MushRumors

The Newsletter of the Northwest Mushroomers Association

Volume 23, Issue 1 March - May, 2012

Northwest Mushroomers Survive the Long Winter, Kick Off 2012 Season With Annual Survivor's Banquet

Photo by Vince Biciunas

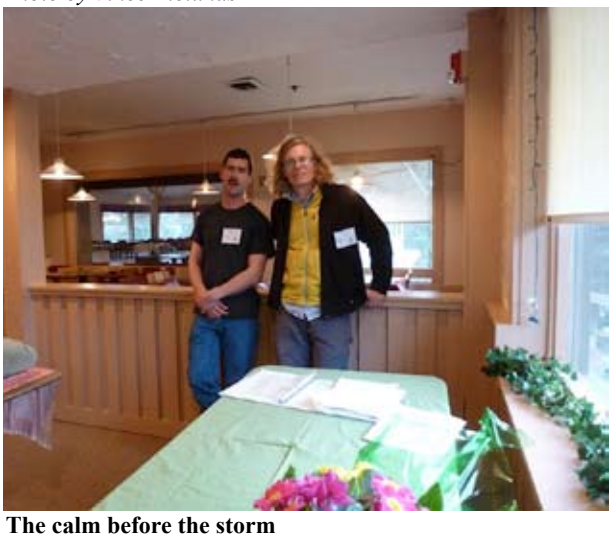
Survivors try ing to maximize their plate space!

The 2012 mushroom season was officially heralded in by the NMA Survivor's Banquet, and as usual, it proved to be a gala event. Each year,, it seems, the dishes prepared by the members become tastier and more refined. Since the membership has grown significantly over the past 3 years, there is also more to choose from, making it a genuine challenge to actually taste some of everything. It takes creative arrangement on one's plate to maximize the variety, but it is most certainly worth the effort.

The NMA's science advisor, Fred Rhoades put together a very entertaining slide show, constructed from wonderful pictures of various mushrooms taken by club members. The photos were reflective of the surprisingly good year we had, in terms of diversity.

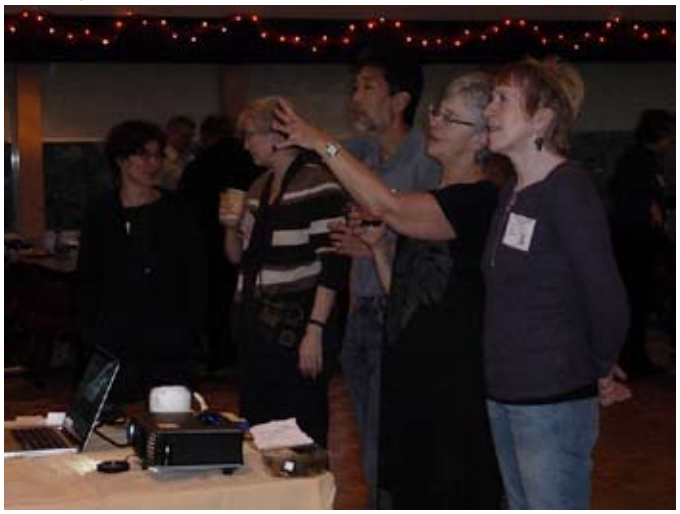
We had our traditional raffle of mushroom related memorobilia, although a somewhat smaller version than in past years. Start thinking about and gathering items for next year's banquet early, so that we can continue to hold this portion of the celebration.

Photo by Vince Biciunas



The calm before the storm

Photo by Vince Biciunas



Northwest Mushroomers in awe of fall finds.

