

Wisconsin Entomological Society

Newsletter

Volume 39, Number 2

June 2012

There is something of the marvelous in all things of nature.
--Aristotle 384-322#BC

Did you ever see a dead fly stuck to your window by its tongue with a whitish halo around it? Did it make you wonder why it died, or did you simply wipe it away in disgust? I've been wondering for at least 60 years what causes this common phenomenon. In today's insect-phobic society, maybe flies no longer live long enough to die of natural causes and we've robbed ourselves of another wonder of nature to ponder. I've always supposed that the flies were infected by a fungus or mold because the white powder around them looks as if

Small Things and the Complexity of Nature

By Carroll Rudy

it could be mold spores. But what kind, and how do they get into that fly?

To my surprise, as I was leafing through a new mushroom book I got in the mail today I suddenly had part of my answer: the genus of fungus responsible. Some Internet sleuthing brought the whole story to light. The fungus is *Entomophthora muscae* (ent-uh-MOF-thor-uh MUSK-eye). *Entomo* means insect, *phthora* means destroyer, and *muscae* means flies: Thus "fly-killer fungus". *Entomophthora muscae* is one of a group of fungi that are parasites of insects.

The fly-killer infects a variety of fly species, but the flies we see dead on our windows are species that come into the house: namely house flies and cluster flies. Some people think any fly inside the house is a house fly, but that is not the case. House flies disappear with the advent of cold weather in autumn, but cluster flies enter the house from outside in au-

tumn through attics, cracks in walls and holes in screens to hibernate. On warm winter days they "wake up" and start to crawl around. A few find their way into our living spaces and fly clumsily around the house until they find a window where they crawl about in groggy fashion. Cluster flies do not breed, feed or do any damage in houses: they only come in to find safe hibernation sites. But more about the cluster flies later. Their life cycles are fascinating too.

The fly-killer fungus obviously reproduces by spores cast out of the dead fly, some of which are deposited on the window glass as the white halo. Some of the spores float around in the air or stick to nearby objects, and if just one of them contacts a living fly, it will germinate and grow through the exoskeleton of the unfortunate insect. Inside the fly the fungus grows until it has filled the body of the fly with living fungal matter.

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The Wisconsin Entomological Society Newsletter is published three times a year, at irregular intervals. The newsletter is provided to encourage and facilitate the exchange of information by the membership, and to keep the members informed of the activities of the organization. Members are strongly encouraged to contribute items for inclusion in the newsletter. Please send all news items, notes, new or interesting insect records, season summaries, and research requests to the editor by Jan. 15, May 15, or Sept. 1st:

J. Mingari, P.O. Box 105, New Holstein, WI 53061, email: dragonflypond@tds.net (Put WES in subject line)

NOTE: Please report any address changes to Les Ferge, 7119 Hubbard Ave., Middleton, WI 53562, email: lesferge@gmail.com.

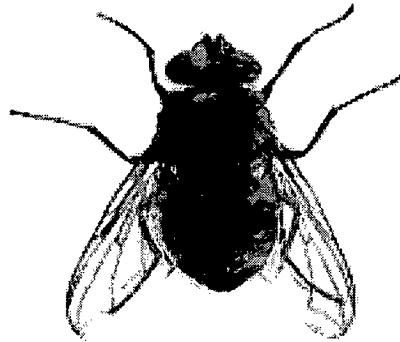
SMALL THINGS, from page 1

Researchers think the first organ colonized is the fly's brain from which it then controls the fly's behavior, causing it to lose the power of flight and making it crawl as high as it can. It will try to reach the top of the window, though the sick fly may not make it all the way, but the last thing the fungus "wants" is for the fly to die on the floor. Then the fungus grows out through the tongue, gluing the fly in a high position where it will catch the passing air currents, and proceeds to eject spores from all cracks in the fly's exoskeleton and its body orifices. The fungus accomplishes this in only a few days. If you think about it we have here the makings of a real horror story, remembering alien science fiction movies and applying the process to people.

The spores are short-lived and must soon contact a living fly to continue the cycle. This brings us back to the cluster fly (*Pollenia rudis*). Either house flies or cluster flies may bring the parasite into the house in the fall, but house flies do not live over winter; thus the need for flies that hibernate. Cluster flies fill the bill. They are outdoor insects that parasitize certain species of earthworms. Neither the fly nor the earthworms are native to America, but came to this country with early settlers in the soil potted up with plants and trees they brought with them. Perhaps these creatures came over on the Mayflower right along with the other pilgrims.

