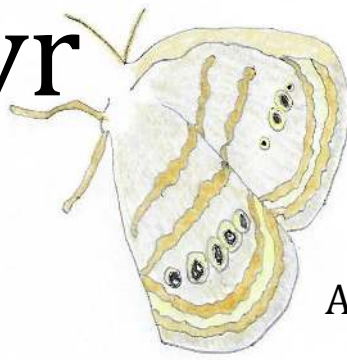


# The Lonely Satyr

For Butterfly Enthusiasts  
of Northeast Indiana



August 1, 2023

## *Special Spots?*

*by Leslie Arnold*

Just recently, in June, a group of curious researchers published their curious findings in the journal *PLOS ONE*. Their journal article is titled, “How the monarch got it spots: Long-distance migration selects for larger white spots on monarch butterfly wings.”

Their study tries to help answer a very big question about Monarchs. *How do they do it...migrate all that way?*

The researchers were trying to find out if the colors of a Monarch, specifically the amounts of certain colors, help the Monarch to succeed in migration to an overwintering site. The colors of other migratory animals like birds have been studied. It has been shown, through study, that dark wings create a “pocket of warm air” that reduces drag. (pg. 2) Does the black on a Monarch’s wings give the same benefit?

The researchers collected images of hundreds of wings along different stages of the migration route. Using some very cool scientific equipment (pg. 4), they measured the percentages of black color and white spots on the wings. They discovered the “successful migrants tended to have less black on their wings (about 3% less), but also more white pigment (about 3% more)” than the unsuccessful ones. (pg. 1) Is there a perfect combination of black band width and white spot size for the Monarch to create the perfect amount of heating and cooling in flight? Just as the researchers considered, it is important to remember that along the migration route, air temperature and sunshine increases the further south the butterfly travels (pg.2)



Above: Monarch

Photo credit: Josh Hall, Blue Heron Ministries

Mike Metz Fen, Pine Knob Park, Howe, IN

July 2023

If you'd like to listen to a radio spot from NPR's "All Things Considered" about this journal article, you can find it here:

<https://www.npr.org/2023/06/21/1182115459/monarch-butterfly-white-spot-migration>

It does include a transcript if you prefer to read.

## *Special Spots continued*

There are many questions left unanswered by their findings. They are not conclusive enough to dust our hands and say, "Solved! They get to Mexico because of 3% here and 3% there." The group admitted there are many holes to be filled.

There was another study that actually concluded the exact opposite about the black on a Monarch's wings. But, it is important to note that the contradicting study focused on the spring migration, while this study focused on the fall migration. Everyone knows spring and fall weather differ greatly. Perhaps they don't disagree, but instead, add their own clues to solving the migration mystery. (pg. 6)

Another problem with the idea of the black and white colors assisting with heating and cooling is their very location. Why are the white spots clear out on the edge instead of near veins and the body? A study of the distinct V-shaped soar of the Monarch may yield some clues as to how air flows around the wings and through the V-shape. (pg. 7) I now envision their V-shape wings like two little portable solar panels. The researchers have plans to take wings into wind test chambers next.

There is also the possibility the colors do aid in migration success, but not necessarily in the actual mechanics of flight. I have always been told the colors of a Monarch are a warning to predators. Obviously the Monarchs who arrive successfully to the overwintering location have managed to avoid and/or deter predators. I cannot help but think of other animals with sharply contrasting black and white color combinations like woodpeckers, or even Zebras! The contrasting colors supposedly break up the outline of the body and make it harder for predators to snag up their prey. The researchers did determine that female Monarchs had more black and bigger white spots. (pg. 6, 7) It seems to make sense she would want to make herself as unappealing as possible.

Maybe the simplest solution is the correct one. Maybe the answer to the color question actually lies in the thin thread connecting all these incredible thoughts together. Perhaps the colors serve more than one purpose in a successful migration.

The journal article concludes by stating they feel comfortable the colors, in certain amounts, do serve a purpose in helping the Monarch to migrate. But, to determine exactly what function will require more research.

I find this kind of information intriguing. Ever since reading the journal article I have not looked at a picture of a Monarch the same way. Now I carefully observe the location and size of each spot and band. I notice the patterns and wing shape more. It is incredible to think that nothing is random about even the tiniest butterfly. I love that there are people out there asking such incredibly curious questions. We should never stop asking questions about the world we share with butterflies.