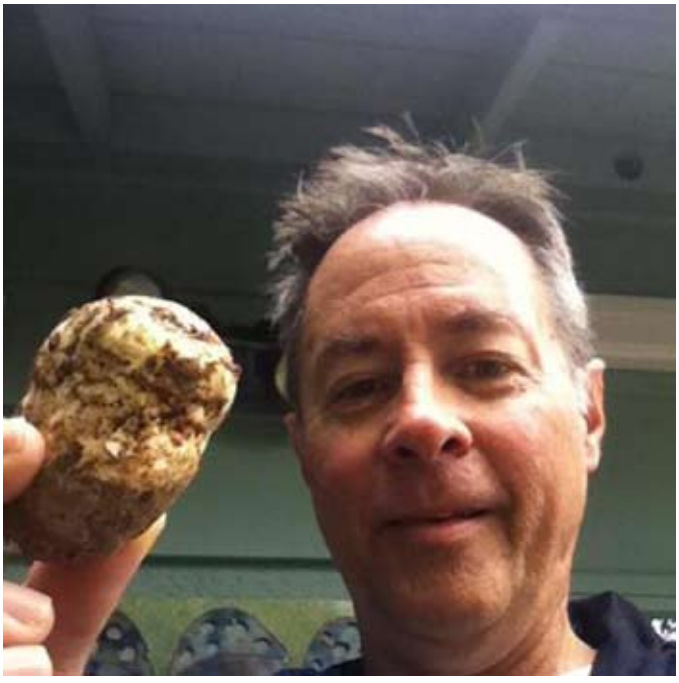
Tales of the Weird in the Fungal World

Unusually cool, wet weather patterns have contributed to some remarkable out-of-season fruitings of at least of few of our more notable fall mushroom staples. On the heals of a very strong La Nina weather pattern that persisted through all of 2011, very similar climatic conditions of the spring and early summer of 2012, despite the presence of La Nina, have produced fruitings of some mushrooms which have caused more than a few raised eyebrows in disbelief. The mushrooms seem to have been somewhat fooled into thinking that it's much later in the season. The most shocking apperance of them all is Chuck Dingee's incredible find of five matsutake buttons fruiting on a local Douglas Fir tree (pictured below). Fred Rhoades theorized that pehaps these are not early fruiting bodies for the 2012 fall season, but rather very late one's from last year, where there was really no area-wide fruiting of them at all.

In addition to matsutake mushrooms, I have seen some *lactarius* mushrooms known from fall season, and *Lyophylum decastes* was found on the Lummi Island foray. At least three different occurrences of *Leccinum scabrum* have also been reported.

The forces of climate change are working perceptibly on the the ecology of our area, and this has decidely manifested itself in the mycological features of our woodlands. We can olnly imagine what is yet to come in such an unusual year.

Photo by Chuck Dingee



Chuck's wonderous "summer matstake"

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The Northwest Mushroomers Association meets on the second Thursday of the months April, May, and June and September, October, and November, from 7 - 9 pm.

Meeting location is back to the Bellingham Public Library. We will inform you in advance of any changes of venue. Membership dues are $15 for individuals and families and the special price of $10 for students. Please make checks payable to NMA and send to: membership, at the mailing address above.

Bruce Armstrong is our field trip coordinator. Field trips are scheduled for the Saturday after each meeting.

MushRumors is published every other month (roughly). Deadlines for submissions are the 15th of odd-numbered months. (Of course, exceptions will be made in the event of fungal finds of unusual import!)
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Mushroom of the Month ***Ciboria rufofusca*** (Weberbauer) Saccardo *By Buck McAdoo*

Photo by Buck McAdoo

An increasingly common West Coast discomycete, the diminutive *Ciboria rufofusca* fruits on both douglas fir cones and silver fir scales. It is the only brown *Ciboria* that fruits on these substrates, and so is identifiable by this fact alone. I first saw it at Cispus near Mt. Adams years ago, and had no idea what it was. On April 8, 2001 I found it again at Deception Pass Park on a doug fir cone. The photo here is of a Berthusen Park find in the spring of 2009.

Ciboria rufofusca turns out to be a widespread fungus wherever silver fir is found. It is a saprophyte that decomposes fir scales and cones, returning the nutrients to the forest floor. The fruiting bodies are ⅓ to1½ cm wide, bladder shaped at first, and then goblet shaped with a stem or saucer shaped with very little stem. Colors vary from grayish tan to orange-brown to Prout's brown or even chestnut brown. The discs are always smooth and often dusted with a white powder. The cup margins can be wavy and split in age. Stems are ⅓ - 1½ cm long and up to 2 mm thick. They are brownish becoming darker brown towards the base. Bessie Kanouse wrote there is no sign of a stroma or a sclerotia, which the original concept of *Ciboria* called for, but Breitenbach & Kranzlin found the cone scales to be stromatized.

Microscopically, the spores are uniseriate inside an ascus. There are 8 spores per ascus. The asci measure 45-90 x 4-6.5 microns. The spores are smooth, ovoid, and measure 4-7.5 x 2-3.5 microns. Many are imbued with two oil drops. The paraphyses are slender, non-septate, and faintly thickened at the apices.

