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## Ode to the Horse Fly (sans meter & rhyme)

“How many kids did you make cry today?”

Carol asks this, half-kidding, as I return from a summer presentation at a library in which insects are wholly or at least partly the live subject matter... Okay, maybe less than *half-kidding* since my response is usually *Only one*, or *Just a few*. The facial expressions of some attending parents show unease, as well. Most, however, laugh at the mass hysteria that breaks out at the mere suggestion that I open the lid of the jar I’m holding which contains a half-dozen freshly-captured horse flies.

My intent is definitely not malicious, but it is meant to make an impression that may stick with audiences of any age for the rest of their lives. In the long run, the experience will most likely make them view the horse fly, and its smaller cousin within the family, Tabanidae - the deer fly - in a more objective, ecologically-informed light.

I begin by showing the jar and its buzzy contents. Sometimes I allow the audience to pass it around hand-to-hand for up-close inspection while I discuss basic tabanid metamorphosis and ecology: Female flies lay eggs on the leaves of vegetation overhanging the water. The egg masses are easy to find in mid-summer once you develop the awareness to look. Those of the deer fly look like a glossy, black smudge on a dangling leaf’s surface. Those of the horse fly look similar except the mass rises up from the leaf’s surface as a lump instead of a smudge. Close inspection reveals perhaps as many as one hundred miniscule, densely-packed rod-shaped eggs. The aquatic larvae hatch shortly thereafter and drop into the water to begin hunting, feeding and growing. They prey on smaller swimming invertebrates including mosquito larvae. Semi-grown larvae overwinter under water or in the sediments of a dried vernal wetland, then continue feeding and growing the following spring. When mature in late spring all tabanid larvae crawl out of the water and dig into the surrounding soil to pupate. Depending on the species and latitude, the adult fly emerges between late June and mid-August. Perhaps most importantly, the presence of tabanids is an indication of the ecological health of the wetland of which they are associated.

As in the case of the mosquito only the female deer or horse fly will bite, and for the same reason - to secure protein from a blood meal in order for her eggs to develop. However, while a mosquito bite is a mere annoyance, a bite from one of the tabanids is downright painful - enough to elicit a startled



*One of the summer’s larger horse fly species, the Three-spot Horse Fly (Tabanus trimaculatus) can be seen near marshy wetlands now.*

vocalization of the victim's choosing. There is an immediate and urgent need to get that thing off your neck!



The medium-sized, common horse fly, *Hybomitra lasiophthalma*, has colorful, banded compound eyes.

Why do tabanid bites hurt more? Well, they are bigger (some horse flies *much* bigger), for starts. However, the anatomic tools with which they ultimately extract the victim's blood are definitely a factor. A mosquito merely siphons the blood through the insertion of a hair-thin proboscis, but a tabanid head possesses a pair of sharp, pointed, cutting teeth that snip like scissors into the flesh. A large, dark tongue located directly behind the teeth applies saliva with anticoagulant and anesthetic properties to effectively lap its fill of blood. Mind you, then, that it is only the initial piercing of the flesh that is painful. If you don't immediately react to the bite you won't feel a thing a few seconds later and the fly slowly fattens undisturbed.

The above information alone is enough to elicit a leery, fearful or full-blown panicked response when one or a dozen zero-in on your head, or even when some nut decides to open a jar full of them in your presence. However, additional information about tabanid blood-seeking behavior arms you with defenses to quite effectively deal with them.

1. *Female deer flies are keenly attracted to movement.* They perch on the outer leaves of low-hanging tree branches or shrubs adjacent to forest openings, trails or roads then wait for a deer, human or other large object to pass. They are attracted to movement of *any* large objects, including vehicles. The obvious flip side, then? Most of them dissipate within seconds after the movement ceases. If you stop, the deer fly assault largely stops. Oh, a persistent female or two may still stick with you, but a couple is way less unsettling than a couple dozen. If you want to permanently eliminate one or two that insist on landing here's a critical tip from the hitting coach...
2. *No tabanid will bite immediately upon landing.* Nearly five seconds passes after touch-down before she actually lowers her mouthparts to pierce your skin. Upon alighting it is as if she remains tensed and ready to take off in case the large mammal felt her touch. If it has, a whack may be coming from a hand, hoof or swishy tail. Seconds later she relaxes to feed. Whack at it the instant it lands and you'll find yourself slapping vacant skin. Instead, when you see or feel it land, count to three, then slap. The odds of nailing the annoying bugger increase dramatically.
3. *Tabanids have no instinct to bite defensively.* That's right. Bees will sting and beetles will bite to defend themselves if grabbed or held, but not deer flies or horse flies. If you find one that got into the house buzzing against the window go ahead and grab it alive-and-buzzing without repercussion. After all, you'll just make a mess if you glitch it on the pane.

