

Potomac Sporophore



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FORAYS

Hello MAW members. I hope you had a lovely spring and saw many morels popping! Now that the spring is waning we should expect to see some of our summer arrivals, Chanterelles, Boletes and we can't forget the little red Russulas! Also, keep your eyes peeled for the beautiful orange Chicken of the Woods which may grace us with its presence soon, especially after a nice rain.

If you would like to receive e-mail updates and are not on my list send an e-mail to forays@mawdc.org. The notification contains the location, meeting time, and a link to a map of the meeting place. I will try to give directions if it seems a bit tricky. There will also be a tentative list of upcoming forays on the website. Another option is the MAW announcement line

under mailbox 55. It is good to check this before a foray just in case something has come up and there is a cancellation.

July 1st: The hunt for Chanterelles begins, Scott's Run Nature Preserve, McLean, VA

July 15th: Rock Creek Park, Washington DC. *identification only

July 22nd: Lake Bernard Frank, Rockville, MD

Aug 4th: Gambrills State Park, near Frederick, MD

Sept 2nd: Greenbelt Park, Greenbelt, MD

Remember all forays are tentative and are subject to change. See you out there!

Mitch

PROGRAMS

Meeting Program Guest Speakers

- William Needham

The tentative program schedule for guest speakers at the monthly MAW meetings for the remainder of 2007 is as follows:

July - Bill Russell, the author of the recently published "Field Guide to Wild Mushrooms of Pennsylvania and the Mid-Atlantic" will give a

presentation on methods of growing mycelia. The talk will also cover some of the mushrooms and fungi covered by his new book. Copies of the book will be available for purchase (and signing) at the meeting.

August - Ray LaSala, the President of MAW, will give a presentation of the availability of various mushrooms in the local markets. The focus of the talk will be mushrooms and fungi of particular importance in Asian culinary practices. He will be assisted in his presentation by an individual of Asian descent with some knowledge and experience with the field.

September - Taylor Lockwood will give a presentation based on his photographs of mushrooms which will include some discussion of their characteristic structure, habitats and any other notable features.

November - John Jemionek, a retired U. S. Navy Medical Service Corps officer, will give a lecture on Fungal toxicology based on his many years of experience in the field. The talk will cover the various types of fungal toxins and their associated symptoms and treatments.

Please contact the Programs chair by e-mail (programs@mawdc.org) or phone (202-251-8430) if you have any ideas about future programs that you would like.

THE NAMA FORAY

Each year the North American Mycological Association sponsors a foray. This summer the foray will take place in Pipestem, West Virginia, which is located in southern WVA, about 275 miles from D.C.

To participate in the foray you must be a member of NAMA. This will cost \$30.00, if you join through our MAW liaison, Bruce Boyer.

For one person, the cost of registration for the foray is \$305.00. This includes lodging for three nights -Aug. 16-19 (Thursday evening though Sunday morning) and meals. There are campsites available.

The typical program includes lectures and forays. In the evenings there are featured speakers and entertainment. Or you can drive into Princeton, WVA for a night on the town-it's 16 miles away. Bill Roody, who has been at some of MAW'S forays and who lives in WV will be the chief mycologist.

If you Google NAMA you will be able to obtain additional information.

Maria and I have been to a NAMA foray in Quebec and in Asheville, NC. It's a great, inexpensive vacation and an opportunity to meet knowledgeable mushroom lovers and to have fun. Also, it will be quite a while before NAMA has another foray in a location that is relatively close to home.

MAW TASTINGS

Each year the club has two tastings-one in May and the other in October. This year the May tasting will be held in June.

The May/June tasting, which is a spring event, is called the Wild-Food Tasting because it is O.K. to bring a dish that has as its main ingredient a food that was gathered in the wild-it could be vegetable, meat or fish, etc. Still, you must bring the food in to be inspected before it is cooked.

It is preferable to bring in a wild mushroom dish but there may not be many mushrooms to gather at this time of the year.

