

Mycena News



The Mycological Society of San Francisco February 2009, vol. 60:02

Speaker for the Feb 17
MSSF Meeting



Kabir Peay

**Fungi on Islands:
Lessons on Ectomycorrhizal
Community Dynamics from
Point Reyes to Borneo**

Kabir recently completed his Ph.D and is currently a post-doctoral researcher with Prof. Tom Bruns in UC Berkeley's Dept. of Plant & Microbial Biology. His dissertation research investigated

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MycoDigest: Establishing Fungal Endemism: The Curious Distribution of *Rhodocollybia laulaha*

Matthew Keirle

Precious little is known about fungi in nature. Information on the diversity and distribution of fungal taxa is non-existent when compared to that for plants and many animal groups. This makes declarations of 'endemism' (knowledge of a well-defined species range) risky for fungal species. Perhaps the safest taxa for which endemism might be established are those that inhabit isolated oceanic islands. But a recent examination of the putative Hawaiian endemic mushroom *Rhodocollybia laulaha* casts doubt on our current ability to delimit fungal distributions at all.

Rhodocollybia laulaha was described from the Hawaiian Islands in 1999. At that time, it was recognized as morphologically distinct from other known *Rhodocollybia* species in having pale-orange to grayish-orange, crowded and narrow lamellae that are labyrinthine and constricted near the stipe. Its specific epithet 'laulaha' is the Hawaiian word for 'common and widespread'. *Rhodocollybia laulaha* fruits across the entire length of the Hawaiian Archipelago spanning elevational and ecological gradients scattered along Hawaii's mountainous slopes. Its mushrooms can be collected easily from July through December with peak mushroom production in August and September. Despite its broad geographic range within Hawaii, it is significantly restricted by habitat. The forest habitat to which *Rhodocollybia laulaha* is limited (montane wet forest, montane mesic forest, lowland mesic forest, and lowland alien forest) is highly fragmented on the Hawaiian Islands creating a spatially subdivided system with forest 'islands' distributed across oceanic islands.



Rhodocollybia laulaha. Photo courtesy of Matthew Keirle

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MycoDigest is a section of *Mycena News* dedicated to the scientific review of mycological information.

PRESIDENT'S POST

I've recently had the pleasure to attend both of our sister non-profit mycological societies' signature events for the year: the Santa Cruz Fungus Fair and SOMA Camp.

I've been to many Santa Cruz Fungus Fairs over the years and I don't remember seeing such a successful one in terms of attendance. The report is that they had over 3,450 paid attendees, a remarkable effort. Fungus Federation of Santa Cruz' president (ahem, CEO, I mean) Bill White and the Fungus Fair chairpersons, Marjorie Young and Debbie Johnson did a terrific job organizing all of their volunteers to produce another excellent Fair with all of the great displays, presentations and demonstrations. Congratulations! By the way, due to budget restraints the city of Santa Cruz is contemplating closing all of their park facilities, including the Louden Nelson Center where they hold the Fair. Let's hope the large attendance and general public interest will forestall such a move. It's enough that the MSSF has to find another venue. It'd be a shame if two of the clubs needed to do so.

SOMA Camp, the fungal extravaganza put on each year on MLK weekend by the Sonoma Mycological Association, was amazing! I had never attended before and when they offered me an opportunity to teach one of their classes I jumped on it. There is so much going on. Besides the forays held on Saturday and Sunday there were nearly 30 classes, workshops and demonstrations offered throughout the weekend. That's a lot! The headline speakers were Daniel Winkler on Saturday night and Gary Lincoff on Sunday night, both very entertaining and enlightening speakers. But the food and wine—oh my—what a wonderful thing that was, especially Sunday's dinner! Under the expert guidance of Chef Patrick Hamilton, a bunch of talented volunteers put out the most delicious meal I've had in a long time. Congratulations to president Jim Wheeler, SOMA Camp Director Chris Murray, Volunteer Coordinator Julie Shreiber, and all the people in SOMA and MSSF who put so much effort into producing an excellent event.

Both of these organizations are fulfilling our collective mission of educating and inspiring members and the general public in admirable ways. Please consider supporting them by attending their events and even joining their organizations. They do good work.

Good hunting!

