

THIS ISSUE

Thank you, Donors & Volunteers

Thank you, Cedar Creek Vets

Around the State in August

Raise Luna Moth Caterpillars

Visit Our Nature Center by Appointment

Not Hearing is Believing...

Luna Larvae Set Feet into the School Year

An apt symbol of the night itself, the impressive, powder-green and highly-nocturnal Luna Moth is one of a handful of variably big and beautiful members of the giant silk moth family found in Michigan. As little as twenty years ago this moth was quite difficult to find throughout much of Lower Michigan. However, for reasons I can only surmise, it seems to have become more common here of late.

We've lived in our North Williamston country home since 1989, but didn't see our first Luna, a male, at a light in our yard until early summer of 2007. The following year we acquired a female from an acquaintance who found it on their window one night, obviously attracted to the lights within. She proceeded to lay several dozen fertile eggs and we were thrilled. As with what we have been doing with even larger Polyphemus and Cecropia Moths for many previous years, we raised the larvae over the summer then kept them through their pupal stages within cocoons over the winter. They ultimately emerged or "eclosed" into the reproductive adult form the following June.



A male Luna clings to the cage the morning after. You can see a sliver of the female with which he is mating inside the cage.



If a moth that eclosed was a male we would merely release it at dusk that night. However, in order to secure a next generation we would place a newly-eclosed female in a special "mating cage" (fashioned makeshift out of two small plastic baskets twist-tied together on one side) overnight to attract a wild mate by way of a pheromone she released into the air.

In the first few attempts, the female was unsuccessful in drawing a mate. There just weren't very many of this uncommon moth out there to detect and follow the scent. Therefore, when early one June morning I woke at first light and stepped outside to retrieve the cage I was ecstatic to see a wild male clinging to the outside surface, its abdomen curled into one of the openings attached to the tip of the female's abdomen.

After sunset the following evening they grew agitated then separated. I released the male out the door but kept the female in



Luna eggs laid on the mating cage.

the cage. Whereas a wild one would spend the night fluttering from tree to tree seeking hickories and walnuts, the leaves on which she would lay a few eggs at a time, she cannot hold the eggs back, and therefore, cannot help but to lay them while trapped in the cage. Within a couple of hours this female had laid several dozen all over the surfaces of the cage. Knowing she still had well over one hundred more to deposit, I took the cage outside and released her into the night where she could continue unfettered to do what comes naturally.

More males and females emerged over the ensuing days, and I followed the same procedures. Most females were unsuccessful in drawing a mate, but over the following few summers, wow, had that changed! The likelihood of a

female attracting a wild mate steadily increased. Today, Lunas are so common (although still seldom seen by most) that any female placed in the cage outside our door on a given, appropriately balmy early summer night is far more likely than not to successfully attract a mate.

I've written a number of past newsletter columns related to how we raise Polyphemus, Cecropia and now Luna Moth larvae in our nature center (i.e., *I Know Why the Caged Moth Mates* <http://naturediscovery.net/pdf/WILD%20TIMES%20June17.pdf>) and utilize them educationally and experientially for children, adults, and families. A promotional page found in any of our early summer newsletters explains how anyone can purchase young caterpillars to raise over the summer at home with detailed written care instructions.

Note, however, that schools, teachers and their students are not mentioned as potential recipients. It turns out that the timing of the four stages within the one-year life cycle of a typical giant silk moth is not very conducive to the schedule of a typical school year. Why? In most of these moths the cocoon is spun in August two or three weeks prior to the start of the typical school year. The pupa of a given species then remains hidden and relatively dormant from September through May; not a whole lot to observe. The adult moth doesn't typically emerge until the beginning of June, just as schools are dismissing for the summer.

As the world warms at the hands of a fossil fuels-addicted society the planet's very systems that sustain life as we've known it through recorded history are reeling out of kilter. Any observer of the natural world can now witness countless adaptive shifts in wild organisms within nearly every nook of the natural world in response to this catastrophe-in-progress.

Here in Lower Michigan the Luna Moth's recent response to climate change just allowed it to become much more usable as a live teaching tool in Michigan schools. Here's how.

Butterfly and moth field guides from past decades state that some of the giant silk moth species like the Luna are double-brooded (two generations in a year) in The South but single brooded (one generation per year) in northern states. According to our observations over recent years, though, the Luna has just crossed the line from single brooded to double-brooded at our latitude.



Two-day-old Luna caterpillars.

The Luna is smaller than the Polyphemus or Cecropia, so the larval stage of the life cycle is two to three weeks shorter than for its larger relatives. Therefore, it is in a position to double-brood here more readily

as average temperatures rise (How many more years before the larger species begin to double brood regularly, too?).

