

Next Meeting October 13th, 2008

# SPORES Afield

The newsletter of the Colorado Mycological Society

October 2008

## President's Column

By Rob Hallock

### 2008 Recap:

This is my last President's Column for 2008. I'll briefly recap the year and spend special attention to the mycoblit. It was a fairly poor year for edible mushrooms, and rather than go through the year and relate the lack of rain and hot temperatures to all the mushrooms that didn't come up, I'll focus on our successes.

We had a very exciting line up of speakers this year. We had mushroom experts Daniel Winkler, Hope Miller, and Else Vellinga talk to us this year, and

are slated to have Larry Evans speak to us at the October meeting. The year was rounded off by excellent talks by CMS members Ed Lubow and Marc Donsky, as well as a talk on native Colorado trees by the Denver Botanic Garden's own Dina Clark. Much of your membership dues go to paying for these speakers, and we hope you enjoyed them. If you have a request for a speaker for the 2009 series, please let me know (even if you've previously given me someone's name!). I'll pass the names along to the 2009 programming committee. I'd like to thank the other two members of the 2008 programming committee, Vera Evenson and Ed Lubow, as well as everyone who participated in one way or another to make the talks happen. I'd also like to thank Marc Donsky for being in charge of the CMS projector and making sure it was at every meeting.

CMS had a number of exciting forays: the snowbank mushroom foray, morel foray, the fair forays, the foray when we collected specimens for the Herbarium of Fungi, and the fall foray. I'd like to thank all the leaders of these forays who volunteered to lead a group of friends and strangers alike to a potentially fruitful mushroom spot.

The annual mushroom fair was successful. Linda DeLeon was the fair chair and did a great job coordinating the event and all the volunteers that serve as the backbone to our organization. My last column was largely devoted to the specifics of the fair, but please see Linda's thank you note in this newsletter.

A week after the mushroom fair was the Rocky Mountain National Park

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## October Presentation - Using the Keys with Larry Evans

CMS is proud to announce that the speaker for our October meeting will be Larry Evans. Larry is the President of the Western Montana Mycological Association, and has a long mycological resume that dates back to 1977. Larry has been the chief identifier at the Crested Butte Wild Mushroom Festival, for eight years. He is also a frequent lecturer at the Telluride Mushroom Festival, and has collected, documented, and photographed fungi on most continents. He is in charge of the website <http://www.fungaljungal.org> and has published dozens of mushroom articles.

Larry will lead a hands-on workshop on describing and keying out mushrooms.



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mycoblitz. Bernie Seward, Christy Honigman, Marc Donsky and myself, planned the weekend, and nearly 85 people participated in the mushroom survey. Michael Kuo and Vera Evenson served as our identifiers and did an outstanding job under the pressure of the task at hand. Numerous assistants and volunteers made the weekend possible. In total, we made 276 fungal collections and documented around 188 distinct species. Specimens are housed in the Denver Botanic Garden Herbarium of Fungi. Many of these species are still identified only to genus, and it will take some time to definitively identify them to species.

Our annual Cook and Taste at the September meeting was an amazing potluck dinner that featured wholesome home-cooked food. We got to sample a number of amazing dishes. Fortunately, a few people had dried *Boletus edulis* from last year that they broke out for the event. Others splurged for some delicious commercial mushrooms from various sources, and several people brought some delectable desserts. Finally, members also brought the stuff that often gets overlooked (napkins, plates, plasticware, cups). We thank everyone who brought something to make it happen.

The last event of the year is the annual Fungi Feast at the Boulder Cork. If last year is any indication, this year is sure to be a great evening with good food and even better company.

