

Potomac Sporophore



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2010 Scheduled Events

Meeting Site Directions - Chevy Chase Public Library

The Chevy Chase Public Library is located at 8005 Connecticut Avenue which is about 2 miles south taking exit 33 on the Capital Beltway (Route 495). If coming from the District of Columbia, it is about 2 miles north of Chevy Chase Village just past the intersection of East-West Highway (Route 410). The phone number of the library is (240) 773 9590.

All monthly meetings start at 7PM and include a brief review by each of the MAW board members and a summary of monthly events and mushroom finds by the President. The program starts at about 8PM. Light refreshments are available as well as an occasionally mushroom dish prepared by a member

January 5 Monthly Program:
TBD

February 2 - Monthly Program
TBD

March 2 - Monthly Program TBD

March 30 - Board Meeting

April 6 - Monthly Program TBD

May 4 - Annual MAW's Spring Wild Food Culinary Event. 15 - 20 wild food dishes prepared by MAW members. You must be or become a member to attend

June 1 - Monthly Program TBD

June 29 Board Meeting

July 6 - Monthly Program TBD

August 3 - Monthly Program TBD

August 30 - Board Meeting

September TBD - Annual MAW Foray at Camp Sequanota in Jennerstown, PA. A weekend stay at the Lutheran Camp including all meals and daily forays.

September 24 - 27 Regional Foray Wildacres, North Carolina. Contact Bruce Boyer for details.

October 2 Multiple forays for the Mushroom Fair at Brookside Gardens

October 3 - The Annual MAW Mushroom Fair

October 5 - Annual MAW's Wild Mushroom Culinary Event. 15 - 20 wild mushroom dishes prepared by MAW members. You must be or

become a member to attend

November 2 - Nominations for MAW Board for 2011. Program TBD

November 30 - Board Meeting

December 7 - Election for MAW Board for 2011. Panel discussion the fungal year in review.

The Annual Mushroom Fair

A fair is defined as "an exhibition designed to acquaint the public at large with the range and quality of currently available or planned products." The annual Mushroom Fair at the Brookside Nature Center in Wheaton, Maryland was that and more. It was a fair nonpareil. On a perfect Autumn day following what was a most idyllic September, the forays of the previous week had offered up a cornucopia of fungi that were stacked on tables in the center of the room like a phalanx, ready for the onslaught of the curious and bewitched.



A massive hen of the woods (*Grifola frondosa*) watched over by Mitch Fournet

Several MAW experts responded to the obligatory questions "Is it edible?" and "Is it poisonous?" with equal aplomb; the answer to either rarely a satisfying "yes" or "no" but rather the qualified "it depends." The poison question, at least, was

thoroughly explained with all of its nuances from "may cause gastrointestinal discomfort" to "will destroy your liver in less than a week" by Dr. Cathleen Clancy of the DC Poison Center, who gave a lecture entitled "Don't Eat those Shrooms," the title alone at least addressing the many intrigues of mycophagy.

But the real question of mushroom edibility was the subject of MAW's own Ganoderma gourmand and president Ray LaSala, who presided over the skillet with spices and oils to demonstrate the fine art of "Mycocuisine." With provender from Phillips Mushroom Farms such as the esoteric Lion's Mane (*Hericium erinaceus*) with the unfortunate trade name "pom-pom" and the more plebian Oyster Mushroom (*Pleurotus ostreatus*), dishes were concocted to entice mycophiles inclined to gastronomic experimentation to the Fall Tasting meeting that followed two days later (see article below).



Danny Barizo expounding on mycology

The real mission of the Mushroom Fair is education - to inform the public about the ubiquity, importance, and beauty of fungi. It was this mission that motivated the two key organizers, Connie Durnan

and Danny Barizo (above), who spent many hours in planning and preparation with a dedication and ability that was manifest in the excellence of the venue. The display of the mycology projects of students of Highland View Academy sponsored by the Toyota Tapestry Award was testimony to the outreach of the Mycological Association of Washington in formal education and public awareness of "the fifth kingdom" of fungi, the Eumycota.