You may also prepare a dish with store-bought mushrooms and you can cook a dish with the mushrooms donated by Phillips Mushroom Farm. Bring a table on which to put a club-provided stove.

A member who brings a dish will not pay the \$10:00 admissions fee. Please do not go to the store and buy a dessert-that's not O.K.

Anyone who is not a member must become a member in order to participate in the tasting (\$20.00) because we are not permitted to serve the general public.

SEQUANOTA

The club has been having a fall week-end foray in the Laurel Highlands of Pennsylvania for over twenty years. This year the foray will take place on September 28 - 30 at a camp site known as "Sequanota".

Usually about 20 to 25 members sign up, we engage a mycologist and we go out and look for mushrooms and cook the edibles we find. At night our guest mycologist will speak and we will sit around and tell stories of the great mushroom finds of the past while we sip some grape juice that has encountered a fungus.

It will cost about \$100.00 a person- room and meals are included.

Contact Jon Ellifritz.

TA, TA, CATHERINE

We're going to miss the White-Hornes -- Chris and the boys, Benjamin and Alistair (now 7 and 5 and mushroom lovers, even consuming Dryad's Saddle with gusto), along with Catherine, our Membership Chair for the last 29 months. Chris's tour of duty at the British Embassy is almost up (even with a one-year reprieve last summer). They'll be residing in southwest England or south Wales next, and are already looking for a mushroom club in the area.



Gary and Catherine

Catherine has enjoyed eating wild mushrooms since childhood. Her father used to take them out hunting shaggy manes and meadow mushrooms to bring back for a fry-up with lots of butter. Since the other families in the area lived up to the oft-mentioned English fungophobia, there was no competition other than the need to get to the mushrooms before others trampled them into the ground.

Catherine's meeting up with MAW was the result of a chain of meteorological, mycological, and serendipitous consequences. In September 2003 Hurricane Isabella knocked down a number of trees in her neighborhood. She and Chris gathered up logs for the fireplace, but some eventually sprouted oyster mushrooms the next year. Not wanting to poison the family, Catherine visited the nearby Chevy Chase Library and asked for all their mushroom books. The librarian mentioned that a mushroom club met each month in the basement and occasionally conjured up marvelous odors with their cooking. The White-Hornes eventually found us via the Internet, and went to our September weekend in Pennsylvania. Catherine brought Marmite™ (fungal if not mushroomy) to the October tasting, and two months later she was Membership Chair.

Not only has Catherine ably performed the membership duties, but has helped at various events like the Mushroom Fairs. And she and Chris have hosted

many Board meetings in their home, also known as "the royal digs" since it's owned by the British Crown. We're going to miss them all, and hope that one day they'll be back. Happy mushrooming to them, wherever they are.

GARY'S VISIT

Gary Lincoff, author of the most widely read mushroom guide, "National Audubon Society Field Guide to North American Mushrooms" spent May 1st with us. In the morning we forayed for morels at Watkins Regional Park and in the afternoon he and the group went to another park in the DC area.

A few members found a good amount of morels and most members found some.



Gary Lincoff

In the evening Gary spoke to MAW members. After some preliminary remarks given in the witty manner which has made Gary a very popular lecturer, he described a project that he and others have engaged in over the past few years: In New York City's Central Park his group has been recording all the mushrooms that they find in a particular area and also noting

the weather, the trees, etc. They are going to do this every year in order to develop running records of the mushrooms that grow over time in that particular area.

Gary hopes that MAW members will do the same thing, that is, find an area that is convenient to reach and to walk and then record all the mushroom that are found there, along with the environmental data for each succeeding year and he would like you to send your records to him.

Gary pointed out that we have little data on mushroom growth before the 1900's while the British have records that reach back for centuries (yet we constantly read that the English do not like mushrooms- but then, do we)!

