

The Potomac Sporophore

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How well do you know
your chanterelles? Find
out on page 2.

In This Issue

Tick Dangers
.....1

Know Your
Chanterelles
.....1

Mushrooms in
Cream Sauce
.....3

Meeting File
.....6

Upcoming Events
.....6

Chanterelle Butter
.....7

Cartoon
.....8

Ticks: Small Critters With a Nasty Bite

William Needham
MAW First Vice President

Mycology might seem to be a rather innocuous pursuit, but it can also be fraught with mistaken identities, missing parties, and the typical dangers of the forest, including the common tick.

Ticks are members of the phylum of animals called arthropods that have jointed legs and external (exo) skeletons. Among the arthropods are insects, crustaceans, myriapods, and arachnids; the arachnids include spi-

ders, scorpions, ticks and mites. Ticks subsist exclusively on blood that they suck from their (usually warm-blooded) hosts. There are about 800 varieties of ticks worldwide (90 in the United States), of which about 100 carry organisms that cause disease (12 in the United States).

Ticks are profligate because they are efficient blood-sucking organ-



The black-legged tick or deer tick can carry Lyme Disease. Approximately 50 percent of all adult black-legged ticks are infected with the disease.

isms. Their mouthparts consist of two toothed structures called *chelicerae* that pierce the skin and a tubal structure called a *hypostome* that is inserted to withdraw blood. The tick secretes an antico-

Continued on page 6

Know Your Chanterelles

Willow Nero
Sporophore Editor

With all the rain the Washington metro area has received this summer, it's shaping up to be an epic chanterelle season. But before you pick willy nilly, make sure you know your chanterelles; it's also an epic season for just about every other rain-loving shroom. While some folks believe the golden chanterelle is distinct enough to dismiss any confusion, a surprising number of recent posts on social media and mushroom ID forums as well as confused club members huddled around MAW's ID table tell a different story. Add in the natural variety and recently announced newcomers to the genus, and you've got a more complex job than simply plucking orange mushrooms from the forest floor.

Anyone who's been in this game a while can probably reveal the seemingly obvious features of the golden chanterelle, commonly known as *Cantherellus cibarius*,

though that's a misnomer in North America. (More than a dozen American species have been masquerading under this European name for years). *C. Cibarius* is a yellow- to orange-colored mushroom with a smooth cap and blunt, forked ridges rather than gills. I like Mushroom-Appreciation.com's description of the false gills as having the appearance of true gills that have melted. The chanterelle grows gregariously or singly, though typically not in large clumps, on the ground, often in association with oaks but also with pines, birches, and other trees. Most people agree it has a light apricot scent.

How about our chanterelles? I've heard it argued that all Eastern "*C. cibarius*" specimens are really *C. lateritius*, but where's the DNA evidence? We do know *C. lateritius*, the smooth chanterelle, is far more common on the East Coast than any potential



Chanterelles, the fungi dreams are made of! MAW member Rimas Cikotas takes a break from the hunt to enjoy each of his chanterelles in turn.

C. cibarius relatives. Named for its starkly blunt or absent false gills, the smooth chanterelle can have nearly no ridges underneath whatsoever or folds aplenty.

Not chanterelles

What have folks mistaken for chanterelles these days? The jack-o-lantern mushroom (*Omphalotus illudens*), the most notorious (and poisonous) lookalike, usually isn't even around this time of

Continued on page 2

Miscellany

Continued from page 1 year. It typically grows on wood in a cluster of many stems. The key discerning factor is its knife-like true gills. (See photo, next spread.)

Lactarius zonarius (and others). This one happened on MAW's Facebook page. I won't name the poor soul who was so excited about his "chanterelles," but please open a field guide before you make dinner.

How to tell them apart: Typically chanterelles are much more vibrant and variously wavy than the sturdy, uniform funnel shape of a *Lactarius* at maturity (see photo on next spread). Some *Lactarius* species are orange — but not *chanterelle* orange. Most *Lactarius* specimens will weep latex when the gills are cut. Speaking of gills, on a *Lactarius* they are knife-like rather than wavy, forked, blunt, or even mostly absent. Further, if a mushroom shows zonation (bands of color) or has a

velvety cap, that's no chanterelle!

Laetiporus sulphureus. Maybe I was duped by a new satirical mushroom

ID website. This one seems just a little beyond belief. Chicken-of-the-woods grows on trees or logs and has a poroid (rather than gilled) spore surface. It typically looks like a series of shelves on a tree or a rosette when growing from tree roots.

