



You're supposed to see Polyphemus Moths in June around here, not August.

THIS ISSUE

Around the State in October

Visit Our Nature Center by Appointment

Thank you, Donors

Reading for Concerned Americans

Double-brooding

Polyphemus Moths

Becoming a

'Michigan' Phenomenon

Our last Polyphemus Moth caterpillar spun its cocoon today.

This statement alone would not generate much reaction from the average citizen. However, the fact that the event occurred on September 26 in the state of Michigan will at least raise an eyebrow, if not, some degree of consternation, in any professional or amateur lepidopterist who is familiar with the phenological status quo of giant silk moth life cycles.

HISTORIC 'NORMAL'

For the reader interested in how an inner-city Chicago tween-naturalist (me) got hooked into an obsession with Polyphemus Moths, read my opening column in the June 2014 newsletter, *A Moth in the Face Ignites a Lifetime Liaison* (<http://naturediscovery.net/pdf/WILD%20TIMES%20June14%283%29.pdf>).

I've been raising Polyphemus Moths (as well as other giant silk moth species, i.e., Cecropia, Luna) extending back to my youth for over fifty years. As a professional through Nature Discovery, for close to forty of those years to the present, I've introduced countless audiences to its life cycle, behavior and ecology; that includes providing opportunities for interested parties to raise their own Polyphemus and other larvae with complete care instructions (Contact us next June if you'd like to try this.).

It is important to point out that all this long-term husbandry of hand-reared individuals has never ensued completely sequestered from the wild local Polyphemus population. Every generation I've raised since youth has, in fact, been purposely connected to the local wild population that existed where I lived (Read *I Know Why the Caged Moth Mates*:

<http://naturediscovery.net/pdf/WILD%20TIMES%20June17.pdf>).

I've experienced the timing of the four stages of the Polyphemus life cycle (egg, larva, pupa, adult) in intimate and repeated detail. The *duration* as well as *seasonality* of the process has always been well-established, nearly like clockwork; what I have come to know as 'normal.'

In fact, we can visualize the normal year in the life cycle of a Polyphemus as a clock-faced pie chart with the duration of each of the four stages represented as minutes in the hour: Amazingly, the adult stage occupies only about a minute-and-a-half; the egg stage barely over three minutes; the larval stage around eleven minutes; leaving the pupal stage within the cocoon to encompass a whopping forty-four minutes of the hour.

From a seasonal perspective: Historically, for ten out of twelve months of the year in conditions consistent with northern latitudes the moth's life cycle is suspended in the pupal state through the three coldest of the four seasons. It rushes through the other three stages in less than one season. Here is how it plays out...

If the temperature is warm enough on a day in early-to-mid June at this latitude, wild moths that spent the winter as pupae sequestered in cocoons emerge. That night, fresh males zero-in on pheromone-releasing females and they copulate. Over the following night or two the fertile female flutters through the trees in search of native maples, oaks, cherries, lindens and a few other native tree species. She lays over two hundred eggs but just a handful at a time upon each stop. This is the last act of her year-long life-drama before she weakens and dies – often, by way of a bird's bill or by a multitude of tiny pincers from foraging ants when she is located by them on the ground.

Eleven or twelve days later the widely-distributed eggs hatch, and tiny larvae begin to feed on the leaves. Through mid-summer they grow in exponential fashion. However, most perish somewhere along the way; victims of a host of invertebrate and vertebrate caterpillar-seeking predators. Six weeks later, around mid-August, the lucky few that remain are enormous by caterpillar standards – about three inches in length, accordion-shaped, and very girthy.



A large, thick-bodied, late 5th instar Polyphemus feeds on a Wild Black Cherry leaf.

The fat caterpillar crawls down from the tree, wraps itself in a leaf and spins a cocoon suspended from a low-growing sprig near the base of the tree or in a nearby shrub. There the pupa will reside in cold-induced diapause throughout winter until the following June.

Everything you just read - as well as everything recorded in field guides and nature journals through the history of modern man about the Polyphemus Moth's life cycle phenology in temperate zones of the United States - is about to change.

THE 'NEW NORMAL'

Generally, as temperature increases, an insect's life cycle accelerates. For species undergoing complete metamorphosis: the incubation period within the egg shortens; the larva eats, and therefore, grows at a faster rate; and the duration of the pupal stage decreases.