As soon as the soil thaws out in the spring cluster flies leave their hibernation sites and you can see many hovering over fields and lawns or crawling on the grass. Many kinds of early-arriving birds can be found feeding on them. The cluster flies are searching out earthworm burrows or cracks in the soil where they will lay their eggs. When the eggs hatch the tiny larvae must find

an earthworm within three days after which they grow and pupate inside earthworms. The life cycle lasts about a month. The adult flies are not pests at all, but live on flower nectar, tree saps, rotten fruit and other tasty fly fare. Studies indicate they have no negative effect on the environment or earthworm populations. In fact they provide food for other insects, mammals and birds. Cluster flies continue their life cycles, unnoticed by us until autumn when once again they will seek hibernation places. Most hibernate in natural cavities outdoors, plant refuse and outbuildings, but some will enter houses, and some will be infected with fly-killer fungus. Most people will never notice, but simply be annoyed by flies that die on the window.



I am convinced that the difference between a person who becomes a naturalist and one who does not is innate curiosity. Some people will always see small creatures as objects of great interest and ask "What is this?" and "Why does this happen?" and they will seek answers.

Those answers lead to more questions and more answers. Their lives will be endlessly fascinating. Other people see tiny creepy crawly creatures only as uninteresting pests and ask, "How do I get rid of them?"

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You can see photos of fly-killer fungus at :
http://botit.botany.wisc.edu/toms_fungi/mar2000.html

--True wisdom comes to each of us when we realize how little we understand about life, ourselves, and the world around us. --Socrates



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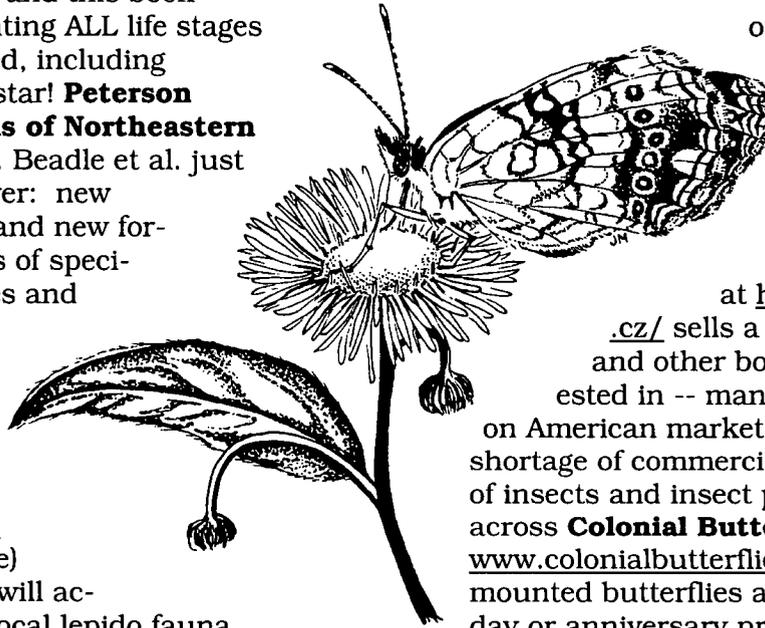
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Moths of America continues to churn out its magnificent works at the rate of about once a year. This year's issue is **Fascicle 8.1 - Sparganothini & Atteriini** (Tortricidae moths) by J. Powell et al. I also strongly recommend **Life Histories of Cascadia Butterflies** by D. James et al. Even though Cascadia Mountains fauna is significantly different from our area, some butterflies are the same, and this book stands out for presenting ALL life stages of the butterflies listed, including EVERY caterpillar instar! **Peterson Field Guide to Moths of Northeastern North America** by D. Beadle et al. just had a complete do-over: new name, new authors, and new format, featuring photos of specimens in natural poses and completely revamped inside and out. For those of you who like to spend winter in Belize or Costa Rica, **Butterflies of Central America** (first volume) by K. Garwood et al. will acquaint you with the local lepto fauna. **Lyme Disease** by R. Ostfeld opens new horizons for understanding that poorly-researched but very dangerous illness. For you beetle junkies another great volume from Russia with love - this time it's **Lady Beetles of the Russian Far East** (English Edition) by V. Kuznetsov. The book is in English, and has very good illustrations (although black & white). A **World of Insects: The Harvard University Press Reader** by R. Carde et al. is for those who like all things insect, but are at the more advanced stage than most of the rest of us. Easier read, good for just about anyone, includes **How Not to be Eaten: Insects Fight Back** by G. Waldbauer. **Learn About Butterflies in the Garden** by B. Dziedzic is by far the most species-rich book of its type, listing most of the common (and some not so common) butterflies and the plants that attract them. And if you want your kids to grow up in your stead (someone's got to tend to those collections and read all those books), start with **The Secret Lives of Backyard Bugs** by J. Burriss et al.

