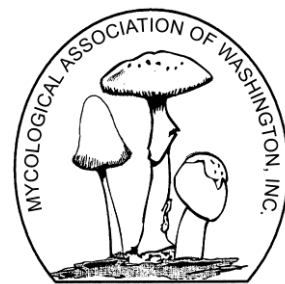


# Potomac Sporophore



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## **2011 Scheduled Events**

### **Monthly Meeting Location:**

#### **Kensington Public Library**

Located at 4201 Knowles Avenue.  
phone number 240 773-9515

Monthly meetings are normally held on the first Tuesday of the month.

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.

There will be no forays scheduled until late April or early May when the morels will first appear as the harbingers of spring

April 5 – Program: Gary Lincoff, Author of the National Audobon Society Field Guide to North

## **American Mushrooms**

May 3 - Spring Wild Foods Tasting meeting; hopefully some morels and purchased mushrooms in addition to other wild foods.

August 4 - 7 NAMA foray hosted by Western PA Mushroom Club in Clarion, Pennsylvania.

August 11-14 NEMF foray weekend at Paul Smith's College, New York. Registration begins in January on web site <http://nemf.org>.

September 23 - 25 Annual weekend at Camp Sequanota in Pennsylvania.

## **From the MAW President**

I'm pleased to report the possibility of an interesting new collaboration with an organization called the **Arcadia Center for Sustainable Food & Agriculture**. Located on a 127-acre tract at Woodlawn Plantation in Alexandria, VA (near Mount Vernon), this organization is interested in identifying wild mushrooms that grow on its premises and in cultivating mushrooms. I was down there earlier this month with John Harper, Drew Hulburt, and Martha Schneider of MAW to take a quick look around. While a lot of the acreage is or will be under cultivation, we saw some potential

for wild mushrooms— scattered oaks, tulip poplar, and ash in the surrounding woods— and even found a clump of oyster mushrooms. Our group should certainly schedule at least one foray there once the season has begun. But I actually think that a more interesting possibility is that of a joint project on mushroom cultivation. Arcadia has premises with available straw, stable bedding, downed trees, water, and volunteer staffing that could be made available. The resources that MAW can provide are know-how, labor, and spawn. What we don't know already about mushroom cultivation we can certainly learn.

Ever since the passing of Waldemar Poppe and the greatly diminished presence of Paul Goland, MAW has not to my knowledge had a member seriously engaged in cultivation of mushrooms. However, we do have members who have expressed an interest in trying. We now have an opportunity to get a serious project started. It would be wonderful if some of our members would work with the people at Arcadia on demonstrations of cultivation of shiitake, oyster mushrooms, or other more exotic species. Who knows, we might even be able to get donations of spawn from the good folks at Phillips Mushroom Farms. Please let me know if you'd like to get involved with this project.

### **Edible Mushrooms of Spring**

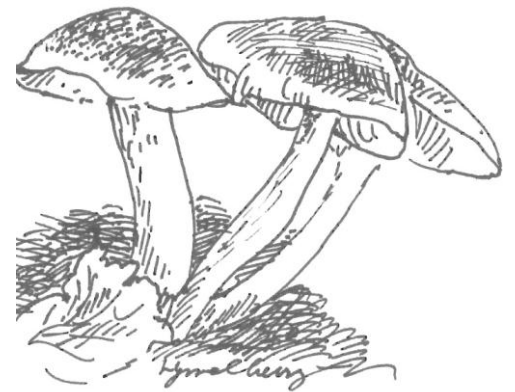
There's no denying that the big draw for most springtime mushroom hunters is morels (*Morchella* spp), and they truly are wonderful to find and eat. But I want to call to your attention, especially you novices, to the fact that there are many other edible mushrooms that will fruit before the next issue of the Potomac Sporophore comes out in late June.

