Mycena News

The submission deadline for the February 2017 issue is Thursday January 15

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January 17

General Meeting Speaker: **Dr. Michele Ross**

"Neurogenic Properties of Mushrooms"

Dr. Ross provides an overview of what adult neurogenesis is, what things promote or prevent neurogenesis and how neurogenesis is a therapeutic target for many mental health and neurological conditions. The mechanisms behind how mushrooms increase neurogenesis, including a surprising link to the endocannabinoid system, as well as the therapeutic implications of this boost are revealed. Finally, putting science into action to legalize magic mushrooms by taking a page off the cannabis legalization playbook is discussed.

Dr. Michele Ross Biography:

Dr. Michele Ross is Founder and CEO of the Denver-based 501c3 nonprofit IMPACT Network. As a neuroscientist, she was frustrated by the lack of education on the endocannabinoid system that both doctors and scientists received, despite medical cannabis being used by millions of patients nationwide. In 2013, she founded the "Endocannabinoid Deficiency Foundation," now known as IMPACT Network, with the mission to make medical cannabis treatment a first-line therapy for patients by educating patients, healthcare professionals, and policy makers and driving clinical cannabis research.

Dr. Ross is both a cannabinoid medicine researcher and a cannabis patient. After being diagnosed with fibromyalgia and neuropathy, cannabis was the only thing that reduced her symptoms and allowed her to return to work. After hearing thousands of extraordinary patient stories just like hers, Dr. Ross was compelled to ensure cannabis becomes part of the American healthcare system.

Dr. Ross has leveraged her 15 minutes of fame as the first female scientist on reality television, starring on the hit CBS show Big Brother 11, to be the scientist-next door your grandma can ask about marijuana. She is also author of two books, "Train Your Brain to Get Thin" and "Vitamin Weed: A 4-Step Plan to Prevent and Reverse Endocannabinoid Deficiency." Dr. Ross holds a Doctorate in Neuroscience from the University of Texas Southwestern Medical Center and has researched addiction, mental health, and psychopharmacology for over 10 years.

Today, IMPACT Network is a leading medical cannabis research, education, and advocacy organization with global reach to the worldwide medical cannabis community of patients, healthcare professionals, and clinical partners.

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President's Post

by Brennan Wenck

Hello MSSF Members,

Happy New Years! 2016 finished on a wonderfully high note. The Fungus Fair was a success, the Holiday dinner left people engorged, and the mushrooms seem to keep on coming up!

The Fungus Fair reported awesome attendance for a one-day fair. The fair seemed to move along smoothly from my perspective. Key to the fair's success were Jackie Shay, and Madhu Kottalam who co-coordinated the fair. Other key players who certainly deserve mention are Stephanie Wright, Enrique Sanchez, Tyler Taunton, Curt Haney, J.R. Blair, and Henry Shaw, Julia Cabral, and Theresa Halula. The fair would never survive without the hundreds of volunteers who fill in all the gaps at each of these events. It truly is spectacular to see a group come together, and put on such a spectacular showing. While roaming the fair it was spectacular to see hundreds of people engaged in activity and talks. Everybody I talked to was impressed with the sheer magnitude of mushrooms that were on display this year.

We welcome all feed back in regards to the fair in an effort to constantly be improving. Please send correspondence to either Jackie Shay (jackie.shay@gmail.com) and Madhu Kottalam (madhu.kottalam@gmail.com) or myself (president@mssf.org)

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The 2017 Fungus Fair has already been scheduled for December 3rd, in the same space, at the County Fair Building. Contact myself, Madhu, or Jackie if you are interested in playing a role.

The annual Holiday dinner was held at the county Fair building on Monday, December 12th. Another success as we finished up 2016. Eric Multhaup coordinated with Chef Pepe Sanchez of San Francisco, CA to produce a delectable meal. The evening was rounded out with a potluck appetizer bar, a raffle, and festive music and dancing. I typically teach on Monday nights and I really do look forward to the day when I can participate in more of these events. I certainly hope the rest of you are taking the time to appreciate the Dinners.

Looking forward to 2017 we have a lot of exciting events. Starting with the general meeting on Tuesday, January 17th. The meeting will be held at the county Fair building, with wine and appetizers starting at 7pm.

Keep an eye on the calendar for any number of Quickstart Forays that will pop up from time to time, and also for the Morel hunt that happens each year in late April/Early May.

Thanks again to all of you who continually contribute to make the Society a great organization. Remember to share your love of the forests and mushrooms with a friend, and bring them to the next meeting if you can. We'd love to meet them!

Happy Foraging,
Brennan - president@mssf.org

Fungus Fair 2016 Follow-up & Survey

by Jackie Shay

Dear Beloved Mycological Society of San Francisco,

From all of us to all of you, we thank you for your everlasting love and support during our main event of the year. This year's Annual Fungus Fair was a smashing hit! We had a wonderful turnout, lots of smiling faces, and many new comers eager to learn more about their local fungi.

