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***The Largest of Moths Goes Largely Unnoticed***



*The Cecropia Moth is the largest on the continent. It is found here in Michigan and at Nature Discovery.*

With a wingspan of up to seven inches (!) the Cecropia is not only the largest, most impressive moth in Michigan, but in all of North America. Yet, amazingly and disconcertingly at once, most citizens have never seen one in any stage of its life cycle. Nearly just as many have never even heard of it, and so, are clueless of its existence in the environment around them. No wonder Cecropia populations are so drastically reduced compared to those in the 70s.

The Cecropia and Polyphemus - the second largest on the continent - were relatively abundant in the neighborhoods of Chicago back then. While most people still seldom saw them, anyone privy to the intricacies of their life cycles would have a good chance of locating one through most months of the year.

Two of these ‘anyones’ were my friend, Jim Guziec (a.k.a., Goose) - the other half of a young-naturalist dynamic duo that roamed the outdoors in this particular place and time – and me (Read *A Moth in the Face Ignites a Lifetime Liaison*:

<http://naturediscovery.net/pdf/WILD%20TIMES%20June14%283%29.pdf>).

We would walk for miles in a day looking for the cocoons over the winter months. We also came to develop a search mode to locate the massive caterpillars of these species in late July and August hidden and camouflaged over our heads among the foliage of Silver Maples and other deciduous trees that lined residential streets (Read *Polyphemus GO*:

<http://naturediscovery.net/pdf/WILD%20TIMES%20Aug16.pdf>).

Within a few years, Jim and I had become proficient at not only locating them in the wild, but at the art of giant silk moth husbandry: breeding the adult moths, keeping the eggs until hatching, feeding and nurturing larvae, and maintaining the cocoons over the winter (Read *I Know Why the Caged Moth Mates*: <http://naturediscovery.net/pdf/WILD%20TIMES%20June17.pdf>).

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Fifty odd years later...

On May 28 I received a text from Jim, now semi-retired from an industrial machine base manufacturing plant in Frazier, north of Detroit. Of course, he had developed a reputation over the years as the company

nature-question go-to. A few days earlier - one of which he was not working - a co-worker had texted him a photo of a ridiculously huge reddish moth that clung to the brick wall outside the plant.

It was indeed a Cecropia. Jim noted that the feather-like antennae were narrow, confirming that it was a female. Like so many smaller nocturnal flying insects she was drawn irresistibly to the light above her on the wall that had remained lit all night. She was quite literally trapped by it. When daylight broke and the light went off she was to remain there in a dormant state until nightfall.



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The Cecropia is, indeed, highly nocturnal. It virtually never takes wing during daylight hours. In a natural state unimpeded by human activity a day-resting individual would likely cling, hidden among the dense foliage of a tree or shrub. Exposed on a wall, however, a moth is easily spotted and likely to become a meaty meal to a House Sparrow or other bird around the building. Lights that burn all night are not just a danger to the individual Cecropia but to the very production of the next generation. Should the moth be a fertile female she has precious little time remaining in her life to deposit eggs where they belong – among the foliage of various native deciduous tree species.

In Michigan and in all northern states the Cecropia's life cycle is annual. That is, the four stages of its existence – egg, larva, pupa, adult – require one year to run the course. Very unlike the four seasons of the year, though, these stages are starkly unequal in length.

Here is the progression:



*A fully mature 5<sup>th</sup> instar Cecropia caterpillar may approach 5 inches in length.*

Once laid in, say, mid-June, an **egg** takes roughly a week and a half to develop before hatching. The ornate **larva** grows into the largest honking caterpillar of any lepidopteran species on the continent, taking nearly two months to mature before a banana-shaped cocoon is spun around mid-August. Here the **pupa** will remain dormant through the winter months. By mid-June the following year this stage alone will have encompassed close to ten months of the life cycle. Upon emergence, the **adult** moth form flies in the final and shortest stage of the process; so short, in fact, that it doesn't even possess mouth parts with which to feed. It is functional for only a few precious nights – barely enough time to mate and distribute eggs before its demise.

