



*Normally a June phenomenon, just days away from August this wild male Luna Moth was attracted by a female (behind) that we put outside overnight.*

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# ***Double-brooding Lunas Now a “Michigan” Phenomenon***

Double-brooding of Luna Moths has become a reality in Lower Michigan, and we’ve got the evidence.

Historically, in the northern states giant silk moths - namely *Cecropia*, *Polyphemus*, *Promethea* and *Luna* - have been considered “single-brooded,” meaning that it takes a full year for the species to traverse all four metamorphic stages of its life cycle. Based on decades of personal experience, varying a bit between species (*Promethea* and *Luna* are smaller), the duration of the four stages break down approximately like this to total 52 weeks: Egg ~ 1.5 wks (June); larva ~ 6-8 wks (June to mid-August); pupa ~ 38-42 wks (mid-August to June); adult ~ 0.5 wk (June).

Since my youth I recall reading in various field guides that these species are double-brooded *only* in the southern states. Such statements are also easy to find today on many insect or lepidoptera-related websites. The details of double-brooding go something like this...

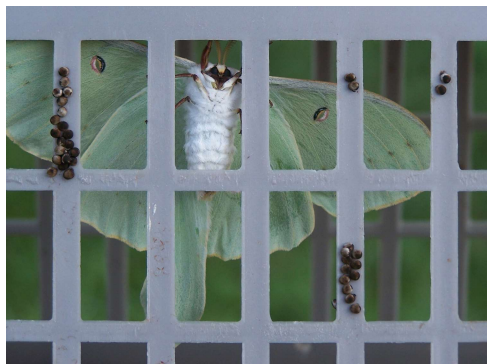
Earlier springs combined with warmer ambient temperatures result in moths emerging, mating and egg-laying a few weeks earlier than in northerly climes. Steamy early summer conditions then induce the caterpillars to rush through the stage perhaps one to two weeks faster than northern caterpillars. By mid-July these larvae spin cocoons then molt into the pupal stage. Torrid mid-summer temps induce emergence with two weeks, and thus, the onset of another generation of moths a mere two months since their parents flew. Thus, there are still plenty of warm weeks ahead for this second brood of larvae to eat and grow on the leaves of the native tree or shrub of their choice and spin cocoons by mid-September. These pupae will then remain dormant through the colder months.

Beginning in the record heat-setting summer of 2012, then sporadically in ensuing years to the present, we’ve noticed that warmer summers here in Michigan were nudging the smaller *Promethea* and *Luna* moths more quickly through the larval stage of their life cycle than in the past. I would “correct” the cycle by placing the cocoons in the refrigerator to ensure moths would not be emerging later in the summer.

This summer, however, our *Luna* caterpillars were spinning cocoons - like southern caterpillars - by the second week of July. I decided to not refrigerate the cocoons this time and let their exposure to the ambient

warm temperatures play out. Moths began to emerge last weekend, barely more than two weeks since the cocoons were spun.

On the night of July 28 I put a female outside in the “mating cage” so that she could release her pheromone to attract a mate. The question, *Was the wild local population on the same schedule as the larvae we reared on walnut leaves in the nature center?* Apparently, yes! At first light I opened the back door to the sight of a large male affixed to the outside of the chicken wire cage, its abdomen firmly attached to that of the female through an opening between wires.



*Female Luna and eggs.*

It didn't take long to eliminate the possibility of this occurrence being some sort of fluke. Two nights later I put another freshly-emerged female out. A new male had been drawn to her lure. The next day yet another female emerged. That night, ditto. Lunas are so highly nocturnal we would never know they're out there, procreating while we sleep, if it weren't for the lure of the pheromone suddenly at our disposal. The night after mating wild females will flutter through the darkness seeking leaves of area walnuts, hickories and birches, among others, on which to oviposit. However, those we keep in the cage cannot hold their eggs for long and deposit them on any available surface.

We're hardly in a position to judge the advance of Luna Moth double-brooding northward into Michigan as *good* or *bad*. However, the onset of still another example by which the behaviors and life cycles of species in the natural world are being affected and altered by carbon emissions-induced climate change is, regardless, unsettling.