Our vendors keep surprising us with new and improved mushroom products, art, and souvenirs. We are excited to announce that we will be able to accommodate even more vendors next year, so if you are interested or know someone who is interested please put them in touch with our team. A fan favorite this year was our robust mushroom display table which had a wide range of species and excellent local diversity. The fair was full of mushrooms thanks to some rain we had a few weeks prior. The overall thrill over the abundance of mushrooms gave everyone a sense of joy and pride for their local community.

The combination of cooking demonstrations, fantastic soup, and boiling mushroom dyes created an unbelievably delicious fungal aroma that greeted our guests as they walked in. There was a constant stream of energetic and charismatic people coming from near and far to enjoy learning about fungi. We were pleased to see many young faces that had little to no experience with the mycology world. As always, the craft zone was busy with folks making buttons and mushroom ornaments all day long. Each table had a breadth of knowledge to offer, and everyone took the opportunity to learn.

I would like to thank all of the people who made this year so special. The MSSF Fungus Fair committee rallied together this year and pulled through as a team; we are so grateful for every person and all the time they committed.

We are always trying to improve and better our traditional fair for the future. We appreciate your feedback and would be honored if you could share your thoughts with us in this very short survey. Please take a few minutes of your time to help us make the MSSF fair even more amazing: https://www.surveymonkey.com/r/KBVMN8Q

Thank you again and again. Until next year,
Yours in spores,
Jackie Shay

Culinary Corner

by Paul Lufkin

The MSSF Culinary Group, an all-volunteer committee of MSSF, is open to all dues-paid members of MSSF who have an interest in the gastronomical aspects of mushrooming. With a few adjustments for holidays, we meet on the first Monday of each month during mushroom season (September through May, except for December) at the San Francisco County Fair Building (Hall of Flowers) in Golden Gate Park (at the corner of 9th Avenue and Lincoln Way).

At each of its monthly meetings, the Culinary Group conducts a bit of business, and then enjoys appetizers and a meal cooked by volunteer members of the Group. Traditionally, the dinners have been designed to take advantage of the wild mushrooms available, as well as the best and freshest food of the season. The menus are centered on mushrooms, ethnic foods, a particular main ingredient, or a holiday near the time of the dinner. We share our recipes, cooking expertise, and love of fungus.

The Culinary Group participated in this year's Fungus Fair by creating and staffing a well-received display of edible mushrooms (both foraged and cultivated) where interested Fair attendees could ask their questions and share their experiences concerning mushroom cooking and eating. Hundreds of basic "Mushrooms With Herbs" recipes were distributed to those who stopped at the booth. Culinary Group members Pat George, Karen Motlow, Virgilio Cardona-Sanchez, Bill & Carol Hellums, and Paul Lufkin volunteered to staff the booth for the day of the Fair .

No Culinary Group dinner was held in December - instead, we went to the MSSF Holiday Dinner (see report elsewhere in this issue). The next Culinary Group dinner will be held on January 9. Dinner Captains Lesley Stansfield and Laura Parker, and their team, are planning a "Healthy New Year" feast. Don't wait to reserve - the dinners always sell out!

The Culinary Group is a participatory cooking group. It's an opportunity to practice skills and to learn from more experienced cooks. Members are expected to take part in preparation of at least one dinner during the year, and to occasionally bring appetizers to share. To be part of the fun and food, there is a $10 annual membership fee, payable online, or at the dinners. Most dinners cost $17 ($16 for seniors and students), to cover the cost of the facility and the dinner's ingredients. Reservations for all dinners except the September potluck are required, and must be made no later than the Wednesday before the dinner. We keep our reservation numbers at a maximum of 60. To make reservations online, go to the MSSF web site, mssf.org. Select the calendar and click on the event, or go to the members' area and click on "event registration." For assistance or additional information, email culinary@mssf.org.

This month's recipe (with gratitude to MSSF Culinary Group member Curt Haney):

Chanterelle Candy

- Take any amount of Chanterelles
- Place in a skillet
- Sprinkle with salt
- Cook them on high temp (dry saute) until any water is almost cooked off
- Turn heat down to medium, add unsalted butter until Chanterelles are well coated
- Cook them until they start to get color and turn lightly brown
- Add a good amount of Drambuie Liquor or any other liquor of choice
- Burn off the alcohol, (use caution when adding a flame to the pan)
- Cook until the Chanterelles are caramelized, (add more Drambuie if needed)
- Add cream, (1/2 & 1/2 or heavy whipping cream) enough to coat the Chanterelles well
- Cook until the Chanterelles are just wet
- Serve on a slice of French baguette bread.

Academic Quadrant

Newly Discovered Addition to Team Lichen!

by Jackie Shay

It is well known in the fungal and lichen community that a lichen is comprised of both an algae or cyanobacteria and a fungus – one provides food and one provides structure – yet things may not always be how they appear. By correlating the complete set of RNA molecules between the interacting organisms, a better understanding of the symbiotic relationships unfurled.