The USDA Greenbelt Agricultural Research station was represented by Dr. Drew Minnis (below), who not only provided a microscopic view of fungi growing on tulip poplar leaves but who gave a presentation on the Friesian system of mushroom classification. This was followed with a slide presentation by one of the best mushroom identifiers on the East Coast, Jon Ellifritz, who provided a key for field identification of mushrooms by macroscopic characteristics.



Jon Ellifritz - ode to Russula

Fall Mushroom Tasting

The Fall 2009 Mushroom tasting this year was a work in progress. There are several ideas that I had planned but needed more time to develop and work into the evening. Maybe we

can get one of our members to bring some sheet music and play the piano next time. I'm looking forward to watching the event evolve and become more organized and more fun. Special thanks for all of the people who pitched in at the last minute to bring the loose ends together. With your input and suggestions and help we can make the evening that much more enjoyable. Special Thanks to those of you who pitched in to help - you really made the night a success and made my night! (forgive me if I missed crediting you, I would appreciate an email if so - unfortunately I did not get to meet all of you and thank you individually): Gordon Callahan, Karen Adams, Barbara and Arthur Karpas, Jolie Fournett, Mitch Fournett, Marsha Verber and Mark Hoover, Connie Durnan, and several of our New Members. Again, Thanks to all of you for sharing your cooking skills and knowledge about preparing, eating, and enjoying mushrooms. - by Alan Remchuk



The winner of the Best Overall Dish AND Best presentation was Anop "Nicky" Juntanaroj with his Chicken of the Woods Satay (see below).

Chicken of the Woods Satay - Nicky (Anop Juntanaroj)

1-2 lbs. young, tender chicken of the woods/sulfur shelf (*Laetiporus sulphureus* or *L. cincinnatus*), sliced or broken into strips about 3/4" wide
 Package of Lobo brand Satay Mix (2

packets inside, A and B)
 1 pint chicken or vegetable broth
 2 cans southeast Asian coconut milk (e.g., Chao Koh brand)
 Juice of 1/2 to 1 lemon
 1 gob of Panang curry paste (e.g., Thai Maesri brand, in small cans) - about a slightly heaped Tbsp.
 1 gob of tamarind paste (e.g., Tamicon brand found in Indian groceries) - heaping Tbsp.
 1 gob of crunchy or creamy peanut butter - 1 or 2 heaping Tbsp.
 Some crushed or ground peanuts if using creamy peanut butter
 Cooking oil; salt and/or MSG; sugar.
 Package of 50 or 100 bamboo skewers (if cooking and serving in traditional way)

Simmer the *Laetiporus* strips in broth for about 10 minutes, stirring gently to make sure all are moistened and cooked. Mix the Lobo marinade packet (A, mostly turmeric) with 1/2 can of coconut milk (after stirring the opened can if solids and liquids have separated), and then spread it over the "chicken" strips, making sure it's well mixed. Refrigerate for about 30 minutes to help marinade adhere to strips.

For the sauce, fry the curry paste in a skillet in a tablespoon or so of oil for a couple of minutes; and then add 1 full can of coconut milk. Mix well and continue cooking over low to medium heat for five to ten minutes, until oil in coconut milk seems to be separating out. Add the Lobo sauce mix (packet B, mostly dried, ground peanuts), peanut butter (and crushed peanuts if using), tamarind paste, juice of half a lemon, about 1 to 2 teaspoons sugar, and a bit of salt or MSG. After stirring with a slotted spatula until thoroughly mixed, taste and then adjust flavors accordingly, to taste. Add more curry paste (gradually), if you want more heat/spice. Add peanut butter if a stronger peanut flavor is desired. Both tamarind paste and lemon juice

increase sourness, although the latter is a bit easier to use in making fine adjustments. A bit more salt or MSG can bring out more flavor of all kinds, and a bit of sugar can help mellow heat or sourness. Finally, shortly before serving, add the final 1/2 can of coconut milk and mix thoroughly. This mellows strong flavors a bit more and lightens the color of the sauce.