Since my youth, field guides have unequivocally stated that Polyphemus, as well as Luna and other giant silk moths were single-brooded in northern states but double-brooded - maybe even triple-brooded in smaller species - in much warmer southern states.

These days, an internet search across various lepidoptera-related sites finds this historically 'normal' information about annual giant silk moth brood numbers in relation to latitude.

I first noticed indications during the summer of 2012 that climate change was beginning to nudge the local Luna Moth population toward double-broodedness. For details of its progression over ensuing years, read the August 2019 column, *Double-brooding Lunas Now a 'Michigan' Phenomenon* (<http://naturediscovery.net/pdf/WILD%20TIMES%20Aug19.pdf>).



A male Luna perches on one of the larval food plants of the species: Black Walnut.

Since this species is notably smaller on average than a Polyphemus the larval stage is also shorter – four-to-five weeks versus six-to-seven in the Polyphemus. However, although a Luna caterpillar may have spun a cocoon closer to the start of August at this latitude in the past, the incidence of cool late-summer nights would begin to take hold, and thus, not induce the pupa within the cocoon to begin development into moth form before the advancing cold of autumn and winter set in. It was destined to remain there until the following June.

Today, many of our Luna Moths as well as wild ones out there routinely emerge from cocoons *before* the calendar flips to June. Larvae are already hatched and munching leaves before mid-June. Many mature larvae are spinning cocoons before mid-July. Then, amid summer's intense heat, within their warm cocoons pupae rush through the stage in just two to three weeks and emerge in moth form by the onset of August. A second brood ensues...

Photos of wild Luna Moths found in August by personal acquaintances as well as from random folks on social media pop up with regularity now. This past August a man from Minnesota emailed to inform me that he was surprised to find a Luna Moth, as he had only seen them before in early summer. When he searched online he found Nature Discovery's column about the onset of double-brooding in Michigan and was prompted to contact me.

As the world continues to warm why wouldn't larger giant silk moths with lengthier larval stages also accelerate to double-brooding status in The North?

I first met Nolen Snyder - an up-and-coming naturalist - as a high school sophomore. Like me, he harbors a special interest in lepidopterans, their life cycles and ecology. Also in common, he finds, raises and observes the larvae of many lepidopteran species. Now in his second year at MSU, he and I stay in regular contact about such matters.

Over last winter, Nolen had several Polyphemus cocoons in his possession. A female emerged from one particularly early, in late May. When he put her in a special 'mating cage' outside overnight, lo-and-behold, she managed to attract a wild male that had also emerged unusually early. The result, larvae hatching from these eggs had a nearly three-week jump ahead of the normal timing for this moth.



A wild male Polyphemus copulates with a female through the 'mating cage.'

This batch of larvae commensed to maturity and spun cocoons by a historically unheard-of mid-July! Then, on July 29, a female moth emerged from one. That evening Nolen put her outside in the mating cage to see if she could attract a wild male that may have also recently eclosed. Sure enough, the next morning there were not one but two males clinging to the outside mesh of the cage, one of which had curled its abdomen through the opening in the wire to successfully copulate with her.

The following night Nolen allowed her to lay a good supply of fertile eggs in the cage before releasing her, then passed some of the larvae of this unprecedented second-brood on to me to raise.

Over the same period, I came across a couple of social media posts from folks who had stumbled upon a wild Polyphemus Moth in August. Nolen also informed me that he saw several other August posts on *iNaturalist* from Michigan or other northern states with photos of recently-encountered wild Polyphemus Moths.

No doubt, over the next handful of years - as we witnessed with the Luna barely a dozen years ago - the northern Polyphemus population will likely accelerate to a completely double-brooded existence over the coming decade as assuredly as the planet's man-made fossil fuel fever will continue to rise. Can Michigan's and the continent's largest giant silk moth – the Cecropia – be far behind?



Day-old Polyphemus larvae.

Akin to the one that opened this column, the following statement may not be noteworthy to anyone (i.e., nearly everyone) outside the 'giant silk moth loop,' but with the account shared above, I've just invited you in...

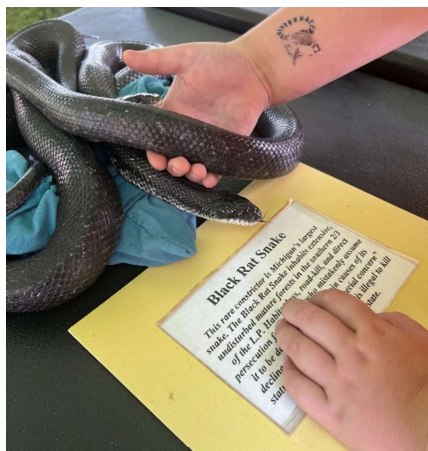
I showed fully mature Polyphemus caterpillars to students in several schools this September.