Research conducted by Dr. Toby Spribille in the McCutcheon Lab at the University of Montana and co-authored by Dr. Catherine Aime from Purdue show a global phenomena of yeast cells inside the cortex of lichen (T. Spribille et al. 2016). This is particularly interesting for *Bryoria fremontii* and *B. tortuous* which are genetically identical, but morphological different. *B. tortuosa* are distinguished by their thallus-wide production of vulpinic acid and yellowish color, whereas *B. fremontii* are made from the same symbionts with a dark-brown coloration and no toxin.

Six samples of *B. fremontii* and nine of *B. tortuous* were collected in western Montana. These were sequenced, and nucleotide base changes were analyzed. Yeast cells, that were previously unrecognized, were found to be present in large amounts in the cortex. In addition, it was discovered that genes were being expressed unexpectedly. The yeast was found to correlate with the presence of vulpinic acid in *B. tortuosa* and could enable them to ward off invasive pathogens.

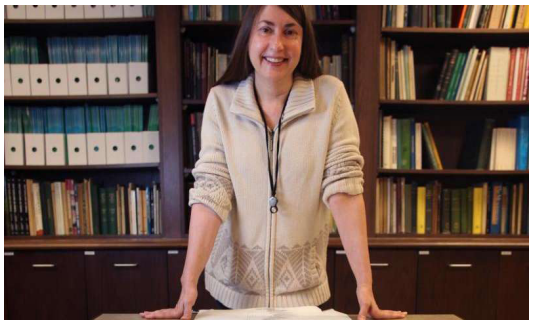
"These yeasts comprise a whole lineage that no one knew existed, and yet they are in a variety of lichens on every continent as a third symbiotic partner. This is an excellent example of how things can be hidden right under our eyes and why it is crucial that we keep studying the microbial world" says Aime (van Hoose, 2016).

To be sure that the results were not just a fluke, Dr. Spribille's team surveyed 52 genera of lichen worldwide. They found molecular evidence to suggest a long history of symbiosis between yeast, lichen, and cyanobacteria. They also observed beneficial roles of these inter-kingdom relationships from habitat adaptation, secondary metabolites, and host immunity to disease. This is just the beginning of a new frontier of science and a potential lead in the functional and evolutionary roles of the microbiome of lichen.

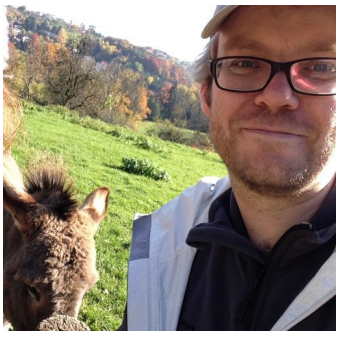
References:

1. van Hoose, N. "***Yeast emerges as hidden third partner in lichen symbiosis.***" Purdue University, Agriculture News. 21 July 2016. <http://www.purdue.edu/newsroom/releases/2016/Q3/yeast-emerges-as-hidden-third-partner-in-lichen-symbiosis.html>.

2. T. Spribille, Tuovinen, V., Resl, P., Vanderpool, D., Wolinski, H., Aime, M.C., Schneider, K., Stabentheiner, E., Toome-Heller, M., Thor, G., Mayrhofer, H., Johannesson, H., McCutcheon, J.P. "***Basidiomycete yeasts in the cortex of ascomycete macrolichens."*** Science, 2016 DOI: 10.1126/science.aaf8287



Dr. Catherine Aime



Dr. Toby Spribille

Hitchhiking in Bolivia

with Brennan Wenck-Reilly

I spent two seasons travelling around the cloud forests of Bolivia searching for the ever-present *Marasmius*. This was all in an effort to gain my Master's while at San Francisco State University. The area where I was living was breath-taking to say the least. I was living in the Hotel Esmeralda in Coroico, Bolivia, and every other day I would head out on some 6-8 hour excursion to crawl around on the forest floor looking for tiny little *Marasmius* mushrooms. The alternate days would be spent writing up, and photographing all that I had found on the previous days. It was hard work, I have to admit, and quite tiring. The way I would get to most of my study sites was to simply hike from the hotel, or to catch a cab to a particular destination. One day towards the end of my trip I decided to make more of an adventure of the process.

I woke up early and had my daily coffee with egg sandwich, packed up a lunch and put on my typical jungle attire of long pants and a long sleeved shirt. Far more effort went into avoiding bugs than into comfort in the hot &humid jungles. I found myself standing on the side of the local highway arm extended with my thumb in the air. In my travels around the globe hitchhiking is a very commonly practiced form of transportation, so it wasn't too long before a car pulled off to the side of the road to pick me up.

It turns out that the driver of this beat up wagon type of car was a biology teacher during the year, and in the Bolivian Summer, he would supplement his income by serving as an unmarked taxi driver. As I crawled into the car, I took up the last of the available seats in the car. The driver asked where I was going.