In parting, I'd like to thank the CMS board and committee chairs who diligently worked the gears that kept everything in motion this year. In addition to specific thanks given above, I'd like to thank Gretchen for working her ass off on the newsletter, Bernie for maintaining the CMS website and always being willing to add details on a moment's notice, Bill for continuing to do treasurer duties despite much more pressing distractions and obligations,

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Joanna for being secretary and always injecting insightful thoughts at our board meetings, Linda for continuing to take care of memberships and stepping up to the plate to be fair chair, Christy for her prodding and encouragement, and the future president and vice president for working towards a better CMS in the future. Everyone did a great job to yield a successful 2008, and we hope to see you participate in 2009. ☺

## Upcoming Events

**October 13<sup>th</sup> -**

7:30 PM - Using the Keys with Larry Evans

**October 19<sup>th</sup> -**

5:30 PM - Mushroom Dinner  
- SOLD OUT! - To be added to the waiting list, please contact Tom Ruzicka at 303-447-2740.

## CMS Calendars

Calendars may be purchased at the October meeting for \$14 (\$26 for two; \$36 for three). Alternatively, send Rob Hallock an email ([rob.hallock@uchsc.edu](mailto:rob.hallock@uchsc.edu)) if you would like to send a check for \$15 (\$28 for two; \$39 for three) and receive it in the mail.



*Cyathus striatus*



*Polyporus squamosus*



*Archamia sp.*



*Hydneium aurantiacum*



*Lycoperdon perlatum*



*Hygrophorus piceae*

### Colorado Mycological Society 2009 Calendar



*Morchella angusticeps*



*Floccularia straminea*



*Amanita nivalis*



*Ustilago maydis*



*Hygrophorus purpurascens*



*Hevelia corium*

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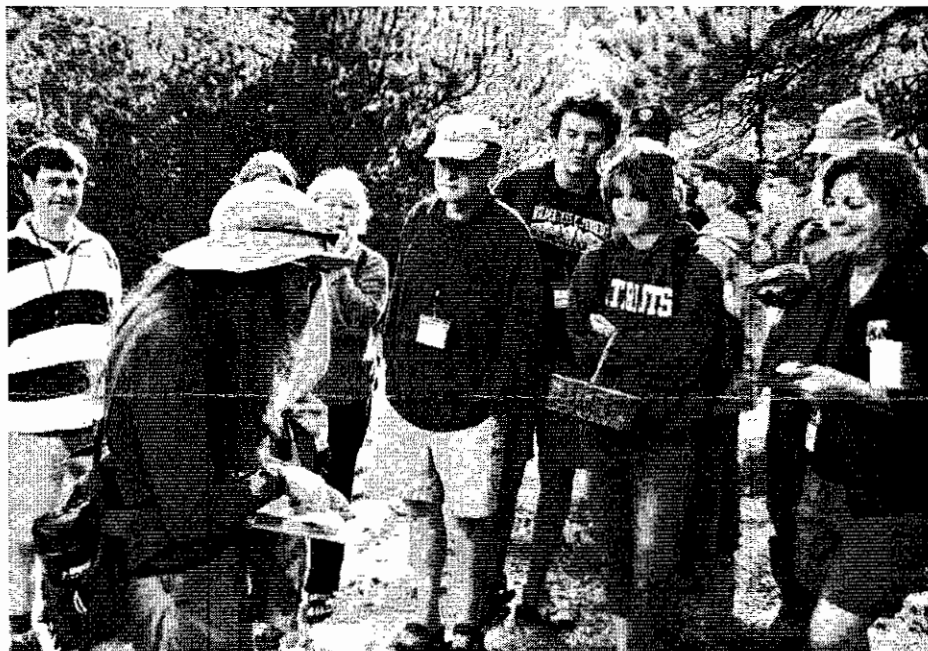
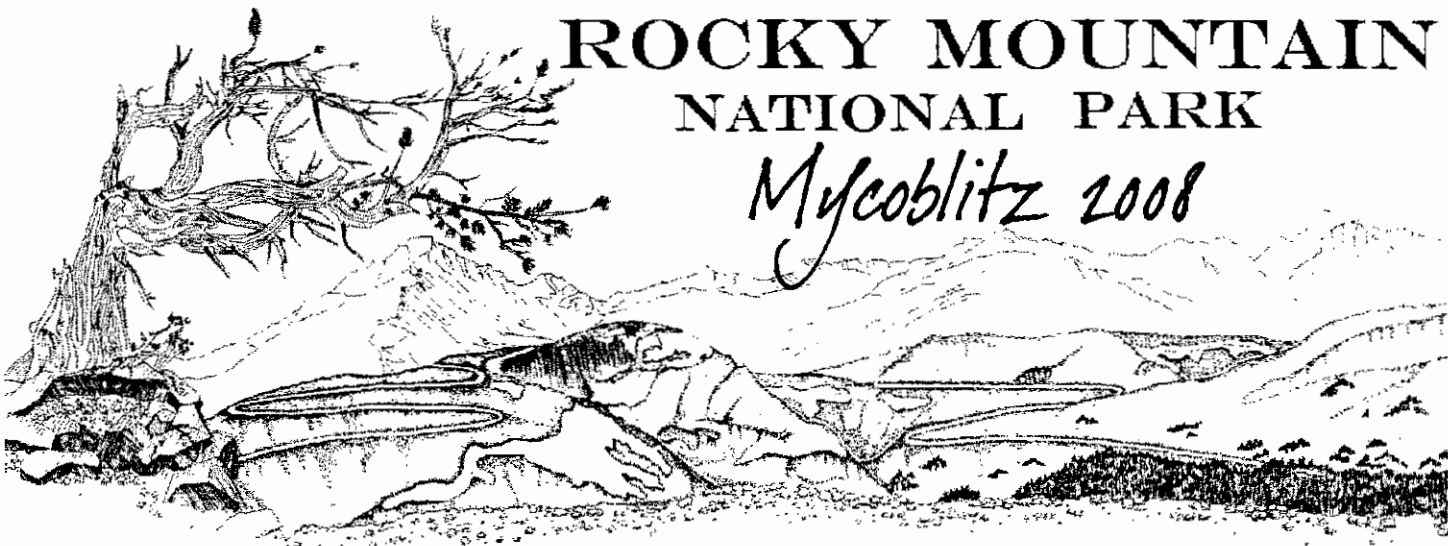
New or relatively new members should plan on attending this meeting since it will be very instructive. Our more experienced members will enjoy meeting Larry. Bring a friend; this will be both informative and entertaining. If we're lucky, we can get him to sing a track from his CD, 'The Fungal Boogie'. Note: You should bring along your favorite mushroom identification book to this meeting, since this will be a "hands-on", participatory presentation.