If you're interested in rearing insects and



Books & Websites

by Andrew Khitsun

other arthropods, **Elytra & Antenna** site sells a bunch of books devoted to that hobby at <http://www.angelfire.com/oh3/elytraandantenna/>. **Kabourek** at <http://www.kabourek.cz/> sells a variety of European and other books you might be interested in -- many of them don't appear on American markets. There is never a shortage of commercial sites selling all kinds of insects and insect products. I just came across **Colonial Butterflies** at <http://www.colonialbutterflies.com/>. They sell mounted butterflies and moths -- good birthday or anniversary present for your insect friends. I'd recommend checking out a few regional sites from other countries -- they often contain a wealth of information and photos, but sometimes require some digging around or messing with foreign language. **Israel Insect World** at <http://www.nature-of-oz.com/> is superb, and **Elateridae** at <http://www.elateridae.com/> and **Meloidae** at <http://www.meloidae.com/cs/> are worthwhile, too. If you haven't already, visit **Inordinate Fondness for Beetles** at <http://www.fond4beetles.com/> and its sub site **Jewel Beetles of the World** at <http://www.fond4beetles.com/Buprestidae/>. **Crosswalk for Butterflies** offers up butterfly merchandise and souvenirs, links and books at <http://www.crosswalksforbutterflies.com/>.

Since I touched on the topic of wetlands a couple of issues ago, I wanted to mention another book on the subject, published by US Army Corps of Engineers: **Wetland Plants & Plant Communities of Minnesota & Wisconsin** by S. Eggers et al.



Citizen Science: Monitor a State-Endangered Butterfly

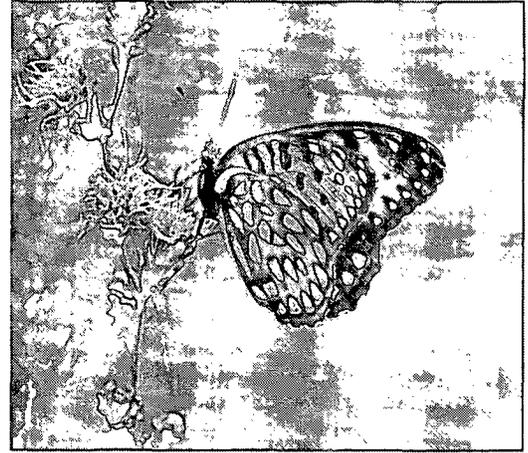
by Ruth Kearley

Become a regal fritillary monitor volunteer – do some science while enjoying nature and supporting an endangered species! The summer of 2012 will be our third season in a long-term program to monitor regal fritillary presence on remnant and restored prairies in the Military Ridge Prairie Heritage Area in eastern Iowa County and western Dane County.

The regal fritillary is listed as a Federal Species of Concern. Once widespread, it has nearly disappeared from east of the Mississippi. In Wisconsin it is listed as Endangered due to low or declining populations and is considered critically imperiled because of its vulnerability to extinction

within the state. Occurrences have been documented in 14 counties in Wisconsin through the Natural Heritage Inventory program, but currently there are only three or four areas where potentially viable populations still persist.

To maintain the open prairie habitat these butterflies require, the land must be managed through controlled burns, mowing, and/or mechanical clearing of woody growth, all of which have the potential to positively or negatively impact regal fritillary populations. The monitoring program will improve our understanding of how regals respond to management of prairie remnants and creation of new habitat.