For starters, oyster mushrooms (*Pleurotus ostreatus*) can appear any month of the year. You're almost certain to see some *Polyporus squamosus*, a generally somewhat tough polypore with a cap cuticle said to resemble a pheasant's back and a smell reminiscent of watermelon, growing on downed hardwoods. It can be quite good if it is collected when young and tender and sliced thinly. Mica caps (*Coprinus micaceus*) can often be found at the base of old trees after periods of cold rain. While rather insubstantial, they can have a nice flavor if cooked down and dressed with a cream sauce, but make sure the spore print is black and not rusty brown. Their bigger and tastier relative, the shaggy mane (*Coprinus comatus*) can also sometimes but not often be found in grass under pine trees or in packed dirt in spring. It looks to me like a big albino corndog until its cap dissolves into black ink. An unusual but reliable springtime find — if you know exactly where and when to look— is the umbrella polypore (*Dendropolyporus umbellatus*) which appears in early May as a mass of pale tan cespitose caps that have pores, not gills, on the undersides at the base of maple tree. Immediately following the conclusion of morel season and after black locust trees bloom, I usually find big, dark red winecaps (*Stropharia rugoso-annulata*) in hardwood mulch and always find chicken of the woods (*Laetiporus sulphureus* and *cinncinatus*), which some experienced mushroom hunters whom I will not name used to doubt ever appeared in spring, growing on standing or downed oak. But then, I have to admit that I too was a doubter when it came to springtime fruiting of the granulated bolete (*Suillus granulatus*) until Waldemar Poppe

showed me a nice collection which he found under an ornamental planting of eastern white pine, exactly the habitat where I've always found it. I also used to get field mushrooms (*Agaricus arvensis* and *campestris*) and scotch bonnets (*Marasmius oreades*) every spring in grassy fields, although I haven't seen any in spring for the past few years). Finally, I usually find at least a few black chanterelles (*Craterellus fallax*) and smooth chanterelles (*Cantharellus lateritius*) in moss in oak-beech woods and maybe even a few honey mushrooms (*Armillariella* spp.) in June, which is still technically spring even though it doesn't feel much like it around Washington, DC.

Notwithstanding the above, let's not forget about all those other mushrooms— poisonous, tough, flavorless, inedible for whatever reason— that come out, especially right before meetings. Remember that as the Mycological Association, we're interested in seeing all kinds of fungi being brought to monthly meetings for identification and discussion. So please, do your part and bring all that strange and anonymous stuff you've found (in good condition, stored in your refrigerator in waxed paper or cardboard, please) when you come to monthly meetings!

- Ray LaSala



## New Board Members

Two new faces, Barbara Karpas as Secretary and Bruce Eberle as Programs and a rearrangement of the old faces (though all young at heart) Jon Ellifritz is now Vice President (former Programs), Danny Barizo is now Culinary (former VP) and John Harper is now Treasurer (former Culinary) mark the beginning of the 2011 MAW board.



Secretary Barbara Karpas



Programs Bruce Eberle



An obvious good choice for the culinary chair, Danny Barizo



The new treasurer John Harper prepares to balance the books.



The inimitable Jon Ellifritz, VEPP

## How and Where to Find Morels

Finding morels is more of an art than an exact science. One person who clearly understands this is Tim Geho, former member of MAW and now a resident of Charleston, SC. He is the author of the original version of this article, *Morels and How to Find Them*, dated March 24, 2005 (See MAW Archives at [www.mawdc.org](http://www.mawdc.org)). It was supplemented by additional material published in the March 2010 and September 2010 issues of the Potomac Sporophore. This article provides my thoughts on the subject with Tim's input.

Black morels, often classified as *M. elata*, are usually but not always the first to appear in our area. In good years they will provide decent yields; in poor years they might not fruit very much at all. Half-free morels, addressed in the original article but not here, are usually the next to fruit. Yellow or white morels usually appear after this, but sometimes they fruit at about the same time as black morels.

