



An Antlion may look superficially dragonfly-like but its taxonomic order, life cycle and behavior are anything but...

THIS ISSUE

Raise Giant Silk Moth Caterpillars

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Thank You, Donors

Where There's No Will There's No Way

Fantastic Bugs & Where to Find Them

Addressing the back half of the title first, where to find them would be *here!*

We educate on virtually all natural science topics with a Michigan twist. Of course, the huge zoo of state-native reptiles and amphibians is always on hand to help program participants and visitors to our nature center get to know them better. However, throughout the summer the invertebrate life here skyrockets to such an extent, it is a categorical menagerie in itself.

We present at so many day care centers, libraries, day camps and other venues with kids and/or families on the topics of insects and spiders, it behooves us to keep some when we find them (or they us), and keep them alive, presentation-ready any day. Thus, visitors to the nature center by appointment over the summer find far more than snakes, turtles and frogs to keep them engaged.

To wit...

I wrote last month about our acquisition of hundreds of Painted Lady eggs and newly-hatched caterpillars. We released a huge number of larvae on various wild-occurring thistles around the property but also managed to maintain about one hundred individuals until they molted into chrysalises and emerged as butterflies.

We hosted a kids' birthday party in mid-June and took advantage of this development to deliver an unusual party favor. Every participant took home a jar with two large Painted Lady larvae on a prickly thistle leaf. Within a day or two they would watch the caterpillars transition to chrysalises, and a couple weeks later, to adult form.



In the spring we took this Six-spotted Fishing Spider as a cute spiderling off the water's surface on our vernal pond. With legs splayed she measures almost two inches now. Kids love dropping flies to her.



In some visits to day care centers we brought a chrysalis hanging from a twig. We then instructed the staff to merely tape it to the underside of a high shelf or to the header over a doorway or window. The kids could anticipate the butterfly's emergence in the coming days then release it outside.

I taped dozens of chrysalises on to the underside of an arch over the stairs that lead to the lower level of the nature center. On any day here for a two week stretch a visitor could find random recently molted butterflies hanging from their chrysalis skins or fluttering against the inside window panes. Some found their way out the open door on their own. Far

more needed to be captured, carried out and released, but perhaps not before a photo was taken of the butterfly poised for flight on a child's finger.

Historically in our neighborhood, we have not seen Painted Ladies often – perhaps an individual or two in late summer. This past June free-flying individuals were daily sightings around here thanks to this project. We're keeping our eyes on the backyard thistles for the next generation of this prolific species.

The beetle family, Elateridae, a.k.a., click beetles, are members of the largest, most diverse insect order on the planet, and arguably may be the most entertaining. Large or small, all adult click beetles have an elongated, somewhat dorso-ventrally flattened body shape. The thorax and elytra are smooth and glossy. I've seen dark brown or black species ranging in size from a quarter inch to an inch or so in length around lights at night or resting on a leaf or log during daytime.

Like a turtle, when a click beetle falls and lands upended its legs flail helplessly in the air. Most turtles are able to eventually right themselves by stretching the neck and using the head as a lever to flip themselves right-side up. The click beetle, with its small head fixed firmly under the prothorax, lacks this capability. Instead, it has a unique working structure at the attachment point at the back end of the prothorax that allows it to tense then snap it against the mesothorax, similar to the process of snapping your fingers. The force of the snap can propel the insect into the air like a flipped coin. When it hits the ground again it has a fifty-fifty chance of landing on its feet. If it lands on its back it just snaps the thorax again until it is back on its feet.

When handling a click beetle it is very apparent that the thorax snap also doubles as an anti-predator ploy. When I hold one between my fingertips it pulls its legs tightly against its body and snaps repeatedly. The exoskeleton is so hard and smooth that, with each click, I can feel the beetle shift in my grasp. Several clicks later it begins to slip through my fingers. I need to realign my grip to keep from dropping it.

Imagine the rigid bill of a bird grasping the beetle between its tapered mandibles. It seems the vibrations from the snapping would even more effectively make the bird lose its grip, thus, allowing the beetle a chance to escape.



The large eye spots on the prothorax of the Eyed Click Beetle makes it look like an alien's head. Its much smaller actual head is tucked underneath.