## CMS Annual General Meeting

This is our last meeting of the year and, as always, it includes our General Meeting, where we elect a new slate of officers who will take over for 2009.

# ROCKY MOUNTAIN NATIONAL PARK

*Mycoblitz 2008*

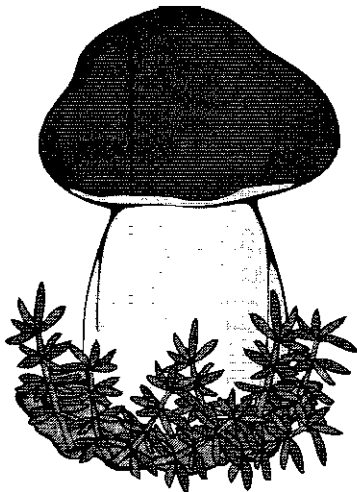


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## The top 10 reasons you know it's a bad *Boletus edulis* year

By Rob Hallock

10. You come home with *Suillus*.
9. You seriously consider eating *Leccinum* that grow under Aspen.
8. It doesn't matter if the few *Boletus edulis* you found are really, really wormy.
7. Even the chipmunks, squirrels, and marmots are resigned to eating mushrooms they don't usually eat.
6. You are jealous that a friend found two *Boletus edulis*.
5. You actually take the time to review the *Mushrooms Demystified* key to the *Inocybe*.
4. You wonder if the ski areas' snowmaking equipment could be turned on in August.
3. You consider putting a "California or Bust" bumper sticker on your



mushroom basket.

2. A flood of responses ensues when the question, "You know it's a bad *Bolete* season when ...?" is posed.
1. You keep repeating, "I'm not just a pot hunter. I'm in it for the science."