Would you like to participate? No previous experience is required, just a love of the outdoors and tolerance for hot sunny days. Training is provided. We are, however, looking for commitment over several summers. The monitoring program runs approximately June 25-July 31 with each monitoring team making three visits to their site spaced a week or more apart. The training program has an evening and a field component. Please join us in this important endeavor! Contact Ruth Kearley (rekearley@gmail.com or 608.729.4050) to sign up or to learn more.



<http://>

wisentsoc.org/

Member contributions, images and links, etc., are welcome on the WES website.

Contact Ellen Detweiler for more information: erd@msn.com



News from the Insect Diagnostic Lab

by Phil Pellitteri

I am old enough that I have seen a lot of springs— but never one like this. Lots of **red admirals** (seems to happen every four to six years) one **tiger swallowtail** on April 18th, first **monarch** on May 1st. I know better than to predict where we will be during the middle of summer, but nothing will surprise me.

I have been seeing **deer tick** samples (correct common name for *Ixodes scapularis* is the black-legged tick) this spring since early March- not a surprise with the snow being gone and warm temperatures. We continue to see an increase in Lyme disease in Wisconsin with over 3,500 human cases in 2010 and an additional 500 cases of the tick-borne Anaplasmosis (HGA). The ticks have gone from being infrequent at best in the far east side of the state to rather common (Sheboygan, Waukesha, Walworth, Milwaukee counties); and the increase in infectivity levels in the adult ticks has gone from 18 percent to about 40 percent in recent years.

The Department of Entomology had a visit from Dr. Joe Piesman, who is the Center of Disease Control (CDC) head of the Lyme disease research unit, and he had a number of very interesting observations.

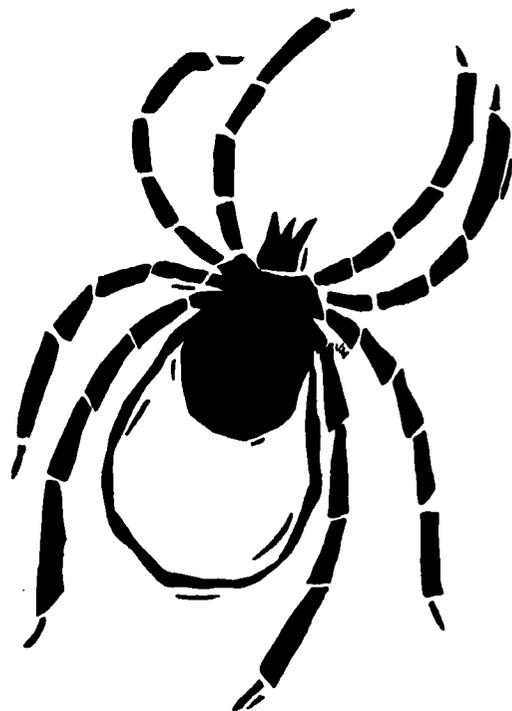
Deer populations can be made low enough to cause major reductions in tick numbers, but it takes two to three years to see the effect, and even with heavy hunting it is impossible to achieve the low deer densities without using sharpshooters and other intense and expensive control practices. Bait stations (not legal in southern Wisconsin-- ban on deer baiting) that draw in deer and treat their fur with permethrin insecticide, and mouse bait stations that treat the mice with fipronil (Frontline for pets) have also been used. Both have proven good management tools when used in an area-wide system, but it is not cheap, and I know of no communities in Wisconsin that are interested.

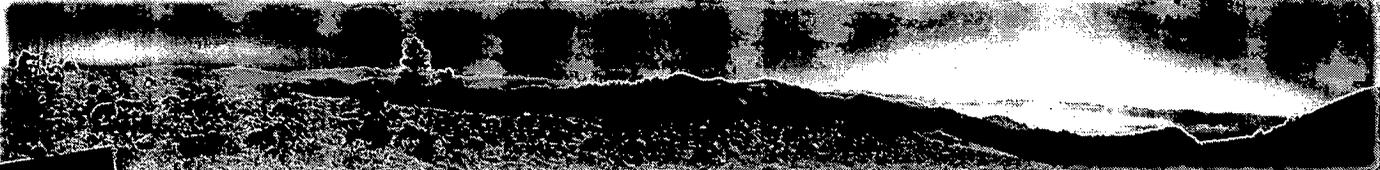
There are other mouse-borne and related

diseases that ticks are bringing into other parts of the US.