It can be much larger than

our East Coast chanterelles. Both are edible. If you choose to call your chanterelles "chicken-of-the-woods" or vice versa, please ensure no mycologists ever find out.

Hygrophorus cantharellus. You get a pass on this one; its species epithet is *cantharellus*. You'll be able to tell a *hygrophorus* from a chanterelle by the true gills and the habitat: decaying

wood. It's so small that it's hardly worth trying to eat. You really should be more discerning than throwing this mushroom into your basket of chanterelles. Lazy pot hunting probably begat the chicken-of-the-woods situation (see above). Let's not make things any worse.

In all sizes

OK, chanterelles are a little confusing after all. In just our area of the eastern U.S., we've got *Cantharellus minor*, which is a tiny distinctively yellowish replica of your typical normal-size chanterelle.



Cantharellus lateritius sometimes appears to have no false gill ridges at all. This specimen has only gentle folds under the cap.



Cantharellus lateritius (outer circle), *Craterellus fallax* (black), and *Cantharellus cibarius* (center) are as beautiful as they are delicious.

There's the peppery and reddish-orange miniature *Cantharellus cinnabarinus* that's often found in sandier soil. *Cantharellus appalachiensis* is also common, especially in mountainous areas. It tends to be medium-sized for a chanterelle with a noticeable brownish patch in the center of its cap.

Genus *Craterellus*

Just when you think you've got the basics down, *Craterellus* starts showing up. Typically found later in the summer or at the beginning of the fall, this genus is known for its tubular shape and small size. Specimens

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Volunteer to review mycology books, films, and events or submit your own original idea or recipe.



There is some resemblance between this *Lactarius* sp. and chanterelles, but it's easier to see the differences in gill structure, texture, shape, and color.

either have a divot in the cap or are hollow down through the stem. The yellow and orange species in *Craterellus* often are passed over, and some mycophagists find them less flavorful. They do add variety to your cooking, and restaurants in our area have been known to serve them. A chanterelle is a chanterelle, right? *Craterellus ignicolor* is common around the District. It has typical yellowish orange coloring and lilac gills. *Craterellus tubaeformis* is similar in shape with a yellow stem, brown cap, and yellow to grey gills.

The prized black trumpet also belongs to this genus. In our area, we tend to get two types of this dark chanterelle, the less dark and sometimes salmon or yellow-tinged (from its spores) *Craterellus fallax* and the more flower-shaped and less funneled *Craterellus cinereus*. Both are typically included among the most delicious edible mushrooms in the region. They can be difficult to spot. Look for black holes among the leaf litter.

I almost left out one cantharelloid genus:

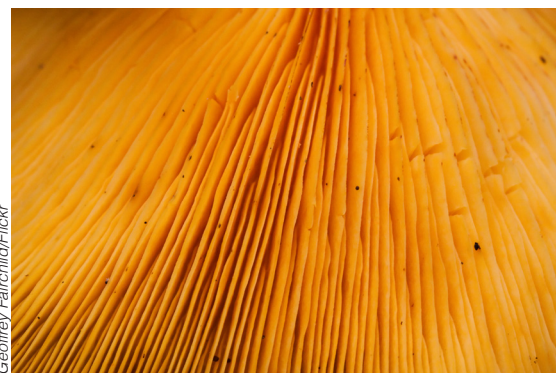
Bringing the NAMA Foray to Virginia

MAW has volunteered to lead preparations for the NAMA foray in later summer 2016, and we need your help to make this event successful. This is a great opportunity to volunteer with MAW and meet nationally recognized mycologists. Email NAMA Trustee Bruce Boyer (see contact information, left) with your area of interest (event planning, logistics, timelines, etc.) and availability.

Gomphus. It's less popular, but you should know the "scaly chanterelle" refers to a real species, not just any less-perfect chanterelle.