Otto Weberbauer first published the species as a *Peziza* in 1873. Saccardo moved it to *Ciboria* in 1889. In the 1930's, both Kauffman and A.H. Smith made several trips to the Olympic Peninsula, mainly to look for agarics and boletes. But between them they made over 400 collections of ascomycetes. Perhaps not wanting to deal with Seaver, they relegated the ascos to Bessie Kanouse to figure out. She found two collections of *Ciboria rufofusca*, both collected by Smith. One was found at Boulder Lake at 4,500 feet on May 28, 1939, the other at Deer Lake on June 13, 1939. She surmised that these were the first records of this species in the United States.

Ciboria rufofusca is a spring to early summer species, appearing solitary or in scattered groups on fir cones and scales. It probably has no culinary value, but Gueho & Pesando found that it had strong anti-fungal properties. It's somehow impressive that such an innocuous cup fungus can stand out in that way.

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Report on Species List at Lummi Island Foray *By Buck McAdoo*

On April 14th, 2012, 35 species of fungi were found at three different collecting sites on Lummi Island. This is good for this time of year. As expected, some spring ascomycetes showed up, and the list was also padded by some of last fall's desiccated polypores. Hostess Megan Crouse divided us into three groups for the three different sites. Some unusual species were found at all three.

Christine Roberts led a group through the Curry Reserve. Interesting finds from this locale in- cluded *Lachnum virgineum*, a tiny white cup fungus that you almost need a magnifying glass to see. Also found was *Chlorociboria aeruginascens*, a minuscule turquoise cup fungus that stains wood a dull blue-green. Larger fungi of interest were *Inocybe praecox* and *Hygrophorus recurvatus*. The former is an unusually large *Inocybe* with cinnamon colored caps that was recently described by Matheny, and even more recently worked up by Dick Morrison. I hadn't seen *Hygrophorus recurvatus* since finding it in a mossy pasture outside Bellingham in 1985. It has waxy, grayish-white gills and pale brown caps that can change color depending on how much sunlight they get. According to the literature, it is most common in Northern California.

The most poisonous mushroom was found on the Otto Reserve. This expedition was led by Vince Biciunas. A solitary dark brown *Amanita pantherina* was found there. Also found was the most edible mushroom, but the caps of *Lyophyllum decastes*, the Fried Chicken Mushroom, were so small as to be nearly unrecognizable. A glorious find from this area was *Auriscalpium vulgare*, a fungus with diminutive grayish caps, off centered, thin stems, and teeth instead of gills. And finally, perhaps a first for our area, *Cortinarius vernus*. This is a small *Cortinarius* with dark brown caps and tan gills that appears in spring in northern Europe. I am guessing that this is not the first find for Washington State, but a terrific find nonetheless.

Foray host Bruce Armstrong and I went on the Baker Reserve hike up a steep trail through woods. We hadn't gone far when Rich found Fairy Barf on a piece of bark. They looked like tiny pink pillows on a bed of cropped astro turf. Fred Rhoades later identified the collection as a lichen called *Icmadophila ericetorum*. Not long after, we found *Ciboria rufofusca*, dark brown cup fungi on tiny stalks fruiting on doug fir cones. Originally, this species only fruited on the individual scales of true fir cones, but in moving to doug fir, it has expanded greatly its habitat and therefore its range to go with it. Two different collections of a small brown *Mycena* were found. Fred later worked them up for us. They both turned out to be *Mycena amicta*, a *Mycena* mostly known for its blue tinted caps. Now we know they can be brown as well as blue. As is generally the case for spring time gilled mushrooms, there were more *Inocybes* and *Mycenas* than anything else. The poisonous purple-gray *Mycena pura* was found, along with a solitary *Mycena galericulata*, probably the second largest brownish *Mycena* in the northwest. Other interesting finds were *Tarzetta cupularis*, a pale ochre-brown cup fungus that fruits on mud, and '*Clitocybe subconcava*', a true rarity that one would not expect to find here. It is a Peck species recorded from New York and North Carolina. Peck introduced it in 1902. It keyed out really well in Bigelow's *Clitocybe* monograph with just a few reservations. (This is why there are apostrophes around the name.) It was found solitary in needle duff alongside the trail. The funnel shaped cap, long decurrent gills, and clump of whitish, flattened mycelium at the base of the stem helped define it. The cap was brick-orange-brown with a whitish canescent covering. The stem was paler orange with a white pruinose apex. Peck described the caps as 'deeply umbilicate' instead of funnel shaped, so this is our main bone of contention.