For final cooking of the "chicken," you can thread the pieces on bamboo skewers (soaked to prevent their burning) and grill them briefly over charcoal or under a broiler until they're browned a bit, or you can quickly stir fry the pieces on both sides in a hot oiled skillet until they're slightly browned. (The former method is traditional for satays and kabobs, but *Laetiporus* is more fragile than meat and tends to fall off the skewers more easily. It has already been cooked sufficiently by the simmering. And you have to remove it from the skewers anyway, whether with teeth or fork.)

Serve the skewers or pieces with the satay sauce. You can also add a small salad of finely sliced shallots, cucumber, a bit of chopped cilantro and finely sliced chilis, in rice vinegar with a bit of sugar, and serve slices of toast, each cut into 6 or 8 pieces, to mop up any remaining sauce.

Sequanota Annual Foray
Wildness can be a way of reassuring ourselves of our sanity as creatures, a part of the geography of hope"
Wallace Stegner, writer and environmentalist

Ever since our current president, Ray LaSala, discovered this rustic camp during a skiing trip over twenty years

ago, members of MAW have trekked back to Camp Sequanota for their annual week-end mushroom foray. Located in the highlands of Pennsylvania, this Lutheran-operated retreat-center afforded the attendees a chance to expand their knowledge of fungi and spend a relaxing week-end in a natural setting.

The week-end started with an informal get together on Friday evening where the attendees shared some food and wine. Saturday started with a hearty breakfast, after which the attendees were divided into three groups that went out to different locations to look for mushrooms. After the groups came back, the mushrooms that were found were displayed in rows of table in the balcony of the main building.



Bruce Boyer, Mitch Fournet and Connie Durnan survey the harvest at Sequanota

After lunch, the group drove to a nearby state park where, in previous years, the group had found lots of mushrooms including a number of *Grifola frondosa*. On the way back, the group drove leisurely, and stopped whenever an interesting mushroom was sighted, notably a *Laetiporus sulfureus* and the biggest

Agaricus arvensis this author had ever seen.

Featured speaker during the Saturday evening meeting was Dr. Drew Minnis, the guest mycologist, who made a presentation on various topics which included ideas on collecting and identifying wild mushrooms, and the beneficial as well as the deleterious role of fungal pathogens in nature. In the absence of an overhead projector, he made use of two laptop computers brought by members of the club to make his presentation. Some members of the club stayed up late discussing mycological subjects and figuring out the identities of unfamiliar mushrooms.

The Sunday foray saw the arrival of a delegation from the Western Pennsylvania club led by John Plischke III, who was very helpful in putting names on some of the puzzling finds. The last lunch of the group included wild mushroom dishes prepared by some officers of the MAW, including the very large *Agaricus arvensis* and *Laetiporus sulfureus* which everyone enjoyed. After clean-up the members of the group went on to their different ways thus ending a relaxing, and enjoyable week-end.

Over 150 species were found. From my own perspective, some of the interesting finds were various kinds of chanterelles including *cantharellus perspicolor*, *cantharellus minor*, *craterellus cinereus*, and *craterellus fallax*, and a huge *Inonotus dryadeus* which John Pleschke III helped identify. Thanks to Jon Ellifritz for organizing this year's week-end foray and to Mitch Fournet and Bruce Boyer, and Jon Ellifritz for doing most of the identification, and to all who participated in this year successful week-end foray. - by *Danny Barizo*

Editorial

Mushrooms with Sherry

The Oyster Mushroom

Proverbs are quite insightful. Regard: "It's an ill wind that blows nobody any good." Recently, a scientist on TV program touched indirectly on this old saying while discussing Bill Gates' idea of cooling the water that feeds hurricanes, which Mr. Gates hoped would retard hurricane formation. The scientist said that we don't know why we have hurricanes, nor do we know what the effect on the weather would be if we were to get rid of them. And he also said something that was more to the point and that was that a good deal of our fresh water is brought to us by hurricanes. This is true in Maryland where 30% of our reservoir water, on average, comes from hurricanes. We don't need to experience the full blast of a hurricane's wind to receive water. The hurricane can be out in the high seas, making the seas high, but its rain will fill reservoirs and feed everything, including all those things living in the earth.

