, puffballs will start to emerge in the rolling foothills of California. If hiking out on the sweeping hillsides, after a good amount of heavy rain, you should run into *Calvatia pachyderma*, *Calvatia cyathiformis*, and *Calvatia fragilis*. These are the resident giant puffballs that are good to eat when collected young, firm and white inside. This is prior to any spores maturing and turning to a brown or purple powdery mess. Some lucky hunters may come across a rare *Calvatia booniana*, the biggest of what is found here in California, growing up to over 60 cm broad and 30 cm tall. With your nose to the ground while hiking, you may come upon a fairy ring of *Vascellum*, a few *Disciseda* bearing their definitive sand case or even a couple *Bovista* species. These will all be hidden in the grass like little ping-pong balls. They will look white when young, but all will start to tan or darken to brown with maturity, making them harder to spot. A great place to practice hunting puffballs is at the Knowland Park in Oakland, above the zoo. This particular location seems to have an exceptionally large diversity of puffball species. Here, you can even find *Mycenastrum* in wet, spring years, in an old compost pile, right above the zoo at the base of the park.

As the rain gets heavier, and the coast starts to produce *Boletes* and *Chanterelles*, one might start to look along the wet coastal forest floors for *Morganella* and *Lycoperdon* species. These grow on well-rotted wood and along old logging roads that are over-grown with vegetation. *Morganella pyriformis* often grows in massive clusters entangled by rhizomorphs, often up to 100 or more fruitbodies and can be a beautiful sight to see. During the winter rains, *Bovista* species pop up in lawns, and along old over-grown roads. Winter will turn to spring again and eventually we will all drive east to hunt for Sierra *Boletes* and *Morels*. This is when one should look for the large edible *Calbovista subsculpta* and *Calvatia sculpta*. They are found around the wet, grassy meadows, along stream trails and in the vicinity of campgrounds in the pine duff. These are great to fry up or toss on the camp stove when young, firm and white inside. They are like natural tofu from the Sierra Nevada. Of course, there are others in the Sierra; *Calvatia fumosa*, for example, that will make your car smell like a locker room for months!

Puffballs have a few basic features that one needs to know in order to identify them out in the field. These fungi come with their own special vocabulary. Let's define some terms and learn how to tell them apart. Most noteworthy for beginners to learn are exoperidium (exo) or the outer skin layer and endoperidium (endo) or the inner skin layer. The subgleba is the sterile base, which can be absent, small and compact, or large and chambered. The gleba is the spore bearing tissue that takes up the interior space, which also contains specialized hyphal threads, called capillitium. In order to key out a collection to specific epithet (species), the gleba tissue will need examination under the microscope. Which, puffball microscopy alone is worthy of an article.

The exo and the endo are the first ornamented tissues that one will examine in the field. The exo may be found as a smooth, cracked or warted surface with an irregular marking pattern. As the fruiting body matures and begins to disarticulate, it will reveal the endo or expose the gleba and let loose its trillion spores. There may be furfuraceous, scurfy, or scaly tissue that easily wipes off and is remarkably fragile. Under your hand lens, they will look like really small spines that can cover the entire puffball, or occur mostly in the folds and creases of the bottom sides of the fruitbody in fresh, young specimens. This character is found in some *Lycoperdon* and *Bovista* species. Sometimes these scales and spines are quite large and look like polygonal warts (meringue peaks, or Hersey kisses, for the foodies in the group). This is a key character of *Calvatia sculpta*, whereas other *Calvatia*



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Past issues of *Mycena News* can be read online at [www.mssf.org](http://www.mssf.org)

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## Mycodigest continued

species and *Calbovista subsculpta* have more of an obtuse or flattened warted scale pattern.

As this ornamentation falls away, sloughs off, breaks off, cracks off, dries up and falls apart, sometimes only the endo remains; being a rather thin papery layer of material that encloses the gleba. In most of the larger puffballs, the exo and the endo are almost one in the same. They stick together and they fall apart together exposing the gleba and aiding in spore dispersal. In the smaller puffballs, (like *Bovista*, *Disciseda*, *Lycoperdon*, and *Vascellum*), they do not remain adherent to each other. The exo will fall off and can leave a lovely circular areolate pattern (*Lycoperdon*). Often the case is a smooth parchment like endo that remains. The small puffballs will often end up developing an ostiole (a distinct hole), or develop a tear on the upper most part of the fruitbody from which the spores will disseminate or disperse. This is the case of many *Bovista*, *Lycoperdon*, *Vascellum*, and *Disciseda*.

When examining the interior of a puffball, do not leave out inspecting the subgleba. Cut the fungi in half from top to bottom lengthwise with a sharp, clean knife. One will want to compare the gleba to the subgleba and take note of color and texture. Look for a delineated diaphragm dividing the two. If there is one, it just might be a *Vascellum*. If not, back to the drawing board. The subgleba can be a thin, compact layer in many *Bovista* species. This structure may be up to an inch or more long and in a pear-shape or considered a tapered pseudostipe in *Lycoperdon*, *Morganella*, and *Vascellum*. In *Calvatia*, the subgleba may be broad and compact, or absent, or a robust and tapered pseudostipe. A *Calvatia* subgleba can take up most of the bottom of the fungus, creating a large cup to hold the fruitbody to the ground in an almost rooted manner.