It is believed the deer tick was wiped out in Wisconsin during the last ice age and was re-introduced to the Midwest from the surviving population in the southern states. They see more genetic diversity in the southern populations, which supports that theory. The ticks needed to be re-introduced, and what the ticks needed to thrive and spread was higher deer densities— which have been seen in the last 40 years in most of the country and definitely in southern Wisconsin.

When you are out collecting, photographing, or just walking in the woods, take precautions: If there is no snow on the ground, it is tick season. Wear pants and socks, use the clothing treatments containing permethrin, do daily tick checks, and talk to your doctor if you get a deer tick on you. It does take 36-48 hours of feeding to get transmission, so it does help to try to evaluate if the tick was becoming engorged or had just attached. If you have problems in your yard (not likely), you can download a comprehensive CDC Tick Management handbook at www.cdc.gov/ncidod/dvbid/lyme/resources/handbook.pdf.





One

of the best things about attending conferences is getting out to see some sights and do some local collecting, especially when you're exploring unfamiliar territory.

I've never spent much time in the western U.S., but two collecting excursions during the annual Entomological Society of America (ESA) conference in Reno last November made me realize

that the Lake Tahoe area has some interesting arthropods worth mentioning.

Mt. Rose: collecting at altitude

As I am an avid rock climber and mountaineer, the first field excursion began with the main goal of summiting Mt. Rose (10,776 ft.). If you've ever been to Reno before, you may recognize Mt. Rose as the tallest visible peak on the horizon to the southwest. The summit

offers views of the entire Reno area in one direction and Lake Tahoe in the other. Tagging along on this excursion was a master's student

from the UW-Madison entomology department, Mr. Glen Obear. As Glen and I had flown out to Reno for the ESA conference, our (TSA-approved) collecting supplies were limited to a few small Nalgene vials and

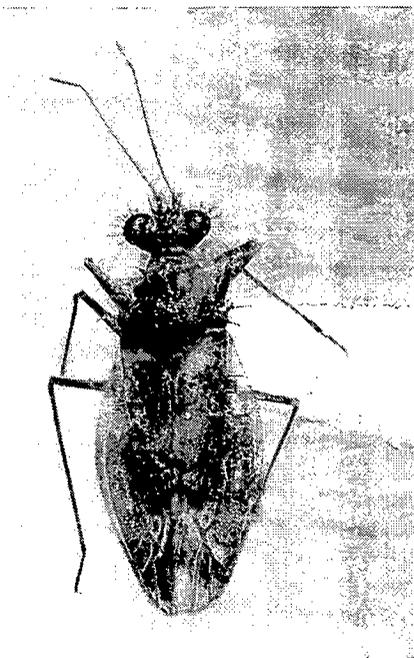
some forceps. We started from the trailhead (8,911 ft.), with relatively easy hiking on a gravel path. However, we soon found ourselves trudging through a snowfield in a forest of Ponderosa pines. As we huffed-and-puffed towards the summit, we stopped every so often to peek at whatever insects caught our attention. Occasionally, we'd see a few dipterans flying about, but the real highlights from this trip ended up being the beetles. The best part

for us was that finding the beetles was easy: all we had to do was look for black specks on the snow. Other than a few readily identifiable dung beetles, most specimens were too small to identify in the field. It wasn't until December that I was really able to take a close look at the specimens and realize what we had found.

An interesting find for me was the Agyrtid: *Apteroloma tenuicorne*, as I had not encountered the primitive carrion beetles before. However, the true gem of the collection was a single specimen believed to be of the Leiodid: *Catoptrichus frankenhauseri* (Figure 1). What's interesting about *C.*

Discoveries from ESA: Why It Pays to Go Out and Get Your Hands Dirty

by PJ Liesch



Catoptrichus frankenhauseri at left; *Patapius spinosus* at right.