But there's another story too. In 2003 hurricane Isabel blew down a number of trees in our neighborhood and then some months later, a great wind came out of the west and blew down more trees. We personally lost the three wires: phone, electric and cable-for five days- which meant no water, lights or cooking; this was mid-1800's living, except for the kindness of friends and an automobile. What we saw after all these winds was some downed trees. I didn't think much of this at the time but a couple of years later I started to harvest oyster mushrooms (*Pleurotus*

ostreatus) from these trees. Every year, for three years, I had plenty of oyster mushrooms. We dried many of them and we are still eating them. But last year I found few oysters and I began to realize that the trees that were blown down by the winds of the past had no nourishment left for the oysters. So the bounty of oysters, which I began to take for granted disappeared and I had to be content with finding the oyster here and there, as in the days before the great winds.

I remember in those past days making an effort to bring down a cluster of oysters that were high on the side of a dead standing tree. I couldn't reach the cluster so I tied the tree branches together but they were too heavy to lift. Then I tied thin strips of molding together, which I could lift, but I couldn't control the wiggle. Eventually the oysters froze and fell onto the snow. This was the kind of effort we made when scarcity was the rule and no big winds came our way.

The oyster mushroom is one of the five fabulous mushrooms. That is the phrase I use for the morel, chanterelle, chicken, hen and oyster mushrooms, or more properly, fungi, because all these fungi are choice, easy to recognize and can always be found in our area.

The oyster is loved by people all over the world but it has a few distracters- some have gastrointestinal problems with it. It grows on many hardwood trees. Field guides say the oyster likes beech trees and I have found it on beech, once; most often I find it on tulip poplar. I have also found it on black locust and scarlet oak. It is likely to appear on trees that have fallen near water, or, as Paul Stamets

says, the oyster is found in "riparian forests." I have rarely found it in mountains. Oyster is said to grow all year long, but I have found it most often in late fall. I have found some in the spring and once in summer, when I found quite a bit on logs that were cut from a tree that was grounded by Isabel. These logs had never blossomed with oysters until they were thrown some 10 feet by the new owner. Then, suddenly, they all bloomed at the same time and, luckily, I was there- they never appeared on these logs again. I mention this because growers of shiitake often bang their shiitake logs around to initiate pinning.

Most of the time oyster grows on dead trees but it can be found on living trees, but then, there are many dead cells in living trees. The oyster is a white rot saprophytic fungus which means that its mycelium dines on dead lignin and cellulose tree cells. Oyster seems to visit the tree before other fungi though the *Trametes elegans* polypore arrives on the same log about the same time. I don't think I have ever found oyster on a log that was completely devoid of bark, but if the log has some bark, oyster will often appear where the bark meets the bare wood.

In the mid-60's I was commanded to sell an acre of land to the gas company. There were trees on the acre so I invited a woodsman to make an offer on the trees. He liked the big tulip poplar but when he felled it he found that it was hollow. I thought it was rot, but now I suspect that the oyster was at work. The tulip poplar is prone to spring multiple trunks from the same base- I have seen one base with four trunks. In my front yard I have a two-trunker and three year ago it had on one of its trunks, at

eye level, a small oyster. The oyster hasn't appeared since. But is the oyster's mycelium going to hollow out this tree?

Asians Have Been Eating the oyster for centuries and have used it as a medicine. It is reported to help with diabetes, cancer, cholesterol levels, blood pressure and infections. It's also quite nutritious, providing vitamins, especially B, calcium, phosphorous, iron, proteins and non-saturated fats. Oyster is used commercially in cosmetics and in making paper pulp.

Oyster was the first fungus to have its genome sequenced. There's continuous discussion about how many species comprise the *Pleurotus* genus and also whether the spring oyster is the same species of *Pleurotus* as the fall oyster. Mycologists are studying these issues.

Perhaps you have read about the nematode. It's a worm whose size can range from the miniscule to eight meters in length. It's the most numerous multi-cellular organism on our planet and is found on land and sea. It's a parasite that attacks humans, plants and especially fungi. But the oyster can deal with it. The oyster's mycelium has a sticky substance with traps the nematode, allowing the mycelium's hyphae to invade the nematode and digest it. This process provides the oyster with nitrogen, which it then uses to make protein. The oyster is a killer!

