



Symbiosis[©]

The newsletter of the Prairie States Mushroom Club

Volume 27:1

Spring 2010

<http://www.iowamushroom.org>

In This Issue

This month in Symbiosis we feature some fascinating information related to mushroom growth. Mike Krebill with input from Don Huffman explains some facts about mycorrhizal relationships. Linda Scarth explores an amazing relationship between fungi and insects and Sibylla Brown shares a delightful tale about her and husband Bill's growing and shaping their property in order to grow more morels. In the process they redeveloped an oak savanna that is unique to this part of the world. They chronicle their restoration in their website: <http://www.timberhilloaksavanna.com/> Finally I had the pleasure of learning more about how morel mushrooms grow and fruit in 2009 than in all my years of mushroom exploration. I'm sure you'll enjoy learning what goes on below the ground as much as you enjoy finding these wonderful life forms on the surface. - DL

Mycorrhizal Mushrooms

By Mike Krebill

Simply put, mycorrhizal mushrooms are those that bond with plants in a mutually beneficial way. Their threadlike hyphae connect with the tiny underground root hairs of plants. In exchange for carbohydrates and water from the plants, the mushrooms supply nitrogen, phosphorus, potassium and other minerals that help the plants grow better, just like they were fertilized.

The difference in growth is often striking. Simple science experiments with a control (no mycorrhizal partner) and an experimental treatment (with a mycorrhizal partner) show these results:



Bermuda Grass
Pot on the right was inoculated at the time of sowing.

<http://www.mycorrhizae.com/item.php?pid=40&cid=12>

(cont. on pg. 2)

Ants Fungi and Aphids

By Linda Loos Scarth



Photo of *Boletinus meruloides* (Gyrodon) by Raymond McNeil taken from Flickr

When Dave Layton sent me a copy of a 1987 article titled "The Relationship Between the Ash Bolete (*Boletinus meruloides*) and an Aphid Parasitic on Ash Tree Roots" by Mark C. Brundrett and Bryce Kendrick in *Symbiosis* (not this publication) and asked me to see what else I could find about this relationship, I thought a basic literature search would reveal more. Well, I am here to say that this intriguing three-way relationship does not appear to have intrigued many other researchers.

In short, the aphid (*Meliarhizophagus frazinifolii*) feeds on the roots of ash trees in late summer and lives in the sclerotia – black, hollow underground structures of the Ash Bolete (*Boletinus meruloides*) that attach to the roots. The more sclerotia there are in the ground

(cont. on pg. 3)

Mycorrhizal Mushrooms

(cont. from cover)



Maple Trees
Tree on the left was treated with a soluble mycorrhizal inoculant.

Courtesy of Mycorrhizal Applications, Inc.
PO Box 1029
Grants Pass, OR 97528
<http://www.mycorrhizae.com/item.php?pid=37&cid=12>

More than 90% of plants in nature have a mycorrhizal partner. The fungal partner's hyphae may form an extensive mat of mycelium. This can increase the absorbing area of the plant's roots by several hundred to several thousand times. Enzymes and acids released by the fungus can help free nutrients that would otherwise remain locked up in the soil or in dead plants and animals.

Member Don Huffman adds this intriguing insight:

“The following is information which I heard first from Orson K. Miller, the late/great mycologist at Virginia Polytechnic and State University at Blacksburg, VA. The observations came from his research on mycorrhizal mushrooms, and from his graduate students who did a lot of research in this area.

“We tend to think of one mushroom species associated with a given host tree/plant, but in most cases there are several to many species inhabiting the roots of a given root system at the

same time. Orson told of 7-9 mycorrhizal mushrooms being a common situation. This makes for a rather efficient association, because in most cases one species will produce fruiting bodies at a given time of the year, let's say early in the season, and the others will fruit at different times of the year so that the mineral uptake by fungi aids the host plant for a much greater period of time during the change of seasons. In addition, it is also evident that several cases are known where there are mycorrhizal mycelia present in a host root system that apparently never fruit at all, but can be important as a mineral uptake source for the host plant. The amount of storage of carbohydrates, etc. in the roots is apparently always sufficient for the mycorrhizal associates, except for those cases in which the fungus is a qualitative parasite under stress conditions and can do quite a lot of damage under some conditions. This is apparently true of the Honey Mushroom, *Armillariella mellea*, which can be a problem parasite in apple orchards.”