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## Taxon Change of the Month: *Armillaria ostoyae* becomes *Armillaria solidipes*

By Rob Hallock

Mushrooms change names more often than politicians change their messages. It's all very confusing (mushroom names, not politicians), and it is best to keep up with the official name changes. As mushrooms change names more and more these days, I think the "Taxon Change of the Month" might become a regular column I write for the newsletter. The next paragraph was passed on to me from CMS member Ed Lubow.

"Apparently our old friends Tom Volk and Hal Burdsall (both of whom have been identifiers at our annual Fair in years past) have decided that our Honey Mushrooms should not be called by the name *Armillaria ostoyae*. It seems that Peck named some Honey Mushrooms he collected in Colorado in 1900 *Armillaria solidipes*, and a study of the type collection he made shows that his name should be used, as the name *A. ostoyae* was coined in 1970 in Europe by Romagnesi. Interestingly, this changes the name of one of the most common species of Honey Mushrooms in Europe."

For those of you who aren't familiar with the honey

mushroom yet, it is a very common edible across Europe, the United States, and here in Colorado. My experience with the mushroom is that it comes up *en masse* after the first cold snap



Photo by Rob Hallock

toward the end of summer. When you find some, you often find at least three pounds of them in the area. It has a very strong flavor that some equate with the taste of liver. I should also note that these mushrooms should be cooked for a minimum of 20 minutes, as some people experience gastrointestinal distress if they are undercooked.

There are numerous mushrooms that can be misidentified for honey mushrooms, and the honey mushrooms themselves are much more variable than your average mushroom species. The stem, for example, can vary from 5 mm to 5 cm. We used to say in my last club that "honey mushrooms are not a beginners' mushroom". To put this more plainly, people who are not used to eating this mushroom should have someone look at them who

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does eat them. With that disclaimer, honey mushrooms have several characteristics that set them apart from other mushrooms. They grow in clusters on dead or dying wood (often Aspen). They have a brown honey colored cap with black fibers that cover the cap. They have a prominent ring on the stem, and they have a white spore print. The spore print can often be found in the field, as the gills of the upper-most mushroom are often directly on top of another mushroom, and this leaves a spore print on the cap of the lower mushroom. Every single honey mushroom you pick for the table must fit every single one of these characteristics. ●

### Contact Us:

### Membership

For questions regarding membership in the Colorado Mycological Society, contact Linda deLeon, CMS Membership Chairperson, at 303-278-9582 or by e-mail.

### CMS Newsletter (SPORES Afield)

To submit an article or notice to the CMS newsletter, SPORES Afield, or for newsletter inquiries, contact Gretchen Cheverton, editor, at 720-298-3867 or by e-mail at [lindygrey@yahoo.com](mailto:lindygrey@yahoo.com).

### Other Inquiries

All other inquiries should be sent to the Colorado Mycological Society at the following address:

Colorado Mycological Society  
P.O. Box 9621  
Denver, CO 80209

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## NAMA honors Vera Evenson with the Award for Contributions to Amateur Mycology



Vera Stucky Evenson, M.S. (right)  
Curator, Herbarium of Fungi

<http://www.namyco.org/about/awards.html#amateur-a>

This year's recipient of the NAMA Award for Contributions to Amateur Mycology has had a long and inspiring association with both amateur and professional mycologists, including several previous NAMA Award winners. She has worked with and published books and papers with Dr. D. H. Mitchel, Dr. Alexander H. Smith, and Dr. Orson K. Miller, Jr. She is an author, along with Alex Smith and Sam Mitchel, of "The Veiled Species of Hebeloma in the Western United States." She is also the author of the popular "Mushrooms of Colorado and the Southern Rocky Mountains." She is the curator of the Denver Botanic Gardens' Herbarium of Fungi. She is a past president of the Colorado Mycological Society and has served as

its mushroom identifier at its annual mushroom fairs. She also attends regional forays in which she gives lectures and identifies the mushrooms collected. Dr. Orson Miller has written of her: "We have worked together on the species of Hebeloma from Alpine Tundra in Colorado...we have worked together during the annual Colorado mushroom show and taken groups from Denver into the surrounding mountains on other visits. This long association has given me a special perspective on the dedication which (she) has to mycology. She (exemplifies) the outstanding type of interaction with both amateur mycologists and the public in general which a teacher can exhibit."