The fact that the adult stage takes up less than one percent of the total span of the life cycle at least partially explains why so many citizens who have lived their whole lives in Michigan have never seen one. Combine it with a vampire-like nocturnal proclivity and it becomes easy to understand the broad lack of sightings.

In the month of June, where is a potential human observer most likely to encounter one? Where there are lights, of course! Gas stations and highway rest areas come to mind, along with any other location where lights burn bright throughout the night.

Naturally, a stark decline in their abundance plays a role in the scarcity of observations. The Cecropia, most other giant silk moths, butterflies well beyond the Monarch, and insects in general around the world,

are declining due directly or indirectly to human activities (i.e., light pollution, broad spectrum insecticide applications, destruction of larval food plants) that work against their ability to survive and procreate.

With a mere sliver of time to launch the next generation, a *Cecropia* that emerges from the cocoon needs to get busy right away, and it does. In the wee, dark hours of the morning the female remains still while releasing a pheromone through her distended ovipositor. Air currents wisp the molecules downwind where they are eventually sensed through the wide feathery antennae of a male who happened to emerge from his own cocoon on the same warm June day. He follows the airborne trail sometimes for a mile or more to successfully locate then copulate with a signaling female.

Shortly after dark the following night they separate. In an agitated state the female flutters through the darkness from one tree to the next, first testing the leaf's 'taste' with receptors on her feet. If it is a palatable species to the larva (i.e., maple, oak, apple, cherry) she will cling to the leaf, curl the tip of her abdomen and quickly lay a short string of eggs on the leaf's underside. Then she takes wing to locate the next appropriate tree.

By night's end her abdomen, bulbous at the start, has lost most of its mass. Two hundred or more eggs had been deposited throughout a several hour period in dozens of short strings amid the foliage of select trees and shrubs across a convoluted swath a mile or more in diameter. Wings that were in perfect form at the start of the night are now peppered with small cracks and divots – accumulated wear from countless collisions with leaves, twigs and other obstructions as she fulfilled her task.

Throughout the next night, her vivacity has notably waned. She labors to flutter from one tree to the next, yet, driven to disperse her eggs she still manages to oviposit another fifty or so before day break. Few eggs remain in her shrunken abdomen. Her extremities have begun to desiccate and grow brittle. An antenna may have broken in half during one collision. A few of her six feet, necessary for clinging to leaves and branches, may also have snapped off amid the rigors of her duty.

The following day she hangs precariously from the foliage in the maple on which she deposited her final few eggs. A wind gust tosses the branch. She loses her grip and floats to the ground. In such an exposed state only a few minutes pass before a Blue Jay, searching for protein to deliver to her nestful of young, spots the moth, snatches it from the ground and flies off.

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The next day at the plant, Jim was not surprised to see that the moth was gone, but also knew that a giant silk moth female that cannot find or reach a suitable spot to deposit her eggs in time cannot hold them back. He scanned the bricks under the light and soon spotted fifteen eggs massed together on one brick. With shells the texture and strength of smooth, hard seed hulls he easily plucked them off the brick without damaging them.



Knowing that we kept and raised a literal 'farm' of *Cecropias* and other butterfly and moth larvae at Nature Discovery every summer to use in an array of educational capacities, he contacted me and relayed the back story. I expressed surprise that they found a *Cecropia* moth in late May, as the cocoons in my possession rarely eclosed before the second week of June. Indeed, at that time no moths had emerged from about twenty *Cecropia* cocoons that I had overwintered.

Jim dropped the eggs in an envelope and mailed it to me. It arrived a few days later. Unfortunately, it must have gotten passed through the hard rollers of a sorting machine as about half of them had been crushed. I placed the remaining eggs into a dry jar where a few days later eight bristly black larvae hatched.