"Anywhere." I replied

Puzzled he asked what I was up to. I told him about my project and about the need to find more mushrooms, and about my idea of just turning the day into an adventure. So I explained that I'll go wherever he is willing to take me; no matter how far, nor how long it would take. He lit up with excitement. He told me, "I know exactly where to take you."

The road we were travelling on is considered the "World's Most Dangerous Road." The section we were on was less dangerous than what was behind us, nonetheless the edge of the road does drop off several hundred feet into a raging river- and there are no guardrails or the like to save you. In fact, drivers will drive on the wrong side of the road so the driver can look out his window to see just how close he is the edge at any given time. To make things worse, there is currently a shortage of gas in the country, and this particular car is filled with various tubs, jars, and bottles filled to the brim with gasoline clanking around in the trunk space, directly behind me, being taken to the next town where the industrious biology teacher/taxi driver will sell the gas at whatever price he can get the locals to pay. Thank goodness nobody is smoking in the car.

After about an hour of driving past waterfalls, and nail-biting cliffs, in a vehicle that feels as though it should have been retired a decade ago, the conductor pulls off to the side of the road. There is a small town at the bend in the road, and the conductor tells me that I will find lots of mushrooms here. I wish him and the rest to the occupants a safe journey, and like that, they're gone; the smell of fresh gasoline lingers in the air with the dust stirred up by their exit.

I grabbed my backpack full of tackle boxes and strolled into the town plaza where a group of children were playing. Immediately they approached me, and inquired how on Earth I landed in their small town. I told them my intentions and immediately they took me by the hand, and led me across a bridge that, up to this point, only existed to me in Indiana Jones films. Mind you this is the rainy season. In the Amazon, annual rainfall is not measured in centimeters, it's measured in full meters. So this river flowing beneath this rickety bridge is roaring at a deafening pace. On the other side the group of 5 kids scramble up and down the steep embankments like goats and immediately start bringing me mushrooms of all shapes and sizes. I simply open my tackle boxes, and as they bring me specimens I quickly assess "yes" or "no" and the kids are fast to pick up on what I'm looking for. We had all three tackle boxes fully loaded in about 15 minutes! I do have to admit, that I was very nervous watching these kids run around this cliff wall, precariously perched above the raging river below, as they were doing my dirty work.

The kids now turned to me with grins of accomplishment spread across their faces and asked, "So now what?"

I replied, "Let's have some fun!"

The kids led me back across the river and through town to a smaller tributary that joined the larger river with an

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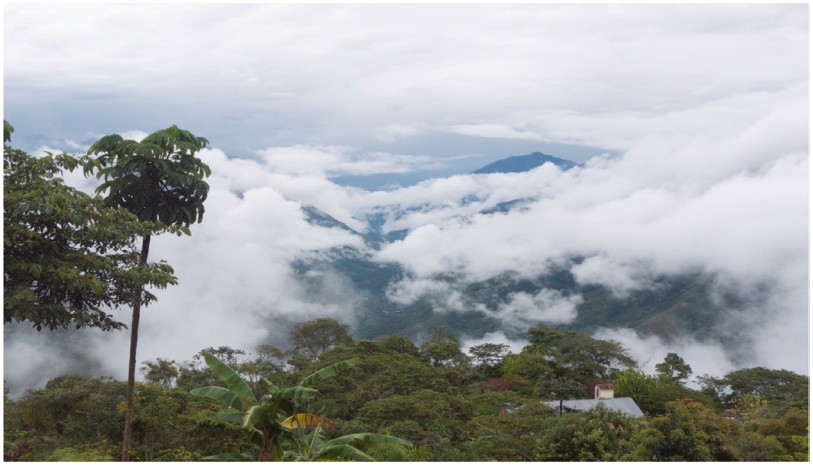
equally worn down bridge traversing a short pool that drains into a heavy set of rapids, and quickly joins the much larger river about 100 feet downstream. Immediately the boys disrobe down to their undies and climb up on the bridge. As graceful as birds the kids show off their skills of flips, and twists as they leap into the river below. They egg me on to join in the fun so I too inevitably strip down to my underwear and poise myself on the bridge. It's clear I'm going to hit bottom. It's clear I'm going to need to move fast to avoid being swept into the rapids downstream. It's clear these kids are dying to see me commit to the thrill of what's going on.

So with a last breath I make the leap, hit the bottom of the sandy pool, and immediately move to the edge out of harm's way. The kids all scream with excitement.

After several more jumps the kids ask, "Now what?"

So I took them all up to the plaza and bought them each an ice cream bar to thank them all for the great day. As we sat around licking our popsicle sticks, the boys and girls took turns putting on shows in an effort to prove their bravery and entertainment skills.

Later on, that evening, as I sat in my hotel, with a beer, looking at the Andes splayed out in front of me, I couldn't help but reflect on what an amazing adventure I'd had that day. Next time I travel I will take more adventures, and plan less.



The view from the hotel. The Andes rise from 2000 feet above sea level in the valley floor to over 20,000 feet hid-den in the clouds of this image.

The precarious bridge and my 5 mushroom explorers.