In fact, tabanids will not bite if they are feeling disturbed or uncomfortable in any way. I explain this to the audience prior to opening the lid. The flies trapped inside the jar are definitely uncomfortable, therefore they won't be thinking *blood meal* when released. They will merely want to fly away from the disturbing factor. Assuming there are windows in the room and daylight is streaming in I tell the audience that I can have all six flies that leave the jar back inside within one minute. All flying insects that get caught indoors eventually wind up at the source of the light in an effort to get back outside. I ask a staff person to turn off the lights, then I open the lid. One by one the flies crawl to the lip and take off... straight toward the bright window. I walk over, pluck them one by one from the pane and slip them back into the jar.

With this newfound knowledge many kids in the audience can't contain themselves and rush to the windows to help grab the flies. Others trail cautiously but curiously behind. I direct those with a fly pinched between their fingers to inspect the sharp teeth and to even touch a fingertip to them. No bite.

Of course, Carol and I capitalize on turning all this combined tabanid behavior to our advantage when it comes to securing live insect food for the twenty-ish Michigan-native frogs here. The door to our nature center remains wide open all summer day with a purpose. We *invite* flies to come in. A slew of species and sizes show up on the large panes. Every hour they are picked one by one, a wing plucked, then dropped to a hungry wood frog, leopard, pickerel, green, bull, mink or gray tree frog. During one of our summer day camps, no longer afraid of horse flies, kids love doing this.

The small deer flies seem to outnumber nearly all half-dozen or so species of horse flies combined, but they don't seem to make it into the house and onto the windows with as much regularity as the horse flies. We take advantage of their attraction to movement outside by offering them irresistible bait: ourselves. Insect net in hand we take a brisk stroll around the perimeter of the yard adjacent to low tree branches or down the trail toward the back vernal pond. All the while we wave the net in a figure-eight pattern over our heads. Within seconds a few circling deer flies are in the bottom of the net. At peak emergence fifty or more can be caught within a few minutes. Then, the net gets turned inside out into a frog tank, and the screen lid quickly covered. A few inevitably escape before we can remove the net and get the lid replaced, but no matter... They go straight to the window.



*A netful of deer flies: easy and abundant frog food around here in mid-summer.*

In August, the big Black Horse Fly emerges. With a body easily over an inch in length, a wingspan twice that, and a disconcertingly loud buzz when it flashes by, this one can be intimidating, but the same behavioral rules apply. When one of these bombers passes me it often turns around having recognized the source of what it is thirsty for. Once again, acting as bait I will stop and spread my arms in order to make a larger target. The fly may circle once or twice then land on the chest area of my shirt. I count to three then slap my *cupped* hand over the hunter-turned-victim. I have my reasons for wanting to capture it alive. During a day camp the kids gather around as I maneuver it for viewing. I explain that a horse fly has large flight muscles and is therefore a *very* strong flyer. By pinching it at the tip of the abdomen between thumb and forefinger its wings become free, allowing it to “fly” while remaining captured. I hold the whirring insect up toward each of their cheeks for them to feel a surprisingly significant breeze. I call it *nature's fan* and can easily imagine Shrek doing this in his swamp to cool off on a muggy day. Ultimately, of course, one of our larger frogs gets a nice meal.



*Nature Discovery day camper, Alexis Janoch, is no longer afraid to hold a horse fly.*

Fear fades with familiarity. Knowledge gained about something previously viewed as menacing instills a pleasant amalgam of relief and empowerment. For a kid (or an adult) doesn't this valuable ecology lesson represent the epitome of *hands-on* experience? *Hand-catch* a biting fly, then *hand-feed* it to a hungry, Michigan-native frog. The horse fly's role in the wetland community becomes

not merely tolerated, but valued. Therefore, the wetland itself - so greatly misunderstood and devalued by most - with step by step understanding of its myriad, interacting, living components, becomes something worth keeping and striving to protect.

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Come out for Feeding Frenzy Sunday next weekend. Capture your own biting fly then feed it to a frog! Details ahead...

-Jim McGrath

## ***Carol's Summer Youth Camps at LCC East Still Have Openings***

Carol is teaching 4-day summer science camps for students entering grades 2-9 at LCC's East Lansing Campus and opening still remain. Check out the schedule below, which offers hands-on fun with Chemistry, Physics, Math, Engineering, Natural Science, Building Machines and Robots. Morning classes, 9am-noon. Afternoon classes, 1-4pm.

July 8-11: AM - Science Wizards (Gr 2-3). PM - Pond Life Explorers (Gr 4-8).

July 15-18: AM - Rockets & Robots (Gr 6-9). PM - Classroom Arcade (Gr 4-5).

July 22-25: AM - Fun with Physics (Gr 2-3). PM - Miniature Golf Challenge (Gr 5-8).

July 29-Aug 1: AM - Build A 'Bot (Gr 4-5). PM - Alternative Energy Projects (Gr 6-9).

For details or to register for Summer Youth Camps, visit [lcc.edu/seriousfun](http://lcc.edu/seriousfun) and click on the summer tab.

