

Next Meeting Sept. 12<sup>th</sup>, 2005

# SPORES Afield

The newsletter of the Colorado Mycological Society

September 2005



## Greetings Members!

What a difference a little rain makes! Just days before the Fair, frantic foray leaders were calling in dire reports of minimal findings. Then the rains came and in the 'nick-of-time' we had sufficient fruitings to help make the

Fair a very successful event. Even so, the summer mushroom fruiting season is definitely off-kilter.

In my neck of the woods (along the Peak-to-Peak highway), the ground has not received a good soaking and fruitings are both late and a bit spotty. I am still finding young king boletes, but only in favorable areas such as near streams and in drainages. I doubt that I will be able to find enough boletes to fully re-stock my dried 'Winter Stash'. I am also finding some *Agaricus* mushrooms in the woods and Matsutake is late but seems to be producing well in at least two of my hunting areas.

The September meeting will be the very popular 'Cook & Taste' and I anticipate a great membership turn-out for this event. Since no one has come forward to coordinate this event, I will assume the 'Chair' position. As usual, tables will be provided to line up the offerings. If you intend to provide a dish to share for the Cook & Taste, please note that the kitchen next to our meeting space is not available for cooking. Those planning on contributing to the Cook & Taste should contact me at [wnwindsor@comcast.net](mailto:wnwindsor@comcast.net) or 303-544-6069 and let me know what dish they plan to bring.

## September Meeting: Annual CMS Cook & Taste.

Members only please! You can become a member at the door, just bring \$23, cash or check. See page 4 for more details.

## Upcoming Forays

**Please note all forays meet at 9:00 am in the northeast parking lot (also known as the T-Rex lot) of the Morrison exit at I-70 unless otherwise announced. If you carpool from that point which is strongly encouraged, due to limited parking at most foray locations, please chip in gas money. You must be a member of CMS to take part in the forays.**

**September 10<sup>th</sup>** (Saturday) Norm Birchler (303-440-7123) will lead a beginners foray. **Sorry for the short notice**, meet at the usual place.

Be sure to bring your CMS membership card or your current copy of *SporesAfield* with you. If you are not a member you can become one at the foray for the standard new member fee of \$23, which will also get you copies of *SporesAfield* for the rest of the year. New memberships paid now will run through 2006

We have a need for people to lead forays. You do not need to be an expert identifier to lead a foray. You only need to be willing to lead a group of people to a location where mushrooms can be found. If you would be willing to lead a foray, please contact Tom Ruzicka 303-447-2740 or via e-mail at: [tomruzicka@mindspring.com](mailto:tomruzicka@mindspring.com).

## Upcoming Events

**Sept. 12<sup>th</sup>** Cook & Taste, See page 4 for more information

**Oct. 10<sup>th</sup>** Chef Smailer of the Boulder Cork. His restaurant hosts our "End of the Season Fungi Feast".

**Oct. 23<sup>rd</sup>** "End of the Season Fungi Feast" at the Boulder Cork.

Bring mushrooms for identification and display to each meeting.

All meetings are held at the Denver Botanic Gardens in Mitchell Hall at 7:30 pm unless otherwise announced.

## "Dr. Mushroom" makes the cover

One of the stories on the cover of the July 2005 issue of Discover magazine is entitled, "Dr. Mushroom's Poison Portfolio". It is an interview by Cal Fussman of Dr. Greg Mueller, curator of mycology at Chicago's Field Museum. Subtitled "Fungi finally have their own PR man", it fairly brims with Dr. Mueller's enthusiasm for mushrooms. Look for this issue on newsstands, or check your local library to read the full six page article.

In a sidebar, Dr. Mueller mentions some of the mentors he says have shaped his career. He includes Dr. Walt Sundberg, Southern Illinois University at Carbondale (site of the 1989 NAMA foray - memorable for foraging in the snow!), Dr. Ron Peterson, University of Tennessee, and the late Dr. Rolf Singer, Field Museum, whom you could have encountered at one of the Aspen Mushroom Conferences in the mid '70s. Every NAMA foray and major mycology conference provides opportunities to meet some outstanding mycologists, and is one of the best reasons for attending these events. You don't have to be an expert to take part. NAMA loves beginners.