Also from Dr. Orson Miller in *North American Mushrooms*,

“As a given tree, a pine for example, grows over its lifespan, which may be 200 or 300 years, it associates with different mushrooms, some only colonizing the roots of young trees and others not until the tree is much older. Old growth trees may have

a mushroom associated with the roots that is never found in young forests. As we gain knowledge of these ecological associations, we become more aware of where and when to hunt for and find certain species of mushrooms.” (2006 edition, page 10)

There are certain species of mushrooms that are found only with their plant partners. *Suillus americanus* and *S. pictus* grow only with Eastern White Pine. Amanitaceae and Gomphidiaceae associate with trees, not grasses, so expect to find their species only in woodlands. Unfortunately (or fortunately, depending on your viewpoint) morels are found in a wide variety of habitats, and may form mycorrhizal associations with many types of hardwoods. You'll hear experienced hunters touting the virtues of an abandoned apple orchard, dying elm trees that still have some tight bark, black locust trees, or large ash trees. I have found them in all of those places, and eagerly head towards those tree species when on a hunt. It would be wonderful to be rewarded every time, but failure to find them makes the sweetness of discovering a large grouping all the more memorable. Black morels, by the way, most often associate with conifers. There is more to learn about morel growth in this issue of Symbiosis. 

Ants Fungi and Aphids

(cont. from cover)



Photo of sclerotia sheltering aphids found at Mycorrhizal Associations

<http://mycorrhizas.info/>

dwelling aphids provide some honeydew for the ants. The article did not mention any other relationship between the ants and the fungus such as active farming them in the sclerotia. The relationship seemed to be a passive mutualism, though the ants definitely benefit. There was concern expressed for the stress the aphids may cause ash trees. This seems a minor problem in light of the increasing presence of Green Ash-borer beetles and their devastating threat.

A note in *Mycelium*, the newsletter of the Mycological Society of Toronto in 2005, reported that the honeydew from another aphid, the woolly ash aphid (*Prociphilus fraxinifolii*) is passed on to the Ash Bolete fungus, which is not mycorrhizal, by the aphids living in the sclerotia. This food is probably beneficial to the production of bolete fruiting bodies though not mentioned in the note. No mention of ants or the effects on the trees.

There are other probable relationships between aphids and plants where the aphids use a fungus and nearby ants take advantage of the honeydew produced, sometimes to the benefit of

under ash trees, the more bolete fruiting bodies are found above ground.

The sclerotia-

the aphids. Ants provide sanitation services by using the honeydew. Brudrett and Kendrick mentioned earlier work by Krzywicz, 1962, where another aphid was observed feeding upon a European elm in the presence of fungi. The fungi seemed to be the beneficiary of the honeydew in this study.

There is wide interest in mutualism or symbiosis in many species pairs and groups across the plant and animal kingdoms. Ants, aphids and fungi are among those with a variety of relationships. Some ant species “farm” some aphid species and provide differing services. Some of those relationships happen in the presence of specific plants. Some of these relationships are included as follows:

The presence of specific fungi can be protection, or the opposite. Some fungi have antibiotic properties for the aphids and others are pathogenic. Sometimes the ant provides antibiotic protection to the fungus. In the case of the Ash Bolete in the lead article, the mushroom seems to offer a physical home to aphids near where ants live. Other protective qualities were not discussed.