And of course, no foray is complete without the unnamable *Galerina*. These are very small, conical ochre to rust colored species that you need a microscope for to identify them. This one had striking tibiiform cheilocystidia and no clamps, so there was hope from the start. Alas, the attempt to name it collapsed when it failed to match up with any other *Galerina* in the tibiiform group in known monographs and keys. This means I either blew the interpretation of the micro features, it's a species described in some remote journal that hasn't been rounded up for keys, or it's a new species. There are two specimens. Will gladly lend out the collection for anyone interested in taking a stab at it.

All in all, an interesting foray for the taxonomist. As for edibles, several border line ones were found. People have eaten *Stropharia ambigua*, *Clitocybe inversa*, and *Agrocybe praecox*. But these are second tier or maybe even third tier candidates for the table when nothing else is found. The only first tier edible was *Lyophyllum decastes* in a tight cespitose cluster, but with caps so small you couldn't recognize it.

Mushroom Inventory foray, NW Mushroomers 4/14/12
Lummi Island Heritage Trust properties

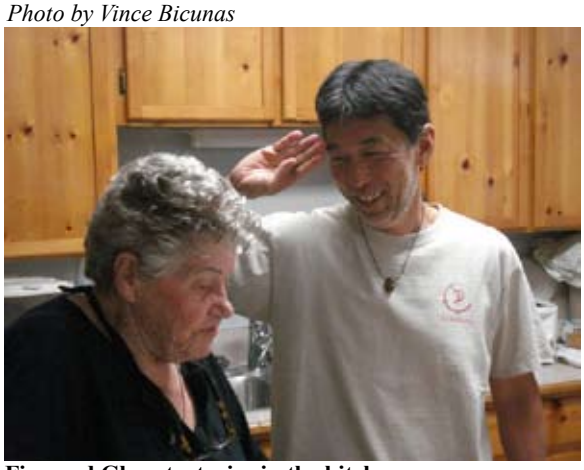
Scientific name	Common name (if any)	Baker	Curry	Otto
Agrocybe praecox group		X		
Amanita pantherina	Panther Amanita			X
Auriscalpium vulgare	Ear-pick Fungus			X
Chlorocyiboria aeruginascens			X	
Ciboria rufofusca		X		
Clavulina cinerea	Ashy Coral			
Clitocybe inversa		X		
Clitocybe subconcava		X		
Cortinarius vernus				X
Exidia glandulosa	Black Jelly			
Fomitopsis pinicola	Red-belt Conch	X		
Galerina sp.		X		
Ganoderma applanatum		X		
Gyromitra infula				
Hygrophorus recurvatus			X	
Ichmadophila ericetorum	Fairy Barf (a crustose lichen)	X		
Inocybe geophylla	Earth-loving Inocybe			
Inocybe grammata	I. albodisca	X		
Inocybe praecox	Spring Inocybe	X	X	
Lachnum virgineum	White Daisy Cup		X	
Laetiporus conifericola	Chicken Of The Woods		X	
Lichenomphalia umbellifera	Mushroom Lichen			
Lyophyllum decastes ? (immat)	Fried Chicken Mushroom			X
Mycena amicta		X		
Mycena galericulata	Bonnet Mycena	X		
Mycena pura		X		
Nolanea pseudostricta				
Peziza vesiculosa ?				
Phaeolus schweinitzii (old)	Dyer's Polypore	X		
Polyporus badius			X	
Stereum gausapatum		X		
Stereum hirsutum ?			X	
Stereum ostrea				
Stropharia ambigua	Questionable Stropharia	X	X	
Tarzetta cupularis		X		
Trametes versicolor	Turkey Tail			

X = definitely found at this location; for species without any X's, they were seen on the table but their location is unknown

