

MORELS AND HOW TO FIND THEM

Written by Tim Geho

Several species of morels grow in the Maryland, Virginia, and Washington, DC area. They are commonly referred to as black, white, gray, yellow, and half-free morels. All are taxonomically classified as members of the genus *Morchella*. Scientifically, there are probably two species of the white or yellow morel and at least one species of black morel in this area. The so-called *M. esculenta* and *M. deliciosa* can usually be told apart using nothing more than visible features; but unfortunately, each of them may actually comprise several species that can only be distinguished using DNA analysis.

The following may be news to many experienced mycologists. Recent research has determined that these names may not be correct for North American morels. *M. esculenta* was originally described in Sweden. No North American morel appears to match any of the Swedish morels genetically. Since *M. esculenta* has already been described, we may have to come up with a new name for the North American version since you can't give the same name to two genetically distinct species. This may also be the case for *M. deliciosa* and the black morels. Various authors have named the black morel as either *M. elata* or *M. conica* or *M. angusticeps*. It appears so far that none of these species grows in the US either. *Angusticeps* is a North American name, but the name itself may not be valid.

Recent DNA sequencing has shown at least 14 taxa of morels present in the US; six species of morels have already been classified in Pennsylvania alone. Here we go again with more renaming of fungi. In his forthcoming book, Morels, (due October 2005) Dr. Michael Kuo treats several species of yellow morels that have been distinguished by DNA studies. For the time being the species names *esculenta* and *deliciosa* are used to differentiate between the two morphologically distinct yellow morels. The larger and thicker fleshed variety that grows under several varieties of trees is currently being called *esculenta*. The name *deliciosa* is being used for the smaller, thin fleshed, usually pointed morel commonly found most often under tulip poplars or ash trees. To learn more about the taxa that have been identified, go to www.MushroomExpert.com. Dr. Kuo is one of the principal developers and administrator of that site.

The scientific effort at classifying morels using DNA results is currently in high gear. Much of the effort is associated with the Morel Data Collection Project (MDCP). Hopefully some day or year soon, we may finally know how many species of morels there actually are, and they may actually have widely accepted names. One thing that has been established is that what many people and some books referred to as *M. crassipes* has DNA identical to that of what is currently called *M. esculenta*. The MDCP needs specimens of morels from the East Coast, especially of the species *M. semilibera*, because it is thought that there may be a species in the eastern US not found elsewhere. If any club members wish to contribute a few morels to the effort, they are encouraged to visit www.MushroomExpert.com, the main web site for the MDCP. One mushroom with a little supporting information can help solve the issue of how many species of morels there are and their distribution.

Morels can be found in a variety of habitats in this part of the country. Trees they are known to associate with morels in this area are tulip poplars, ash (both white and green), hickory, dead or dying elms, cherry, apple, striped maple, grapevines and sycamore. There are many more trees morels are known to associate with across the country. It may well be that some of the morels found locally are actually growing in association with these other trees, though people may be unaware of which species the trees are due to their inability to properly identify them. The most common tree people look for morels under in the DC area is the tulip poplar, but you can add to your haul if you learn to identify and look under other species of trees such as white or green ash, and dead or dying American elm. The other trees listed are not usually found in large stands like tulip poplars, but they may be in small groups or mixed in or adjacent to the poplars. In some sections of Maryland and Pennsylvania there have been reports of morels being found in mixed tulip poplar/ white pine woods; in other parts of the country morels have been found in exclusive white pine woods. It may pay to look under white pines in this area especially if they are mixed with or adjacent to tulip poplar woods. In some other areas of the country, usually the western US, morels can often be found in burned areas. Since the tulip poplar habitat is most abundant in the MD/VA/DC area, the suggestions that follow are geared toward finding morels in this habitat. Even though the suggestions are geared toward tulip poplar woods, if one finds the other trees listed above, the same indicators and methods will also apply.

Morel fruiting in this area can occur as early as late March and can last until mid to late May in higher locations. The season for the black morel occurs first and lasts about three weeks. The season for the yellows or whites comes next and can last about four weeks. These seasons usually overlap, with the yellow morels beginning to fruit as the season for the black morel draws to an end. The season for *M. semilibera* usually overlaps the seasons for black and yellow morels. Most years the peak times are from about April 10th to May 10th. Morels usually begin to fruit in the greater DC and surrounding area a week or so before they do in the Shenandoah area of Virginia or mountainous areas of Maryland.