New chanterelles

As with most other mushroom genera, *Cantharellus* and *Craterellus* keep welcoming new members. The most common East Coast smooth chanterelle, *Cantharellus lateritius*, just got a couple new tropical cousins as of 2014 (read "Exploring the Diversity of 'Smooth Chanterelles'" from the journal *Cryptogamie, Mycologie*). Who knows what's really in our woods? Back in 2013, scientists in Wisconsin reported three new chanterelle species growing right next to each other (see "Molecular phylogeny and morphology reveal three new species of *Cantharellus* within 20 m of one another



The true gills of the jack-o-lantern mushroom (above) should steer you away from any delusions about it being a chanterelle. (It's not one.)

in western Wisconsin, USA" in *Mycologia*). There's really no telling what's out there waiting for us. So don't just call it a day and pick up a fork! Michael Kuo, author of MushroomExpert.com recommends you record spore print color, false gill color, mycorrhizal association, reaction to iron salts, and basic morphology (measurements, etc.) for any chanterelles you hope to study.

Mushrooms in Cream Sauce

1 ounce dried morels or 1 quart fresh morels (dried morels heated in ½ cup water in the microwave to 120° F)

2 tablespoons butter

3 tablespoons minced shallots

2 tablespoons dry sherry or Shaoxing rice wine

2 tablespoons milk (more, if needed to thin sauce)

1 cup heavy cream

⅛ teaspoon salt

⅛ teaspoon black pepper

¼ pound cooked chicken breast, cut into ½-inch dice (optional)

If using dried morels, reconstitute them in ½ cup water for 30 minutes, covered, pressing them down into the liquid to help them absorb it once they soften a bit. Whether using fresh or reconstituted dried morels, slice the heads crosswise into ¼-inch ringlets and mince the stems. If using fresh morels, cook them down by half in a pan with 1 tablespoon water over medium heat, covered until they wilt, then uncovered to evaporate excess moisture and yield 5 ounces cooked morels.

Heat the butter in a small pan until the foam starts to subside and just begins to brown. Add the shallots, and cook them

over medium heat until they soften and turn translucent, approximately 5 minutes.

Add the morels to the pan and cook them over medium heat until they just start to sizzle, about 5 minutes.

Add the wine, and cook off the alcohol. Stir in the milk, and bring the morels to a simmer.

Add the cream, and return the pan to a simmer. Cook the morels uncovered until the sauce is reduced by about 25 percent and thickened enough so that a spoon drawn across the pan exposes the bottom for a couple of seconds. Once this happens, cover the pan and continue gently simmering to infuse the cream with as much flavor from the morels as possible and turn it a medium brown color, indicating the strength of the infusion. This should take about 30 minutes.

Add the chicken, if using, and a splash of milk to thin the sauce. Bring the sauce back to a simmer over medium heat for about 5 minutes. Spoon the morels, chicken, and sauce over warmed, split croissants (or steamed white rice or steamed broccoli).

Five cups of sliced golden chanterelles may be substituted for the cooked morels. (The cream will not darken as with morels).

(Recipe contributed by MAW member Ray LaSala.)

Events

Meeting File

May 5 — Tim Geho Shares Morel Hunting Tips, Insights, and Favorite Virginia Locations

Willow Nero
Sporophore Editor

Scientists, move aside. Morels will defy all your hypotheses and turn up where you least expect them, according to Tim Geho, the MAW May 5 monthly meeting speaker. The morel hunter of more than 20 years

still hasn't exhausted his innovative techniques to collect more and more morels.

"Finding morels is not a science," he cautioned MAW members. "They have their own rules."

Geho had some rules, too, which he shared with the crowd. Among them — never rule out a habitat and always look harder and smarter than the competition.

Geho starts with winter research, record-

ing moisture events and estimating when spring will take hold.

Once he's in the field, he pays equal attention to the edges of trails as he does areas deep in the woods. Often, areas with objects and disturbed ground will get sun and warmth earlier in the season, allowing morels to grow.

"I can't tell you how many times people walk just by — paths, old roads, power lines — any object that interrupts underground mycelium — deer paths," Geho says.

Morel Hunting Tools

- ☐ binoculars (to spot dead trees)
- ☐ trail maps with elevations, access points, and tree cover maps
- ☐ gazeteers
- ☐ online aids (morel fruiting progression maps and topographical maps such as the one found at mrdata.usgs.gov/mrds/find-mrds.php)

Low-ground plants like spicebush and perfectly flat mayapples also signal the right environment and timing. Surrounding trees should be in the leaf-growth stage.

Geho hunts under the usual trees — tulip poplars, maples, ash, cottonwood, and dead or dying elms, but he's even found morels under cedars in Shenandoah National Park. He says any dead tree is worth



Former MAW member and prolific morel hunter Tim Geho shares some of his favorite mushroom hunting tips.

checking, and he believes morels might try and "escape" a habitat with a dead tree via mass fruitings.