## Leather Work Gloves Found in Mitchell Hall

After the Mushroom Fair, Marilyn Shaw found a pair of good leather work gloves in Mitchell Hall. If they might be yours, contact the Information Desk at the Denver Botanic Gardens.

## Call for Mushroom and Soil Samples

Marc Donsky is pleased to announce that Ms. Christy VanCampen will be joining our research group as a Master's student this fall semester. Christy currently works for Environmental Resource Associates. She will be working on collecting data about heavy metal accumulation in Colorado mushrooms. We are requesting your aid in obtaining samples of mushrooms and the substrates (about 10 grams) they were collected from (growing in). We are (of course) especially interested in mushrooms collected near old mines. We are also interested in city collections and pristine environment collections. Please contact Marc Donsky at 303-556-3201, email: [marc.donsky@ucdenver.edu](mailto:marc.donsky@ucdenver.edu) with any questions or for more information. Thank you for your help!

# Fastest Flights In Nature: High-speed Spore Discharge Mechanisms Among Fungi

ScienceDaily (Sep. 17, 2008) — Microscopic coprophilous or dung-loving fungi help make our planet habitable by degrading the billions of tons of feces produced by herbivores. But the fungi have a problem: survival depends upon the consumption of their spores by herbivores and few animals will graze on grass next to their own dung.

Evolution has overcome this obstacle by producing an array of mechanisms of spore discharge whose elegance transforms a cow pie into a circus of microscopic catapults, trampolines, and squirt guns.

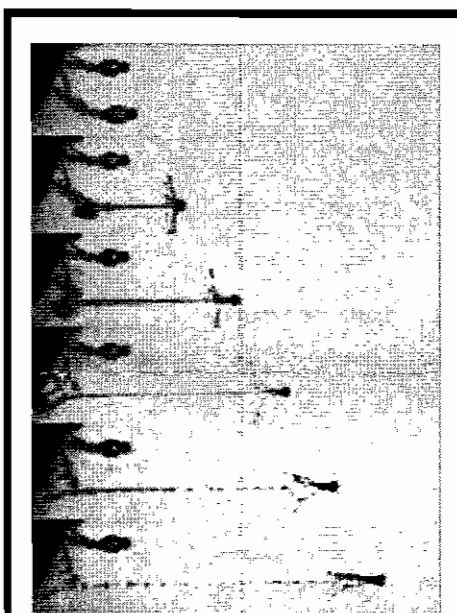
A new paper from Nik Money's lab at Miami University in Oxford, Ohio, in collaboration with Diana Davis and Mark Fischer at the College of Mount St. Joseph in Cincinnati, solves the operation of squirt guns that fire spores over distances of more than 2 meters.

The researchers used high speed cameras running at up to 250,000 frames per second to capture these blisteringly fast movements. Spores are launched at maximum speeds of 25 meters per second—impressive for a microscopic cell—corresponding to accelerations of 180,000 g. In terms of acceleration, these are the fastest flights in nature.

The paper is significant for a number of reasons. This is the first study utilizing ultra-high-speed video cameras to capture the events of spore discharge in ascomycete and zygomycete fungi. Previous investigators relied upon models to predict ballistic parameters and

produced erroneous estimates of velocities and accelerations. These estimates were then used to suggest that pressures within the spore guns were very high. Fungal cells generate pressure by osmosis and, in the PLoS ONE study, the authors used a combination of spectroscopic methods to identify the chemical compounds responsible for driving water influx into the guns.