Marilyn Shaw

## Nominations of Officers for 2006

Election of New Officers will occur at our October 10<sup>th</sup> meeting. The following individuals have agreed to run for office yet nominations will be accepted from the floor at the Oct. meeting, the nominee must have agreed to be nominated. Please consider offering your talent to CMS.

| <b>Nominee</b>  | <b>Office</b>   |
|-----------------|-----------------|
| President       | Norm Birchler   |
| President Elect | Chris Hardwick  |
| Vice President  | Louis Gaz       |
| Secretary       | Joanna Seward   |
| Treasurer       | Harry Obermeier |
| Member-at-Large | Linda deLeon    |

(continued on page 2)

(**Presidents** continued from page 1)

I anticipate that this fruiting season will be a short one so now is the time to get out there and find your favorite fungus. Matsutake should continue to fruit throughout September (and maybe even into October if it does not get too cold too soon), but I doubt that the boletes will run much longer. To find the boletes, first locate damp areas between 9,000 to 10,200 ft. elevation, and check drainage areas. This year and along the Peak-to-Peak Hwy., the boletes associated with ponderosa pine and spruce seem to fruiting better than those associated with douglas fir.

### *Spores Afield*

*Spores Afield* is published from March through October by the Colorado Mycological Society. CMS dues are \$23 for the first year and \$20 thereafter. Send membership dues to CMS Membership Chair, Box 9621, Denver, CO 80209. All CMS members receive *Spores Afield* as part of their membership.

CMS is an affiliated member of the North American Mycological Association.

CMS web site: <http://www.cmsweb.org>

## 1045 Attend CMS Fair!

By the Norm Birchler, Editor

CMS held it's annual mushroom fair on Sunday August 14<sup>th</sup> at the Denver Botanic Gardens. Dr. Else Vellinga our fair identifier did a terrific job with lots of help from Vera Evenson, Ellen Jacobson and Dr. Vellinga's husband, John Lennie. Despite the dry weather (the Monday before the fair we were wondering if we would have any mushrooms) 192 species were identified. Attendance was high, with 1045 people counted at the door.

Being the Fair Chairperson I want to personally thank everyone that helped make this fair a success. We really had a great team of CMS members, longtime members and brand new members, we also had three non-members in town from Oregon. Vera Evenson, Ellen Jacobson and John Lennie helped Else identify and catalog all the mushrooms as well as answer questions from attendees. Diane Horton stepped in and kept the incoming mushrooms organized moving towards the identifiers.

Tom Ruzicka and Ken Maples sold T-shirts, Dorothy Maples watched over the Arts & Crafts display with help from several different volunteers, Adele Mikelevicius headed up the book sales with help from Louis Gaz and Marianne Hewitt. Kabir and new member Rob Hallock signed up new members at the door with assistance from Tom Ruzicka. Marilyn Shaw covered toxicology, Jason Salzman, kids in tow, Manny and Joanne Salzman manned the City mushroom display, Ed and Ikuko Lubow had a photography display with many beautiful pictures to look at, and I know Ed couldn't keep away from the identification table.

Ed Swanberg and Chris Hardwick had an elaborate cultivation display while Mark Donski gave tissue culture demonstration about every hour on the hour. Tom Taggart and Gary Pickett were instrumental in setup on Saturday and keeping things running smoothly on Sunday. Christy Honigman helped with sorting on Saturday and made a run to the store for more paper plates; I bought 400, nowhere near enough. Sunday she

helped move mushrooms to the proper tables after identification was made as well as taking care of ordering setting up lunch for almost 40 volunteers. Ruth Davis made the Kiddie Korner special and taught the kids Origami the art of paper folding. William Windsor had a beautiful "Natural Habitat" display. Lee and Linnea Gillman could not make it but a copy of there display was up and they were there in spirit.

So many people showed up to helped I'm not sure where they all helped out, Harley and Bonnie Shaver, Regina Hollberg, Elaine Fredrick and Toby, Matt and Katie from Oregon.

I should also thank the staff at the Denver Botanic Gardens, particularly Daphne Webb head of Facility Rentals.

If I missed anyone I sincerely apologize. Thank you all so much!!!! You really made my job easy.