One of the boys balancing on the wire before performing some feat of acrobatic amazement.

Painting Mushrooms

with Bob Sommer

Why paint when photography is quicker and easier, and a good camera lens captures exceptional detail? I sketch in order to see and to remember. Drawing captures the critical features of a thing, its purity and individuality, what sets it apart from other things. When I take photographs (in pre-digital days I owned several cameras and uncounted specialty lenses and filters) and paid more attention to technology than to what is out there, planning at some future time to look closely at the downloaded or printed image. To paraphrase John Norwich in his book ***Venice in Old Photographs***, "In an ideal world it would surely be illegal to photograph anything without having looked at it for at least five minutes. For John Ruskin ...even that would not have been enough. "Don't look at [things]," he told his students, "watch them." Drawing requires a person to stop and look intently. You attend to detail and nuance that would otherwise be missed. Look at the face of someone near you as if you were going to sketch it. The surface is not a homogeneous plane; it is a variegated landscape of marks, spots, indentations, and colors. You can understand why impressionist painters splashed green and purple on portraits.

Painting mushrooms began for me as an aid to identification. When I found an unknown fungus (which happened often as a newbie), and the field guide was unhelpful, I made a sketch to bring to the experts, all of whom seemed ten feet tall. S. was among my favorite giants. Like Alcoholics Anonymous, we avoid last names in case someone relapses. S. did not drown my pretty fungus in KOH (isn't that a trailer park?) or in Meltzer's reagent (we didn't do royalty either). He could look at a mushroom and announce to the world, not only its Latin name, but under what type of tree it had grown. How did he know that if he wasn't there when I picked it?

My rule is to paint first, ID later. Otherwise there is risk that I will unconsciously bias the sketch in the direction of what is written in the field guide, for example adding a bluish cast, a brown stain, or a scurfy stipe.

Initially I painted on whatever paper was handy. Large or small pages, rough or smooth surface did not matter. When the number of paintings reached a point where a catalog and storage system were necessary, I switched to standard 8x10 inexpensive pads. My choice proved to be less than ideal. 8x10 sketchpads virtually disappeared from the market and the inexpensive paper yellowed with age. However, as an amateur artist who might paint multiple mushrooms on a foray, I wanted to be free to paint quickly, make mistakes, and discard paintings that did not meet my standards. At the outset, dollar-a-sheet paper would have inhibited me.

For many years I was in a quandary about how to paint tiny mushrooms. Distinctive features were not apparent when the mushroom was painted to scale, but I was aesthetically repelled by oversize images. It was OK for Georgia O'Keeffe's flowers but not for me. Painting several species of small fungi on a single page was efficient in terms of paper usage (I have done this when I was low on sketching paper), but made the images difficult to file. It took 25 years for me to consider the possibility of using a smaller pad! Why did I think that every painting in my collection had to be on the same size standard size paper? For single images of *Mycena*, a 4x6 pad is fine; for multiple views of a single small fungus, 5x8 paper.

Over time the sketches became a collection. I became obsessed with expanding it, eager to paint them all! An elegant chanterelle became less interesting to me as a model than a mundane *Paneolus* or *Russula* species that I had not yet painted, so long as I could find someone to make the ID. It was frustrating to catalog sketches of unidentified mushrooms. I knew it was permissible to include the occasional sp. in an index, but it left me with a sense of incompleteness. I have two folders of unidentified mushroom paintings —one in which the spore color is known and another when it isn't. I employ various tricks for getting a dry fungus to drop spore, but sometimes nothing works. This was a serious problem when we keyed mushrooms from field guides. Today with DNA sequencing, the absence of a spore print doesn't have to be an obstacle to identification. When the sketches were few, they were stored in a pile. Soon, for their protection and for ease of retrieval, I filed them alphabetically by genus in loose-leaf notebooks in clear plastic envelopes. By the 20-year mark, the 600+ identified drawings, plus duplicates and paintings of unidentified fungi, occupied a significant amount of shelf space. There were other things I wanted to paint and I had reached a life stage when it was time to lighten up, to jettison unnecessary baggage. In 2004, I donated the loose-leaf notebooks

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to the Mycological Society of San Francisco (MSSF). The late John Lennie, then MSSF librarian, helped produce an index of the scanned paintings that can be seen on the MSSF website under Miscellanea.

SOME THINGS LEARNED FROM PAINTING MUSHROOMS

Youthfulness is not always a benefit for mushroom models. Age has advantages, especially for a white fungus on white paper. An older specimen will have interesting cracks, bruises, or blemishes. I appreciate dirt spots on a light-colored cap, the yellow stains on *A. xanthodermus*, a deliquescing inky cap, a blackening *Hygrocybe*, and a cracked puffball. All these predictable features add interest to the sketch.

Favorite mushroom models. Anything with a cup, ring, warts, raggedy cap, or fibrillose stipe; mushrooms of a distinctive color or stately shape; large fungi so long as they fit on the page; stains are nice if in a contrasting hue. I regret not having a way to depict a distinctive odor or taste on the page.