Morels can grow in a variety of soils from sandy to clay. Some books claim that the soil pH needs to be on the alkaline side with at least a pH of 7.1. However, when soil samples from across the US were collected in 2004 in conjunction with the MDCP, only three had pH above 7.0, and three samples from the Front Royal / Luray area of Virginia had pH readings of 4.4, 5.3, and 5.8. I'll leave it up to the reader as to what to believe the proper pH is.

No matter which name you want to use or what type of morel you are looking for, there are some tips, suggestions, and signs that may aid your efforts. The most important item is to look in the proper habitat. You are not likely to find morels in pine woods in this area with the possible exception of white pine. They are however found in the piney woods of eastern Texas. Probably the best habitat to search in this area is tulip poplar forests with few other trees mixed in. If you find a stand of almost pure tulip poplars, the leaves form a paper-like ground cover that is easier to see morels against than one with a fluffier layer of leaves. For aid in tree identification you can look at

MushroomExpert.com, which has a good section on tree identification. You could also go to your local library or ask someone knowledgeable on tree identification on one of your local mycological club forays. There can be a variety of other small plants or groundcover. Areas without much groundcover are easy to search, but you should also look in areas with moderate to heavy groundcover. It is harder to see morels in such an area, but it can be an indication of richer or moister soil and can be just as and perhaps more productive.

Moisture is a key determinant of morel growth just as it is with other mushrooms. Rainfall, including the preceding year, the months leading up to, and during morel season have a major impact on fruiting of morels. In order to grow, mycelium needs moisture over an extended period, not just during the season. In some years the rainfall and other conditions are so ideal that just about anyone can find bags full of morels. However, you can usually find some morels even in dry years if you know where to look. Spicebush, paw paws, or garlic mustard usually show where there is ample moisture, so looking for the areas with those plants or heavy groundcover can be helpful. If you find a morel make sure to make a mental note of what other vegetation or groundcover is nearby. It may help you find morels in others areas with similar conditions. Knowing this helps in identifying where there may be enough moisture to support morels. Natural swales and valleys are one good place to look because water always runs downhill. The floodplains of small streams are another. Even small depressions can hold enough extra moisture to produce morels. The place where a steep slope meets relatively level ground is another potential good spot. Not only does water tend to accumulate in such places, so does organic material. This leads to more moisture retention and a potential food source for the morel mycelium. There are spots where the underlying bedrock is solid enough that water from rainfall even months ago that has seeped downhill and accumulated will be sufficient to produce morels under even the driest conditions. Learn to recognize and remember places like this. This can be a matter of trial and error, but there are methods that may help identify such an area. Poking a stick into the soil and seeing how much moisture adheres to it is one method to tell moisture content; use of a finger is another. Watching to see if annual plants are wilting in most areas but not in others can show the presence of underground sources of moisture. Springheads are often good places to look for morels. Areas with many loose rocks on the surface may indicate that there may be loose soil and crevices for water to drain away from the surface. Not only is it hard walking in such places, but also it may be too dry for good morel production.

Soil temperature is important for morel growth. The most currently accepted theory is that morels begin to fruit when the soil reaches a consistent temperature of about 53° Fahrenheit. Many say that when you have a week of nighttime temperatures in the 50's, morels should begin to grow. Morels begin to fruit in controlled conditions near this temperature, and this is consistent with the soil temperature of morels grown commercially. It is by no means an exact temperature, but can be used as a guideline. Soil temperatures can fluctuate greatly, even within a few hours. Readings taken in the same spot at the same depth five hours apart have varied by as much as 8° F. Even differing amounts of leaf litter or ground cover can affect the ability of the soil to warm or hold warmth from one spot to another only inches away. Soil warms from both underground