Educators generally rejoice over unforeseen 'teachable moments' when they suddenly arise, but I'd gladly put this one back in the bottle if I could. All the same, the upended order of the Polyphemus's life cycle is a powerful if unsettling example of how human actions centered around the combustion of fossil fuels are triggering chains of events that are leading to *reactions*, for better or worse, in evolutionarily-malleable species all around us.

Time to revise the field guides...

- Jim McGrath

Around the State in October



- ❖ **Saturday, October 3: 11am-3:30pm. MI Reptiles & Amphibians Exhibit; Williamstown Twp Harvest Festival, Williamston.**
- ❖ **Saturday, October 10: 1-5pm. Michigan Reptiles & Amphibians Exhibit; Cranefest, Bellevue.**
- ❖ **Sunday, October 11: 1-5pm. Michigan Reptiles & Amphibians Exhibit; Cranefest, Bellevue.**
- ❖ **Tuesday, October 13: 7pm. MI Reptiles & Amphibians Presentation; Jackson Audubon Society, Jackson.**
- ❖ **Wednesday, October 21: 3:15-4:45pm. MI Snakes Exhibit; Petoskey District Library, Petoskey.**
- ❖ **Sunday, November 1: 9:30am-3pm. Michigan Reptiles & Amphibians Exhibit; MDNR Outdoor Adventure Center, Detroit.**

Nature Discovery

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

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! Adults, couples and individual families are welcome to schedule an intimate indoor or outdoor 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, in-person, hands-on experiences here are unrivaled at any other nature center or zoo! 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 and bask in pools on the patio! Meet, pet and feed “Milberta”, our hungry Red-footed tortoise.

Handle nearly any of our many Michigan snakes while learning how to tell them apart, then watch them gobble up worms, fish, frogs or mice. Hold or “wear” a gentle 6-foot Black Ratsnake – the largest in the state!

Frogs and salamanders, too!

Identify birds at the feeders. Take a guided walk on our trails to identify birds, bugs, insect and plant life.

Ask about special guided birding outings and nature walks at a natural area of your or our choosing! Inquire about indoor and outdoor volunteer opportunities for high school students, adults, retirees.

*Thank you to all who have
supported our mission
through so many years
including these most
recent donors...*

Grand River Bait & Tackle

Olivia Killips

Ariela Silva



More Reading for Concerned Americans

Bird medicine

<https://www.facebook.com/reel/1069939799288217>

A Supreme Court Battle over Climate Change Begins

https://www.nytimes.com/2026/10/04/climate/boulder-lawsuit-supreme-court.html?campaign_id=54&emc=edit_clim_20261011&instance_id=183396&nl=climate-forward®i_id=97652655&segment_id=227970&user_id=e2b8dd8c9b543fb8c35d5dd30658067e

20 lessons on tyranny

<https://www.facebook.com/reel/1106292194587648>

<https://www.facebook.com/reel/1401336324786003>

Links from recent *Letters from an American* by political historian, Heather Cox Richardson

https://heathercoxrichardson.substack.com/p/october-10-2026-saturday?r=dpj5a&utm_campaign=post&utm_medium=email

https://heathercoxrichardson.substack.com/p/october-4-2026?r=dpj5a&utm_campaign=post&utm_medium=email

https://heathercoxrichardson.substack.com/p/october-5-2026?r=dpj5a&utm_campaign=post&utm_medium=email

https://heathercoxrichardson.substack.com/p/october-6-2026?r=dpj5a&utm_campaign=post&utm_medium=email

No Kings: Vote Early Protest & Mobilization, Saturday, October 17th
<https://indivisible.org/events/no-kings-vote-early-oct-17-2026-10-1130/>

-JM

****Powered by H.I. (certified organic)***

This newsletter thoughtfully and laboriously composed, written, and edited with no artificial input.

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

Study nature, love nature, stay close to nature. It will never fail you. – Frank Lloyd Wright



Statewideindivisiblemi.com



insideclimatenews.org

Become a fan of ***Nature Discovery*** on Facebook!

NATURE DISCOVERY 5900 N. Williamston Road Williamston, MI 48895

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