Several species of yellow morels are classified as members of the genus *Morchella*. This includes two common species of yellow morels that grow in our area. This article will refer to them as *M. deliciosa* and *M. esculenta*; however, these names may be revised by future taxonomy. While they are usually identified using nothing more than their visible features, DNA testing will produce more definitive results.

You can get clues to the beginning of morel season by looking at all the plants in the area and taking note of their stage of development. Black morels start to appear when the leaves on spice bush are young and

small, red maple blossoms are out, and tulip poplars are just beginning to show green leaves. The leaves on pawpaw trees sprout a bit later in the season. These are general guidelines, as short warming spells can bring out the leaves on some plants but still not stimulate morels to fruit.

It is a long-held opinion that yellow morels can start to be found when the leaves of oak trees are the size of squirrel's ears. Oaks leaf out at about the same time as poplars at similar elevations; however, the poplar leaves will be at least the size of silver dollars before morels begin to fruit. The leaves of ash trees will typically be 2-3 inches long before yellow morels are ready to be picked, but be careful-- the actual leaves of ash trees appear about a week after flowering heads that can deceive you into thinking that they are the actual leaves.

It's hard to predict which will fruit first, poplar or ash tree morels. The smaller *M. deliciosa* usually fruits first under poplars. *M. esculenta*, the larger and thicker-fleshed of these two, is often what folks find under ash trees and may fruit earlier in the season. It can grow quite large, up to the size of what used to be called *M. crassipes*, but DNA testing has shown *M. crassipes* to just be large specimens of *M. esculenta*. It sometimes appears at about the same time as *M. deliciosa* and can fruit even later in the season.

Don't give up on the poplars too quickly when looking for large specimens of *M. esculenta*, especially near big, old poplars. The ground is normally pretty open where the large trees are found, so it's usually easy to see any morels from a distance. The poplars seem to only have a few large

ones near each tree and sometimes only one, but those few are usually very meaty and large. It often seems that ash trees hold quite a few more large morels per tree than do poplars, and they can also hold lots of the smaller morels. In a rare case, one isolated large ash produced an estimated 275 small specimens of *M. deliciosa* in a single year.

A person can find large *M. esculenta* almost any time during the morel season. The ones that fruit under dying elm trees come up earlier than you'd expect, but elm trees are unfortunately rare these days. Morels can also emerge under many other dying trees including apple, ash, poplar, oak, wild cherry and ironwood. These trees can produce sizeable quantities of morels.

Once you find a couple of yellow morels, it will often take another week or so before you can find them in numbers, especially if you are finding the earliest morels in a slowly evolving year. Some years when it warms up quickly, the morels seemingly come up all over the place all at once. The typical morel hunter waits until he's heard of someone else finding morels. By then, finds should be pretty widespread; but even then, he doesn't know if the first couple of finds are just a few early morels or part of a more widespread fruiting.

Fruiting times can be affected by a variety of factors. Morels may fruit 2-3 weeks earlier in "warm spots" than in other nearby places due to the direction the slope faces, the amount of sunlight, or ground cover. Cold spells or even high winds can delay the season, while extreme heat waves can bring it to an early conclusion. The farther north or the higher in

elevation you go, the later the season will be. An hour's drive north or south, or a 1000 foot change in elevation, can make a difference of a week or so.

Whether its snow or rain, moisture is generally favorable for development of the mycelium that produces the morels. The few weeks just prior to and during the normal fruiting period are what matter the most. You can have drought or extra rain for months in advance, but last-minute weather has more to do with morel growth than anything else. At the same time, some spots will hold moisture and tolerate drought better than others.

The amount of moisture in the soil in the spring is important. Morels will grow in about any soil whether it's spongy or rocky, but they don't normally grow in really hard or sticky-wet soil. Somewhat spongy soil with some dampness will usually produce better quantities of morels. Stream bottoms can sometimes produce good morel finds, but steep valleys may have only a thin strip at the bottom that is good for morel growth. Sometimes black morels fruit in valleys with rocky bottoms, but they can be hard to find in the crevices among the stones.