and above ground temperatures. Several feet beneath the surface all the soil is the same temperature, as evidenced by constant temperatures in area caverns. The amount of sunlight and the air temperature both day and night are factors. Soil temperature readings taken in 2004 over a period of two weeks did not register a morning soil temperature above 52° F until the last day. One person reported finding over 30 pounds of morels that year but very few under the tulip poplars that usually produce the largest yields. If you want to take your own soil temperature readings, be consistent. Use a probe type of thermometer, preferably digital. Place the probe the same depth each time for your primary reading. Use the same spot each day and take the reading as close to the same time. Also try taking a series of readings at different depths, say 6 inches, 4 inches, and 2 inches. The observed temperatures can vary by several degrees. Note whether the sun is shining or if it's cloudy. Keep a log to track your readings. Note when you find morels. As you become familiar with the temperatures when you find morels, you can just probe the ground in new areas to see if they are close to what they were when you found them elsewhere.

Another method for judging when conditions are right for morels is to use natural indicators. There are many plants and trees that begin to grow, bloom, leaf out, etc. at about the same time you are likely to find morels. It is said that the time to look for morels, especially white or yellow morels, is when the oak leaves reach the size of a squirrel's ear. If you use these indicators for yellow morels, use the preceding stage of plant growth to know when you are likely to find black morels; i.e., instead of using when something is in bloom, use the stage when it is in bud.

Other indicators are:

When the mayapples start to flatten out

When the redbuds are in bloom

When the tulip poplar leaves are the sizes of a silver dollar

When the flowering quince blooms

When the garlic mustard forms little broccoli-like heads prior to blooming. (It is also very good to eat at this stage)

When the dogwoods bloom

When the showy orchid is in bloom, it is the peak of white or yellow morel season

When you see squaw root, it is near the end of morel season

When the violets bloom

When the ash tree leaves begin to show green

When the spicebush has leaves

When the trillium blooms

These are some of the indicators that many MAW members and others use as guidelines to when morels should be fruiting. There are likely many more that are used that have not been listed. Make written or mental notes each year when you do find morels. Keeping a calendar with written entries is a good idea. Record time, date, place, trees, temperature of both soil and air, ground cover, other plants in the area, what else is blooming, the amount of moisture, recent rainfall, amount and type collected, and of

course location. Many prefer to do this in their heads, especially after gaining years of experience; but if you are new to collecting morels, it really helps to write your observations. It also helps you enjoy the other beauties of Nature while you're out there.

There is yet another way to tell when it is time to look for morels. It is perhaps the easiest and fastest way—using the Internet. The following sites have listings of reported morel finds and two of them have public discussion boards as well:

www.morelmania.com has a sightings button on their main web page.

www.mushroomexpert.com has progress maps and a public morel discussion board.

<http://www.morelmushroomhuntingclub.com> has both a public discussion board and mushroom finds page.

Geographical layout, elevation, and other items can influence whether the temperature is right for morels. South, east, and southeastern facing slopes receive more sun than those facing other directions. It is these slopes that are the first to warm in the springtime. Even in these areas, there may be spots that slope a little differently and can cause morels to fruit weeks apart. Higher elevations are subject to lower nighttime temperatures and take longer to warm up in the spring. The amount of trees or shrubs present can act as shade and present mini-climates. This is one of the reasons that not all morels in an area fruit at once. Logs and rocks on the ground can act to reflect sunlight and warm the soil near them faster than just a foot or two away. The logs also act to prevent surface evaporation. It is good practice to look next to these. Logs and rocks also tend to concentrate any rainfall that hits the ground around their dripline more so than open areas. Make sure to look carefully near such objects, especially if you're in a known morel producing area. In the mountainous sections of Virginia and Maryland morels don't always start at the bottom of the hill and work up. Often morels begin to fruit partway up the slopes. This is caused both because the higher elevations have lower nighttime temperatures and also because cold air flows downhill and settles in the valleys, possibly making them take longer to warm up each day. Knowledgeable morel hunters know spots and slopes where this happens on a consistent basis. A good topographical map or GPS can help you determine the elevation at which you are finding morels. Once this is known, you have a good chance of finding morels in other local areas with the same approximate slope and elevation. West and north facing slopes should generally be searched later in the season, but remember, this is not a hard fast rule. You should always scout new areas each year or each trip if possible. Just as elevation can be a factor, so can latitude. The further north you go, the later the season tends to be.