It is surprising how much the mushrooms that appear in an area change with time. One survey that I came across was conducted for a period of 21 years and it found that no one mushroom appeared in each of the 21 years of the survey; 1/3rd of the mushrooms found were found only once and less than 12% were found for at least 50% of the 21 years.

But the good news was that each year 15 to 20 new mushrooms were found.

One gets the impression that Gary really likes to find and eat mushrooms-he eats the fawn mushroom and dryad saddle, for gosh sakes (well, I like the D.S.), and he would dearly like for some of our members to start recording what mushrooms they find in an area that they are likely to visit on a

regular basis. Maybe the club could start a project that could go on for 20 years and in 2027 we would have a celebration.
J.S.

SCIENTIFIC CLASSIFICATION

Jim Sherry

Scientific classification of living things is referred to as "taxonomy". It began with Aristotle, who divided all living things into plants and animals. Others made contributions down through the centuries but it was Carolus Linnaeus, a Swedish botanist, who, in the 1750s, provided the system that is used today. Like Aristotle, he divided living organisms into two "kingdoms": plants and animals- and then provided ranks for increasing smaller subgroups within each kingdom: phylum, class, order, family, genus and species.

Today these ranks are referred to as taxa (singular, taxon).

Since fungi did not move and had cell walls like plants, Linnaeus put fungi into the plant kingdom.

After microscopes were invented, things for biologists were never the same.

In 1860, Hogg and Haeckel proposed *Protoctista* as a third kingdom, which included fungi, algae, bacteria and protozoans- this was an ashcan group whose members did not have much in common and so no one was pleased with this kingdom.

In 1938, Copeland took bacteria out of the third kingdom and placed it in a fourth kingdom, which he called *monera*.

Then, in 1969, Whittaker, at Columbia University, proposed that we put fungi into its own kingdom and this then made a fifth kingdom and he also proposed that the name *Protoctista* be changed to *Protista*.

Most biology textbooks today still list Whittaker's five kingdoms but some biologists now say that there are six kingdoms and some say that there are eight. Most people don't care because the organisms that are causing all the difficulty cannot be seen without a microscope.

And this story is not done yet: In the past few years another proposal stated that there are three domains and that plants, animals and fungi should be placed in one domain and that the other two domains should be composed largely of two types of bacteria.

(The history that I just outlined will vary, depending on which author you read.)

And still we are not done: The cladists want to put all of life into clades (pronounce like maids) and then name the clades. They are not even interested in domains or kingdoms.

All of this demonstrates that science is a human endeavor and that organisms like fungi could care less, but then there's the crowd that thinks that fungi might have some awareness-well Nicholas Money reported that he heard hyphae "screaming." J.S.

LIKEN' LICHEN

Jim Sherry

There are a lot of worlds out there to study and some of them are a bit strange. There are many who think that an interest in hunting wild mushrooms is a bit strange, even if some of them like to smother their steak with button mushrooms

But what about those who find the lowly lichen interesting- there are lichenologists, you know.

My interest in lichens was roiled up by the tree branches that keep falling on my driveway. Almost all of them are covered by that greenish lichen that looks like three dimensional lace. It would be easy to assume that this lichen causes the branches to fall. but that isn't so, so they tell me. And apparently the lichen isn't growing on diseased branches. It might be, though, that the lichen adds weight to the branch. Lichens absorb a good deal of water and release it slowly.

I've been reading that there are over 13,000 species of lichen and that lichen has been around a long, long time. People have been eating it for centuries and so have the reindeers and the birds. It's been used as a medicine, an aphrodisiac and snuff. And today it's used for perfumes, dyes, shampoos and as a food condiment. Research is going on to find its medicinal properties. Some species are short-lived but others grow slowly for centuries.

The lichen is a combination of a fungus and algae It's the

classic symbiotic marriage-in this case the algae provides the carbohydrates (it can photosynthesize) and the fungus provides the structure, the gripping power and the minerals.

Lichens are ascomycetes, as are morels, truffles and yeasts.