If you're having a downright awful year, Geho recommends exploring new territory, especially areas with similar elevations and conditions to places that have shown success in years past. Not every spot flourishes each year, though "every once in a while everything is just right."

To ensure you collect everything possible, use Geho's hesitation step, scanning the environment with each step forward. "Your brain can't process that fast," he says.

Upcoming Events

July 30–Aug. 2 — North East Mycological Federation (NEMF) foray at Connecticut College. More information: www.nemf.org/foraynext.htm

Aug. 4 — Mushroom identification. Instead of hosting a guest speaker, MAW will make its identifiers available to help you identify mushrooms. Bring fungi and field guides. Make a spore print before the meeting, if possible.

Aug. 28-30 — MAW's 4th Joint Appalachian Foray at Graves Mountain Lodge in Syria, Virginia. Download the registration package at www.mawdc.org/Appalachian_foray.html

Sept. 8 — Dr. Mary Catherine Aime,

associate professor of botany and plant pathology at Purdue University will speak about the mushrooms of Guyana at the MAW monthly meeting.

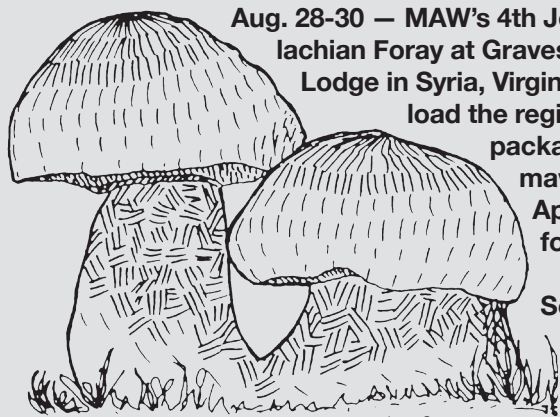
Sept. 18-20 — MAW's Camp Sequanota weekend foray in Jennerstown, Pennsylvania.

Sept. 24-27 — NAMA 2015 foray in Black Mountain, North Carolina. This year's foray has sold out. More information: www.namyc.org/events

Oct. 6 — Dr. Catherine Glew, a teaching associate in the Biology Department at the University of Washington will speak about lichens at the MAW monthly meeting.

Nov. 3 — Jared Urcheck, a MAW member and owner and operator of Boulder High Country Mushrooms, a gourmet fungal food and medicine company, will speak at the MAW monthly meeting.

Unless noted, meetings are held at 7 p.m. on the first Tuesday of the month at the Kensington Park Library in Kensington, Maryland. Attendees are encouraged to bring mushrooms for sharing and identification. Members of the public are welcome to drop in.



"In the last few years I've cut my speed on looking for morels and it's really paid off."

June 2 — Bob Blanchette Invokes the Ancients With Tales of Sacred Polypores

Willow Nero
Sporophore Editor

Bob Blanchette, MAW's guest speaker at the June 2 monthly meeting, introduced members to some interesting polypores and wowed the group with other rare ethnomycological artifacts.

Blanchette, a professor at the University of Minnesota, started out his talk with some familiar but culturally important fungi such as *Piptoporus betulinus* and *Fomes fomentarius*, well-known for having been found with Ötzi, the mummified ice man from 3,300 BCE. He shared stories all along the spectrum of polypores:

□ *F. fomentarius* has seen a modern resurgence as a material not only for hats but also as a natural drying agent for fly fishing lures.

□ Blanchette recently identified fungus carvings found alongside wood sculptures from an ancient whaling shrine in British Columbia. He also identified spirit figures made from *Fomitopsis officinalis*, the quinine conk. These figures were used by shamans to cure people. This "bread of ghost," while maybe not the cure-all it was thought to be, has antibiotic and antiviral properties and can reduce fevers. It has been studied as a tuberculosis medicine. "Here we have some modern information about this fungus and this is the one the shaman used to cure people," Blanchette said. "Not just a single event — many Native Americans were using this mask for the eclipse of the moon."

□ Northern native populations continue to use *Phellinus ignatius* ash to add a

"powerful kick" to tobacco. In one Bethel, Alaska, community, teenagers were hauling hundreds of the mushrooms out of the forest, burning the fungi in huge roasters, and selling the ash in baggies at the grocery store as a fundraiser for their sports teams. Local health departments in these areas have ramped up efforts to stop the spread of "iqmik" by raising awareness about lung cancer and the added addictive nature of tobacco mixed with *P. ignatius* ash.

