
Mycena News



The Mycological Society of San Francisco November, 2011, vol. 63:03

November 15th MSSF
Meeting Speaker



Xianghua Hua Wang

*Remarkable Fungi of Southwest
China*

Xianghua will focus on the most renowned and remarkable culinary and poisonous fungi in southwestern China, including milk caps (*Lactarius*), boleti (*Boletaceae* and *Suillaceae*), chanterelles (*Cantharellus*), termite fungi (*Termitomyces*), truffles (*Tuber*) and *Amanita*.

Starting from a visit to a market, the talk will lead you into the local hunters' and dealers' mushroom world. From there, it will use several groups of fungi to introduce the most recent changes in recognition, edibility, and new progress on the cultivation of truffles and milk caps. During the introduction, the talk will compare the fungi in China and North America to understand how the mycobiota in the two regions are related and differ.

MycoDigest: Fungi of the State Rock

By Sara Branco



Hebeloma cf. sinapizans growing in a serpentine *Quercus ilex subsp. ballota* forest in Braganca, Portugal.
(Courtesy of Sara Branco.)

Ever wondered why species occur where we find them? In particular, why are cacti associated with desert conditions, polar bears restricted to the Arctic Circle, and weird giant tube worms found only in hydrothermal vents (deep, hot, dark, and anaerobic waters)? Some habitats appear so inhospitable that it is easy to assume no organism would be able to colonize them. However, it is a fact that there is virtually no place on Earth that has not been colonized by at least a few thriving species. Taxa living in harsh environments tend to be specialized to their habitat of preference and often times are not able to survive in 'normal' conditions – just imagine how that giant tube worm would do in the cool waters of Point Reyes...

Adding to the many aspects of fungal biology we know very little about, species requirements and habitat specialization are definitely still a mystery. This is particularly true for ectomycorrhizal fungi. We know these soil-inhabiting symbiotic fungi are extremely diverse and assemble in complex and dynamic communities that are very often at least in part determined by their plant partners. We also know they associate with plant roots, with fungal tissue both growing in the soil and embracing plant cells, providing water and nutrients to the plant and receiving sugars in return. However, very little is known of their habitat requisites

Continued on page 3

MycoDigest is dedicated to the scientific review of mycological information.

PRESIDENT'S POST

November is upon us. Before I talk about the great activities we have coming up this month I first want to update you on what happened in October. For starters, the culinary group had an amazing meal featuring Thai-style abalone and other goodies at the start of the month. As the month wore on and we had some rains a number of interesting finds were being reported including good foraging in the Sierras where I found *Sarcodon sp.*, Gypsy mushrooms, and even a few matsi's in addition to a few *edulis*. Boletes are also being reported at some of their typical Bay Area spots as are more early season species, and you should have a pretty easy time finding sulphur shelves in the regular spots around San Francisco and the East Bay; I've been seeing a good number. The general meeting in October featured Hawk and Venus sharing their experiences with the soma mushroom. This talk, like Connie Green's in September, drew a good crowd including lots of new faces.

As we move on into November we have lots to look forward to, Mendocino camp being a highlight. Mendo camp registration is live on the Web site and through the online calendar, please let me know if you need help registering. This year we have an outstanding program planned including presentations from Else Vellinga and Gary Lincoff and organized ID table presentations both Saturday and Sunday. Gourmet food will be served as is our tradition including tamales Friday night, bagged lunches enhanced with homemade gourmet goodies, and a feast Saturday that will feature organic local grass-fed beef from Ford Ranch: If you are an occasional or selective carnivore this might be the meal to make an exception for. Delicious vegetarian and vegan options will of course be available too. Breakfasts and dinners at Mendo camp will be enhanced by great seasonal mushrooms and cooking demos will be held during the event so you can get ideas of what to do with your fungal finds from the trip when you get home.

Other November events include a camping foray to the east (free for members only) and several other events you can see from the online calendar. Following Mendocino we will shift gears to preparation for the annual Fungus Fair at Lawrence Hall in Berkeley. Collecting forays for this amazing event are being organized now and posted to the calendar in the next few weeks. Please plan to come out and volunteer for the collecting or other fungus fair related positions, this is a great event to see the power of our volunteer organization spread its wings and take flight. We have over 200 volunteers help produce the fair every year and we could not do it without all your help.

In closing I wish you good collecting in November and look forward to seeing you at the monthly culinary group, the November general meeting featuring Dr. Xianghua Wang from Yunnan, China, if not sooner at Mendo camp.