Morels like water, but they also need air to get to their mycelium, or else they can "drown," so to speak. Even if all the conditions seem right for morel growth, they still might not fruit as you'd expect. Morels fruit when they "feel" there is a lack of food and the only way to survive is to spread spores by way of fruiting bodies. A good year for the morel mycelium might be a bad year for morel fruiting bodies if the mycelium feels safe and comfortable and doesn't feel the need to expend

energy to create fruiting bodies.

You can use these considerations to help find the right time and place to hunt for morels. Be patient; they should eventually show up in quantities. In the meantime enjoy the exercise in the woods.

I hope that these articles have given you a sounder basis for finding morels. Happy hunting!  
Larry Goldschmidt and Ray LaSala

## **Editorial**

### **Mushrooms with Sherry**

#### **Looking at Trees and Finding Mushrooms.**

Trees are the most splendid plant. To be greeted in the spring by the red buds of the maple beside our highways, to see the glad, green fullness of trees in the summer months, to enjoy the colorful display of the autumn leaves and then the winter tree's reticulation of our quite blue or somber skies-it's all a gift of nature.

So much of the habitable world is without trees, even here in our country there is a lack of trees after one leaves the east. Flying across America in the summer reveals that only in the east is the land continuously full of trees. Though, it is a great thrill to visit San Francisco's Golden Gate Park where so many of the trees are beautiful conifers with amazing barks and tree structures. And there's the monumental rise of the great sequoias and the tall, tall redwoods, nearby.

But we don't pay much attention to trees as we drive by them. We don't know the names of them and don't really see them.

Identifying trees is not too difficult if one can see their leaves, but unless the tree is out in the full sun where it has not lost its lower limbs, it is difficult to see the leaves. Cranking up one's head often doesn't help because the sun gets in the eyes or branches from another tree can mislead perceptions.

Learning to identify trees by their bark is more difficult, but there are only a few trees in this area that are associated with edible mushrooms, and their barks can be learned. The three trees that are most important for mushrooms in the areas that I visit are: white oak, scarlet oak and tulip popular. Another tree that is quite friendly to mushrooms-the beech, the signature tree- is seen all over this area in the winter because it still carries its golden tan leaves, which makes it easy to spot; unfortunately, it is dying because of a fungus and one rarely sees one that is mature. Pines are another favorite fungus collaborator, but they have a scattered existence in this area, unless they have been planted.

Oaks. All oaks have horizontal branches and their smaller limbs are often twisted and angled. Like the beech, the oak hangs on to many of its leaves until April, not surprising, since the oak is in the beech family.

White Oak. The white oak's tell-tale bark characteristic is the way its plates (the little pieces of bark that together make up the bark fabric at eye level) change into elongated strips of bark about ten to twenty feet above the ground-they give this oak a shaggy look. Also, the white oak often has growths on its bark that are about the size of half an orange, which, from a distance, look like tangles of fine vines, but they are hardened burrs. These burrs are

scattered over the trunk. And the white oak has its name for a reason. One can identify white oaks by these marks even while driving by a wood.

Scarlet Oak The scarlet oak's most apparent bark characteristic has what has been referred to as "ski trails" running up its trunk. These are the ridges of the bark that have expanded and have taken on a silvery color. In the shade these stripes give the trunk the appearance of being made of chiseled iron. There is also a hint of red in their bark. I have read that the black oak has these stripes, which are even more pronounced.

A third oak in this area is the chestnut oak. Its bark is so deeply furrowed that this alone makes it identifiable. Its leaves, which are still on the ground in spring, look like spear heads. I am still hoping to find a hen of the woods under a chestnut oak!. There are other oaks in the area, but not in great numbers.