□ The ceremonial bead necklaces worn by some Plains Indians in Boreal Canada are made of *Haploporus odoratus*. "If you are out walking and this fungus is on a willow tree, you can smell it 15 to 20 feet away," Blanchette says. The beads were



Michael "Caz" Castellano explains how truffles evolved from other types of fungi.



Bob Blanchette shows the soft felted material that can be produced from *Fomes fomentarius*.

supposed to protect against evil spirits and bring long life. Oftentimes an enemy's ceremonial necklace was collected and kept as part of a scalp trophy.

Perhaps the most compelling of Blanchette's studies is his research into ganoderma. Commonly known in the U.S. as

Ganoderma lucidum or *G. tsugae*, similar species called lingzhi in China have long been regarded as important, and their use continues today. Blanchette traveled to China and examined the ganoderma collection of the Qianlong Emperor, who was known for his palace that was decorated with actual ganodermas and many artistic interpretations of it. "Just having one around was very important," Blanchette explained. "There was evidence of ganoderma everywhere in the palace — textiles,

tables, vases, framed in wood with and without other styled ganodermas."

The mushroom supposedly conferred good health and longevity on its owner, and people in China still will pay thousands of dollars for a stately ganoderma.

(Read more about ganodermas in the Winter 2013 Sporophore at www.mawdc.org.)

July 7 — Michael 'Caz' Castellano Routs Out North American Truffles

Willow Nero
Sporophore Editor

Michael "Caz" Castellano, a U.S. Forest Service scientist of more than 30 years, taught MAW members about North American truffles at the monthly meeting July 7.

Castellano started out with facts about truffles and their distribution in North America; he wrapped up with some truffle hunting tips.

Truffles, as defined by Castellano, are actually hypogaeous (underground) fungi that have evolved to require animals to disperse their spores. They have evolved multiple times from

various genera and are mycorrhizal associates with particular trees.

"I appreciate them not only in their beauty on the outside, but I really like the spores, the beauty that nature has devised to entertain the mycologist looking through the microscope — and they've done a good job with truffles," he remarked.

Those new to truffle hunting should ensure they are finding truffles and not unopened mushroom buttons or puffballs. Some truffles have an outer covering or presidium. Their interior can be solid, chambered, or convoluted.

"They sort of look just like little lumps, little potatoes," he added.

While North America is not home to the prized truffles of Europe, six North American species still fetch substantial prices. The Eastern Seaboard has several truffles worth searching for, according to Castellano. He brought several locally found specimens along to demonstrate their diminutive size and

Continued on page 7

Tick danger (cont.)



The wood tick is a relatively uniform reddish-brown color. It can carry several diseases.

Continued from page 1

agulant to prevent clotting along with a cement-like substance to anchor itself to the skin (which is why it is so hard to remove an embedded tick).

The three kinds of ticks that proliferate in the eastern United States are the lone star tick, the American dog tick and the black-legged tick. The lone star tick gets its name from the white mark on the on the otherwise reddish-brown back of the female. It has nothing to do with the state of Texas, although they are found there. The American dog tick, also called the wood tick, has the same reddish-brown coloring of the lone star tick without the white shield marking. The black-legged tick is also called the deer tick in the Northeast and the bear tick in the Midwest as they were first found on these animals. The black-legged tick is most notable for its very small size (about 3 mm across as an adult).

Lyme disease, named for the town of Old Lyme, Connecticut where it was first diagnosed in 1975, is the primary concern associated with tick bites. It is carried by the black-legged tick. There are about 10,000 reported cases of Lyme disease annually in the United States, primarily in the Northeast. The symptoms of Lyme disease occur in three stages. The first stage appears after a few days and consists of a characteristic ring-shaped bull's-eye red rash centered on the point where the tick attached. Flu-like symptoms such as chills and fever may attend the first stage and disappear in a few weeks. The second stage symptoms appear weeks to months later and consist of any of a wide variety of manifestations such as



The wood tick uses sense organs to locate a host. It is frequently found in wooded areas but also makes appearances in parks and lawns.

severe headaches, numbness, lethargy, and abnormal heartbeat. These also disappear after a few weeks to several months. The third and final stage may not appear for years after the initial tick bite. Symptoms include arthritis, fatigue, and loss of memory, similar to those of Alzheimer's disease.