## ***Raise Giant Silk Moths this Summer***

*Cecropia, Polyphemus and Luna larvae will be available for two more weeks.*

*This is like raising Monarchs – on steroids!*

*Four larvae with complete care instructions for \$12.*



## ***Around the State in July***

- ❖ Saturday, July 6: 7:30pm. Birding by Ear Presentation; Hartwick Pines SP, Grayling.
- ❖ Saturday, July 7: 1:30pm. Michigan Snakes Presentation; Hartwick Pines SP, Grayling.
- ❖ Saturday, July 13: 2-5pm & 7pm. Michigan Reptiles & Amphibians Exhibit & Presentation; Ludington SP.
- ❖ Tuesday, July 16: 1 & 2:30pm. Neighborhood Insects Presentation; Bath Twp Library, Bath.
- ❖ Sunday, July 21: 10am-2pm. MI Turtles Exhibit; Eastern Ingham Farmers Market, Williamston.



# *Feeding Frenzy!*

*Sunday, July 14*

***Doors open from 1 to 5pm. Admission \$5/person.***

Who doesn't love feeding time at the zoo? That's why we've set up a whole afternoon of nothing but... With over 100 hungry Michigan-native reptiles and amphibians of 40 species, plus an always-hungry red-footed tortoise, plus an array of butterfly and moth caterpillars, there will be a LOT of feeding. Throughout the day, knowledgeable staff is on hand to mingle with visitors, giving everyone up-close opportunities to watch snakes, turtles, frogs, salamanders and lizards eat a wide variety of foods – fruits and vegetables plus many kinds of small animals, including worms, slugs, insects galore, fish, frogs, toads and even mice.

- We'll provide nets for you to catch your own insects around the yard and on the trails to feed to frogs of all 13 species found in the state. Tree frogs will take one right out of your fingers!
- Feed food sticks, worms and fish to 20 aquatic turtles in small pools on the patio. Small ones will take food right out of your fingers!
- Meet "Hogzilla" – our newly-acquired huge hognose snake, then watch it devour a toad!
- Feed berries to our box turtle and tortoise.
- Learn to identify all 3 species of Michigan garter snakes then watch them eat worms, fish and frogs.
- Hold specimens of all sizes of the Black Rat Snake, Michigan's largest. Then, watch some of them eat frozen, thawed mice and maybe even a live chipmunk!
- Watch caterpillars of various butterflies and moths devour leaves of a variety of native trees.
- Staff is always on hand to help visitors of all ages make the most of their visit.



*Kids love to feed Milberta, our always-hungry red-footed tortoise.*

## *The Plastics Industry Battles Anti-Plastic Trends*

“What’s Worrying the Plastics Industry? Your Reaction to All That Waste, for One” is the title of this report by *Inside Climate News* that summarizes themes at this year’s Global Plastics Summit. So what are they doing about it? “The industry has been fighting state legislation that seeks to curb plastics pollution, including pushing back on more than 400 bills in dozens of states.” CEO of the Plastics Industry Association, Patty Long, laments, “Unfortunately, a lot of those are going to pass.” Here is a link to the full article. Wait ‘til you see the propaganda they’re cooking up for our school children...

<https://insideclimatenews.org/news/06072019/plastic-waste-ocean-global-summit-industry-solutions-recycling-climate-change>

Thankfully, corporate profit at whatever cost to the planet occasionally gets outshined by environmentally and sustainability-conscious crazy diamonds like Pink Floyd’s David Gilmour. Now, if only there were more cut like him...

[https://www.motherjones.com/media/2019/06/recharge-59-climate-change-guitar-auction-pink-floyd/?fbclid=IwAR31YlozBu49WNVSEqt0c5r2\\_kpRJ3eqS6VBdZvkxFaSJ1XSdL0KeNHf\\_0Q](https://www.motherjones.com/media/2019/06/recharge-59-climate-change-guitar-auction-pink-floyd/?fbclid=IwAR31YlozBu49WNVSEqt0c5r2_kpRJ3eqS6VBdZvkxFaSJ1XSdL0KeNHf_0Q)

When I scrolled below this article my eyes nearly popped at the photo of Brandywine Falls at Cuyahoga National Park south of Cleveland, tweeted by the U.S. Dept. of the Interior, misidentifying the wildflowers in the foreground as purple phlox when they are, in fact, dame’s rocket – a highly-invasive alien wildflower that is destroying the ecology of woodlands throughout much of the lower Michigan, the Great Lakes Region and beyond. Below it, *Mother Jones*, not the Interior Dept., inserted a correction, although the publication failed to mention its invasive status. The identification error could be excused from an amateur naturalist photographer, but I cannot give a pass to a federal agency ostensibly staffed by competent professionals in the field. Oh, wait! Isn’t that a cabinet position within an inept executive branch that deals posts based on “loyalty” in lieu of ability? Now it makes sense.

-JM

*The next generation would be justified in looking back at us and asking, “What were you thinking? Couldn’t you hear what the scientists were saying? Couldn’t you hear what Mother Nature was screaming at you?” -Al Gore*



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