It appears that some ants protect particular aphid species’ eggs from attack by fungi and other pathogens. This hygienic service is reported in an article by Matsuura and Yashiro in the journal *Natuwissenschaften* in 2006. The aphid in this study feeds on cypress roots and the ants take the aphid eggs to their nests where they clean and care for them in winter. The ants do this even when deprived of

other food in experimental situations. Ants are usually generalist feeders and the future supply of honeydew seems incentive enough to protect the aphid eggs.

Some leafcutter ant species have interesting relationships with the fungi on which they depend for food. The ants provide chewed up leaves as mulch for their fungi “gardens” and know and avoid the leaves that are toxic to the fungi. The fungi in turn produce structures call gongylidia that are eaten by the ants. The ants also have bacteria on their bodies which produce antibiotics to protect the fungus from other bacteria.

Gardeners have sometimes noted that they find aphids deeper in garden beds than would be expected. This seems to be facilitated by ants whose tunnels provide living space (sort of a confined animal feeding operation) for the aphids and reap the benefits (honeydew) that is the by-product of the aphids feeding on plant roots.

As well as farming skills, some ants may be herders. A British study, described in the ScienceDaily.com on October 11, 2007, reported that chemicals on ants’ feet may tranquilize aphid colonies so that they stay together and in close proximity to the ants. The researchers recorded the behavior of aphids placed on paper on which ants had walked. They moved much more slowly. The ants then have easy access to the aphids’ honeydew. Aphids herded and cared for by ants live longer than free-range aphids. The authors noted that others have documented ants fighting off

(cont. on pg. 9)

The High Price of Morels

by Sibylla Brown

Editors note

Bill and Sibylla Brown decided to buy their morels, trees and all, and did some rare habitat restoration in the process. These pictures are taken from the Brown's new website chronicling that restoration: <http://www.timberhilloaksavanna.com/>



Overstocked oak savanna before thinning



Same oak savanna after five annual burns

When my husband, Bill, and I were negotiating to purchase our land in Decatur County we saw Doyle, from whom we had offered to buy seventy five acres of woodland and prairie, coming out of the Brush Creek woodlands with two large sacks full of morels. That was when we made the decision to buy the land. The next spring I asked Doyle to show me where to find the morels on the property we had purchased.

“Oh those are on Mike’s land,” was his reply. Mike was a neighbor who owned farmland east of ours. “But I’ll show you anyway. He doesn’t care anything about morels.”

Doyle guided me to Brush Creek walking slowly through the elm, hackberry and silver maple woodland that bordered the creek. Circling a silver maple he stopped and pointed at a small gray morel. It blended so perfectly with the gray and brown background of leaves that I would

never have found it on my own. Looking carefully I saw a bounty of morels encircling the silver maple. We continued along the creek harvesting that season’s first crop of *Morchella deliciosa*.

Bill and I had talked about purchasing the land east of our acreage. Mike’s land was for sale and we were able to purchase an additional 45 acres between our east property line and Brush Creek. We were certain that would ensure us an annual supply of morels.

Hunting morels along Brush Creek became an annual rite of spring. One year morels were sparse along Brush Creek I complained to Doyle about the dearth of morels. He told me that he used to collect them on the forty acres west of our fence line. That property of upland timber and degraded prairie openings was completely different from our usual morel hunting grounds. I decided to

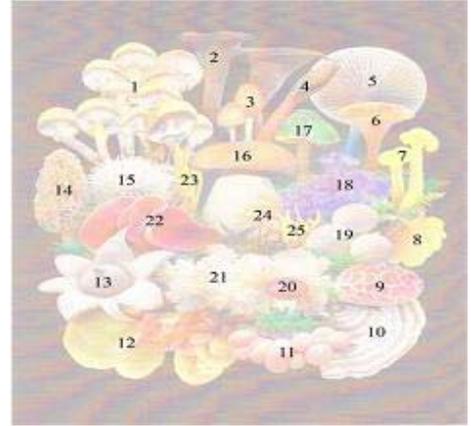
take a look. Following a ravine that cut through the center of the property, I found a knoll studded with large late season *Morchella crassipes*.