The prevention of tick bites is dependent on adequate prophylactic measures and careful scrutiny. Many people shun wooded areas for fear of ticks, but this is specious logic, as ticks proliferate in parks, lawns, and playgrounds. Ticks become active with the warming weather in the spring and remain active until the onset of winter, which they survive by burrowing into the soil. Ticks locate a host with sense organs on their front legs that detect carbon dioxide, host odors and heat. They can crawl up to 15 feet along the ground and attach themselves to a host. They do not jump or fly.

Prophylactic measures include wearing long pants tucked into boot tops and a long-sleeved shirt with tight fitting wrists. This prevents the tick from gaining access to the skin. Ticks can then be readily removed in the field if detected by periodic inspection. As a secondary measure, repellents such as DEET (N,N, diethyl-meta-toluamide), can be applied to the skin or clothing. Field testing of deet in tick-infested areas has demonstrated DEET to be about 90-percent effective in preventing ticks from gaining access to the skin. The only sure preventive measure is to carefully inspect the clothing and skin after a hike. Clothes should be removed and washed and the body carefully inspected for ticks.

A tick should be removed as quickly as possible if it is found attached to the skin. It takes several hours to as long as a day

for a tick to inject disease-causing organisms into a host. Proper tick removal is critical, as it is easy to remove the body and leave the blood-sucking organs embedded. There are many folk remedies for removing ticks. The most common is to blow out a match and apply the hot, smoking end to the tick to make it back out. Unfortunately, all this is likely to do is burn the skin with little to no effect on the tick. Experimentation has demonstrated that the only effective method to remove ticks is to exert a steady pull using a pair of tweezers applied as close as possible to the mouth parts.

Common Name: Black-legged tick, deer tick, bear tick. (Black-legged tick is the universal common name due to the stark contrast between the dark brown legs and the tan-colored body; the name deer tick references this arachnid's preferred adult host, the white-tailed deer; bear tick is the common name in the Midwest.)

Scientific Name: *Ixodes scapularis*. The generic *Ixodes* is a New Latin word for the tick genus, which is taken from the Greek word for "birdlime" or "stickiness"; The species name comes from Latin *scapula*, meaning "shoulder," from an original word meaning "shovel," due to the use of the bone as a shovel, whence we get "shoulder blade," referring here to the shape of the tick.

The black-legged tick is a three-host parasite with a two-year life cycle. Eggs that are laid in the first spring hatch to become six-legged larvae in summer, reaching their peak activity in August. The larvae are very small, about the size of a poppy seed, and, as they are nearly translucent, below the visual threshold. The larvae attach primarily to small mammals, such as white-footed mice, and engorge with blood over several days. On satiation, they drop off and molt into the eight-legged nymph stage, to remain inactive through the first winter, emerging during the second spring.

Nymphs become active in May, climbing up on plants so that they are able to attach to medium-sized mammals, such as raccoons, possums, and dogs, to feed for several days and then drop off to molt into adults. Humans are suitable substitutes for the preferred hosts. This makes the nymphs a significant hazard, as they are nearly invisible and can go unnoticed long enough for

the blood meal to be completed.

Adult ticks seek a third and final host through the remainder of the second summer, peaking in late September. They can climb up to 3 feet off the ground to attach to the preferred host, the white-tailed deer; humans and other mammals and birds are again acceptable substitutes. The female feeds for about a week, while the male rarely feeds, seeking the deer host only to find a female. After mating, the female drops to the ground and lays about 3,000 eggs under the leaf litter at the end of the second summer to complete the two-year cycle. If the adult tick is unsuccessful in mating, it will remain dormant in the leaf litter until temperatures begin to rise above 40°F the following spring. The second peak of adult activity is in March.

The black-legged tick is not the source of Lyme disease but a vector that transmits it from an infected animal to an uninfected animal. The primary source of the disease is the white-footed mouse, the main food source for the larvae, which then molt to become infected nymphs. About 25 percent of all nymphs are infected with Lyme disease, the predominant source of human Lyme disease. About 50 percent of all adult ticks are infected with the disease.

Common Name: Wood Tick, American Dog Tick. This is the predominant species of tick in wooded areas in eastern North America.