According to the Audubon field guide, oaks are associated with: chanterelles, yellow and half-free morels, Bears Head tooth, Bearded tooth, Beefsteak polypore, Hen of the Wood, Chestnut bolete, Parasol mushroom, Ringless honey, Bicolor bolete, American Caesar's mushroom, Fragrant armillaria, Green Quilt russula, and Tacky Green russula, and other mushroom. The mushrooms listed are either "choice" or "good." The chicken mushroom has been found under a scarlet oak by me, though Audubon does not list oak for it.

The Tulip Poplar. The tulip poplar grows very straight but so does the sweet gum. Its most telling trunk trait is the ash color in its fissures or groves. Sometimes this ash color is very apparent, other times it's not, but it's always there. The trunk ridges are also fairly straight. And sometimes at the bottom of the trunk

the ridges veer off and form what appears to be x's. Sometimes this tree stands on the ground like an upright matchstick, with little support from above- ground roots, in contrast to oaks which have thick roots gripping the ground. The tulip poplar is more likely than other trees to spring a number of trunks from the same base. Two of the fab five mushrooms are associated with the tulip poplar: morels and the oyster mushroom. Not all popular mushrooms are associated with trees: edible agaricus, puffballs and shaggy mane, to name a few.

Finally, not all trees are associated with visible mushrooms. There are lots of hickories, sycamores and maples in this area but their fungi activity remains "private."

- Jim Sherry

## Fungus Notebook



**Common Name: Russula** – Due to the lack of distinction among the many species of Russula mushrooms, they are commonly known by the genus name.

**Scientific Name: *Russula* spp** – The generic name is derived from the Latin word *russus*, meaning red; many of the mushrooms in the Russula genus have a red pileus (cap). The designation spp is an abbreviated form for species (sp)

plural and indicates that it refers to a number of species.

Mushroom species of the genus Russula are probably the most maligned and mistreated of all of the members of the Fungi Kingdom. If the Morel (*Morchella esculenta*) is the queen of mushrooms and the Cep (*Boletus edulis*) is the king, then surely the Russula is the knave. Their fragility and dubious culinary merit subject the Russula to sneering contempt even by mycophilic people. Russulas, which are otherwise commendable and attractive mushrooms, are among the most ubiquitous in sylvan habitats, with over 700 species identified worldwide. Many have a red cap, though there are a wide variety of colors that range from gold to green. Other than the cap color, almost all Russulas have the same basic features: generally stolid and squatty; a cap that is flat to slightly depressed at maturity that is wider in diameter than the height; and a thickset stem that lacks the tell-tale ring of a partial veil, is smooth with no striations, and is for the most part pure white.

The most notable and unique characteristic of the Russula mushroom is the brittleness of the flesh – a factor so important that Russulas are called "brittle-gills" in The Peterson Field Guide to Mushrooms. This makes them very easy to identify in the field – one can readily break off a section of the pileus (cap) with minimal shear force. This can be clearly demonstrated by hurling one against the ground – it will literally shatter into hundreds of fragments; an alternative is the Russula dropkick. In either case, an appropriate imprecation such as "JadrR" (Just another damned red Russula) can be

used to emphasize the calumny. The reason that the flesh of the Russula is so brittle compared to the greater pliability of other mushrooms is that the cellular structure of the Russula and the closely related mushrooms of the genus *Lactarius* is distinct among the fungi. While most mushrooms have an elongated, fibrous cell structure that will bend but not break, the Russulas have globular cells called sphaerocytes that are intermingled with the elongate cells. It is these roundish cells that allow cracks to rapidly propagate through the mushroom so that the flesh will undergo brittle fracture, rapid cracking with little or no deformation in a manner reminiscent of chalk. It is hypothesized that the formation of sphaerocytes occurred due to evolutionary pressures to more rapidly expand the epigeal (above ground) fruiting body to expedite spore dissemination. This is based on the observation that the Russulas that are indigenous to tropical habitats are comprised almost entirely of sphaerocytes while those in temperate regions have a mixture of the fibrous and sphaerocytic cells.