Fast forward five weeks. Four caterpillars perished along the way but the remaining four are well into their fourth instar and nearly two inches in length. In another two weeks they will exceed four inches in length and will have attained the girth of a hot dog before spinning cocoons.

Our *Cecropias* emerged from cocoons on their normal schedule. When a male emerges I simply release him out the back door at dusk. In order to acquire fertile eggs so as to keep and grow more over the summer I place a newly-emerged female in my fashioned chicken wire 'mating cage' and place it on the picnic table on our patio overnight. By morning her abdomen is connected to that of a wild male which she attracted overnight. The following night I allow the male to fly away, but since the trapped female cannot hold her eggs back, she will commence to lay eggs on the interior wooden frame of the cage. An hour or two after dark several dozen eggs will typically have been laid. I'll then release her so she is able to lay the rest where nature intended.



*A Go Like the Wind Montessori day camper marvels at 3 pairs of mating Cecropias.*

During the especially warm week beginning on June 17 three females emerged on the same day. Normally, I would tend to release two and just keep one in the cage to draw a wild mate. However, this particular week I was contracted as a guest naturalist instructor for a day camp at Go Like the Wind Montessori in Whitmore Lake.

I decided to leave all three females overnight in the mating cage. Would there be enough free flying wild males to allow each to attract its own mate? Yes, indeed! The next morning I drove to GLTW and placed the cage in front of the children so they could view the crowd of mating moths. I relayed the full life cycle saga of *Cecropias* and other giant silk moths to them. Each camper was then able to take home a few newly-hatched larvae from the eggs of a previously mated female to raise through the rest of its life cycle.

That evening my intention was to allow the males to fly off but keep the three females in the cage for only an hour or so after dark. By acquiring eggs from three separate mating pairs I'd have that much more genetic diversity in my stock.

Oops, I lost track of time. When I released them before going to bed at around midnight they had laid some two hundred combined eggs in the cage!

The eggs hatched last week and the larvae - just molted into the second instar - are available now for purchase with detailed care instructions. Here is a golden opportunity for you or anyone you know to raise this colorful leggy monster. If you've raised Monarch caterpillars before, you'll understand why we refer to this experience as: *Like raising Monarchs on steroids!*

This is hardly just kid stuff. While the experience is an educational and engaging summer vacation project for the school-aged youth, we regularly encounter adults who are just as enthralled with the experience, if not, more. They also understand that their effort, in the end, acts to potentially *boost* the local population. Well over ninety percent of naturally-existing *Cecropia* caterpillars don't survive long enough to spin a cocoon. Predators abound. While birds certainly take their share, invertebrate caterpillar hunters are far more prevalent: spiders, ants, wasps, tachinid flies and assassin bugs to name a handful.

By providing it nutrition in a venue free from predatory pressure the human caretaker's dedication assures the growing caterpillar far better odds of survival to adulthood, where otherwise it would have almost certainly perished. Next June, each healthy moth released into the dusk represents another opportunity for the production of a new generation that likely would not have existed without your help.

*-Jim McGrath*

*Raise  
Caterpillars of  
Cecropia and  
Luna Moths!*

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

*Semi-grown larvae available  
for sale now while supply  
lasts.*

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

*Contact us to make  
arrangements.*



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the years including these most recent donors ...*

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*A Hermit Thrush sings  
from an exposed perch over a young  
Jack Pine stand during our Kirtland's Warbler  
Guided Birding Trip in mid-June.*

*Photo by Gregg Landick.*

# 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 native to our state, as they swim in pools at your feet. Meet, pet and feed “Milberta”, our always hungry Red-footed tortoise.

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. Take a guided walk on our trails to identify birds, insects, trees, vines, and invasive plants.

Check out our giant silk moth farm and even arrange to take some home to raise into large, beautiful moths.

Contact us for more information or to make an appointment.