Least liked mushroom models. Pure white and translucent fungi. Tiny fungi that get lost on the page. Beefsteak Fungus whose "blood" stains everything. Buggy mushrooms whose frantic inhabitants run across the page. Deadly poisonous mushrooms-- although some are beautiful, I dislike touching them and wash my hands frequently. Here are field notes describing my first watercolor of a Death Cap:

Sketching this lethal fungus, I had to resist suicidal and homicidal fantasies and I unconsciously exaggerated its green pallor. I was unable to separate my feelings of revulsion at this "ugly horrible poisonous mushroom" from my task as an illustrator to depict it realistically. I would have made a better painting if I had known nothing about the fungus!

Sketches often look better three weeks after a painting is completed. The model has been discarded and minor distortions in color or form are no longer recognized. This makes it important to save completed sketches to judge their worth after the original image has faded.

Photographs and paintings of mushrooms don't do well when placed alongside one another. Most field guides use exclusively photos or exclusively watercolors. Interestingly, none relies on acrylic or oil paintings. Photographs reveal background detail, a mushroom's habitat, while most field guide paintings are "botanicals," presenting a fungus floating against a white background, although occasionally employing a stylized convention for habitat, such as pine needles, oak leaves, grass, or wood.

As in all collections, I developed rules for inclusion. All sketches had to be of actual fungi collected by me, Barbara Sommer, or others on a foray, and not from photographs. Because the dark wet places preferred by mushrooms are not suitable for sketching, painting was done in a motel room or at home, where there was good light and a dry place to sit.

Occasionally we had expert opinion in identifying fungi but most ID was done from field manuals based on macroscopic characteristics. The technical names on the paintings represent the nomenclature in use at the time. There seemed no point in erasing and writing over the old name every time professional mycologists came up with a new name.

Painting was originally done on inexpensive sketch pads. Unsure of myself, I started using 8x10 Strathmore 400-33 medium weight (80 lb.) drawing pads. If I made a mistake, I wouldn't feel I had wasted a sheet of expensive paper. This was the size that I used enlarging photographs and appeared to make filing, framing, and storing paintings easier. While 8x10 remains a common size for enlarged photographs, it has largely disappeared in sketchpads, whose makers seemingly agreed that 9x12 should be the preferred size.

It was not until I began scanning my watercolors that I noticed that the paper I had used for several decades was off-white rather than bright white. When submitting scans for publication, I had to eliminate the background off-white in Photoshop. However, the scarcity of 8x10 pads occasionally induced me to paint on 9x12 watercolor pads which were not only a larger size but also used a heaver grade of bright white paper designed specifically for water color. For smaller fungi, the frequent need to eliminate the background off-white motivated me to switch to

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small bright-white pads. By this time, I no longer valued standardization of page size, and realized that small pads were more suitable for tiny *Marasmius* or *Mycena* which floated in empty white space on an 8x10 page, while 11x15 and 16x20 pads were more suitable for large fungi such as conks. It took 30 years for me to conclude the aesthetic advantages of matching paper and fungus size. On the debit side, I had to buy multiple pad sizes (there are probably seven sizes on my shelf today, ranging from 4x6 up to 16x20). Storing paintings in the 8x10 glassine envelopes in loose-leaf notebooks that I had used for three decades was no longer feasible. Now I use an alphabetical accordion file for paintings 8x10 and smaller but this won't accommodate larger paintings which I store in those large portfolio envelopes art students carry to class. Filing and locating earlier mushroom paintings isn't as simple as it used to be.

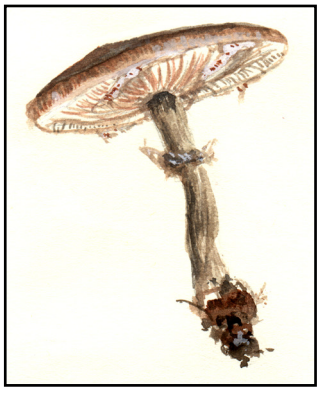
Using watercolor paper rather than drawing paper designed for dry media (pencil, pen, charcoal, and pastel) revealed the technical and aesthetic advantages of a heavy weight textured, non-absorbent paper. I retired my cheap 8x10 drawing pads which I no longer felt comfortable using, with the newly acquired realization that if I'm going to invest time and effort in a painting, it should be done on good quality watercolor paper of an appropriate size. I also retired, at least for fungus painting, smaller pads of drawing paper not specifically designed for watercolor. Interestingly, I still use these for pads for pen sketches during hikes and for drawing other natural features such as pine cones, acorns, and flowers but not for fungi.

My most recent realization involves page color. I painted hundreds of fungi on white paper. This made it difficult to show the many species of white and off-white fungi. For aesthetic reasons I was opposed to outlining stems or caps. Instead I used dirt marks, grass blades, stains, and bruises to distinguish a white cap or stem from its background. Many of my early paintings don't scan well, as the stipe or sections of a white cap disappear.