Distinguishing the myriad species of Russula is a challenge of gargantuan and perhaps Sisyphean proportions. Although many Russulas are red, they can vary greatly in color. As an example, one of the more common species is "extremely variable" in color according to Gary Lincoff in the renowned National Audubon Society Field Guide to North American Mushrooms, ranging from greenish to pinkish with many intermediate hues. It is not surprisingly named *R. variata*.



Since color is not a good means to distinguish one *Russula* from another, a number of other distinctions have been proffered as a means of identification. In addition to the color, shape and ornamentation of the spores, the most common and reliable identification key for mushrooms and the basis for many taxonomies, *Russulas* also can purportedly be speciated according to the bitterness of the taste, the pungency of the smell, changes to the color of the flesh both with and without the use of chemical reagents, and the degree to which the tough, colored skin of the cap can be pulled away from the margin before it snaps off. According to David Aurora in Mushrooms Demystified, “no two look quite alike” because they are “unusually sensitive to environmentally and genetic caprice.”

The variability of mushrooms according to their specific habitat that is manifest in the *Russulas* is a reflection of the fact that they are heterotrophic and must therefore seek nourishment from external sources (only plants are autotrophic) and that they are by their very nature part of the intertwined anastomosis of the forest soil. All *Russulas* are mycorrhizal which means that they are obligate in their association with the roots of the host plants, predominantly trees; mycorrhizal is

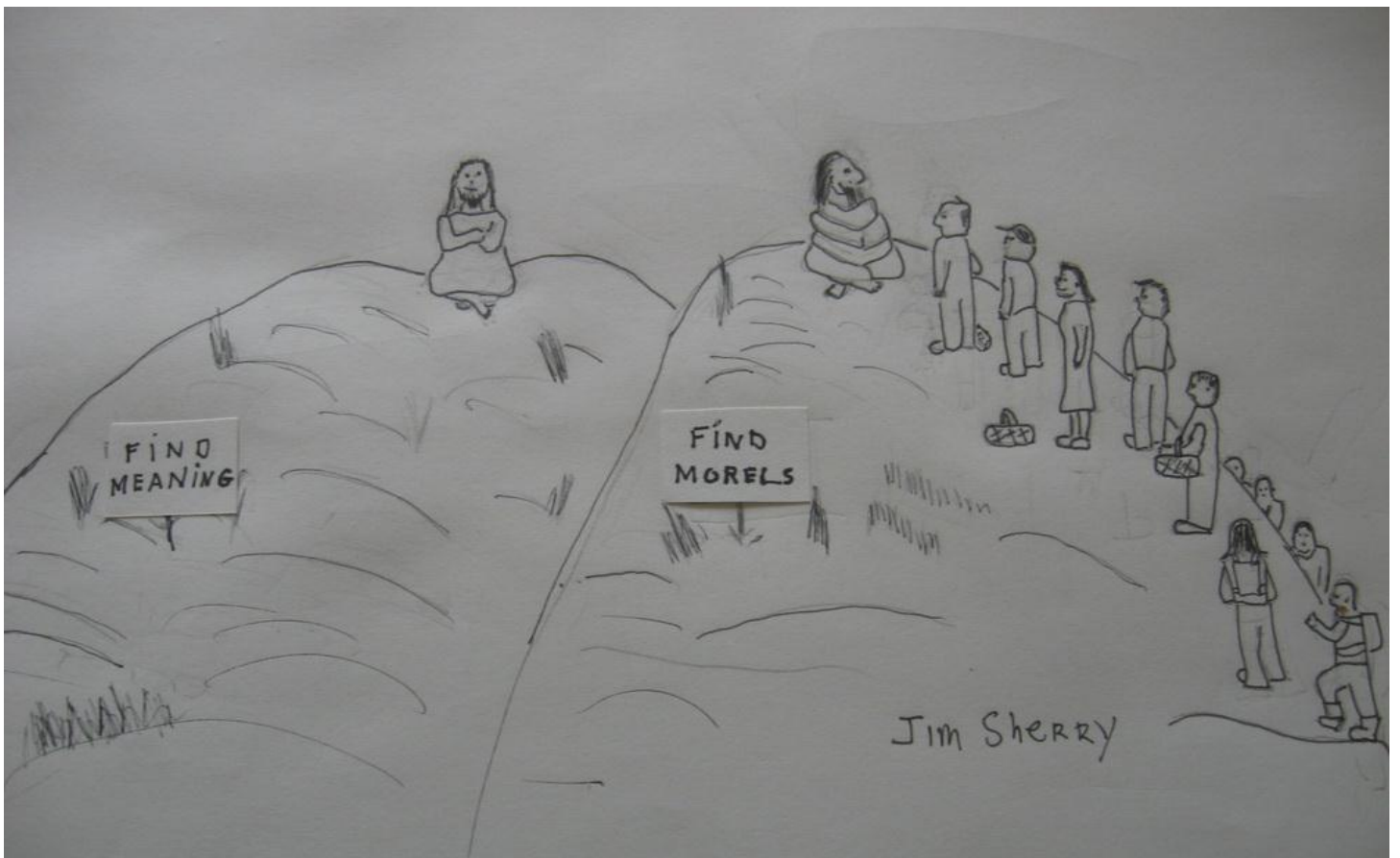
from the Greek *mykes* meaning fungus and *rhiza*, meaning root literally ‘fungus root.’ This is a mutualistic relationship as both the tree and the fungus gain from the association. The tree gains what is essentially an extended root system in the spreading hyphae (root-like fungal tendrils) of the fungal mycelium (the hypogean “body” of the fungus) that provides not only an increased water volume for absorption, but also the essential minerals from the soil. But what is probably the most important factor for the tree is that the mycorrhizal fungus stores these essential mineral nutrients, notably ammonium (for the nitrogen) and phosphate (for the phosphorus), making them available for use during periods of resource paucity, like a drought, or to support a period of rapid tree growth. It is hypothesized that the mycorrhizal relationship is the primary reason why trees predominate in cool temperate and cold boreal climates. So what does the *Russula* get out of the association? It gets sugars that are the photosynthates produced by the tree; it is estimated that as much as 10 percent of the trees entire output is provided to the mycorrhizal fungus through the root – hypha interface. *Russulas* in general are mycorrhizal with many trees, though there is a particularly strong association with oak, beech and birch.