Like frogs, lichens tell us something about our environment. They are more sensitive to pollutants than many other organisms and will die off if the air quality becomes unhealthy for them, even though they can survive in very hot or very cold climates. In hot, dry weather some species simply dry out and becomes dormant.

Well, that's about all I need to know about lichen. I think that the species on those branches that keep falling on my, ah, driveway is *Parmidia sulcate*. You could look it up J.S.

How do the raindrops actually make the slumbering mushroom stir and awake?

And why under oaks do the mushrooms spread, doesn't the maple like to be fed. J.S.

CLADISTICS

Jim Sherry

Biologists are engaging in a revolution in the way they name and classify organisms. Over the

past 250 years biologists have named and classified about 1.7 million species. They have done so by following the work of Carolus Linnaeus, a Swedish naturalist, who, in the 1750'S, introduced the binomial nomenclature and the ranks of kingdom, phylum, class, order, family, genus and species.. Since then all the discovered organisms have been named and placed in the Linnaeus system. Over 4% of these named organisms have been fungi (70,000).

But there are difficulties with the Linnaeus system:

1. It does not easily accommodate evolution and it doesn't indicate the order of species descent.
2. It's taxa (kingdom, phylum etc.) do not represent anything in the real world- they are abstract concepts.
3. Ranks are not equivalent: Cats and orchids have family ranks but what does that mean.
4. New sub-taxa often have to be added too often.
5. The hierarchical arrangement of the taxa suggests that it represents an order of some evolutionary purpose.

Since Darwin, biologists have seen all of life as evolving from an original life form and then growing like a tree grows- one species changing from its parent species, and it, in turn, having descendants that branch off, until, like branches on a tree, there are more and more descendants that have now multiplied into the 50 to 100

million organisms that it is estimated exist on our planet today.

All of this has happened over millions of years, with no particular direction. Biologists are loath to think that there is some improvement or progress toward an end in all of this speciation- it's just happening.

In the 1950S, Willi Hennig, a German entomologist, developed a method of classification that arranges organisms by their order of branching or descent and not by their morphology or shape, as Linnaeus did. This method has come to be called. "cladistics," which means "branch," from the Greek.

Cladistics arranges species into clades, which, following the tree analogy, would be any branch that results when a branch is cut from a tree. If a large branch were cut from a tree there would be many smaller branches nestled within it and so in a large clade many descendant clades would be nestled within it. A clade consists of an ancestor and all its descendants.

Clades will form the basis of the classification system that will? replace the Linnaeus system. In fact, a few years ago an international group of biologists met and drew up a code which is to be used in naming clades; it's called the *PhyloCode*, though it's not without its critics.

In his work a cladist studies a number of species that are related and tries to determine

the order in which they evolved: Did species A evolve from species B or from species C or did C evolve from A, etc.?

To answer such a question, the cladist focuses on what he calls "characters" such as tooth sharpness, or bone curvature, or width of a hole or a color, i.e., anything that can be noted and measured for each species under study. It could also be the loss of a character, like having no tail.

With the development of molecular biology, characters can include proteins, chromosomes and DNA sequencing, which has been used successfully in establishing clades for mushrooms.

The cladist is interested in shared, derived characters (traits) that occur in some but not all of the species under study. The word "derived" means "recent," perhaps tens of millions years as opposed to hundreds of millions years. He doesn't want to go back to a time when mammals developed, for example, four legs, because having four leg or appendages extending from the body is so basic to the animal family tree that too many clades possess them

Derived characters are more advanced, but not superior. They appear in some members of a group (clade) but not in others. For example, apes have no tails but their closest relative in the "clade" of primates, the monkey, has a tail.

To give another example, suppose that a cladist compared his house cat to himself. He would assume that in the distant past there was an ancestor that

both he and the cat shared and that this ancestor was a mammal that produced two divergent lines of descent which eventually led to him and to his cat.