Since moving to Timberhill, we’d tried to purchase this tract, which according to Doyle, had never been plowed. But it was in terrible shape. What had once been a beautiful savanna studded with mature white oaks and bur oaks was completely overgrown with pole timber and underbrush. The former prairie openings were hidden under dense cover of eastern red cedar and elm. However, the owner didn’t want to sell, and rebuffed all our offers. Finding morels there was all the motivation we needed to try again. Although he couldn’t understand why anyone would want to purchase such a “useless” tract, we hired a realtor to make the offer for us. The offer was three times what the land was worth and this time the owner accepted.

(cont. on pg. 9)

PSMC 2011 Calender Contest

Identify the mushrooms in this brilliant composite photo by Jim Frink for a chance to win the 2011 PSMC Mushroom Calender featuring Jim Frink's stunning fungal photography, fascinating bits of fungal lore and alerts for when favorite mushroom seasons occur.



List the scientific species name of each fungus or non-chlorophyll producing life form by number and email your answer to davelayton@q.com for your chance to win the 2011 PSMC Mushroom Calendar. Or mail your answers to Dave Layton, 542 9th Ave. S., Clinton, IA 52732.

Please let us know by email or call 563-242-0880 if you'd like to purchase this professionally made calendar for \$14 even if you don't win the contest.



Its time to renew your membership if you haven't already done so!

The **Prairie States Mushroom Club** promotes scientific and educational activities related to fungi, and fosters the appreciation of wild and cultivated mushrooms. We advocate the sustainable use of mushrooms as a resource and endorse responsible mushroom collecting that preserves natural areas and their biological diversity.

Our general purpose is the practical and scientific study of fungi and the gathering, dissemination, and perpetuation of facts and knowledge on that subject. Our primary objective is the study of specimens collected by members and others and the exchange of information with other organizations and professional mycologists. All club activities are open to the public.

Dues for 2010 are \$15/year. Please send payment to the PSMC Treasurer: **Roger Heidt, 125 Timber Lane, Robins IA 52328-9632 [email: psmc@fmtcs.com]**

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I WANT THE ONLINE VERSION OF *SYMBIOSIS. THE NEWSLETTER OF THE PRAIRIE STATES MUSHROOM CLUB* IN COLOR INSTEAD OF A PRINTED COPY.

YES: Save the club money and send it to my email address NO: Send my a printed copy

PSMC Web Site <http://www.iowamushroom.org>

New Information on an Age Old Morel Growth Question

by Dave Layton

Question: Do morel mushrooms grow above ground or do they just pop up full size?

Answer: Both!

I found my first 2009 morel on the 26th of April. It was tiny light gray, less than an inch tall, underneath a honeysuckle thicket near a large recently dead elm. The morel's head bent distinctively to one side. I looked carefully around the area but did not see any more. I left that morel alone. I went back to that area a week later after I began finding and harvesting other small morels (grays) elsewhere. During that week the tiny morel had more than doubled its size, still keeping its distinctive bent shape. To my surprise there was another one the same size right next to it. I was amazed that I could have missed it before. I harvested that one and left the original. I carefully looked for others near by. It was alone. Ten days later I checked the little morel in the thicket to see if it grew anymore. To my surprise it had grown many times larger from a little gray into a nice medium sized morel, still bent the same way but now nibbled on by a rodent.



Original morel on the left; note different appearance

I immediately saw the others surrounding it. They ran from the same size to much larger than the original. The original mushroom was starting to look older and more hardened and mature. The other

mushrooms appeared fresh and pristine like they had recently emerged. (*Notice the difference in appearance in the group photo between the one mushroom on the left and the others.*) I could not have missed them earlier. Even as I observed a mushroom grow from tiny to fairly large over 2 weeks, these others must have just popped up somehow fully grown - like magic.