DISCOVERIES FROM ESA, from page 6

frankenhauseri is that it was first discovered on a human cadaver on the island of Sitka in the Alaskan panhandle. The known range of this species includes Alaska, British Columbia, and the Pacific Northwest region of the lower U.S. This leads one to ask what such a beetle would be doing on a mountain in an area of the U.S. otherwise categorized as a high desert. At this point, I can only hypothesize about the complete range of *C. frankenhauseri*, as the find on Mt. Rose is several hundred miles south of the closest known find in Oregon. A correspondence with Dr. Stewart Peck (author of the American Beetles chapter on Leiodidae) confirmed the genus of the specimen due to the unique antennae. A technical dissection of the genitalia will be necessary to eventually confirm the identity of the species. At the very least, this find may represent a very significant extension of the known range of *C. frankenhauseri*.

Ultimately, Glen and I were racing the sun to make it to the summit and back before dark. Who knows what else we could have found if we only had more time; Grylloblattids have been found on snowfields on nearby peaks in the Sierra Nevadas...

Insects Abound in the High Desert

Our second collecting excursion happened on the Tuesday afternoon of the ESA conference. Very few talks had been scheduled for that afternoon, so Glen and I took this as our sign to get out and see what else we could discover. With the help of Google, Glen and I had stumbled upon some hiking trails in the Humboldt-Toiyabe National Forest to the northwest of Reno. This area was the exact opposite of the

snowy slopes of Mt. Rose. At our first glance, the high desert appeared to have rocks, sagebrush, and not much else.

In the first 20 minutes of searching, all we noticed were a few grasshoppers and some desert stink beetles (Tenebrionidae: *Eleodes* sp.) amongst the sagebrush. It wasn't until we started searching the rocky areas that we discovered the really interesting creatures. Our finds included: a number of small beetles (from the families Tenebrionidae, Staphylinidae, Carabidae), diplurans, and embiids (webspinners). Glen and I also found several intimidating spiders while searching under rocks, including the largest salticid I've ever seen and an even larger crevice weaver (Filistatidae: *Kukulkania* sp.). We had gotten into quite a groove, until two encounters with *Latrodectus hesperus* (Western Black Widow) made us a bit reluctant to reach under rocks with our bare hands.

The most significant find of this excursion was an unusual species of true bug which I noticed rapidly scurrying over some old railroad ties and rocks. Without knowing what they were, I had a feeling that these were something unusual to be scurrying about in such an arid place. After getting them under the microscope, I was pleasantly surprised to find that the specimens were of *Patapius spinosus* (Figure 2), the only member of the family Leptopodidae in North America. A literature search revealed little information about the Leptopodids. Luckily, Schuh and Slater's *True Bugs of the World* had an excellent drawing of *P. spinosus* to help confirm the identity of the specimens.



Member Information

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“There are 15 species of ticks in Wisconsin, only a few of which feed on humans.

“Ticks are arthropods (relatives of insects) and belong to the order Acari, families Ixodidae (the hard ticks) and Argasidae (the soft ticks). The most commonly encountered ticks in Wisconsin are hard ticks such as the black-legged or deer tick (*Ixodes scapularis*) and wood tick (*Dermacentor variabilis*).

“Tick habitat is usually associated with their animal hosts, especially in areas where woodlands and grasslands converge and where wildlife is abundant. They typically can be found in wooded or grassy areas, especially along the edges of trails, roads and yards.

“*Dermacentor variabilis* ticks are most abundant in spring and early summer while *Ixodes scapularis* ticks are most abundant from spring through the summer, and into the warm months of the fall. However, depending on the climate for a specific year and various other factors, ticks may be found on Wisconsin residents or their pets during all months of the year.”

From <http://labs.russell.wisc.edu/wisconsin-ticks/wisconsin-ticks/>

Tick Removal

1. Use fine-tipped tweezers to grasp the tick as close to the skin's surface as possible.
2. Pull upward with steady, even pressure. Don't twist or jerk the tick; this can cause the mouthparts to break off and remain in the skin. If this happens, remove the mouthparts with tweezers. If you are unable to remove the mouth easily with clean tweezers, leave it alone and let the skin heal.
3. After removing the tick, thoroughly clean the bite area and your hands with rubbing alcohol, an iodine scrub, or soap and water.

Please avoid folk remedies like touching the tick with a lit cigarette and “painting” the tick with nail polish or petroleum jelly to make the tick detach from the skin. You want to remove the tick as quickly as possible— do not wait for it to detach by itself.

From <http://labs.russell.wisc.edu/wisconsin-ticks/tick-removal/>