2012 Morel Madness: Great Company, and a Few Mushrooms, to Boot

Musings Over Morel Madness *By Margaret Dilly and Pete Trenham*

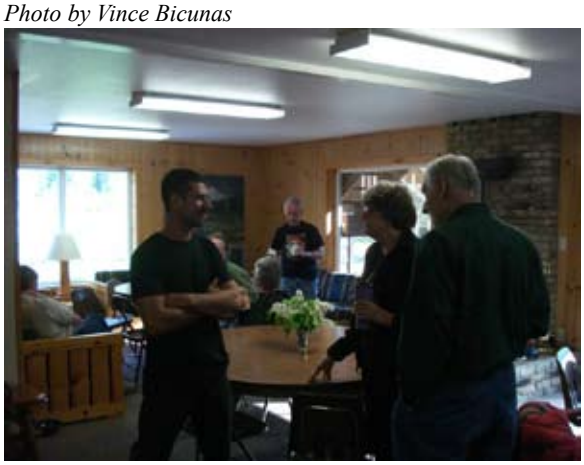
Photo by Vince Bicunas



Fien and Glen strategize in the kitchen

Recollecting the weekend's events, the weather cooperated beautifully with our merry group of foragers, by providing sunny skies and pleasant temperatures for the entire weekend. On Saturday morning, we started out en mass with Margaret and Claude training us in the identification of the habitat of the wily morel. This preparation proved to be most useful, for the few morels that were both well spaced, as well as well hidden, were indeed turned up by our tenacious group of fungi hunters.

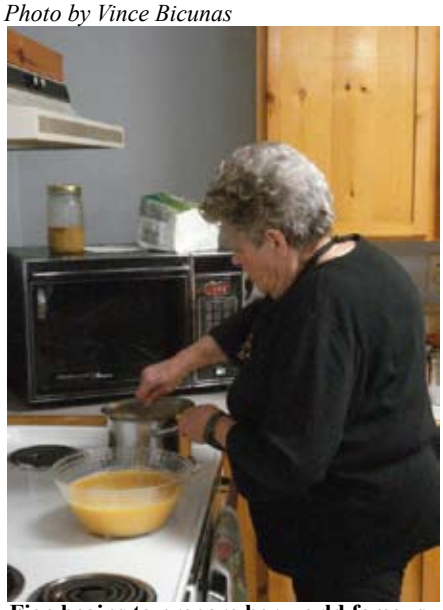
Photo by Vince Bicunas



Hungry mushroomers discussing the hunt

New member Ron Phair was the first to find a nice black morel. *Gyomitra gigas* was found in abundance.We then split up in small groups and hunted until dinner time. Upon our return, we enjoyed the fine bounty we had assembled for the traditional Saturday evening potluck, and ruminated on how tasty Fien's Sunday breakfast would be. Generous foragers provided some of their prized catch of morels for Fien's now legendary omelettes, smothered in luscious morel gravy, with a side order of tasty puffballs! Many thanks go out to Bruce, Raven, Sago, and Glen for their invaluable assistance in the kitchen.

Photo by Vince Bicunas



Fien begins to prepare her world famous omelettes

One of the highlights of the event was the light show put on by Raven on Saturday night; awesome!

The houskeeping assistance by Miriam and Dick Tobias, Bruce Armstron, Julie and Glen Ishihara, Karen Kelly and Sago Jackson and others was greatly apprecated, and last but certainly not least, mushroom identification was expertly privided by Margaret Dilly and Larry Baxter. It was a great trip for all who attended, look forward to seeing you there next year!

Species List Morel Madness 2012

Gilled fungi

Agrocybe praecox
Clitocybe albirhiza
Clitocybe glacialis(formaly Lyophyllum montanum)
Cortinarius sp.
Melanoluca sp.
Nolanea sp.
Pholiota carbonaria
Psthyrella sp.

Non Gilled fungi

Calbovista subsculpta
Calvatia fumosa
Cryptoporus
Discina perlata
Ganoderma sp.
Geopyxis carbonaria
Gyromitra esculenta
Gyromitra gigas
Morchella elata
Morchella esculenta
Nidula niveotomentosa
Polyporus badius
Sarcosoma mexicana
Verpa bohemica

Morel Taxonomy Update

By Fred Rhoades 6/20/12

When I gave my talk on morels to the club meeting in April, I tried to make some sense out of my limited knowledge and information available on the web. A week later Vince pointed me to a paper to be published in Mycologia by Michael Kuo and 10 others ("Taxonomic Revision of true morels (*Morchella*) in Canada and the United States") that had just been pre-released electronically (April 11, 2012 - Google the title to see a copy). Ah, I thought, finally some clarity. According to Kuo et al. there are at least 12 Pacific Northwestern species of *Morchella*, none of which deserves any of the European names we commonly use (*Morchella esculenta, Morchella elata, Morchella deliciosa, Morchella semilibra*, among others). You can read an excellent synopsis of morels at Michael Kuo's MushroomExpert.com (this page includes a general key to groups of morels but does not include all the names presented in the above paper).