Early in June I stepped onto the patio to see a large beetle, wings buzzing, float in front of me at eye-level. I recognized it immediately as the mother of all click beetles, the Eyed Click Beetle. Males routinely

exceed one inch in length. Females can close in on two inches. This was a big one. It landed on the side of the old wooden four-by-four post that holds our bird feeders. I promptly jumped to capture it.

Its choice of this landing place may not have been random. According to the *Audubon Field Guide of North American Insects* the Eyed Click Beetle lays eggs on rotting trunks and stumps. The armored larvae are predators of the larvae of other wood-boring beetles that feed within the decaying wood. The field guide also mentions that the beetle may not feed at all in the adult stage. It simply mates, distributes eggs and dies.

I kept the beetle in a large pickle jar with green vegetation on which it could cling. The leafy matter also served to keep some level of humidity within the jar to ensure that the beetle would not die more quickly from desiccation.

We've demonstrated the beetle's unique trick to kids in day camps here and in presentations at day care centers and libraries while also discussing its ecological niche in the world they share with it. It has been with us now for over a month, and only in the past week is its strength finally starting to wane. We'll eventually add it to our collection of pinned insect specimens in display boxes in the center.

'Minibeast' is a fun moniker that could be assigned to any arthropod – insect, arachnid, crustacean, etc. They may be small enough to squish under your shoe but imagine either greatly shrinking yourself or enlarging one to markedly shift your point of view and your comfort level... Look *up* at one suddenly looming above and you might need a change of underwear, however, you better postpone that change until you flee or hide because, with the tables turned, you could be on its menu.

An antlion larva embodies the term perfectly. If the movie *Jaws* advises you to stay out of the water, a movie featuring Rottweiler-sized antlion larvae would warn you to get off the beach, too. This miniscule predator hides just under the surface of sand or dusty, dry soil waiting for an unsuspecting ant or similarly-sized insect to amble by. Quite helpless out of its granulated surroundings, and with relatively limited mobility compared to your standard predator, it fashions a simple but effective pit trap into which an ant wanders. It then slides down the slope into the waiting pincers of the antlion. They snap shut and open repeatedly like scissors until the prey is snagged. Within seconds it is pulled under, to its doom.



Every kid (and adult, if you missed it in your youth) should have the opportunity to raise one to its winged adult stage. This is an incredibly low-maintenance 'bug pet,' which renders moot any argument about not having time. Indeed, it may take weeks, if not months to starve one to death, however, an ant-a-day regimen will hasten it to winged maturity before summer's end.

You don't have to go to the beach to find antlion larvae. Most rural backyards have specific locations where a few may be lurking out of sight. Simply scoop one out of the dusty soil, place it in a little plastic cup of your choosing (Single-serve apple sauce containers are perfect.) with sand about three-fourths of an inch in depth, and you and your new bug pet are golden. The pit trap will likely be in place by morning as it awaits its first meal from its new 'master.' Merely pinch an ant off the ground and drop it into the pit.

For more details about antlions and their life cycles, read the opening column, 'The Lion in the Sandbox' in the October 2020 newsletter: <http://naturediscovery.net/pdf/WILD%20TIMES%20Oct20.pdf>

Throughout the summer we keep a few cups of antlion larvae in sand for visitors to experience. We will quickly help them find an ant so they can watch the little predator snatch then drag it out of sight. We will

even help an interested kid or adult find one in our yard to take and raise at home. An information sheet provides complete care details.

Participants at day care centers and libraries get to lay eyes on the tiny creature that lurks within the sand in the cup. We carefully shake the contents onto a sheet of paper until the antlion falls out. We also often provide an antlion-in-cup to the honoree at a kids' birthday party – a gift always enthusiastically received.

Over the summer enter our nature center and you step into a quite literal working Giant Silk Moth farm. Caterpillars of the largest and most beautiful and impressive moths in Michigan (and on the entire continent, for that matter) can be found by the hundreds in jars, and eventually as they grow, on a table verdant with leafy branchlets of native trees. For the backstory read 'I Know Why the Caged Moth Mates,' from our June 2017 newsletter: <http://naturediscovery.net/pdf/WILD%20TIMES%20June17.pdf>

The rich, reddish Cecropia with a wingspan of up to seven inches is not just the largest moth in Michigan. It's the largest on the continent! The golden-winged Polyphemus, only slightly smaller, wears large, life-like eye spots on its hind wings. The still slightly smaller pastel-green Luna sports paired 'tails' from its hind wings and is considered one of the most subtly beautiful moths on the planet. The farm serves three purposes: to ensure that these declining species continue to thrive, at least here, in our small occupied niche of the state; to ensure that we will have a healthy stash of overwintering cocoons from which adult moths will emerge in June to produce the next generation; and thirdly, to provide educational and highly-experiential opportunities for any interested kids, adults, and organizations.