J.R. Blair

ANNOUNCEMENTS

WORKSHOP: LEARN TO GROW ANTI-CANCER LING ZHI (*GANODERMA LUCIDUM*) MUSHROOMS

Feb. 14- 15, 2009. 9:00am – 4:00pm

**UC Berkeley Life Science Building (VLSB), Room 3030
(Field-trip to San Francisco Herbs Stores on the Second Day)**

This two-day workshop, taught by mycologist Mo-Mei Chen, will focus on the cultivation techniques, specifically of the anti-Cancer Ling Zhi fungus.

Participants will be introduced to the medicinal fungi studies of Lin Zhi (*Ganoderma lucidum*), Chong Cao (*Cordyceps sinensis*), Yong Chong Cao (*Cordyceps militaris*), White Wood Ear (*Tremella fuciformis*), Fu Ling (*Poria cocos*) and Zhu Ling (*Glofora umbellata*), Maitake (*Grifola frondosa*) and will learn how to set up a Ling Zhi farm at home.

A laboratory component will cover spawn production: media preparation, isolation, and inoculation methods. In class, each participant will produce a Ling Zhi kit and a delicious Oyster kit to take home for incubation and personal harvest.

On the second day, there will be a guided visit to a mushroom factory and herb stores in San Francisco's Chinatown.

Course fee, \$200, includes delicious mushroom lunches for both days, class reading booklets, and Ling Zhi and Oyster mother culture in tubes that participants can take home.

To register please send a check for \$200 to UC Regents at:

Mo-Mei Chen
1001 Valley Life Science Building
University and Jepson Herbaria, UC Berkeley
Berkeley, CA 94720

If you have any questions, please contact Mo-Mei Chen at mmchen@nature.berkeley.edu or call 510-642-6019 (1-5pm).

PASSWORD CHANGE FOR WWW.MSSF.COM

Effective February 1, 2009, a new Password will be required to access the Members-only content at www.mssf.org.

The new user ID and Password are:

ID: mssf

Password: muscaria (Effective Feb 1)

The ID and password in use through Jan. 31 are:

ID: mssf

Password: gyromitra

(Login information is Case sensitive)

What's Bookin'?



The prime mushroom season is upon us. It's time to check your book library and see if you are adequately equipped. Some of the new books I have discovered include: *Mind-Altering and Poisonous Plants of the World*, *How to find Morels* and *Taming the Truffle*. I am also in the process of purchasing several new mushroom cookbooks. I will have all the books and posters available for purchase in the

basement of the Randall Museum for one hour prior to most General Meetings. I am also looking for someone who may be interested in assisting with the sales of books and eventually taking over the book sales chair position. Call Curt if you are interested at 415-333-8820. See you all soon at the Randall Museum.

~Curt Haney
MSSF Book Chairperson

A Well-Earned Honorary Membership

He joined the MSSF in 1986. After a few years of adjustment, his name has appeared in nearly every issue of the *Mycena News* since 1990, when he reported fungi for the *Mushroom Watch*. That year he began to lead forays into Moreland, an activity he has intensely and continuously pursued since that time.

He appeared at the first Council meeting in 1990 and could be found at most Council meetings since. He was then named as Fungus Fair Foray Coordinator. Elected to Vice-president in 1991, he also took on the job of Foray chairman, which he tirelessly maintained until 2001, except for 1997, when he became the MSSF President. Whenever we needed a foray leader, he was there, whether to Land's End, in San Francisco, Mendocino, San Joaquin Park, San Mateo County Parks, Yuba Pass, especially any place where you could find morels. We could always count on him to conduct Fungus Fair collecting forays, wherever he was needed.

Lead articles for the *Mycena News* were written by him, as well as *Mushroom Watch* contributions. Since 2001, he has been our book salesman, in addition to leading forays. Many members of our group have been blessed by his ferreting out places in the mountains where chances were good that morels would be found. He's probably taught more people how and where to find morels than any other member.

Along the way, he assiduously studied and is now one of our *Russula* experts, contributing to the success of the Mycoblitz project, in which we have entered with Dr. Bruns.

I am certain that readers will have already identified the deserving person about whom we are writing as Norman Andresen. The Society owes Norm a debt of gratitude for his 19 years of continuous devotion to our members' interest and love of fungi.

~Bill & Louise Freedman



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Past issues of *Mycena News* can be read on-line at www.mssf.org.