Well now it appears that the excitement about clarity may have been premature. Another paper ("Les Morilles. Une Nouvelle Approch Mondiale Du Genre Morchella" - "The morels. A new world-wide approach to the genus *Morchella*") by Philippe Clowez in The Bulletin de La Société mycologique de France was published in 2010. The content of this paper, which references many North American collections, will have to be gone over with much care to see which species that Kuo et al. named may have been previously named by Clowez. The principle of taxonomic priority (first validly published name for a species is the correct one) would mean that Clowez's names are valid and Kuo et al.'s names aren't. The research behind both papers includes reference to DNA sequences in a great many collections, so comparing the two will take some time and is something North American mycologists knowledgeable about such comparisons will have to do.

At the moment, I'm as confused as ever.

Morchella frustrata (one of Kuo's names, that may not be correct) before, during and after slug consumption at a secret Bellingham location. (Middle photo curtosy of Seren Fargo.)

Report on Spring/Early Summer Mushrooms in the Eastern Cascades *By Jack Waytz*

After making two journeys over the Steven's Pass to hunt for morels and *Boletus rex-veris* in the wilderness of the east slopes of the Cascades Mountain Range around the Chihuahua River, I can say that conditions there have been equally out of character as their counterparts in our area to the west. When I have gone there to collect from early June and into the first week of July in past years, I have been met with dry, hot conditions, with temperatures sometimes into the mid-ninties, and mosqitoes in such numbers, that they practically blotted out the sun.

When I went on June 5th, it actually snowed on me as I went over the pass, and when I got to Lake Wenatchee, it was 43 degrees. I found no morels, and was fortunate enough to discover a few boletes, fruiting on the exposed areas on the road banks, where the sun had warmed soil temperatures enough to suit singular fruitings. Ten days later, Dan Viney of the Northwest Mushroomers'ventured over and was fortunate enough to hit the lower areas at what now would seem to pass for the zenith of the fruiting season there. He found nearly 50 pounds of boletes, separated into two fruitings. The first was apparently a week old, and beginning to suffer the effects of both time, and maggots, and a second of firm, beefy buttons in their prime. He also discovered a respectable quantity of morels, the perverbial icing on the cake.

My second sojurn to the east turned up a small number of beautiful bolete buttons, and a total of two (2) morels, albeit blonde and beautiful. This was definitely a better year than last year, yet still far off from an average year in this area, as for the fourth consecutive year, there seemed to be an absence of the conditions which would support a massive, area-wide fruiting. I did turn up one gargantuan bolete (pictured at bottem, right) that tipped the scales at one kilogram (2.2 pounds), and free of mushroom fly larvae, no less!