Thanks.

-Lou

president@mssf.org

CULINARY CORNER

The October Dinner, a Thai-inspired multi-course banquet captained by Carol Reed, was fabulous and well-received – kudos to all who made it a success. If you are not familiar with the Culinary Group and would like more information, please contact Carol and Bill Hellums, at 415-347-7444 or bc.hellums@gmail.com.

October Dinner's winning recipe: Thai Marinaded Mushrooms – thanks to Julie Dunn and Mark Francis!

1/3 c. rice wine vinegar

2 tbs. sugar

2 tbs. creamy style peanut butter

1 tbl. soy sauce

1 tbl. sesame oil

1 tsp. minced garlic

1/2 tsp. minced, fresh ginger

1/4 tsp. salt

1/4 tsp. red pepper, crushed

1 lb. mushrooms/your choice, sliced (Julie and Mark used chicken of the woods, lobster, chanterelles and eringi)

In a small saucepan combine vinegar, sugar, peanut butter, soy sauce, sesame oil, garlic, ginger, salt and crushed red pepper. Cook over medium low heat, stirring frequently, until hot, about 4 mins. Place mushrooms in a large bowl. Pour hot marinade over then and toss to coat. Let stand at room temperature 20 minutes to blend flavors.

We are looking forward to an equally spectacular Mexican-inspired feast, captained by George Collier, on November 7. Appetizers start at 7pm. [Reserve online](#) no later than 11/2/11.

November Menu (Tiene la promesa de ser una cena fantastica!)

Tequila Punch

Mole Chiapas style (red) and Salsa Pipian Verde (green mole)

Chicken

Sopa de pan (one batch vegetarian/vegan)

Salad

Tortillas

Ice cream with dulce de leche

Let the games begin! Those delectable porcini are starting to pop up on the coast and in the mountains. Long-time MSSF member Connie Green has a fantastic recipe for your finds. In honor of our vegetarian members, here is a link to the [Savory Cèpe Flans recipe \(http://wineforest.com/pdfs/Savory_Cepe_Flans_Recipe.pdf\)](http://wineforest.com/pdfs/Savory_Cepe_Flans_Recipe.pdf). The brilliant thing about the flan is that you can use fresh or dried boletes. If you come back from your foray a little light on fresh fungi, you can use dried porcini from your pantry and garnish with the fresh ones. Great main for vegetarians or side for us omnivores! Happy Hunting!

- Lisa Bacon

and limits. Are they resilient and able to withstand inhospitable environmental conditions? Are there any species that are locally adapted to specific unusual environments? Although the poles and deep sea are obvious extreme environments, one does not need to go far to find challenging habitats that can help shed some light on the subject. Serpentine soils are rich in magnesium and low in calcium (something that affects plant growth and health) and have high levels of heavy metals such as nickel, chromium, and cadmium, elements known to be toxic. These soils derive from rocks deep in the mantle of the planet and provide a particular chemical environment very different from 'normal' non-serpentine soils. They also tend to be shallow, rocky, and very dry. Serpentine soils are widespread across the globe comprising around 1% of the terrestrial surface, and very common throughout California, so much so that serpentine is the state rock! Serpentine outcrops tend to be small and patchy, occurring immersed in a matrix of 'normal' soil in the landscape making them a particularly interesting study system. These are widespread across the state and can be found in the Bay Area, namely in Mt Tam and along the Lucas Valley Road.



Sharp transition between serpentine (bottom) and non-serpentine soil (top) in Braganca, Portugal.
(Courtesy of Sara Branco)

Serpentine plants are fascinating. Some species completely embraced serpentine conditions and live nowhere else, while others evolved serpentine and non-serpentine populations ('races'). These tolerant plants show different strategies to withstand the serpentine chemical challenge, including nickel hyperaccumulation, where the heavy metal is stored in the plant vacuoles, making the leaves little nickel bubbles.

The vast majority of plants are symbiotic with fungi, including plants occurring in serpentine environments. Serpentine ectomycorrhizal fungi are however poorly known. Are all species able to colonize serpentine soils? Are there fungi restricted to these habitats? How are ectomycorrhizal fungi able to tolerate high levels of magnesium and heavy metals? So far only a handful of studies have attempted to answer these questions. Such studies documented the presence of fungi in the plant root tips using molecular techniques instead of focusing on the fungal fruitbodies. Although expensive and laborious, this approach provides better fungal community descriptions, given the sporadic and ephemeral production of fruitbodies.