Scientific Name: *Dermacentor variabilis*. The genus name characterizes the behavior rather than the taxonomy of the tick; it is a skin (Latin: *derma*) “goader” (Greek *kentor*

meaning “to stick, goad, or prick”). The species name is Latin for “variable,” probably a reference to its adaptability to a variety of habitats (and subsequent ubiquity).

Wood ticks are carriers of the causal agents for at least three diseases.

Rocky Mountain spotted fever was the first tick-borne disease to be isolated, its toponym due to its provenance in the Snake River Valley of Idaho late in the late 19th century. The causal agent is the bacteria *Rickettsia rickettsii*. Its common name is a mnemonic; it results in a fever that is followed by a spotted rash. The name is now a misnomer, as it is most common in a latitudinal strip that runs from North Carolina through Tennessee to Arkansas, and it is a disease problem throughout the Western hemisphere. Before the advent of antibiotics, 30 percent of all people infected died.

Tularemia, also known as rabbit fever (named for the primary host), is the result of infection with the bacterium *Francisella tularensis*. Tularemia is thought to be an ancient disease, responsible for a number of epidemics that engulfed Mesopotamia at about the biblical time frame of the exodus from Egypt in 1300 BC. While the CDC delisted it in 1994 due to a dearth of reported cases, it was reinstated six years later in reaction to bioterrorism concerns.

Tick paralysis is a direct result of the salivary secretions of the wood tick that are immunosuppressive in nature. A progressive paralysis can ensue that extends to the lung muscles, causing death by respiratory failure.

Truffles (cont.)

Continued from page 5 strong odors.

Lucky for foragers, all true truffles are edible. After all, they must be found and eaten by animals in order to propagate. “The aroma is a volatile, so you never cook a truffle,” Castellano cautioned. “You add it to a dish.”

When truffle hunting, Castellano does not use a pig or a dog, as is common in many

Truffling Challenges

- ☐ fewer structures (difficult to ID)
- ☐ cryptic nature (hard to find)
- ☐ potentially destructive sampling methods
- ☐ seasonality (only certain truffles are ripe at certain times)
- ☐ animal dispersal (Truffles might have been eaten before you found them!)
- ☐ ephemeral (short-lived)
- ☐ clustered (Patchy distribution makes for uneven discovery.)

truffle-loving cultures. “Nope, I am the pig!” he joked. These animals often only find one type of truffle — and Castellano is a true generalist when it comes to hypogeous fungi. Instead, he uses a telescoping rake and careful observation of soil conditions. While the rake does disrupt the soil and habitat some, Castellano says he’s nowhere near as harmful as indiscriminate commercial hunters.

“When you’re careful, you can lessen the impact,” he says. “There is a little bit of impact but you can mitigate that.”

Castellano looks for small lumps in the soil, wet areas, places where an animal might have dug and left what looks like a teeny gravesite, exposed mycelium, and sparkles in the soil. These subtle indicators can be challenging to spot. “What if you were 1 inch tall?” he asks.

Another telltale sign of a truffle amateur is propensity toward spotting fungi, Castellano joked.

“The first thing you need to do is disavow membership in the mushroom club,” he recommends. “If you’re looking for mushrooms, you will not find truffles.”

To learn more about truffles, Castellano pointed MAW members to several books on fungi available at www.blm.gov/or/plans/surveyandmanage.

Chanterelle Butter

- 1 8-oz stick softened butter
- ½ cup minced yellow chanterelles
- 1 teaspoon shallot or garlic (optional)
- spices or honey, to taste (optional)

Melt 3 tablespoons of the butter in a shallow pan. Add shallot, if using. Cook until the shallots are translucent and beginning to caramelize. Add the garlic, if using, and minced chanterelles and cook until they have released any water and are fragrant. Sprinkle in spices like thyme or white pepper and salt (if desired). Or try honey.

Cool the cooked chanterelles (in the refrigerator, if convenient). Then combine the chanterelles and melted butter in a separate bowl with the softened butter. For a fluffier

texture, whip with a mixer.

Mold the soft butter into a log or fill a butter mold. Allow to set in the refrigerator for several hours. Serve on toast, over a steak, or any number of delicious ways. The compound butter should last several weeks in the refrigerator.

To make things easier, blend softened butter and precooked chanterelles in a food processor. (You can cook up a mess of chanterelles when you find them and then freeze for later use in recipes like this one.)

(MAW member Martin Livezey suggested we share this simple but heavenly recipe. Substitute common chanterelles for black trumpets, porcini, morels, or most other fragrant mushrooms.)