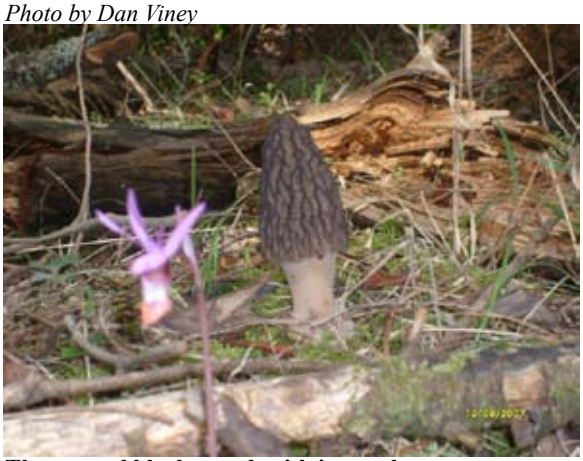
Photo by Dan Viney

The spring king, in all of its glory

Photo by Dan Viney

Boletus rex-veris, in situ

Photo by Dan Viney



The natural black morel, with its marker, the calypso orchid

Photo by Anita Waytz

Massive mushroom, a statly spring king

Recipes for the Successful Hunter of the Elusive Morel

Green Bean Casserole Redux

Often maligned by gourmets for its humble origins, this version of a holiday favorite is a worthy addition to any special dinner.
1 1/2 pounds fresh green beans, in 3" pieces
8 tablespoons butter, divided
2 cloves garlic, minced
3/4 cup chopped onion
4 ounces dried morels
1/2 teaspoon thyme
1/4 cup flour
1 cup evaporated milk
1 cup mushroom soaking liquid
1/2 cup chopped shallots
1/2 cup fresh white bread crumbs
1 1/2 teaspoons salt
1/2 teaspoon black pepper, more to taste
Soak morels in 2 cups hot water for about 30 minutes. Drain, saving soaking liquid. Cook morels, onions and garlic in 2 tablespoons butter until thoroughly cooked. Set aside.
Cook green beans in boiling water about 6 minutes or until just tender. Drain and set aside.
Melt 4 tablespoons butter in saucepan and whisk in flour. Cook for a minute or two. Combine evaporated milk and 1 cup morel soaking liquid. Whisk combined liquid into flour mixture a little at a time until the sauce is smooth and slightly thickened. Add thyme, 1 teaspoon salt and 1/4 teaspoon black pepper. Set aside.
Melt 2 tablespoons butter in small skillet. Add shallots and cook until soft and lightly brown. Add bread crumbs. Season with 1/2 teaspoon salt and 1/4 teaspoon black pepper.
Mix green beans, morels, and sauce. Pour into large casserole and top with bread crumb mixture. Bake for about 25 minutes at 350°.

Recipe from the *other* MushRumors newsletter, of the OMS (Oregon Mycological Society)

Stuffed Morels

1 doz. medium size morels
1 can (8oz) flaked crabmeat
1 egg, beaten
1/4 cup salad oil
2 tbl mayonaise
2 tbl chopped sweet onions
2 teas fresh squeezed lemon juice
1/2 cup of seasoned bread crumbs
2 tbl melted butter or margarine

In a bowl combine crabmeat, egg, salad oil, mayonaise, onions, lemon juice, and 1/4 cup of bread crumbs. Wash morels under running water. Fill morel "shells" with mixture. Combine remaining 1/4 cup of breadcrumbs with melted butter and sprinkle over mixture. Place the stuff stuffed morels in a pan. Bake in oven for approx 15 minutes at 375 deg F. Serve hot.
Courtesy of Richard Progovitz

Photo by Dan Viney

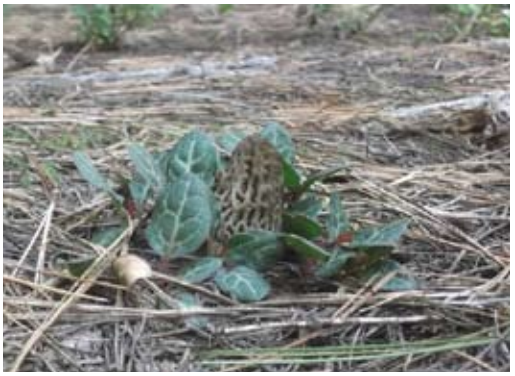
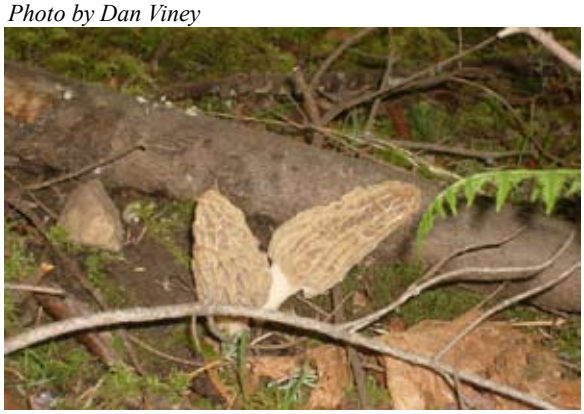


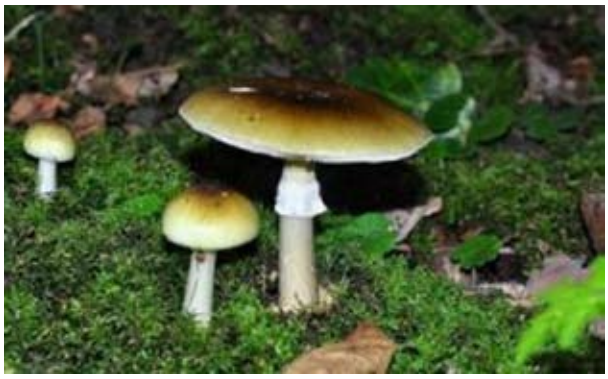
Photo by Dan Viney



Top and bottom photos, two different morels!
See Fred's article on page 7 for more insight.