These experiments showed that the discharge mechanisms in fungi are powered by the same levels of pressure that are characteristic of the



*Sporangiophore discharge in the fungus *Pilobolus kleinii* captured with high speed video. This illustration is a montage of 6 separate image files from a video obtained at a frame rate of 50,000 frames per second. The selection shows every 10th frame, each separated by 200 microseconds. The launch is completed in less than 0.25 milliseconds; an eye blink takes 100 milliseconds, or 400 times longer! (Credit: Yafetto et al)*

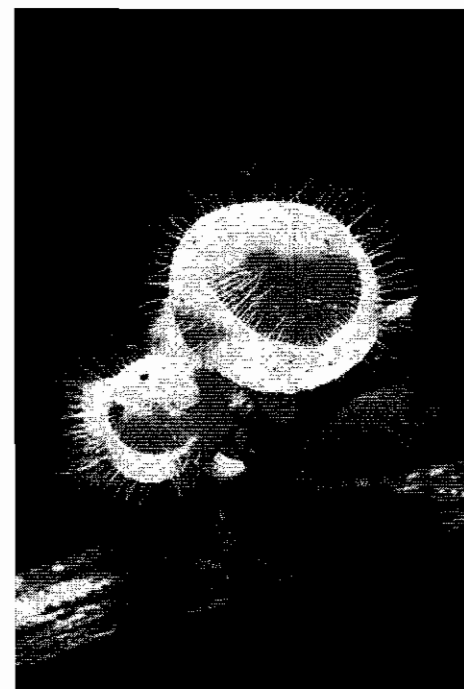
cells that make up the feeding colonies of fungi. Therefore, the long flights enjoyed by spores result not from unusually high pressure, but from the way in which explosive pressure loss is linked to the propulsion of the spores. There

appear to be some similarities between the escape of the spores and the expulsion of ink droplets through nozzles on inkjet printers.

Another important aspect of the new work is the way that it has allowed the researchers to test different models for the effect of viscous drag on microscopic particles and identify limitations in previous approaches to modeling. This information is very important for future biophysical studies on spore and pollen movement, which have implications for the fields of plant disease control, terrestrial ecology, indoor air quality, atmospheric sciences, veterinary medicine, and biomimetics.

Finally, the paper was co-authored by 6 undergraduate students, and 3 graduate students who worked for hundreds of hours to obtain the video footage. Some of the videos are so beautiful that student Hayley Kilroy (one of the authors) has set them to music and plans to post them on YouTube.

The authors' research on spore discharge in fungi is currently funded by NSF and NIH. ●



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## A note from your fair chair ~

As Fair Chair 2008, I want to thank each and every one of the people who helped out at the Mushroom Fair in August. Just as previous Fair Chairs had told me, it was easier than I'd thought it would be. So many people pitched in to help, including many members who just came to the fair and worked all day without even being asked.

We had good attendance, got 15 new members, and sold many books, calendars, and t-shirts.

Special thanks to Dr. Else Vellinga, the Fair Identifier for this year, and to Vera Evenson and Ellen Jacobson, who worked alongside her. Also, special thanks to Pete Marczyk for the wonderful sandwiches we had for lunch and to Gerry Turner for bringing an incredibly generous amount of snacks and soft drinks. Marilyn Shaw was a one-woman wonder, bringing over many of the displays and taking time to organize them all and cart them back home with her after the fair. Gary Pickett came early and stayed late to help with set-up and take-down. Christy Honigman filled in for me on Saturday night when I couldn't stay. Rob Hallock provided me with a game plan, a lot of encouragement, and tons of practical advice. And there were many more who helped in many more ways, but there just isn't space to mention each person, though I truly wish I could.

If you didn't have a chance to volunteer this year, consider signing on for next year's fair. I certainly will, knowing how miraculously it all comes together and what an enjoyable time it is for everyone.

Linda deLeon  
CMS Fair Chair 2008

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## Honey Mushroom Loaf

By Rob Hallock

The honey mushroom (*Armillari a mellea/ A. ostoyae/ A. solidipes*) is one of my favorite mushrooms and is the only edible mushroom I found more than 20 pounds of this year.