It's not magic. It's just what happens below the ground that makes the difference. That starts with the answer to another question: Why are morels found around dead trees but not on them like other mushrooms associated with dead trees? Answer: Morel mycelium establishes and grows mycorrhizally with live tree roots particularly elm around Iowa. As long as there is exchange of nutrients the mycelium mass continues to grow and expand as the tree grows. This relationship could continue for decades: the larger the tree, the more time for a potential mycelium to establish, hence the better chances of finding morels around large trees, plus longer growing mycelium could mean more mushrooms. Still, a smaller tree could have had mycelium growing with it from the time it was a sapling, producing many morels.

As any experienced morel hunter will tell you, live elms large or small don't yield morel mushrooms. Tree death is required because, when the tree dies, the mycorrhizal action stops and the mycelium lose the nutrients that allowed unchecked growth. This growth check triggers a defensive

reaction in the mycelium resulting in the formation of sclerotia or hard knots that store the mycelium's remaining energy. Sclerotia can vary a lot in size from under a millimeter to well over a centimeter. Sometimes sclerotia start the reproductive process. This happens for reasons not clearly understood, but it's not unlike a plant finally flowering when it is root-bound.

First an elastic sheet forms on the surface of the sclerotia. Then the primordia or beginning of the fruiting body forms inside the sheath and continues to grow under the ground stretching the sheath to appear like an egg. PSMC member Leo Schlunz corroborated this, saying he was digging around a stump when he dug up what appeared to be an egg, but it broke open revealing a perfectly formed morel inside.

Once the elastic sheath reaches the surface atmosphere, it becomes brittle and breaks open; then the growing fruiting body inside quickly springs up. With this dynamic understood, it's easy to imagine how in a single morel organism some eggs form further below the surface and the fruiting body's entire growth cycle is inside the sheath, whereas others nearer to the surface may erupt from the sheath while still smaller, and then continue growing. Hence morels do both: pop up fully grown and grow above the surface. I plan to seriously study this phenomenon further. I also plan to seriously study the phenomenon of why humans (particularly my friends and I) love to ingest so many morels no matter how or where they have grown.



Recipe Corner

Potato and Wild Mushroom Gratin

from *Basically Morels*, by Larry Lonik (2002)

Yield: 6 servings

1-1/2 pounds new red potatoes
1/2 pound morels
4 tablespoons unsalted butter

3 tablespoons heavy cream
1/2 teaspoon minced garlic
Salt & Pepper (to taste)

Peel potatoes and slice them 1/4-inch thick. Put in cold water for 30 minutes, changing water every 10 minutes. Clean and coarsely chop morels. Place in 1-1/4 cups warm water 10 minutes. Strain morels, but save liquid. Sauté mushrooms in two tablespoons butter 5 to 6 minutes. Halfway through cooking, stir in heavy cream, garlic, salt and pepper.

Towel potatoes dry. In a lightly buttered casserole dish arrange the potatoes in a layer. Salt potatoes lightly and spoon some of the mushroom mixture over them. Continue layering, ending with potatoes. Dot potatoes with butter and bake in a pre-heated 425 degree oven for 15 to 20 minutes or until potatoes are tender and deep golden brown.

Mushroom-Caraway Soup

Food Network Magazine

Yield: 4 servings

April 2010 Vol. 3, No. 3 pg. 86

2 T. unsalted butter
1/4 t. caraway seeds
10 ozs. cremini or white mushrooms, thinly sliced
Kosher salt and freshly ground pepper
3 medium carrots, quartered lengthwise and cut into 1-inch pieces

4 c. low-sodium chicken broth
1 small red onion, finely diced
1 T. red wine vinegar
4 slices pumpernickel bread
1/3 c. sour cream or creme fraiche

1. Melt the butter in a saucepan over medium-low heat. Add the caraway seeds and cook until fragrant, about 1 minute. Add the mushrooms and cook, stirring, until they begin to wilt, about 5 minutes. Add 1/4 t. salt and pepper to taste. Add the carrots and broth, cover and bring to a simmer. Uncover and cook until the carrots are tender, 10 to 12 minutes. Season with salt and pepper.
2. Meanwhile, combine the onion, vinegar and a pinch of salt in a bowl and let marinate while the soup simmers. Toast the bread.
3. Divide the soup among bowls and top with sour cream and the marinated onion. Serve with the toast.