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Fungus Fair Food

Carol Hellums

Though food may not be the main event at the Fungus Fair, it is always an important sideline. In addition to keeping the 200-plus volunteers fed and happy for the afternoon and evening of setup and the two days of the fair, there are the soup sales and the chef demos.

Cooking Demonstrations

Phil Brown brought together a constellation of stellar chefs for the cooking demonstrations, and made sure they had the tools and ingredients they needed. Often, a standing-room only crowd collected in the Oakland Museum's covered outdoor patio, where the demonstrations took place. A recipe for Chef Aaron French's dish is at the end of the article.

Watch for recipes from chefs Paul Ladeira and John Farais next month.

The Soup Kitchen at the 39th Annual Fungus Fair
Following is a report from David Eichhorn, our Soup Kitchen Czar.

The Soup Kitchen at the Fungus Fair was a great success. We sold out Saturday and almost sold out Sunday. In all, we served 350 bowls of various kinds of mushroom soup, along with 200 sweet and sour baguettes donated by Acme Bakery.

Members who made soup include Jeanette Larsen (whose recipe for Mushroom-Barley Soup follows on the next page), Pat George, George Collier, Sue Wingerson, Pascal Pelous, Bill Hellums, Andy Maxon and Rick Dalgetty. The soups varied according to the makers, both vegetarian and non, but were all excellent. Attendees from prior years said that they come to the fair "JUST FOR THE SOUP!!!"

Thanks also go to Bill Fujimoto and Harold at Monterey Market for the donation of 60 lbs. of mushrooms, to Acme Bakery for the bread, and to the MSSF members and SF State students who helped serve, for making the Soup Kitchen a gustatory and financial success.

Volunteer Food

If you've never volunteered to help at the Fungus Fair (or to assist with MSSF's many other activities), you should know how tremendously rewarding it is. Not only do you make a contribution to the Society, you have a chance to get to know some of our brilliant professional and amateur mycologists, and to learn from their expertise.

And at the Fair, you will also get in free and be wonderfully well fed.

A nod should go to Sherry and Al Carvajal for contriving to use the leftovers from the Mendocino Foray and the Christmas Dinner to put on a delicious spread on Saturday and Sunday. There was beef and mushroom stew, a vegetarian Spanish tortilla (so good that some of the meat-eaters kept trying to swipe it), as well as sandwich makings, salad, bread pudding, cookies, and drinks. ☘



Chef Paul Ladeira prepares a meal with MSSF member Phil Brown. Photo by Henry Shaw

*Thrift, thrift, Horatio! the funeral
baked meats
Did coldly furnish forth the marriage
tables.*

Jeanette's Mushroom-Barley Soup*Makes about 12 quarts*

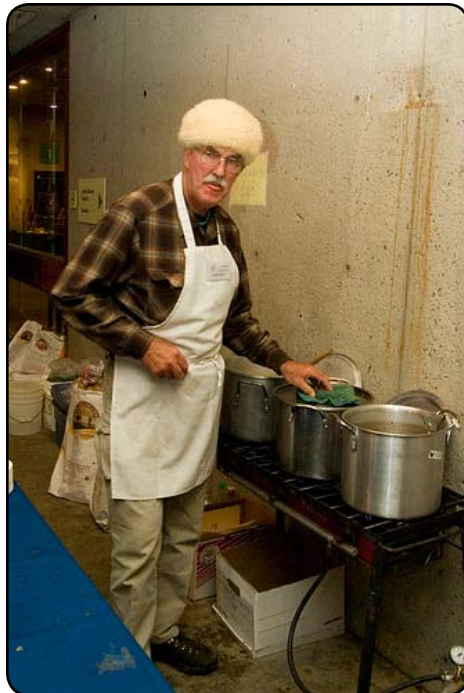
4 lbs. shiitake mushrooms, stemmed and chopped
 36 cups chicken stock, low sodium
 1 bunch celery, sliced
 6 potatoes, medium, peeled and cubed
 6 red bell peppers, seeded, sliced lengthwise and then cubed
 6 medium onions, sliced
 3 cups pearl barley, rinsed
 3 lbs. common white mushrooms, stemmed and sliced
 3 sticks butter (3/4 lb.)
 1 cup flour
 2 T. black pepper
 2 T. thyme
 2 bunches parsley, chopped
 1 bottle white wine (or to taste)

Put the first 7 ingredients (through the pearl barley) in a large pot and bring to a simmer. Process half of the shiitake stems in a food processor with some of the stock and add. As it comes to a boil, saute the white mushrooms in 2 sticks of the butter. Add to soup pot, leaving as much as possible of the liquid/butter in the saute pan.