PS. As President next year I will need at least one volunteer to be the Fair Chairperson. It really is not that much work, and I will be happy to help out. Contact me: Norm Birchler 303-440-7123 or nbirchler@comcast.net

## MycoDigest: The Question is Blowing in the Wind

By Dr. Else Vellinga

*Part 2 continued from the August issue.*

Some good stories for further reading:

Brown, J.K.M. & M.S. Hovmoller, 2002. Aerial dispersal of pathogens on the global and continental scales and its impact on plant disease. *Science* 297: 537-541

Gonthier, P., R. Warner, G. Nicolotti, A Mazzaglia & M.M. Garbelotto, 2004. Pathogen introduction as a collateral effect of military activity. *Mycological Research* 108: 468-470.

Vilgalys, R. & B.L. Sun, 1994. Assessment of species distributions in *Pleurotus* based on trapping of airborne basidiospores. *Mycologia* 86: 270-274.

# SEPTEMBER MUSHROOM TASTING

SEPTEMBER 12<sup>th</sup>, 2005

We are planning a wild mushroom Cook & Taste for the September meeting. The cook & Taste will be held at 7:30 in Mitchell Hall at the Denver Botanic Gardens. Members are encouraged to bring a mushroom dish to share with other members. Those who have no time to cook or cannot cook may bring drinks, desserts, salads, or bread (prepared food from the grocery is fine.) The cook and Taste is being organized by President William Windsor. Contact him at 303-544-6069 or [wnwindsor@comcast.net](mailto:wnwindsor@comcast.net) to let him know what you are bringing. We don't want all the same dish. *This event is for members only.*

Only the following mushroom species may be used:

*Boletus barrowsii*

*Boletus edulis*

*Cantharellus cibarius*

*Commercial mushrooms from a grocery*

*Coprinus comatus*

*Dentinum repandum*

*Flammulina velutipes*

*Hydnum imbricatum*

*Lactarius deliciosus*

*Marasmius oreades*

*Matsutake - Tricholoma magnivelare or Tricholoma caligatum*

*Morchella angusticeps*

*Pleurotus ostreatus*

All the dishes brought to the Cook & Taste must follow these rules:

- 1) All mushrooms must be well cooked. Raw mushrooms will not be allowed in any dish.
- 2) Use only one species of mushroom in each dish.
- 3) A written recipe prominently showing the species of mushroom in the dish and the cook's name **MUST** accompany each dish.
- 4) Leccinum species are not allowed!
- 5) If you have a supply of a good, common edible species of mushroom that you would like to use in a dish, but it isn't on the list above, call Marilyn Shaw at 303-377-1278. All exceptions must be approved in advance of the Cook & Taste.

# Fungus

By Ed Mena

(e.mena@uconn.edu; eemena@aol.com)

## Part 1 of 2

I would like to thank the members of the Colorado Mycology Society for devoting the additional effort to send samples from your recent foray. I'm sure that many are wondering about the eventual fate of these mushrooms. I can assure you that everyone of them is still frozen and waiting for their turn to be placed in a Waring blender. What I've tried to do in the accompanying article is to try to help you understand my reasons for collecting mushrooms. I would like to add that if anyone would like to help collect for me, please contact me at either of the above emails and I'll contact you.

I have always been trying to find ways to combine natural products and biochemistry. Before becoming a full time mushroom researcher with a lab at the University of Connecticut @ Avery Point. I have researched the venom of Conus snails (predatory snails from the Philippines) and spider venoms and compounds from fungal cultures (at Washington University in St. Louis, University of California at Irvine and Pfizer, Inc.). Whoever said "Nature is the world's best chemist," has been proved correct time and time again. But why is there such a variety of chemicals in nature? And why have I decided to look at fungal fruiting bodies as a source of new and useful compounds? I wish I had a short answer, but I don't.

All living organisms produce an extremely varied list of chemicals. These chemicals fall into two very large (and arbitrary) groups. The first types of chemicals are those that are needed by the organisms for their basic cellular functions such as metabolism, energy production, breakdown of damaged molecules and synthesis of new ones. Cells also need the chemical machinery to make proteins, DNA, RNA and many other complex molecules that are absolutely essential for all life. Producing each of these large molecules is a complicated process that can include 50 or 60 different chemicals and a similar number of

enzymes (large proteins). To make these different chemicals and enzymes, the cell requires yet another series of reactions, a list of which could become quite lengthy, depending on the organism. For example, most typical cells, from bacteria to yeast (a fungus!) to mammals, can oxidize sugar (glucose) and produce energy (ATP) in addition to more specialized tasks, such as dining on decaying wood or savoring fresh dung. You soon get the general idea that many chemicals are needed to keep the basic biochemical machinery of a cell operating properly. These chemicals that keep the cell going are referred to as "primary" metabolites.