Lately, oyster has gone "green." It's been discovered to "...produce powerful denaturing enzymes that could dismantle several recalcitrant industrial toxins, leading the way to habitat restoration." -Paul Stamets,

Mycelium Running.

Stamets also says that oyster is the easiest fungi to cultivate. Commercial growing have made it a "designer" fungus- growing pink ones for Valentines Day, as well as blue, brown and gray ones.

Is there a hardier mushroom than oyster? It may be infested with red-headed beetles, soggy wet, frozen or aged and brown-margined but it is still edible and oyster dries well. Here are some cooking suggestions from Phyllis Glick's *The Mushroom Trail Guide*: Bake thin strips with lemony cream sauce or cheese sauce, or cook slowly in butter, covered for 5-10 minutes and add to stews, soups, fried rice or whatever. Another suggestion: cook it with butter and popcorn seasoning. It's also great with steak.

Meanwhile, I am looking for fallen tulip poplar trees, near water, with good bark-Until the next wind -*Jim Sherry*

Fungus Notebook



Common Name: Reindeer Lichen, Reindeer moss, Caribou moss, Reindeer moss lichen - The lichen is one of the primary food sources for reindeer (*Rangifer tarandus*); their North American counterparts are called caribou. The lichen's highly branched growth pattern known as fruticose is similar in appearance to moss.

Scientific Name: *Cladonia rangiferina* - The generic name is from the Greek *kladon* which means "sprout" to signify the shrub-like appearance of the branching segments of the lichen. The species name is taken from the reindeer or caribou genus, *Rangifer*. The reindeer lichens are sometimes taxonomically assigned to their own genus *Cladina*.

A lichen is a mutualistic combination of a fungus and an alga; mutualism is a type of symbiosis in which both entities share in the benefits of the association. Lichens thrive in relatively extreme environmental habitats due to the successful combination of attributes, the mycobiont fungus provides moisture and minerals and the photobiont alga provides photosynthetic nutrition. One fifth of all fungi or about 20,000 species exist only as lichens; they do not occur without algae. The fungal constituent of the lichen physically predominates over its algal partner, comprising about 90 percent of the overall biomass; it forms the primary structure or thallus of the lichen that anchors it to a substrate and absorbs water and minerals from the environment for sustainment. Because of this primacy, the lichen is named for the fungus. The photobiont alga of the reindeer lichen is *Trebouxia erici*, one of the green algae. Unlike their myriad mycobiont associates, 90 percent of all photobionts come from only three genera, *Trebouxia*, a unicellular green alga genus, *Trentepohlia*, a filamentous green alga and *Nostoc*, a cyanobacterium (formerly called blue green alga). Though the photobionts have the ability to exist in the natural environment without their fungal symbionts, they are rarely found; free-living populations of *Trebouxia*

have never been found. Syllogistic logic would conclude that the algae and fungi of the lichen are totally dependent on their mutualism for survival.

The regeneration of reindeer lichen in particular and lichen in general afford some seemingly insurmountable obstacles in consideration of the paucity of resources available in their habitat and the lack of any naturally occurring constituent fungi and algae. These constraints impose a potential reproductive impasse that is resolved by vegetative regeneration, a form of asexual reproduction in which portions of the existing growth (vegetation) provide the genetics for replication. However, rather than a piece of the lichen thallus (containing both algal and fungal cells) breaking off and starting a new growth, it is more common for the lichen to form specialized structures that contain undifferentiated cells of each constituent. There are a number of different vegetative reproductive structures that are employed to this end; for lichens in the *Cladonia* genus, small balls of fungal hyphae called soredia enclose several algal cells. The soredia are dispersed by wind, water or animals just like the spores of the fungus would be. Once a reindeer lichen is established in a new location, slow growth is balanced by longevity; a growth rate of about 8 mm/year over an average century-long lifetime. The dominance of reindeer lichen in the boreal forest regions is evidence of their success in regeneration; lichen cover typically ranges between 50 and 90 percent. The lichen mats contribute to their own dominance by intercepting the rainfall, thereby inhibiting the germination of the seeds of any alternative species. Seedlings that do manage to survive in the soil

frequently wither when the soil becomes desiccated or are pulled out by the repetitive expansions and contractions of the lichens.