With a wingspan up to 7 inches the Cecropia Moth is the largest on the continent. It is found here in Michigan and at Nature Discovery.



The largest moth on the continent produces the biggest honkin' caterpillar you've ever seen! Prior to spinning cocoons in August mature Cecropias regularly exceed a girthy four inches in length.

As with the insects mentioned above, Carol and I will bring the caterpillars clinging to their food plants to show and discuss in front of audiences in myriad venues. We'll even leave a caterpillar or two for staff and kids at a day care center or day camp to continue raising over the summer. However, we first check to see if an appropriate native tree on which the species feeds (i.e., boxelder for Cecropia, red maple for Polyphemus, walnut for Luna) is accessible around their property.

In fact, these same trees can be found within a stone's throw of most residences should you try raising them at home. Larvae are available for sale now with detailed care instructions.

If you've raised Monarch caterpillars, we describe the giant silk moth experience as 'like raising Monarchs on steroids.' Whereas the whole Monarch process - egg to adult – roughly encompasses a month, the larval stage of a beastly Cecropia caterpillar alone takes about seven weeks! Yes, it is a summer project, and one that immerses you, both as an observer and as a participant, in the crucial ecological connectedness between specific animal and plant lives in our environment.

Arrange a visit here nearly any day or evening while summer lasts to experience an ever-changing, growing, metamorphosing rotation of lepidoptera even beyond the giant silk moths. The bizarre larva of Michigan's and North America's largest butterfly, the Giant Swallowtail, for example, makes its appearance in August. See them being reared inside our center, find them in the wild outside and learn how you can encourage their presence in your own yard. We'll help you make it happen!

Now, if you'll excuse me I have a *fantastic* amount of bugs to feed. You know where to find me.

-Jim McGrath

The bizarre Giant Swallowtail larva mimics a wet bird dropping. When disturbed it everts a pair of blood-red glands that emit a strange odor. Come see and smell one at Nature Discovery.

Photo © Steve Sage.



Raise Caterpillars of North America's LARGEST MOTHS!

***A Fantastic Summer Hobby!
This is like raising Monarchs
ON STEROIDS!***

***Semi-grown larvae of Cecropia,
Polyphemus and Luna Moths
available for sale now while
supply lasts.***

***Three larvae of one species with
printed care instructions: \$15.***



Luna



Polyphemus



Cecropia



Polyphemus



Luna



Cecropia

Nature Discovery

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Visit Our Nature Center by Appointment

*Suggested Minimum
Donation: \$5/person/hour*



The sky's the limit for natural science learning here – with a Michigan twist! Individual adults, couples, individual families and small groups are welcome to schedule an intimate outdoor or indoor visit to what we call “The Biggest Little Nature Center in Michigan,” and “Home to the Largest Zoo of Michigan-native Reptiles and Amphibians.” The unique, hands-on experiences here are unrivaled by a visit to any “standard” zoo or nature center! We will bring snakes, turtles, frogs and salamanders out of tanks to interact with adults or students of any age or grade-level.

Identify and feed “the grand slam of Michigan turtles,” all ten species native to our state, as they swim in pools at your feet. Meet, pet and feed “Milberta”, our always hungry Red-footed tortoise.



Handle any or all of Michigan's three species of garter snakes while learning how to tell them apart, then watch them gobble up worms and live frogs. Hold or “wear” a gentle 6-foot Black Rat Snake – the largest in the state!



Check out our caterpillar farm.

Many more snakes, turtles, frogs and salamanders to identify and feed. Take a guided walk on our trails to identify birds, insects, trees, vines, and invasive plants.

Ask about arranging guided interpretive experiences or guided birding outings, for your small group of kids, adults or families at a local natural area of your or our choosing.