I started checking mushroom painting online. There are videos, paintings, and stencils available now. I found an online article by a British mushroom painter who mentioned the advantages of using colored paper for her paintings. This required the use of gouache paints which are *opaque watercolors* specifically designed to paint over background hues. She noted also that their opacity makes gouache suitable for painting over watercolor mistakes. I learned this some 40-plus years after I started sketching mushrooms exclusively on white paper and discarded paintings on which I had made mistakes.

Author ID Bob Sommer is author of the Easy Edibles column in ***Mushroom the Journal***. has 600+ watercolors on the MSSF website under Miscellanea, and is co-author of ***Field Guide to Mushrooms of Western North America*** (UC Press, 2012 UC Press)

Clavariadelphus pistillaris



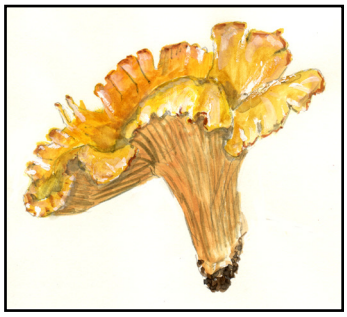
Armillaria mellea

Laccaria laccata

Boletus appendiculatus

Agaricus benesi

Phaeolus schweinitzii



Cantharellus cibarius

Cultivation Quarters

by Ken Litchfield

With all the well timed rain we've been having, the mushrooms are out everywhere - the best in over five years of drought. I haven't seen such a "Death Cap Year" in a dozen years. Foraging and collecting is now the most lucrative for quantity and diversity that it has been for many years. While you are out and about collecting for the pan it is also a good time to collect with wildland stewardship in mind - giving back to the natural world that you are part of and benefit from. With little modification of your foraging skills and gardening skills you can gain even more bounty from the wildlands by treating them like your own personal garden that you can enhance for you and other wild organisms can to glean from the enhanced produce. Let's look at a few quick and easy gardener techniques to transplant many different kinds of mushrooms to new territories in your woodland haunts, or to your backyard garden, or your local park for harvest there or to propagate and return to the wildlands.

The "Bulb" Method - This method is for capturing any wild mushroom that you find growing out of a tree trunk or downed logs like oysters, turkey tails or lifted from mulch, compost, or manure piles like shaggies, buttons, and paddies. The base of the mushroom where it attaches to the tree or log is very dense flesh that is usually too tough to easily eat anyway so that is broken away from the edible parts of the mushroom, carried in its own collecting bag separate from the collecting bag for the pan, and can be stuffed into cracks, crevices, and crevasses in freshly broken or downed trees or branches from recent storms. When you pull up a mushroom from mulch like Stropharias, blewits, fairy ring mushrooms, or majeeks, or from compost, or manure, like shaggies, buttons, or paddies, you can usually see some of the mycelium hanging off of the base like white roots. This base you can break from the rest of the stem and plant like a bulb into its same type of substrate of fresh wood chips, compost, or manure where it will leap off and grow into a new patch.

Paper Sack Method - The paper sack method is just the next step up in sophistication from the bulb method, an easy way to collect the bases of any mulch mushroom like Stropharias, blewits, fairy ring, or the tight bases of tree trunk lurking mushrooms where they attach to the tree like oysters, lion's mane, or turkey tails. Just dampen the small brown grocery paper sack like you can get at the dollar store for 40 for a dollar. Drop the bases of the mushrooms of all the same kind into one sack, wad it up, and put that sack into another damp sack and wad it up too. The mushroom bases are now surrounded by fresh raw cellulose food that they can easily leap off from their base flesh and start eating. Damp cardboard that has been peeled open to expose the corrugations or damp egg cartons also work as starter materials. You can put the damp material into a clear plastic bag and put it into the fridge to chill down the flesh to keep it viable and competitive against rot bacteria or molds while it dedifferentiates it's flesh and sends out mycelial tentacles into the cellulose and begins feeding till you can see the mycelium on the outside of the cellulose in the bag. Then it can be taken from the fridge and inserted into fresh mulch or a crack in a new log.

Plastic Bag Compost Method - Similarly to the Paper Sack Method, this method captures the bases of compost or ma-nure mushrooms with a little of the compost or manure they were growing in. Usually there is enough moisture in the substrate to keep the bases damp without adding any more moisture. Then chill it in the fridge to grow out. When you can see the mycelium fully infiltrate the substrate thru the bag then you can place the myceliated bolus into a compost or manure pile.

Slurry Method - This method works with any mushroom whether saprobic, mycorrhizal or parasitic. Take any extra mushrooms beyond the best high graded for the pan and put them and the bits and pieces of caps and other spore bearing tissues and caps and stems bearing fresh mycelium tissue into a tough plastic bag with no holes, add enough water from a stream or water bottle to make s slurry of broken mushroom tissue and spore that can be sprinkled around the drip zone of trees not bearing those mushrooms. Best is to pull back the duff exposing the roots of the tree where they come up from the duff/soil transition zone, sprinkle around the slurry, and recover the duff.