If he now considered a second cat in order to determine the order of descent he might assume that the two cats evolved from their common ancestor later than he evolved from the common ancestor that he had with the cat. That seems axiomatic. But that would be an assumption-maybe one cat evolved from the original common ancestor and the other cat evolved from another common ancestor that he had with one cat but not the other. In other words, evolution could produce two incidences involving cat speciation.

Now comes something dear to the scientist's heart: the principle of parsimony. This is a principle that assumes that the simplest explanation is the best one, not necessarily the true one, but the best in terms of what works for science. Applied here one would assume that the simplest explanation would be that cats evolved only once and not twice and so the conclusion would be the first hypothesis that we called, "axiomatic." is the acceptable one. Cladistics is exciting because it deals with descent and because biologists can make predictions about the order of descent.

It's all very complicated and computers are now being used to make comparisons of cladograms, which are ways of diagramming the alternative

hypotheses which describe the various orders of descent in which a group of species could have evolved. What biologists like about cladistics is that they can form an hypothesis (make a prediction) and test it. No conclusion is absolutely true and all conclusions are subject to change but science has always had a tentative nature.

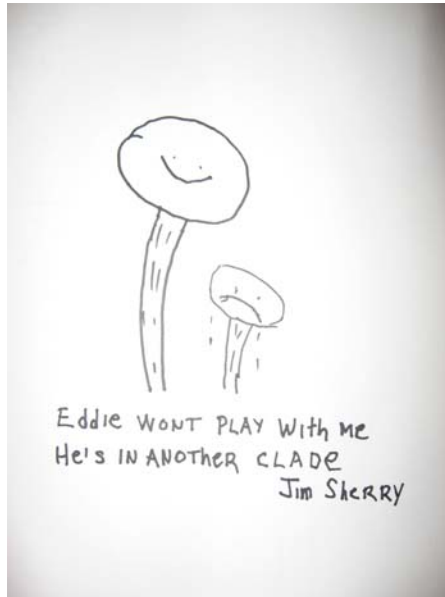
Many interesting conclusions have been made by cladists. For example, they have determined that the orderly spider web did not descend from the disorderly one (an assumption that a progressive might make) but visa-versa. And the lung fish is more closely related to the cow than to the salmon, which blows the concept of “fish” out of the water Now no one can say that a fish is a fish, is a fish.

In regard to fungi, Gary Lincoff gave us a paper at our recent meeting which described eight clades The first clade listed, “eugarics” had mushrooms that represented each of the seven body types (gills, pores, crusts, etc.). This suggests that if mushrooms are grouped by clades (DNA sequencing) instead of characteristics that we can see without the aid of powerful microscopes, we would have to relearn much of what we have come to know about mushroom naming.

Cladistics has been applied to a number of human endeavors that have an evolutionary history: languages, medieval manuscripts, and wheeled vehicles. It can be applied to the evolutionary order of

anything: painting, football defenses, cuisine.

I don't know that the place of cladistics in biology has been fully determined-there are few books on it in the library- but the internet has many articles on it. Most of them suggest that cladistics is a powerful tool, especially for palaeontology. And there is great enthusiasm for it in other areas of biology, but whether its nomenclature will eventually be used in guide books-well, who knows.



The Potomac Sporophore is published quarterly by the Mycological Association of Washington, DC (MAW).

Editor's Note

I have just learned that I have seven pages instead of eight so I added the lichen article and the verse. But I still have this space to fill.

I would like some of the members who are interested to send me articles for the Potomac Sporophore.

I have had a lot of fun writing articles about mushrooms for the newsletter but I need more of you to help me in the production of the newsletter. I am spending more time than I want to on the letter.

You might like to write about a personal experience that you have had on a foray or you might write about your favorite mushrooms.

You can send in a poem or research a subject-there's plenty of information on the web.

You may have another idea-these are just suggestions. I am sure there are a number of members who would like to write. You can e-mail me or meet with me at a meeting

If you write an article, I would like to receive it in WORD form since I am not much of a typist. J.S.

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