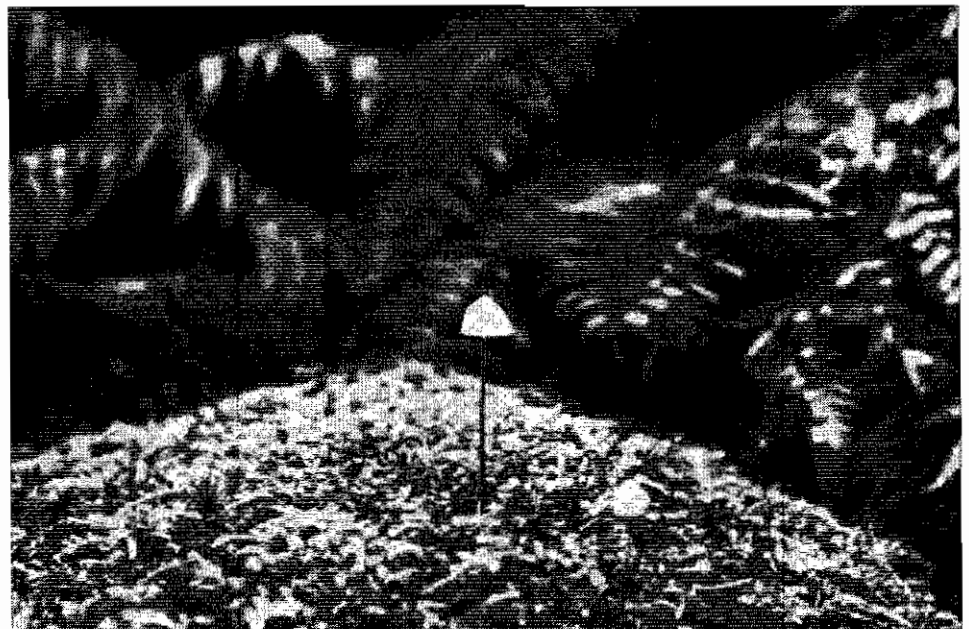
1 stick butter  
1 cup diced yellow onion  
4 garlic cloves, minced  
2 sprigs fresh thyme  
1 1/2 pounds sliced mushrooms  
4 eggs  
1 cup heavy cream  
1/4 cup chopped fresh parsley leaves  
1/2 cup seasoned bread crumbs

Preheat the oven to 350 degrees F.

Put the butter into a 4-quart pot and place over medium heat. When the butter has melted, add the onion, garlic, and thyme sprigs. Saute until translucent, about 10 minutes. Add the mushrooms to the pot, stir, and raise the heat a bit. Cook the mixture until the liquid has cooked off, about 20 minutes. Remove from the heat and set aside.

Meanwhile, crack the eggs into a large bowl and whisk well. Add the cream and parsley, and whisk to combine. Add the mushroom mixture 1 serving spoonful at a time to temper the egg mixture, stirring well after each addition. Add the breadcrumbs and stir well.

Spray the loaf pan with nonstick spray, line with parchment paper, and pour the mixture into the pan. Set in a large roasting pan and fill the pan with water halfway up the loaf pan. Place into the top half of the oven and bake until the center is set, about 60 to 70 minutes. Remove from the oven and let cool 15 minutes before turning out onto a plate to slice. ☺



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## Monthly Meetings

CMS meetings provide an informal opportunity to socialize and exchange information with others interested in mycology. Meetings are usually held the second Monday night of each month, from March through October, at 7:30 pm at the Denver Botanic Gardens, 1005 York Street, Denver, CO. The meetings are held in Mitchell Hall. There is no charge to get into the Botanic Gardens to attend the meetings. Members and visitors are welcome.

Bring mushrooms for identification and display to any meeting.

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

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## *SporesAfield*

*SporesAfield* is published from March through October by the Colorado Mycological Society. CMS dues are \$28 for the first year and \$25 thereafter. Send membership dues to:

Linda deLeon  
CMS Membership Chair  
14310 W. Fifth Ave.  
Golden, CO 80401-5226.

All CMS members receive *SporesAfield* as part of their membership.

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

CMS web site: [www.cmsweb.org](http://www.cmsweb.org)

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## Resources:

### Books For Sale

We also offer a variety of books for sale at each meeting. The books are usually available to members at a discount.

### CMS Web site

CMS is on the World Wide Web at <http://www.cmsweb.org>. The web site is full of information on the society's events, forays, and links to other sites in an easy to use format.