Educationally, however, we might as well take advantage of these late summer Lunas. Do you know of a club or organization (youth or adult) that would like a presentation about Lunas and the opportunity for members to raise their own caterpillars? Would you like an opportunity yourself to raise a few of these caterpillars at home? All you need is access to the leaves of a walnut, hickory or birch tree and a set of the detailed, printed care instructions we provide. When the caterpillars eventually spin cocoons by mid-September just store them in an unheated garage or in the back corner of your refrigerator over the winter. Contact us to make arrangements or attend our next open Sunday program, on August 11. All participants will get to bring some home to raise! Details straight ahead...

*-Jim McGrath*

## Coffee Break, Friday, August 9

Jim is scheduled to appear on Friday, August 9 at 9:15am, discussing Luna Moths and more. The show airs weekdays from 9 to 10am on 89.7 FM. Listen live online at [lcc.edu/radio/onair/](http://lcc.edu/radio/onair/) or watch it live (or later in the day at 6pm) online at [lcc.edu/tv/watch](http://lcc.edu/tv/watch). We will post a reminder on Facebook prior to the evening airing.



## Thank you!

***To the STANFIELD FAMILY for their generous monetary donation. Additional thanks go out to CAMERON & ISAAC STANFIELD and ELISABETH BAUMANN for their much needed volunteer efforts in and around what we call the biggest, little nature center in Michigan.***

# Raise Luna Moths at Home

*Sunday, August 11*



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

Many consider the Luna Moth the most beautiful of North American moths. Populations of this historically uncommon species seem to be making a resurgence in Lower Michigan. At 2pm, attend our original presentation, *Raising Luna Moths at Home*. Beautiful Powerpoint images and live specimens enhance detailed information about this giant silk moth's life cycle, as well as step-by-step tips on how to raise caterpillars at home. Then, at the presentation's conclusion all participating individuals/families will be given three fertile eggs or newly-hatched larvae to take home and raise until they spin cocoons in mid-September. Complete printed care instructions are included.



*A large Luna caterpillar's ability to melt into a background of hickory leaves is nothing short of remarkable.*

As always, before, during or after the presentation visit our Michigan reptiles & amphibians zoo. Hold a rat snake, help feed turtles in the outside pools, catch insects to feed frogs, and more. Check out large, munching caterpillars of a number of giant silk moths and butterflies. Our knowledgeable staff can help visitors of any age make the most of your visit. Photo ops, galore!

## ***Around the State in August***

- ❖ ***Friday, August 16: 7:30pm. MI Turtles Presentation; Hartwick Pines State Park, Grayling.***
- ❖ ***Saturday, August 17: 1:30pm. MI Forest Herps; Presentation; Hartwick Pines State Park, Grayling.***
- ❖ ***Saturday, August 10: 10:30am. MI Reptiles & Amphibians Presentation; Huron Co Nature Center***
- ❖ ***Saturday, August 24: 11am. MI Frogs Presentation; MI Sierra Club Retreat, Stony Lake.***
- ❖ ***Saturday, August 31: 2-5pm & 7pm. MI Reptiles & Amphibians Exhibit & Presentation; Ludington State Park.***

*Brown-hooded Owlet larva.*





# *Planting Trees, Cutting Trees, and Climate Change*

It is refreshing to see countries around the world taking the threat of climate change as the grave existential threat - to people and to life on the planet as we know it – that it is. Too bad the country that is the richest and, therefore, positioned to make the biggest strides to combat it isn't yet one of them. Movements like this one underway in Ethiopia of all places (Hey, isn't that on he-who-shall-not-be named's list of s\*\*\*hole countries?) should inspire, if not shame us into movements here of similar magnitude.

<https://www.npr.org/2019/07/31/746855294/ethiopians-plant-350-million-trees-as-part-of-green-legacy-program>

Of course, planting trees here while countries like Brazil continue to cut away massive amounts of the figurative lungs of the planet down there is an exercise in futility. "Continued tropical forest loss pulls the rug out from under efforts to stabilize the global climate," said Frances Seymour, a senior fellow with the World Resources Institute.

<https://insideclimatenews.org/news/25042019/deforestation-annual-global-tree-loss-tropics-climate-solution-carbon-storage-wri>

-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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