*A Luna blends into the walnut leaves.*

# *Around the State in July*

- ❖ ***Monday, July 8: 4:30, 6 & 7:30pm. MI Reptiles & Amphibians Presentation; Troy Public Library.***
- ❖ ***Saturday, July 13: 10am to 3pm. MI Reptiles & Amphibians Exhibit; MDNR Outdoor Adventure Center, Detroit.***
- ❖ ***Sunday, July 14: 10am-2pm. MI Snakes Exhibit; Eastern Ingham Farmers Market, Williamston.***
- ❖ ***Wednesday, July 17: 2pm. MI Reptiles & Amphibians Presentation; Saranac Public Library.***
- ❖ ***Thursday, July 18: 2pm. MI Reptiles & Amphibians Presentation; Clarksville Public Library.***
- ❖ ***Saturday, July 20: 2-5pm. MI Amphibians Presentation; 11am; Betsie Valley District Library, Thompsonville.***
- ❖ ***Thursday, July 25: 2pm. MI Wildlife Presentation; Wayne Public Library, Detroit.***
- ❖ ***Friday, July 26: 7pm. MI Wildlife Presentation; Hartwick Pines State Park, Grayling.***
- ❖ ***Saturday, July 27: 1pm. MI Snakes Presentation; Hartwick Pines State Park, Grayling.***
- ❖ ***Wednesday, July 31: 1pm. MI Turtles Presentation; Huron Master Gardeners, Huron County Fair, Bad Axe.***



## *More Reading for the Environmentally Concerned*

[https://apnews.com/article/supreme-court-chevron-regulations-environment-4ae73d5a79cabadff4da8f7e16669929?utm\\_source=copy&utm\\_medium=share&fbclid=IwZXh0bgNhZW0CMTEAAR3QYK1nUTj4pBzV-6\\_ZRMnsb-NmPPKvdvup\\_6T0batHOSHntBK26fU96\\_Y\\_aem\\_MwbNT0e\\_1nhX1A9N-2TUkg](https://apnews.com/article/supreme-court-chevron-regulations-environment-4ae73d5a79cabadff4da8f7e16669929?utm_source=copy&utm_medium=share&fbclid=IwZXh0bgNhZW0CMTEAAR3QYK1nUTj4pBzV-6_ZRMnsb-NmPPKvdvup_6T0batHOSHntBK26fU96_Y_aem_MwbNT0e_1nhX1A9N-2TUkg)

[https://www.nytimes.com/2024/06/26/climate/trump-clean-energy-china.html?campaign\\_id=34&emc=edit\\_sc\\_20240702&instance\\_id=127743&nl=science-times&regi\\_id=97652655&segment\\_id=171109&te=1&user\\_id=e2b8dd8c9b543fb8c35d5dd30658067e](https://www.nytimes.com/2024/06/26/climate/trump-clean-energy-china.html?campaign_id=34&emc=edit_sc_20240702&instance_id=127743&nl=science-times&regi_id=97652655&segment_id=171109&te=1&user_id=e2b8dd8c9b543fb8c35d5dd30658067e)

[https://www.mlive.com/public-interest/2024/07/michigans-rarest-butterfly-is-going-extinct-scientists-are-trying-to-save-it.html?fbclid=IwZXh0bgNhZW0CMTEAAR3IeKo0ot98gbEAOW2bdTkBA48mZ1OYY5gGExCPzLUAVRq2dzp-C2H\\_pkg\\_aem\\_x7ThfY377g6hgSFDB5-1\\_g](https://www.mlive.com/public-interest/2024/07/michigans-rarest-butterfly-is-going-extinct-scientists-are-trying-to-save-it.html?fbclid=IwZXh0bgNhZW0CMTEAAR3IeKo0ot98gbEAOW2bdTkBA48mZ1OYY5gGExCPzLUAVRq2dzp-C2H_pkg_aem_x7ThfY377g6hgSFDB5-1_g)

-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 CO<sub>2</sub>  
Cowspiracy.com

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



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