Add 1 more stick butter, and whisk in the flour. Add soup by the ladle, whisking constantly, till smooth and liquid enough to add to soup.

Season with black pepper and thyme. Total simmer time should be about 20+ minutes, to cook the barley.

Adjust seasonings. Add parsley and white wine.



David Eichorn tends a batch of Jeanette's Mushroom-Barley Soup. Photo by Henry Shaw

Tequila & Hedgehog Mushroom Ragout over Pasta Conchiglie in Black Trumpet Romanesco

Chef Aaron French, The Sunny Side Café, Albany

1 lb. mixed hedgehog and chanterelle mushrooms, cleaned
 2 large yellow onions
 ¼ cup tequila
 4 sprigs fresh thyme
 Salt and pepper to taste
 4 T. olive oil
 Romanesco sauce
 ½ lb. black trumpet mushrooms, cleaned
 ½ c. olive oil
 1 c. dry baguette or other bread, in pieces
 ½ c. sliced almonds
 1 t. cayenne pepper
 1 T. fresh garlic
 ½ c. roasted red bell pepper, skin removed
 5 Roma tomatoes
 ¼ c. red wine vinegar
 ½ c. red wine
 1 t. truffle salt
 1 T. honey
 1 lb. shell pasta

Clean mushrooms and slice 1/8 inch thick. Peel and quarter onions, then slice very thin. Sauté onions in 1 T. olive oil over high heat until soft, and then turn down heat and cook about 30 minutes until transparent, stirring frequently and adding more oil if onions start to stick. Remove from pan and drain in a strainer.

Add about 2 T. olive oil back to the skillet and heat until almost smoking. Add sliced mushrooms and cook on high until soft. Reduce heat to low and return the onions to the skillet. Add the tequila and fresh leaves of thyme, and cook on low for 1 hour. Add salt and pepper to taste.

Meanwhile, prepare the romanesco sauce and boil water for the pasta. Clean the black trumpet mushrooms and sauté in olive oil until wilted. Place mushrooms and remaining oil in a food processor. Add remaining ingredients to food processor and blend, stopping when the mixture is still slightly chunky.

Cook pasta according to directions. Add sauce to drained pasta and toss in pan to warm. Serve, topping each portion with a spoonful of mushroom ragout.

Award-winning eco-chef Aaron French has been the chef of the Sunny Side Café in Albany, CA since its opening in January 2004. In 2007 he founded Sunny Side Organics with a line of sauces, dressing, and spice mixes. To learn more or read some of his articles, see www.eco-chef.com and www.sunnysideorganics.com

Trail Manners

Barbara & Bob Sommer

We like to see fungi, but not scattered in pieces along the trail. On our last hikes at the coast there were discarded mushrooms strewn about, obvious holes where mushrooms had been dug up by humans (deer holes are OK), and tree trunks showing evidence that polypores had been cut away. We've seen this before but this year seems a little worse. Pick-and-drop behavior produces litter that is upsetting to hikers, not to mention other mushroomers. The practice is disrespectful and will anger the mushroom gods on whom we depend for sustenance. Worst of all, it will bring down the heat. Visitors will complain to park rangers who will deny access.

We don't believe that MSSF members are responsible for the depredations, but it may be helpful for foray leaders to present some commonsense trail rules.

- o Don't vacuum the forest. If there are beginners in your group, encourage restraint. One or two representatives of a species will be sufficient for identification
- o Leave attractive mushrooms fruiting alongside the trail so that others may enjoy them. Search for mushrooms hidden from public view.
- o Replace your divots. When you dig up a mushroom, cover the hole with duff.
- o Cover cut stems with pine needles or dirt so that they are no longer visible from the trail.
- o Pick up mushrooms heedlessly discarded by others. Place them so they cannot be seen from the trail.
- o Don't pry off chunks of bark to remove a polypore. This can damage the mycelium and the tree.
- o When there are many of a species fruiting in a location, leave a few to drop their spores.
- o Don't pick undersize specimens, e.g. tiny chanterelles.
- o Discard your unwanted mushrooms beyond sight of the trail. Place them on the ground respectfully; say a brief goodbye.