If there are "primary" metabolites, then there also must be "secondary" metabolites. We hear about this class of compounds usually in association with plants, fungi, bacteria and other "lower" forms of life, such as invertebrates. (I really dislike the term "lower form of life," but elaborating here would digress too much.) The term "secondary" was originally given to this class of compounds largely because no "primary" role was known for most of them. They were chemicals that didn't seem to have any essential role for the organism. If the organism or cell did not produce these compounds, there was no reason to believe it would not continue happily onward. This was especially true if the organism found itself in a mono culture in some scientist's lab. This is still the case with many "secondary" metabolites. That is, scientists studying these organisms in isolation can find no (obvious) function for them. Most researchers now believe that they play a critical role in the organism's life; it's just that frequently the function of these compounds may be difficult to ferret out among other activities that are being studied. For example, moth sexual pheromones are considered secondary metabolites. The individual moth does quite well without them. However, they are vitally important to the survival of the species. Another classic example of a secondary metabolite is the antibiotics produced by some fungi and bacteria. When growing a fungus as a sterile mono culture in someone's laboratory, the organism has little use for antibiotics and usually ceases to produce them.

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(Fungus continued from page 5)

However, in its natural habitat, their production is not a luxury.

The pheromones and antibiotics are examples of what I believe are the two major functions of all secondary metabolites made by lower life forms: defense and communication. These functions also help to explain another important observation. Most of the compounds classified as secondary metabolites are not synthesized continuously but are made by what could be described as an "on demand" fashion. A more textbook-like term is "inducible compounds." Perhaps one reason for them not to be synthesized continuously is that many of them are extremely complicated chemicals. Any cell that synthesizes complicated molecules such as ivermectin, taxol, and other secondary metabolites is investing a significant portion of its resources into that synthesis. The product of the synthesis must be essential for its survival. If the production of these compounds was not carefully regulated, there would be an enormous liability - those individuals that wasted such resources on their unnecessary synthesis would be rapidly squeezed out. So, instead, their production is turned off and on by environmental cues. It could be a communication from another mating type of the same species, contact with a particular food source, or attack by a predator. Some recent results indicate that with fungi, secondary metabolite production peaks at the time of sporulation, a critical time. If we restrict our study to fungus, we are discussing organisms that can't see, smell, hear, or feel. So how do they detect their surroundings? How do they become aware of essential events such as moisture in their surroundings or the presence of friendly and not-so-friendly companions? These events are likely mediated by chemical communications.

**Due to limited space this article will be continued in the October issue of *SporesAfield***

## The Crested Butte Wild Mushroom Festival, A Brief Review

By Joanna Seward

We chose Crested Butte and the mushroom fete as the destination for our first trip in Bernie's new little travel trailer; Joanna and our two cats were included. The cats did well.

After settling into camp in Almont we headed for the pretty town of Crested Butte and on up the Kehler Pass Road to look for mushrooms and were happily rewarded with boletes. Feeling encouraged we returned to the CB Community School to register for the Festival and received our bags that included name tags, the CB Magazine, maps, paper bags for collecting, a whistle, and printed notepaper for recording finds and making spore prints. The evening program included a welcome and introduction of resource people and a slide presentation on mushrooms of the area.

Next morning we joined the first foray. We were divided into three groups, each with a knowledgeable leader. Our group was taken to a beautiful home in the mountains whose owners had generously given permission for us to hunt on their property. We were instructed to take only one specimen of each mushroom for identification later in the day. This effort was surprisingly enjoyable as each find was exciting. Had we been looking for edibles only the foray would have been a disappointment—except for the chanterelles.