PSMC Happenings

Visit PSMC's always growing website at <http://www.iowamushroom.org/> to see hundreds of great photos from PSMC members, back issues of Symbiosis, the latest featured mushroom and much more. Don't forget to contact us at Iowamushroom@gmail.com to let us know what you like about the website and what you'd like to see on it.

The first ever PSMC mushroom calendar featuring Jim Frink's photography goes on sale this fall for \$14. Please let us know **now** if you plan to buy one or more copies to help us know how many to produce initially. You can email Iowamushroom@gmail.com or call Dave at 563-242-0880 to reserve your calendar.

Bill and Sibylla Brown announce their new website: Timber Hill Oak Savanna at: <http://www.timberhilloaksavanna.com/> See Sibylla's article earlier in this issue

The PSMC 2010 Annual Meeting date is set for October 2nd at Ashton Wildwood Park in Jasper County following the foray there. We'll meet in the picnic shelter on circular drive at 10 AM for the foray.

PSMC Members Mike Krebill and Dave Layton spoke respectively on wild edible plants and identifying fungi to the statewide Iowa DNR convention in Waterloo this January. Both presenters spoke to 100 plus attendees and at least 2 planned forays this year are the result of

connections made. Also, Mike was selling copies of the book Nature's Garden: A Guide to Identifying, Harvesting and Preparing Edible Wild Plants by Samuel Thayer published by Forager's Harvest, Birchwood Wi. Mike particularly likes this book because Thayer comes from the Midwest and this book is largely focused on local plants. 

Foxfire Funnies

Funny Ways Fungi Grow:

- Funny - Like if the movie *Aliens* was real: A member of the community gradually exhibits increasingly strange behavior until he, finally, mindlessly tries to climb to the top of the tallest nearby tree. If the others see him doing this, they desperately attempt to stop him and get him as far away from their colony as possible before it's too late. If he succeeds in reaching the treetop unnoticed, he holds on tightly as giant mushrooms erupt from his head and shower deadly spores on his entire community. Not fiction, this is exactly what certain Cordyceps fungi do to certain ants. This process is amazingly video documented on the YouTube video Cordyceps Fungus found at <http://www.youtube.com/watch?v=CCOQ0VU24xw&feature=related>
- Better than a Gingerbread House Any Day: Imagine simply picking delicious Shiitake and other mushrooms right from the wall of your home when you need them. You might not think this is so far fetched after reading the Time magazine article Industrial Strength Fungus by Adam Fisher, in the February 8, 2010 issue where he discusses experiments with mycelium as a extra strong building material. The article can be found at <http://www.time.com/time/magazine/article/0,9171,1957474,00.html?artId=1957474?contType=article?chn=us>
- A Delicious Industrial Strength Solvent. According to Paul Stamets in his book *Mycelium Running*, he performed an experiment using cardboard and wood chips inoculated with oyster fungus to soak up used motor oil. The fungus consumed the motor oil breaking it down into harmless molecules. The resulting fruiting bodies appeared to be perfectly edible though he didn't actually eat them.

Ants Fungi and Aphids (cont. from pg. 3)

other insects that were trying to eat 'their' aphids. Ants sometimes eat their own aphids or those of a nearby ant colony.

All these observations are fascinating and a look at the larger world in miniature. Behaviors are described and relationships documented, but the full story of how and why it happens is still to be told. Ants and fungi seem to hold the world together and it is their story which needs to be investigated more intensively. Some species of both seem to be using aphids to help support themselves.