Sometimes all one finds is a crusty old flat cup of empty flesh on the ground with few characteristics to examine. The exoperidium might have all worn away, or there may not be a subgleba. This crusty puffball may have very few residual spores in the gleba, or no gleba remaining. If so, one might be left guessing at the collection, scratching your head and wishing you had a microscope and a pile of field keys. There are several reputable references available. One in particular is the *Arizona Gasteroid Fungi* published in Fungal Diversity in 2009 (Bates et al. 2009). The California monograph on the Lycoperdaceae and Geastraceae will be completed soon enough. So hang in there, your California field guide is in the works. Meanwhile, remember to bring your list of gear for collecting puffballs when trekking out into the woods. Keep in mind: *Bovista* are small; *Mycenastrum*, *Calvatia*, and *Calbovista* are the biggest we have; and *Lycoperdon*, *Morganella* and *Vascellum* are mostly pear-shaped and often look like each other (so take careful notes with these). Challenge yourself and look in the grass for the small and obscure *Disciseda* with its sand case. Last but not least, use your new vocabulary and have fun in the realm of puffballs.

#### Some good references on puffballs:

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- Smith, A. H. (1951). *Puffballs and Their Allies in Michigan*. Ann Arbor: University of Michigan Press. 131 p.
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Puffball tissues: exoperidium, endoperidium & gleba. This *Bovista* is missing a subgleba. Young, middle-aged and mature puffball, respectively. Photo courtesy of S. Jarvis.



A graduate student at San Francisco State University, Stephanie Jarvis is composing a monograph of the Lycoperdaceae (puffballs) and Geastraceae (earthstars) of California. While working on her Masters of Science in Systematic Mycology under the guidance of Dr. Dennis Desjardin, she enjoys photography, and walks the occasional forest path to search for fungi other than puffballs. She works with arborists and the International Society of Arboriculture holding seminars on taxonomy, identification and fungal ecology for better diagnostics of tree health. Stephanie spent her undergrad years at Sonoma State University studying Sudden Oak Death with Dr. Richard Whitkus and Dr. Hall Cushman; and she plans a life long career in the world of Mycology and Arboriculture.

## MSSF MENDOCINO WOODLANDS FORAY

"Food - Forays - Fun" November 9-11, 2012

Featuring Taylor Lockwood, one of the best mushroom photographers in the world, and author of several beautiful books and videos featuring exotic fungi of the world.



Deep in the Mendocino woods, MSSF members, fellow mushroom enthusiasts, friends and family, gather once again for our annual north coast fungal rite of autumn. This weekend-long spectacular mycological event includes mushroom themed dinners, guided forays, fun informative presentations and of course plenty of mushrooms!

All on-site meals and lodging (Friday night through Sunday lunch) are included in the basic \$200 per person member rate; \$150 for children aged 5-12 years (accompanied by a paid adult). This foray is for MSSF members and their guests only – you will not be able to sign up unless you are a member.

Event schedule details, online registration, and a printable registration form that can be mailed are at: [www.mssf.org/mendo/](http://www.mssf.org/mendo/)

For registration questions, email: [alvarocarvajal@yahoo.com](mailto:alvarocarvajal@yahoo.com)

### Cascade Mycological Society MUSHROOM PHOTO CONTEST

Winners receive a CMS T-shirt and a framed picture of their entry. Submissions must be received by Oct. 20, 2012. For contest details and other CMS events go to <http://cascademyco.org/category/events/cmsevents/>

### DAVID ARORA'S THANKSGIVING WEEKEND MUSHROOM WORKSHOP & FORAY NOV. 23-25

Join David Arora for a fungus-filled weekend at the 23rd annual Mendocino mushroom gathering. Mushroom hunts, cooking, lecture, discussion, ID, etc. with David Arora and special guest mycologists and ethnomycologists. All levels of experience welcome.

For info and registration go to [davidarora.com](http://davidarora.com).