Membership Update

Thank you to all of you who have renewed your membership for 2009! As of December 31st, 2008, we have a vibrant membership of 872 individuals and 30 institutions or societies with which we exchange newsletters. The attached table shows the breakdown of our ranks.

Membership Type	December 31st 2008	December 31st 2007
Adult	391	388
e-member	271	244
Senior	146	150
Student	36	38
Honorary	19	17
Life	9	9
INDIVIDUALS	872	846
Exchange	19	19
Institution	11	11
TOTAL	902	876

Speaker continued

the effects of habitat size and isolation on the species richness and community structure of ectomycorrhizal fungi. My current research is aimed at better understanding the role of dispersal in ectomycorrhizal community dynamics.

Deadline for the March 2009 issue of *Mycena News* is February 15. Please send your articles, calendar items, and other information to: mycenanews@mssf.org

MycoDigest continued

Support for the populations of *R. laulaha* belonging to a single species endemic to the Hawaiian Islands was based on its morphological distinctiveness and its reliable association with endemic Hawaiian rain forest vegetation. Our understanding of the role of long distance spore dispersal in the maintenance of fungal species cohesion is in its infancy. Some evidence suggests that fungal spores are seldom dispersed for distances greater than 100 meters indicating that despite rare long distance dispersal events, significant gene flow via spore dispersal, even between islands within Hawaii, is quite unlikely. Other evidence suggests that a single fungal species can sustain appreciable gene flow across a virtually global distribution, but the dispersal mechanisms in such cases remain unclear. Any species in Hawaii realized long distance dispersal at some point, as all Hawaiian taxa represent the product of immigration. Nevertheless, these long-distance dispersal events are typically presumed to be rare.

We sought to identify a potential geographic source for the non-Hawaiian ancestor of *R. laulaha* and to estimate the number of introductions to the Hawaiian Islands if more than one. This type of search for a 'closest relative' is difficult, especially for organisms with largely unknown distributions such as fungi. A recent estimation of worldwide macrofungal diversity calculated only 16-41% of macrofungi to be known to science and that endemism levels for macrofungi may be as high as 40-72%. Considering most global regions outside of Europe have an extreme paucity of data regarding native species of macrofungi, it is safe to say that our knowledge of fungal diversity and distribution is minimal.

The genetic data of several newly described *Rhodocollybia* species from the Neotropics were incorporated into our analysis (along with that of many other *Rhodocollybias* from Asia, Europe, and North America) to see if perhaps *R. laulaha*'s closest relative might be found. A most unexpected result emerged. One of the taxa newly described from oak forests in Costa Rica and Panama (*R. lignitilis*) had a genetic signature that was indistinguishable from that of *R. laulaha*. This was not the 'closest relative' that we had been seeking. This was *R. laulaha* – the very same species as in Hawaii, but growing in the Americas! Subsequent examination indicated that the morphological features of the Hawaiian and Central American collections are consistent and overlapping, further establishing them to be of the same species.

Despite the significant oceanic interruption in this newly-defined species range, the Hawaiian and Neotropical specimens appear to be virtually identical in morphology and genetics suggesting recent (perhaps ongoing) gene flow between Hawaii and the New World. Unfortunately, the Neotropical populations of *R. laulaha* are currently represented by only two collections: one from Costa Rica and one from Panama. (There

are over 150 Hawaiian collections.) This extremely small sample from the Neotropics makes estimation of actual gene flow impossible. It is intriguing that a mushroom so common and so prolific in Hawaii has been collected on only two occasions in the Neotropics, despite the fact that the specific collecting localities in Costa Rica and Panama from which it is known have been intensively sampled by mushroom biologists. This is perhaps even more remarkable for *R. laulaha* than for other mushrooms. In Hawaii, individual *R. laulaha* fruit bodies often persist for several weeks in nature affording long windows of opportunity for them to be found by mushroom hunters.