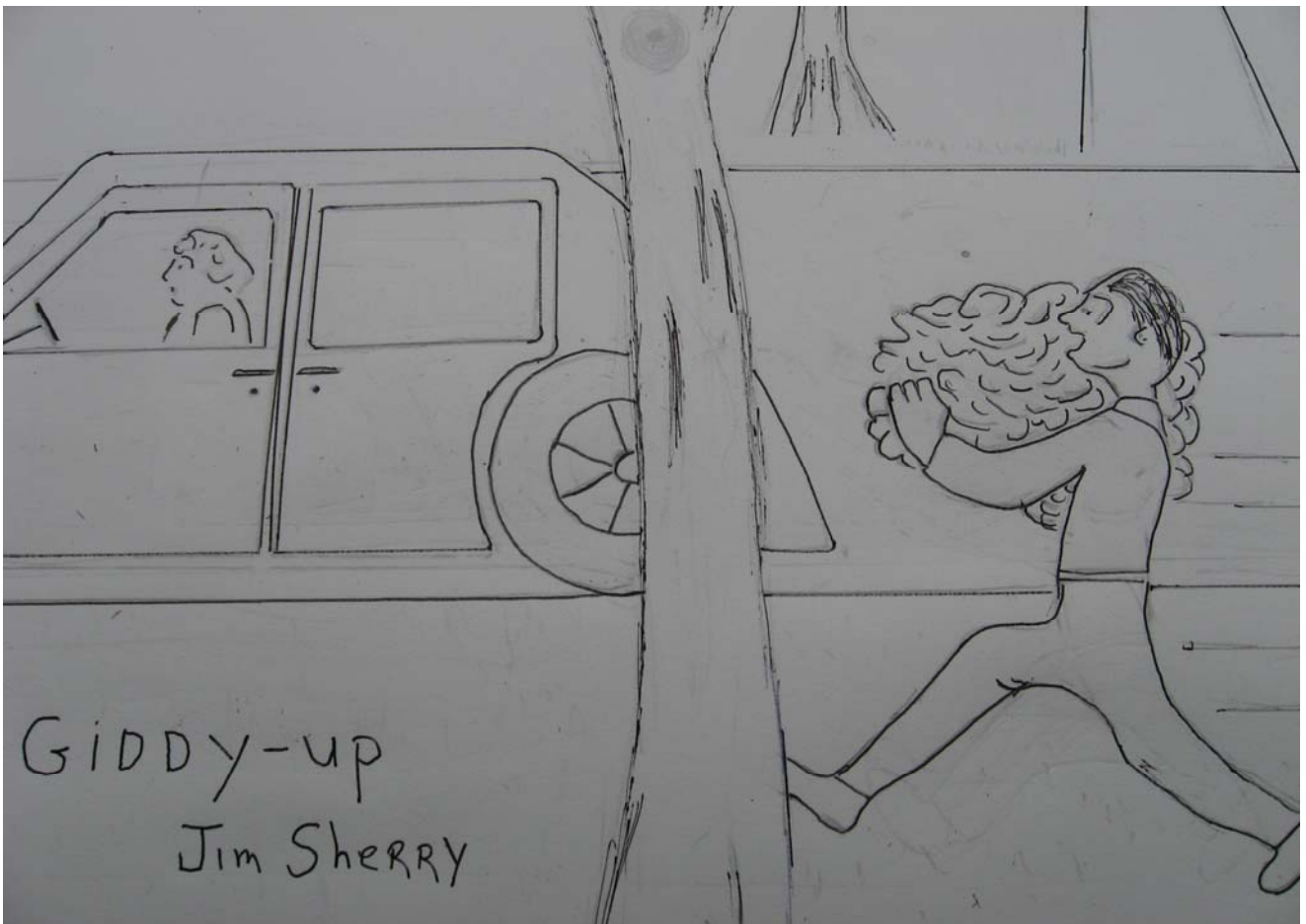
Reindeer lichen is used as a general term to refer to any of several species that are consumed by the reindeer of Eurasia and the caribou of North America. The circumpolar habitat of the reindeer/caribou is congruent with that of the eponymous lichens which constitute about 90 percent of their diet in winter and about 50 percent of their diet in summer. The names of *R. tarandus* reflect two etymologies: Reindeer is from the Norse *hreinn* which is thought to derive from the word *ker* meaning "top of the head" - emphasizing the characteristic horns and *dyr* meaning animal (ergo, horn-animal); Caribou is from the Algonquian Indian word *khalibu* which means "that which scratches or paws." Reindeer are essentially lichen-dependent. In the seminal tome "Lichens of North America" it is recounted that caribou were introduced to Saint Matthew Island in the Bering Sea in 1943. They thrived on the indigenous lichens to the extent that the herd had expanded to about 6,000 in 1963, when the lichens ran out; only 50 survived that winter. Although other boreal ungulates (including mule deer, white-tailed deer, elk, moose and mountain goat) eat lichens, only *Rangifer tarandus* eat the reindeer lichens. The difference is that reindeer have developed a technique for uncovering the terrestrial lichen; they kick holes in the ice and snow to create a "crater" large enough to expose their meal. "Cratering" affords them an advantage over the competing herbivores, who must rely on arboreal lichens for sustenance. From the dietary perspective, lichens are high in carbohydrates and low in