## RAFFLE! RAFFLE! RAFFLE! MUSHROOM THEMED, QUEEN SIZE, VINTAGE, T-SHIRT QUILT RAFFLE

The MSSF will be conducting a "fund-raising" raffle for a custom-made, queen-size, vintage, mushroom themed T-shirt quilt at the 43rd annual MSSF Fungus Fair scheduled for 1-2 December 2012 at the Lawrence Hall of Science in Berkeley. The quilt was custom made from t-shirts donated by society members and was assembled by a small family run store called "Quilts on the Corner" in Sandy, Utah. The front of the quilt displays 25 different mushroom themed vintage t-shirts, surrounded by a mushroom print border. The backing on the quilt is made from a comfy cotton flannel material, and the stitching throughout the quilt is a mushroom pattern. The quilt will be on display at the September, October, and November general meetings, and culinary dinners, where tickets will be available for purchase. The quilt is valued at \$500.00, and tickets are 1 for \$5.00, 3 for \$10.00, or 7 for \$20.00. The money raised from the raffle will be used to pay for another similar quilt that was made from only vintage MSSF t-shirts. The MSSF t-shirt quilt will be maintained by the MSSF and displayed at future fungus fairs and society events. The raffle will conclude at the end of the fungus fair on Sunday 2 December. See Curt Haney for tickets at the general meetings and the culinary dinners, and also at the special display at this year's fungus fair. (You will not need to be present to win!)



Culinary Corner continued

### AND THE RECIPE

#### Curt's Mushroom Bread Pudding

12-14 slices of bread, buttered & cubed (or put butter patties on top when finished)

4 cups milk (1 or 2%)

2 ½ cups grated sharp cheddar cheese

12 eggs, beaten

1 ½ to 2 pounds sausage, browned (I like Jimmy Dean)

¼ to ½ pound browned porcini, morels, chanterelles, or other mushrooms (I like to add to the sausage)

Salt & pepper to taste

Grease a 9X13 glass or metal pan, place ½ of the bread on the bottom. Add sausage, mushrooms, cheese and then the other ½ of the bread. Mix eggs, milk, and salt & pepper together. Pour mixture over the top, refrigerate overnight and bake uncovered at 350 degrees for 1 to 1½ hours, or until golden brown on top. Enjoy!

Note: This makes a great breakfast casserole

--Carol Hellums

### MSSF Scholarship Announcement

The Mycological Society of San Francisco offers scholarships to full time graduate students majoring in mycology attending colleges and universities in northern California. These scholarships vary in amount from \$500 to \$1,500 and are given in the name of Esther Colton Whited and Dr. Harry Thiers. All research proposals are welcomed, but special consideration will be given to taxonomic studies of the higher fungi of the Pacific States. Requirements include two letters of recommendation, one from a professional mycologist, a brief statement describing the research project, and agreement to present the results at a general meeting of the MSSF. Send inquiries/materials to: J.R. Blair at 895 Sierra St, Moss Beach, CA 94039; email: [jrblair@mssf.org](mailto:jrblair@mssf.org).

Deadline for applications is December 31.

Mycological Society of San Francisco  
c/o The Randall Museum  
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## MSSF Calendar October 2012

**Monday, October 1, 7 p.m. - Culinary Group Dinner**  
S. F. County Fair Bldg, Golden Gate Pk, 9th & Lincoln, S.F.  
A salmon feast, captained by Lou Prestia and Tom Sasaki.  
Be sure to bring your tableware and a beverage. The SFCFB  
does not provide dishes, etc. The next dinner is November 5.

**Tuesday, October 9, 7 p.m. - MSSF Council Meeting**

**Tuesday, October 16, 7 p.m. - MSSF General Meeting**  
Randall Museum, 199 Museum Way, San Francisco.  
7 p.m. - Mushroom identification and refreshments.  
8 p.m. - Speaker: Brennan Wenck-Reilly.

**Tuesday, November 13, 7 p.m. - MSSF Council Meeting**

**Tuesday, November 20, 7 p.m. - MSSF General Meeting**  
Randall Museum, 199 Museum Way, San Francisco.  
7 p.m. - Mushroom identification and refreshments.  
8 p.m. - Speaker: William Rubel

**Saturday, Dec. 1- Sunday, Dec. 2, 43<sup>rd</sup> Annual Fungus Fair**  
Lawrence Hall of Science, 1 Centennial Drive, Berkeley.

## Call for Volunteers

Join the council leadership, learn the inner workings of the MSSF, and help make decisions that shape the future of the society.

**Education Chair:** Help co-chair this very important council position. This position does not require you to be a formal educator. This is an interesting and fun position and also has a presence at our annual fungus fair.

**Social Media Coordinator:** This revised position includes being the Yahoo Group Moderator, and maintaining the MSSF social media portal presence on the internet. This position is perfect for someone who is active on Facebook and Twitter, and would like to keep the MSSF up to date, ON-LINE!

**Scholarship Chair:** Help further the education of students in mycology, and talk about the results of their research to the membership.

To learn more about these and all council positions, go to [www.mssf.org](http://www.mssf.org), members-only area, file archives, council member position descriptions, or e-mail [president@mssf.org](mailto:president@mssf.org)

Remember, our great ALL-VOLUNTEER organization would not survive without volunteers!

Check the MSSF online calendar at:  
<http://www.mssf.org/calendar/index.php>  
for full details, latest updates  
and schedule changes.

The submission deadline for the November, 2012,  
issue of Mycena News is October 15th.  
Send all articles, calendar items, and other information  
to: [mycenanews@mssf.org](mailto:mycenanews@mssf.org).