Continued on page 4

Mycena News



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Past issues of *Mycena News* can be read online at www.mssf.org.

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Interestingly, there does not seem to be much difference in the ectomycorrhizal communities occurring on serpentine and non-serpentine soils colonized with the same host plant. Serpentine ectomycorrhizal communities seem to follow the usual trend of hyperdiversity recorded in 'normal' habitats, including the same taxa and dominated by common genera, such as *Tomentella*, *Russula*, and *Inocybe*. This does not mean that there are no serpentine specialized taxa, however it indicates that many fungi are able to withstand serpentine chemistry.

It has been suggested that ectomycorrhizal fungi species include populations that are specialized to serpentine instead. This would imply that a species documented in serpentine and non-serpentine soils would actually be composed of differentiated populations that are more successful in a specific soil type. Testing this idea implies measuring the success of fungal populations in their native and non-native environments, something not very straightforward given that the majority of ectomycorrhizal fungi are not amenable to in vitro culturing and transplanting. However, an interesting way around this difficulty is to plant host seedlings in serpentine and non-serpentine soil, wait for the fungi to colonize their roots, and then transplant the seedlings to the opposite soil type, forcing the fungi to be exposed to a different environment. A close inspection of the fungi colonizing the transplanted seedlings' root systems would provide relevant information on the ability of ectomycorrhizal fungal populations to endure their non-native habitat. In fact, the results of such an experiment demonstrate that, although some species show a clear soil preference, there is widespread fungal tolerance to serpentine with many non-serpentine fungi persisting in serpentine soil.

In conclusion, serpentine soils do not seem to constitute a challenge for ectomycorrhizal fungi. Somehow fungi do not seem to be affected by the high magnesium and heavy metal content that has been long known to shape plant evolution. This raises interesting questions on fungal physiology and the ability of fungi to survive in environments that are challenging for other organisms. Are fungal cells simply good at filtering the chemicals in the soil, preventing them from interfering with their metabolism? Are they sequestering these elements in particular areas of their cells? Or, alternatively, do fungi possess extremely accurate cellular mechanisms that neutralize the potential poisoning threat posed by serpentine? Answers to these questions will not only enable a better understanding of how fungi live and interact with their environment, but might also provide important insight into heavy metal tolerance, a topic that can have ample applications in the fields such as physiology, bioremediation, and restoration.

About the Author:

Sara Branco is an evolutionary biologist interested in fungal evolution. Sara has conducted several studies focusing fungal diversity and adaptation and is currently a postdoctoral researcher with Tom Bruns and John Taylor at the University of California, Berkeley.

MSSF Mendocino Foray Schedule, 11/18-20, 2011

FRIDAY:

- 3:00 – 10PM Check in Camp #1, Mendocino Woodlands.
- 3:30 – 5:30 Early Bird Forays, (Norm Andresen & JR Blair).
- 6:00 – 7:00 Potluck Appetizers & BYOB
- 7:00 – 10:00 Dinner available.
- 8:30PM Presentation by Camp Mycologist, Else Vellinga. (How Mushrooms are Named and Classified)

SATURDAY:

Foray Notes: There will be both long and short forays. The short forays will return in accordance with the cultivation class schedule, and the long forays will return later in the afternoon. Norm and JR's educational forays will conclude with keying out some of the specimens collected on the forays. Norm Andresen will organize and plan the foray schedule, which will be available for sign-up at camp check-in.

- 8:00 – 9:30 Breakfast available, & late check-in @ Camp #1 Dining Hall.
- 9:00 – 10:00 Make Lunches.

Self-Serve lunch makings available in morning only, make your lunches immediately after breakfast.

- 9:30 – 10:30 Forays Depart.

SATURDAY CLASSES:

- 2:00 – 5:30 Cultivation Seminar Session
Ken Litchfield & David Gardella
- 3:00 – 5:00 Cooking Demonstration/Appetizers
- 5:00 – 6:00 Discussion at specimen tables with Gary Lincoff

SATURDAY EVENING:

- 6:30 – 7:30 Dinner will be served, (A Gala Fungal Feast).
- 8:00 – 10:00 Gary Lincoff Presentation, "Polypores and Polypore like Fungi", (Dance Hall).

NOTE: Children attending classes will need to be accompanied by an adult/parent.