In recent summers a typical female Luna emerges from her cocoon the last week of May, mates, then lays eggs two days later. The larvae hatch about ten days after that then feed and grow for about five weeks



before spinning cocoons near the middle of July. Two or three weeks of torrid summer heat induces them to rush through the pupal stage. The next generation of adults eclose and start the process anew at the onset of August. Plenty of summer remains to allow this second brood to get through the active, most watchable larval stage and into cocoons by mid-September where they will remain through winter until late the following May.

I couldn't say this as little as only five years ago, but now students and teachers in any grade level can attain access to semi-grown Luna caterpillars from us with complete care instructions at the start of the school year, then maintain and raise them in the classroom until they spin cocoons two or three weeks later. The cocoons can be stored in a refrigerator or in a sheltered place outside, then brought back into the classroom in early May. Students will have a chance to witness the moths eclose from cocoons a week or two before school is dismissed for the summer.

If a female emerges we can guide any teacher through the process of fashioning a mating cage. A female could then be put outside overnight to hopefully attract a wild mate. If so, the teacher will launch not only the next generation of Lunas but the next learning opportunity for next year's crop of students, as well.

-Jim McGrath



Thank You, Cedar Creek Vets!

This past month, our ailing two-year-old Common Snapping Turtle required a visit to Cedar Creek Veterinary Clinic, south of Williamston. A quick diagnosis and a round of antibiotics had it fit and back in its educational role within a couple of weeks. Thank you to the folks at Cedar Creek for supporting what we do with what they do so well. While providing veterinary care for all creatures, they specialize in birds and reptiles.

Check them out for your pet's health care, and tell them you saw it here. <https://www.cedarcreekvet.com/>



CCV's Natalie Nolan and turtle patient.

Around the State in August

Saturday, August 20: 10:30am. Michigan Turtles & Snakes Presentation;
Huron County Nature Center, Port Austin.

Raise Late-Summer Caterpillars of Big and Beautiful Luna Moths!



***Fertile eggs and newly
hatched larvae are now available.***

***4 eggs/caterpillars with complete,
printed care instructions, \$15.***

***Ask us about purchasing additional
quantities.***

***Teachers, a unique and rewarding live
science project to start your school year!***

Contact us to make arrange for pick up.

Nature Discovery

5900 N. Williamston Road Williamston, MI 48895
517.655.5349 naturedisc87@gmail.com www.naturediscovery.net



Hold a large and gentle Black Rat Snake.

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 and 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 offered here can be found nowhere else! 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 nine species of aquatic Michigan turtles as they swim in pools at your feet. Meet, pet and feed “Milberta”, our always hungry Red-footed tortoise.



Common Musk Turtle.



Cecropia Moth caterpillar.

Handle 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!

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

Ask about arranging guided interpretive experiences and 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.

“Not Hearing” is Believing Bird & Insect Declines



Jim recently found this Nebraska Conehead, a large katydid species.
https://www.google.com/search?q=Nebraska+Conehead+call&rlz=1C1KDEC_enUS836US836&oq=Nebraska+Conehead+call&aqs=chrome..69i57j33i160l2.11216j1j15&sourceid=chrome&ie=UTF-8

How Climate Change is Muting Nature’s Symphony

https://grist.org/culture/nature-sounds-bird-insect-silence-climate-change/?campaign_id=54&emc=edit_clim_20220805&instance_id=68548&nl=climate-forward®i_id=97652655&segment_id=100582&te=1&user_id=e2b8dd8c9b543fb8c35d5dd30658067e

New Climate Promises, Same Old Global Warming

https://www.nytimes.com/video/opinion/100000008429698/net-zero-global-warming.html?campaign_id=9&emc=edit_nn_20220712&instance_id=66417&nl=the-morning®i_id=97652655&segment_id=98267&te=1&user_id=e2b8dd8c9b543fb8c35d5dd30658067e

How Republicans are ‘Weaponizing’ Public Office Against Climate Action

https://www.nytimes.com/2022/08/05/climate/republican-treasurers-climate-change.html?campaign_id=9&emc=edit_nn_20220805&instance_id=68510&nl=the-morning®i_id=97652655&segment_id=100527&te=1&user_id=e2b8dd8c9b543fb8c35d5dd30658067e

-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

Scientific findings should never be distorted or influenced by political considerations.

- from President Biden’s Memorandum on Restoring Trust in Government through Scientific Integrity and Evidence-Based Policymaking.



Less Beef = Less CO₂
Cowspiracy.com

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



Worldwarzero.com



RSPO.org



insideclimatenews.org

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NATURE DISCOVERY 5900 N. Williamston Road Williamston, MI 48895

(517) 655-5349 naturedisc87@gmail.com www.naturediscovery.net