The edibility of *Russulas* is subject to a wide range of written opinion and conjecture that ranges from the panegyric to the pasquinade. This is likely the result of the great degree of variability of the *Russulas* in appearance that is manifest in variability of taste. The best way to determine whether a *Russula* is edible is to take a small bite and ascertain whether the taste is mild or acerbic.

There is no known species of *Russula* that is deadly and the *Russulas* that have a mild taste are edible. If it is acerbic, it is a good indication that it will result in intestinal distress. One of the more common *Russulas* that fall into this category is the *Russula emetica*, the species name derived from the Greek *emetikos*, to vomit, reported to be a strong purgative.



According to Charles McIlvaine in One Thousand American Fungi, “when they present no objectionable appearance or taste, their caps make the most palatable dishes when stewed, baked, roasted or scalloped.” On the other hand the Russians, who are perhaps the most mycophilic peoples of all of Europe, call the *Russula* the СЫРОЕЖКА, pronounced “Sarah-yeshka” which literally means “eat raw” with the assumed implication that it is so mediocre that it is not even worth bothering to cook. . However, it is more likely that the meaning is related to the common practice in Russia of collecting and cleaning the abundant *Russulas* in the summer and fall and placing them in a barrel in layers alternated with salt strata as a means of preservation and flavor enhancement. These were then “eaten raw” during the long, cold winters, the saltiness a good adjunct to vodka.  
- William Needham



FIND  
MEANING

FIND  
MORELS

Jim Sherry