Once you have learned how to identify the proper habitat, judge the proper soil moisture content, and soil temperature, it is time to learn how to spot morels. Begin by looking at pictures of morels in books or other photos. You can put pictures of morels next to your computer, work desk, or other place it will be seen often. This can help imprint the image in your mind. Some go as far as placing dried morels around the home or yard to get used to 'seeing' them. The more morels you collect, the better the image will be in your mind and the better you will be at spotting them. Don't be discouraged if you have a hard time the first few times you foray for them. You will get better the more often you find them. Learn how to 'scan' instead of staring. Scanning is kind of letting

your eyes focus, but not quite. It is more of a quick focus on one area and then another adjacent area without staring at just one spot for more than a few seconds. Once you find a morel you can switch to more intense search of an area. Learn what distance your eyes can 'scan' the best, say from 5-10 feet or 8-12 feet, and concentrate on that distance. Individuals' optimal eyesight range can vary significantly. Look just above the ground level. Walk slowly through likely habitat stopping every 5 to 10 feet and scanning the ground around you. Look at a spot, move your eyes a few feet, look again, etc. Then walk another 5 to 10 feet and repeat. It helps to scan as you walk. Stooping down and looking puts your eyes closer to the ground, and it is easier to spot morels sticking up above the leaves. It is said that small children make great morel spotters due to their eyes being closer to the ground. You should also look near the base of the trees. Morels can be right next to the trunk and from there to 10 feet away, sometimes farther. Some people stoop with their backs to the tree and scan from there. Another method to do a quick search of woods is to walk to a large tree, do a quick scan out to about 5 feet, and proceed to the next large tree and repeat. You can skip the ground in between if you want to scout a new area. You may miss a few morels this way, but can cover more ground and hopefully find new areas they are fruiting. Once you find some, then you can switch back to a more intensive search. It is usually better to begin your search at the lowest point and work your way uphill. This puts your eyes closer to the slope making it easier to spot morels. Another tip to use is to stop and mark the first morel with a stick, handkerchief, stone or other object once you spot one. Look all around yourself and see if you can spot others. Often, you will even spot them behind you that you missed. If you see several in different directions you can use small sticks and point them towards each morel. At times morels can be seen from only one direction and it helps to be able to go back to where you first spotted it and look again. Working outward from your original spot is another good method. Save the first one you spotted until you are confident you have found all the morels in an area.

Walking sticks can be used for more than one purpose. As stated above, they can be used to pinpoint where you first spot a morel and test for soil moisture. They aid in climbing hills and can prevent nasty falls. They can also be used going downhill or crossing small streams or logs. A walking stick may feel comfortable if it is just above waist height, but one about chin height is better suited for going downhill or crossing streams and logs. It is easy to leave a walking stick behind, so keeping the stick at the first morel spotted gives you a reason to remember not to leave it or the morel behind.

When you are picking morels, practice a certain amount of etiquette. If someone nearby finds a morel it is not an invitation to come pick in the same spot, unless asked to do so. You should give the person at least 10-15 feet of room and perhaps more. If several people are foraging together each person should be aware of the other morel hunters around them and try not to cross in front of them if at all possible. At times you might have to go around fallen trees or thick vegetation such that crossing can't be avoided. It can be helpful in a group setting to walk in the same general direction much of the time, unless you find an area where morels are fruiting. If you meet someone who is not part of your group, a quick 'hello' or 'how are you doing' can be appropriate. Inevitably paths will cross at times, but since most morel hunting is on public land, no

one has more of a right to pick morels than another does. Some like to shout 'bingo' when they find a morel. This can encourage others that you may be foraging with that morels are in the area. If you are in an area with people you don't know, it may not be wise to shout this or you may have them come and 'share' your spot. Remember this variation of the Golden Rule. Treat other morel hunters, as you would like to have them treat you.

So in conclusion, make sure you look in the proper habitat, judge the moisture, temperature, and other conditions to ensure a relatively good chance at finding morels. Learn to read Nature's signs and record them either on paper or in your head. The more time you spend looking for morels, the more likely you are to become familiar with the conditions that help to ensure success.

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