Contact us for more information or to make an appointment.

Around the State in July

- ❖ Saturday, July 1: 1pm. MI Snakes Presentation; Hartwick Pines State Park, Grayling.
- ❖ Thursday, July 6: 7pm. MI Snakes Presentation; Benzie Audubon Society, Frankfort.
- ❖ Sunday, July 9: 10am-2pm. MI Snakes Exhibit; Eastern Ingham Farmers Market, Williamston.
- ❖ Saturday, July 15: 10am to 3pm. MI Reptiles & Amphibians Exhibit; MDNR Outdoor Adventure Center, Detroit.
- ❖ Wednesday, July 26: 1-3pm. MI Reptiles & Amphibians Exhibit; Canton Public Library, Canton.
- ❖ Saturday, July 29: 2-5pm. MI Reptiles & Amphibians Exhibit; 7pm. MI Reptiles & Amphibians Presentation, Ludington State Park.



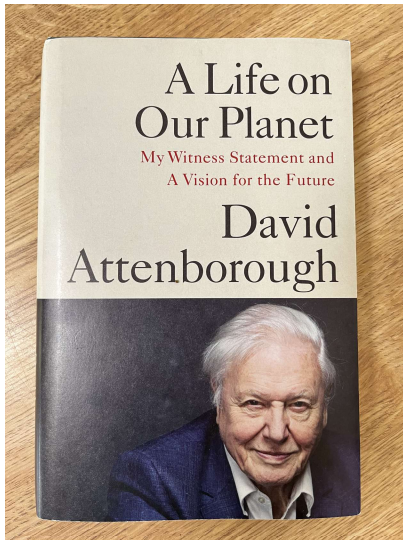
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Where There's No Will, There's No Way

Nature Discovery patron, Jan Heminger, let me borrow her copy of David Attenborough's 2020 book, 'A Life on Our Planet.'



From Attenborough: *This is the story of how we came to make this, our greatest mistake – and how, if we act now, we can yet put it right. We have one final chance to create the perfect home for ourselves and restore the wonderful world we inherited. All we need is the will to do so.*

We know what to do to slow and ultimately reverse climate change, but the *will* at the global scale that Attenborough attests is required to solve it is hardly in sight. Ironically - in a foreboding way - even the recent fossil fuel combustion-driven forest fires in Canada, the smoke from which has made air unbreathable from the East Coast to the Midwest can't ignite enough *will*. Air travel, hands down the dirtiest form of transportation, shattered records over the July 4 weekend.

<https://www.travelpulse.com/news/airlines-airports/tsa-screened-record-number-of-passengers-over-july-4th-holiday-weekend>

In lieu of – or in addition to reading the book, you can watch the film on Netflix:

<https://www.netflix.com/title/80216393#:~:text=Watch%20David%20Attenborough%3A%20A%20Life%20on%20Our%20Planet%20%7C%20Netflix%20Official%20Site>

Four Key Takeaways from David Attenborough's 'A Life on Our Planet'

<https://earth.org/david-attenborough-new-film-a-life-on-our-planet/>

More reading about those who have the political will, and those who do not...

https://www.nytimes.com/2023/07/02/climate/michigan-climate-change.html?campaign_id=54&emc=edit_clim_20230707&instance_id=96956&nl=climate-forward®i_id=97652655&segment_id=138623&te=1&user_id=e2b8dd8c9b543fb8c35d5dd30658067e

<https://insideclimatenews.org/news/11072023/todays-climate-budget-talks-congress-republicans-attack-climate-spending/>

-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

I don't want you to be hopeful. I want you to panic. I want you to feel the fear I feel every day. I want you to act. I want you to act like you would in a crisis. I want you to act like your house is on fire, because it is. - Greta Thunberg

The personal actions that cut climate pollution fast are to go flight-, car-, and meat-free. Start with the one that feels most feasible for you; if you can't totally go without, aim to cut your consumption today at least in half. – Kimberly Nicholas, Under the Sky We Make

What if we had storytelling mechanisms that said it is important that you know about the well-being of wildlife in your neighborhood? –Robin Wall Kimmerer



Less Beef = Less CO₂
Cowspiracy.com

**[Union of
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Science for a healthy planet and safer world



Flightfree.org



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