SUNDAY:

- 8:00 – 9:30 Breakfast available.
- 9:00 – 10:00 Lunch makings available.

SUNDAY CLASSES:

- 9:30 – 11:00 Mushroom Felting (small fee for materials)
David Gardella
- 9:30 – 1100 Cultivation Seminar continued
Ken Litchfield
- 11:00 – 12:00 Discussion at specimen tables with Camp Mycologist, Else Vellinga.
- 12:00 – 1:00 All participants clean their own cabins / check out and depart by 1:00 PM.

NOTE – Schedule is subject to update and adjustment.

2011 MSSF FUNGUS FAIR at the LAWRENCE HALL OF SCIENCE

Saturday, December 3rd and Sunday, December 4th

Volunteers needed before and during the fair for mushroom collection forays, booths and more.

Mushroom collection forays

Friday, December 4, 10 am to 2 pm

Check the calendar on the MSSF website for updates

Set up: small tasks for all levels of experience

Friday, December 3, 3:30 to 7:30 pm or 7:00 to 11 pm

Saturday and Sunday 10 am to 5 pm

Dinner will be provided Friday evening; lunch will be provided Saturday and Sunday. Shift obligation is three and a half hours for free admission to the museum throughout the weekend. To sign up for Friday evening, Saturday or Sunday shifts go to the MSSF website and follow the link to volunteering for the Fungus Fair; if you have difficulty then contact Stephanie Wright at: FungusFair@ByteWright.com

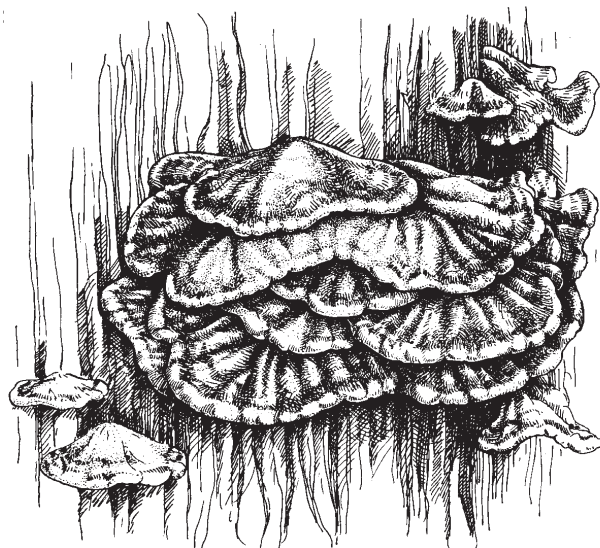
Annual Mills Canyon Introductory Foray with JR Blair

January 14, 2012

Time to hit the phone for a clear introduction to the world of wonder at your feet. JR BLAIR will lead his popular fact-filled study foray down Mills Canyon, Burlingame on Saturday, January 14. Because of overattendance in the past, this outing, co-sponsored with the Friends of Mills Canyon, will be limited to 25 guests by reservation only.

We meet at the Adeline Drive entrance at 10:00 A.M.. Heavy rain cancels. Wear durable shoes, the 1-1/2 mile trail with little elevation could be wet. We usually finish about 12:30PM

For reservations please call or Bill Freedman @650-344-7774 or JR Blair @650-728-9405



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November, 2011, vol. 63:03

MSSF Calendar November 2011

- November 7th: Culinary Dinner
Beginning Mushroom
Identification Workshop
- November 14th: Intermediate Mushroom
Identification Workshop
- November 15th: General Meeting
- November 18^t-20th: Mendocino Trip
- December 2nd: Fungus Fair Forays
- December 3rd: MSSF Fungus Fair
- December 12th: MSSF Holiday Dinner

Special Events

David Arora's Thanksgiving Weekend Mushroom Workshop & Foray Nov. 25-27

Join David Arora for a fungus-filled weekend at his 22nd annual Mendocino mushroom gathering. Mushroom hunts, cooking, lecture, discussion, ID, etc. with David Arora and special guests. To register, see davidarora.com for details.

SOMA Wild Mushroom Camp January 14-16 2012

The 15th annual SOMA Wild Mushroom Camp will be held near Occidental, in Sonoma County. The public is invited. Special guests will be confirmed soon, main speaker is Andrew Weil, M.D. For more information check [the SOMA site](http://theSOMA.org).

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 December, 2011
issue of Mycena News is December 16th.
Please send your articles, calendar items, and other
information to: mycenanews@mssf.org