Knowledge of this expanded range of *R. laulaha* into the Neotropics allows for speculation about the biogeographic history of Hawaiian *Rhodocollybia*. There are at least two straightforward scenarios which would explain the species distribution observed here. If *R. laulaha* actually did originate in Hawaii, the Costa Rican and Panamanian populations would represent relatively recent migrations to the Americas. If such a scenario were true, it might explain the relative lack of abundance of *R. laulaha* in the Neotropics. Perhaps the oak forests of Central America provide a less than ideal habitat for this specialized Hawaiian endemic. Conversely, if *R. laulaha* is actually a New World endemic that has only recently established in Hawaii, its rapid spread and colonization of Hawaiian endemic rain forests might reflect a case of 'ecological release' whereby constraints found in its native land are removed and it is able to expand its range and numbers with ease.

Unfortunately, testing these conflicting hypotheses is not possible unless a considerable number of *R. laulaha* individuals can be collected from the Neotropics. Ideally, with sufficient individuals representing the Neotropics, multiple genetic markers might be able to determine current patterns of gene flow between Hawaii and the Americas (if realized) and the geography of origin – is *R. laulaha* Hawaiian or New World? For now, it remains a mystery. Is this enigmatic fungus a Hawaiian endemic? Maybe not. *Rhodocollybia laulaha* remains an excellent candidate for 'Hawaiian endemism' – it displays distinctive morphology and is almost always tied to Hawaiian endemic forest. Yet it somehow grows naturally in the Neotropics – remarkable. It is a humble reminder of how little we actually know about fungal distributions and a caution on use of the label 'endemic'. ❀

Matthew Keirle completed a Masters program with Dr. Dennis Desjardin at San Francisco State University in 2003. His thesis involved preparation of a monograph for the coprinoid mushrooms of the Hawaiian Islands. In August, he graduated from a doctoral program in the Committee on Evolutionary Biology at the University of Chicago studying with Dr. Greg Mueller at the Field Museum. His dissertation research investigated microevolutionary processes in the Hawaiian mushroom Rhodocollybia laulaha. He is currently Associate Professor of Biology at Manatee Community College in Bradenton, Florida.

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MSSF Calendar, February 2009

Monday, February 2, 2009, 7pm, Culinary Group Dinner. We meet at the Hall of Flowers, Golden Gate Park, 9th and Lincoln, San Francisco. Reservations are required. Contact Pat George at (510) 204-9130 or plgeorge33@yahoo.com no later than Friday, Jan. 30th to make your reservation. Our dinner will feature oxtail stew as well as our always outstanding side dishes, dessert and coffee. Dinner will be \$14 per person. Membership in the MSSF is required to be in the Culinary Group. Remember to bring your own tableware as the Hall of Flowers does not provide it. Also bring your favorite beverage and an appetizer to share. Our next dinner/meeting will be March 2nd.

Wed. and Thurs., February 4 and 5, 7pm, Intermediate Mushroom ID Workshop. San Francisco State University, Hensill Hall 401. This workshop will utilize popular field guides to identify fresh mushrooms. The Beginning ID Workshop is a prerequisite for this course. Instructor: J.R. Blair. Please sign up by contacting J.R. at jrblair@mssf.org or by calling 650-728-9405. Limited to 15 participants.

Tuesday, February 17, 7pm, MSSF General Meeting. Randall Museum. 7pm, mushroom identification and refreshments provided by the Hospitality Committee. 8pm, Kabir Peay will present **Fungi on Islands**.

Saturday, February 21, 10am, Salt Point Foray and Potluck Lunch with Darren Murphey and Mark Lockaby. Please bring rain gear in case of rain. You will also need a collecting baskets or paper bags to collect with. Some people may stay overnight, but Mark will not this time. We will go out collecting for about three hours and then meet up for a potluck lunch at the picnic area next to the parking lot. We will go out some more after we eat. Reservations are not needed for the foray, just show up.

To get to Salt Point take Hwy. 101 a little past Santa Rosa and take the River Road Mark West exit. Follow it west through Guerneville. River road will become Hwy 116 stay on it all the way to Hwy. 1 take Hwy. 1 about thirty miles to Salt Point State park. Turn in to the Woodside Campground day use parking area (\$6) I will be there at 10:00am. You can get better directions at Mapquest.com. If you have more questions email Darren at: Bugsbunny@sbcglobal.net or Mark at: marklockaby@sbcglobal.net Mark's phone 510-387-5957.