Editors note I found only one website http://morelmushroomhunting.com/gyrodon_merulioides.htm which stated of the ash bolete, "— associated with the aphid farming of ants around ash trees." Clearly there is much more to learn about this relationship. Maybe PSMC members will take time to see what insect activity is going on next time they stumble across some ash boletes. This may be a chance to add to the body of knowledge about these interactions. - DL 

The High Price of Morels

(cont. from pg. 4)

Clearing the West Forty of cedar, elm and other weed trees took two years. But it was worth the wait. The spring after it was completed we collected morels around many of the elm stumps. Some had as many as one hundred specimens. We harvested over thirty pounds that year. According to the experts, morels only fruit around elms for three years after they die. However, they have continued to fruit from the ground along the decaying elm wood. Apparently morels can become saprobes around decaying wood.

At the west edge of the West Forty was a small prairie remnant with rattlesnake master, purple prairie clover and bottle gentian. A real gem, we included it in our annual burns even though I wasn't sure whether it was on our property. (This is not uncommon in Decatur County. When our lawyer did the title search on the land we purchased from Doyle he warned, "That Decatur County land is so worthless you better be careful they don't slip in an extra forty acres.") But the question of ownership nagged at me and I asked the county surveyor to locate the property line.

According to the survey notes our southwest corner was marked by a

buried buggy axle. It took him some time waving a metal detector as he walked back and forth along the south fence line but the surveyor finally found the buried buggy axle. We learned that the Hidden Prairie was just west of our property line. We offered to buy the Hidden Prairie and the land beyond it to West Creek, a ten-acre tract. But the landowner didn't want to use a meandering creek as a property line. Instead he suggested that we buy the forty acres that included the prairie to "square him off." Besides the Hidden Prairie, this tract included a sedge meadow and wetland fed by hillside seeps. Best of all it was full of live and dead elms.

We approached the restoration of this forty acres differently. Rather than remove the weed trees right away we burned it three years in a row. This controls much of the brush and weed trees. The fourth year we cut all the weed trees except the elms. Now we have not only a beautiful prairie remnant, a wetland and a sedge meadow to complement our oak savanna restoration but we also have another forty acres of dead and dying elms that should ensure a lifetime supply of morels.

Thanks to Volunteer Contributors to Symbiosis

Thank you Mike Krebill, Linda Scarth and Sibylla Brown for writing featured articles in this issue and thank you Don Huffman, Dean Abel and Peter Hansen for providing valuable information and links. Finally, thank you Vicki Coutant for the layout, design and production of Symbiosis. If you wish to share your thoughts with any of these contributors send an email to: Iowamushroom@gmail.com and we'll make sure it gets forwarded to them.

New contributors are always welcome! Send submissions to Dave at davelayton@q.com or mail to Dave Layton, 542 9th Ave. S., Clinton, IA 52732

Dave Layton, President
Prairie States Mushroom Club
542 9th Ave. S.
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PSMC Web Site:
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2010 Forays

May 1, 10 AM

Palisades Keplar State Park
Meet at the parking lot near the
campgrounds

May 8, 9 AM

Heron Bend in Lee County
Meet at Lee County Conservation
Headquarters

June 12, 10 AM

Brushy Creek State Park Webster
County
Meeting site to be determined

July 10, 9 AM

Indian Creek Nature Center near
Cedar Rapids
Meet at the ICNC Barn

July 25, 9 AM

Pinicon Ridge County Park, Linn
County
Meet 0.1 mile past the boat rental

August 21, 10 AM

Eden Valley County Park, Clinton
County
Meet at the Nature Center

October 2nd, 10AM

Ashton Wildwood Park, near Baxter,
Jasper County Iowa
Meet at the picnic shelter on Circular
Drive. **We will have our annual
meeting at this foray.**

This is an early list of forays. More
may be scheduled as the season
progresses. The most up to date foray
information can be found at the
PSMC website:

www.iowamushroom.org

We'll see you in the Woods!

More pictures, species lists and
interesting information can be
found at the PSMC Website:
www.iowamushroom.org

Submissions are requested. If you
have a fungi article, picture, recipe
or joke to share please submit it to:
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