protein. Ruminants like the reindeer can break down the complex carbohydrates in the bacteria in their rumen, but they still must eat protein-rich foods to survive. In addition to grasses and shrubs, reindeer have been known to eat lemmings, bird eggs, and mushrooms.

There is some disputation concerning the taxonomy of the reindeer lichens; some lichenologists place them in the genus *Cladonia* with many other lichens and some afford reindeer lichens their own genus, *Cladina*. Both genera have hollow stalks called podetia which extend from the granular crustose (like a crust) thallus at the base in branches, an arrangement that is known as fruticose. In lichens, the thallus is the vegetative or growing portion that has both the fungal and the algal components. The difference is that reindeer lichens lack the scale-like squamules at the base of the lichen and the shiny, protective layer on the podetia called the cortex that are characteristic of the species assigned to the *Cladonia* genus (which are accordingly called squamulose-fruticose). However, according to the USDA, several phylogenetic studies have demonstrated that DNA sequences, morphological data and chemical analyses all support the general conclusion that *Cladina* should be included, at least as a sub-genus in *Cladonia*.

There are four species of reindeer lichen that predominate in boreal latitudes and at the higher elevations in the temperate latitudes. The most extensive is the gray or gray-green reindeer lichen, *C. rangiferina*. The others are *C. arbuscula*, shrubby or tree reindeer lichen, *C. mitis*, green or yellow reindeer lichen and *C. stellaris*, star or star-tipped reindeer

lichen. They are all eaten by reindeer, but their use by humans to some extent varies according to the species. *C. rangiferina* was used by Northern native people to make medicinal tea for the treatment of colds and fever and as a poultice for arthritic joints. It was used as fodder for cattle in Northern Europe as a means of improving the quality and quantity of the milk. *C. arbuscula* and *C. mitis* are nearly identical in appearance and can only be distinguished by chemical analysis (which is true of many lichen species) or, according to experienced lichenologists, by taste (*C. mitis* is mild and *C. arbuscula* is bitter). The Cree Indians used the green reindeer lichens in a manner similar to the Nordic natives for medicinal teas, specifically for the expulsion of intestinal worms. In general, reindeer lichen do not provide any significant nutritional benefit to humans, as they lack the reindeer's stomach enzymes necessary to break down the complex carbohydrates. However, native peoples did eat the partially digested lichens in the stomachs of freshly killed reindeer, sometimes mixing it with meat scraps and blood to make a nutritious and highly esteemed pudding. Whereas *C. rangiferina* and *C. mitis* are pioneering lichens in that they establish colonies on nearly bare rock (a very thin layer of soil is beneficial), *C. stellaris* is a climax species that gradually predominates in mature lichen habitats. Star reindeer lichen are highly regular with delicate branches that closely resemble miniature trees (see photo at right). They are the primary type of lichen used for miniature trees to add realism to model train panoramas and architectural maquettes. They are also used to make wreaths for graveyards and for other decorations.



GIDDY-UP
JIM SHERRY