Study Suggests Death Cap Mushroom Poison to Arrest Pancreatic Cancer in Mice

Reprinted from an article appearing in ScienceDaily.com April 2, 2012



A. phalloides *Credit: Marion, pixelio.de*

Scientists of the German Cancer Research Center have coupled the fungal toxin amanitin to an antibody which recognizes a cancer-typical target molecule. Like a guided missile, the antibody carries its poisonous load to target cancer cells. The poison-loaded antibody arrested the growth of various types of cancer cells in the culture dish and even caused the complete disappearance of transplanted pancreatic tumors in experimental mice.

The mere thought of an identification error sends a chill down the spine of any mushroom lover: The death cap mushroom (Amanita phalloides), which resembles the common white button mushroom, contains one of the most deadly poisons found in nature, α-amanitin. This substance kills any cell without exception, whether it be healthy or cancerous. At the German Cancer Research Center (Deutsches Krebsforschungszentrum, DKFZ) and the National Center for Tumor Diseases Heidelberg, immunologist Dr. Gerhard Moldenhauer, jointly with biochemist Professor Dr. Heinz Faulstich, Max Planck Institute for Medical Research, has now developed a method for destroying cancer cells using the dreaded fungal toxin without harming the body.

The trick to accomplish this is to deliver the poison directly to the right address in the body using something that virtually serves as a cab. In this case, the cab is an antibody whose highly specific arms attach to a cancer-typical cellular surface protein called EpCAM. The fungal toxin is linked to the antibody in a stable chemical conjugation.
In the culture dish, the poison-loaded antibody arrested the growth of pancreatic, colorectal, breast and bile duct cancer cell lines. In mice bearing transplanted human pancreatic cancer, a single antibody injection was sufficient to inhibit tumor growth. Two injections of higher doses of the antibody even caused complete tumor regression in 90 percent of the animals. Even the higher doses did not cause any poison-related damage to the liver or other organs of the animals.

EpCAM, the protein chosen by the Heidelberg immunologists as the tumor cell recognition structure, is a characteristic membrane protein of epithelial cells. This type of cells lines all inner and outer surfaces of the body. Most malignant tumors originate from such epithelial tissues. Many of these, such as pancreatic cancer, breast and ovarian cancers, bile duct carcinomas and tumors of the head and neck, produce too much EpCAM -- and this is frequently associated with an extremely poor prognosis of the disease. EpCAM is therefore considered a suitable target structure for attacking tumor cells.

"Treatments with unconjugated antibodies against EpCAM have already been tested in clinical trials such as for breast cancer. They were intended to attack the cancer solely with the weapons of the immune system, but they turned out to be clinically ineffective," said Gerhard Moldenhauer. "However, our amanitin-conjugated antibody has a much greater potential for killing cancer cells."

Each antibody is linked to between four and eight toxin molecules. Amanitin is regarded as very suitable for this purpose. It is small enough not to be recognized as foreign by immune cells, while it is also robust enough to lend itself to chemical conjugation. "When developing toxin-conjugated antibodies you have to take an awful lot of things into account," Moldenhauer explains. "The cancer cell has to regularly take the target molecule including the attached antibody into its interior, for this is the only place where the poison can act. In the cell's interior, the poison needs to detach from the antibody or else it will not be effective. At the same time it is absolutely vital that it does not get lost while it is being carried through the body, because this could cause severe adverse side effects."

The dosage of the amanitin antibody needs to be determined with the utmost care. One problem is that liver cells are extremely sensitive to the fungal toxin; another is that other healthy cells carry the EpCAM molecule as well and are therefore endangered. However, the results obtained in mice give reason to be optimistic, according to Gerhard Moldenhauer: "Even at high doses we have not detected any organ damage in the animals. We therefore expect that there is a sufficient therapeutic window for a dosage that kills cancer cells while leaving healthy tissue unaffected."

Moldenhauer, who has many years of experience in developing therapeutic antibodies, already has plans for amanitin-conjugated guided missiles against other cancers. In particular, certain types of leukemia and lymphoma cells also carry highly specific surface molecules which lend themselves as target structures for poison-loaded antibodies.