Log to Log Method - This method works for wood loving mushrooms. Just collect the branches, logs, stumps and other wood entities with mushrooms already feeding on them. These wooden entities can be transferred to other areas with freshly downed wood or to the backyard full of freshly cut wooden entities that these logs can reinoculate.

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You can transform a shady garden that doesn't have enough light to grow much more than ferns or azaleas, into a Zen garden of different colors, textures, and types of mulches with all kinds of wooden "sculptures" that become the core of a living mushroom sculpture garden just by placing the original collected mushroom logs in contact with the new wood that you want them to leap onto.

Cultivation had a big presence at the Fungus Fair in December with making and selling handmade hydrogen peroxide oyster kits, the folks from the Black Diamond Truffle Farm talking about mycorrhizal mushrooms, Bay Area Applied Mycology selling larger cooked kits of oyster spawn and talking about their projects with EBMUD, East Bay Parks, and the BAAMlab at Omni in Oakland, and the Psychoactive Mushrooms booth. You can learn more about any of these topics at the BAAM lab and at: bay-area-applied-mycology@googlegroups.com.

Hope you had great holidays and wonderful foraging.

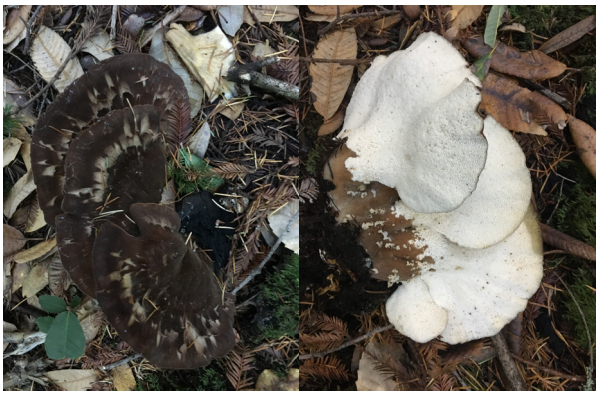
Mushroom Sightings in December 2016

Homegrown Oyster
Photo by Larry Ankuda

Wild Oyster - *Pleurotus ostreatus*
Soquel Demonstration Forest, CA

Clitocybe nuda
Oakland, CA

Helvella vespertina
Oakland, CA

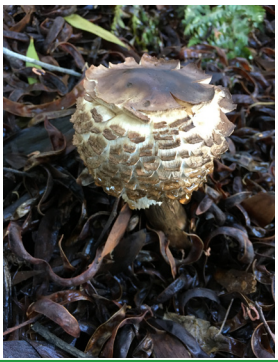


Jahnoporus hirtus
Soquel Demonstration Forest, CA

Craterellus tubaeformis
Salt Point SP, CA

Photos by Pascal Pelous

Chlorophyllum brunneum
Oakland, CA



Thanks Larry for sharing your photo! Send yours to mycenanews@mssf.org to be published in the next newsletter.

MSSF Calendar January 2017

Monday, January 9, 7:00 p.m. - 10:00 pm
MSSF Culinary Dinner
Theme: A HEALTHY NEW YEAR DINNER
Hall of Flowers, County Fair Building
Golden Gate Pk., 9th & Lincoln, S.F.

Tuesday, January 17, 7:00pm - 10:00 pm
MSSF General Meeting
Speaker: Michele Ross
Hall of Flowers, County Fair Building
Golden Gate Pk., 9th & Lincoln, S.F.

Sunday, January 22, 10:00am - 3:00 pm
MSSF Foray
Salt Point State Park, CA

MSSF Volunteer Opportunities

Join the Council leadership, learn the inner workings of the MSSF and help make decisions that shape the future of the society. Do your part by contributing your time to this 100% volunteer organization!

To learn more about all council and committee positions, go to: www.mssf.org members-only area, file archives, council member position descriptions. Or email president@mssf.org.

Photo Credit: on page 1, *Amanita phalloides* AKA The Death Cap photographed in Oakland by **Pascal Pelous**

Announcements / Events

Herbal Mead Making

7pm-10:30ish Every Wednesday Night
at Omni Commons Lab
4799 Shattuck Ave, Oakland

Contact Ken Kitchfield
(litchfield.ken@gmail.com) for more info

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

MSSF Foray

Sunday, January 22, 10am-3 pm
@
Salt Point State Park

First we will collect mushrooms then we will gather to identify and discuss the findings.

MSSF members need to register online for this free event but limited to 30 participants due to liability and permit limitations.

Mycena News

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Please e-mail photos, comments, corrections, and correspondence to mycenanews@mssf.org

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Past issues of *Mycena News* can be read online at
http://mssf.org/mycena-news/issues.html

Mycological Society of San Francisco
The Randall Museum - 199 Museum Way, SF, CA 94114

Submit to *Mycena News*! The submission deadline for the February 2017 issue is January 15th. Send all articles, calendar items and other information to: mycenanews@mssf.org

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