Larry Evans

The identification workshop, led by Larry Evans of the Western Montana Mycological Association, took place at the school in the afternoon using the mushrooms we'd found earlier. These were spread on large round

tables and we were assigned specimens to identify using the keys, an unaccustomed discipline and good learning experience, helped immensely by Larry's personable and attentive assistance. In the evening we enjoyed a great jazz concert by the Freddy Rodriguez Quintet presented in a very comfortable church community room.



We chose not to participate in the gourmet cooking workshops and luncheons that took place each day, a mistake we'll correct next year. Neither did we take advantage of some other activities on the Schedule of Events so cannot report on them. Next year . . .

The highlight of the weekend for us was the unexpected invitation to a remarkable mushroom feast at the home of Diane and Roger Kahn on Saturday evening as they generously included some of us from other mycological societies—Denver, San Diego, and Missoula—to join their vibrant guests. The first course was a delicious soup whose aroma drew us all into the kitchen. The recipe was printed in the CB News and is included, with permission, at the end of this article.

We were impressed by this visit to Crested Butte, our first in decades, where the advantages of a small, friendly community were very apparent. Using school and church facilities created a comfortable intimacy of atmosphere, the local newspapers gave great coverage, and town restaurants even included mushroom dishes on their menus to accent the event. We enjoyed the generosity of spirit inherent in the friendly mushroom community, met people we hope to see again, and savored the air and scenery of the area including

the most curious sight of a large road cut covered in hundreds, perhaps thousands, of tall mushrooms glinting in the sun. (They were not locally occurring but introduced in the soil or mulch used for an erosion amelioration project.) We also signed the mother of all liability waivers. It was a good time and a good experience too as the past winter's snow plus abundant summer rain assured a good mushroom presence in the area. We'll definitely go again, and we highly recommend the Crested Butte Wild Mushroom Festival to all. . . . here is a gift from the Festival.

#### Mushroom Marsala Soup

##### Ingredients:

1/2 cup (1 stick) butter

3/4 cup diced onions

1 1/4 pounds of sliced mushrooms (mainly a mixture of boletes)

1 clove garlic, chopped

1/2 cup flour

2 teaspoons fresh thyme, chopped

2 tablespoons chicken base or 2 bullion cubes

1 1/2 cups marsala wine

2 cups heavy cream

1 teaspoon each salt and pepper, to taste

##### Directions:

In a large saucepan on medium heat, melt butter and saute onions until clear.

Add mushrooms, increase heat to high and saute mushrooms until golden brown.

Add garlic and saute until soft, 1 minute.

Season with salt and pepper.

Add flour and thyme, and stir 2-3 minutes, add marsala wine, stir and reduce liquid by half.

Add chicken base or bullion cubes, simmer 15 minutes.

Add cream, bring back to a simmer and correct seasoning with salt and pepper.

For further information and photos refer to the following web sites:

Roger Kahn at [www.cbmushfest.com](http://www.cbmushfest.com)

Larry Evans at [www.fungaljungal.org](http://www.fungaljungal.org)

## Chocolate loves fungi? Who would have guessed?

An interesting item in the October 2004 issue of Discover magazine on pg. 16, written by Patricia Gadsby, reveals an aspect of fungi that many of us may not be aware of. We, of course, all know that most green plants could not survive without their proper fungal partners, which enable plants to utilize nutrients in the soil which would not otherwise be available. These mycorrhizal (literally “fungus root”) associations are symbiotic, benefiting both the fungus and the tree. It is also known that fungi can be some of the most serious pathogens of plants. “Yet”, Gadsby says, “scientists keep finding tons of fungi inside healthy plants.” Quoting ecologist Allen Herre, “What we call a plant isn’t just a plant. It’s usually a mosaic of plant and fungal tissues.”

Herre and other scientists have been studying *Theobroma cacao*, the tree from which chocolate is derived. These trees are normally colonized by a number of harmless fungi. In controlled tests some of the leaves of these plants were injected with the common cacao fungi, while others were not. Then all were exposed to a “pathogenic fungus that causes black pod, an ancient scourge.” Leaves which had not been injected with the harmless fungi were three times more likely to die.

Many other scientists, Paul Stamets is a good example, are studying ways to utilize fungi for the benefit of mankind, including for mycoremediation of toxic wastes, and as nontoxic pesticides.

Let’s hear it for fungi!

Marilyn Shaw