## REFERENCE

If you would like to read the finer details of the journal article, you can find it here:

Davis AK, Herkenhoff B, Vu C, Barriga PA, Hassanalian M (2023) How the monarch got its spots: Long-distance migration selects for larger white spots on monarch butterfly wings. PLoS ONE 18(6): e0286921. <https://doi.org/10.1371/journal.pone.0286921>

## *Local Sightings*

Right: Monarch  
Photo credit: Andy Barry  
Eagle Marsh, Fort Wayne, IN  
7/26/23



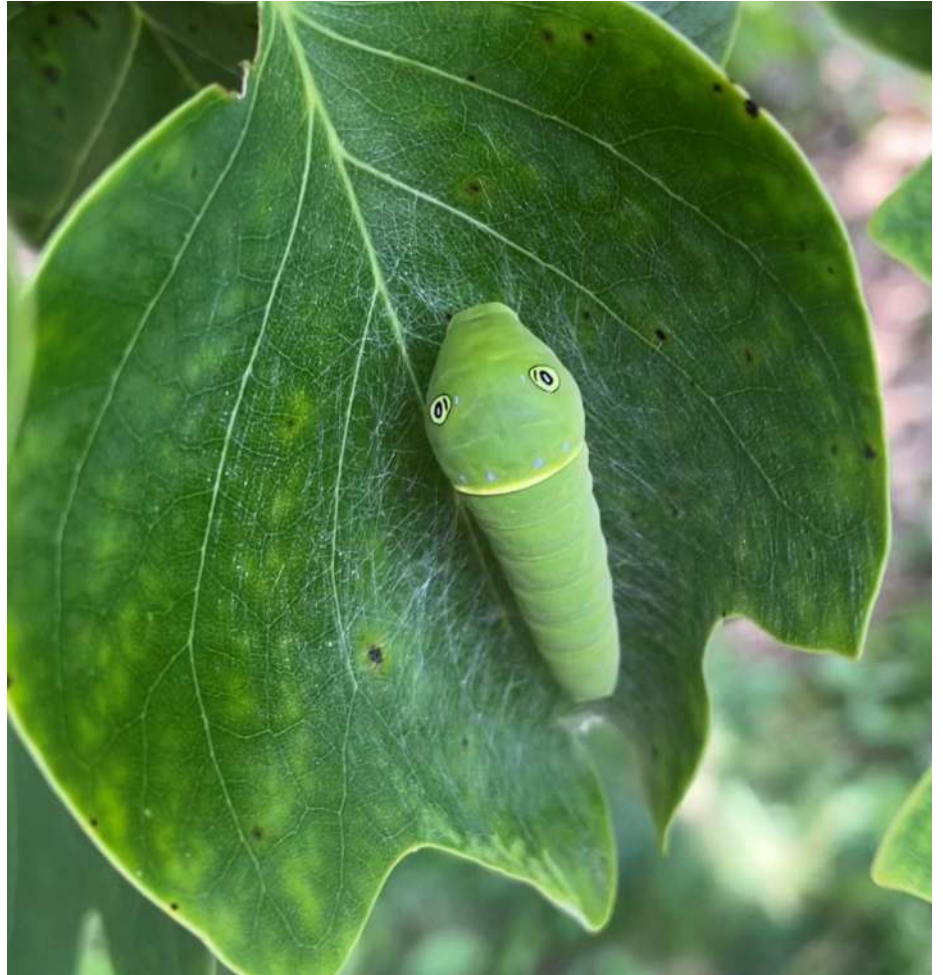
Right: Pearl Crescent (Northern?)  
Photo credit: Russ Voorhees  
Eagle Marsh, Fort Wayne, IN  
7/10/23

Russ also reported a Summer Azure on 7/31/23  
at Eagle Marsh



## *Local Sightings*

Right: Tiger Swallowtail caterpillar  
Photo credit: Gloria Lapp and  
Keegan Tippmann  
Metea Park, Fort Wayne, IN  
7/23/23



Right: Painted Lady  
Photo credit: John Brittenham  
Mike Metz Fen, Pine Knob Park, Howe, IN  
7/29/23

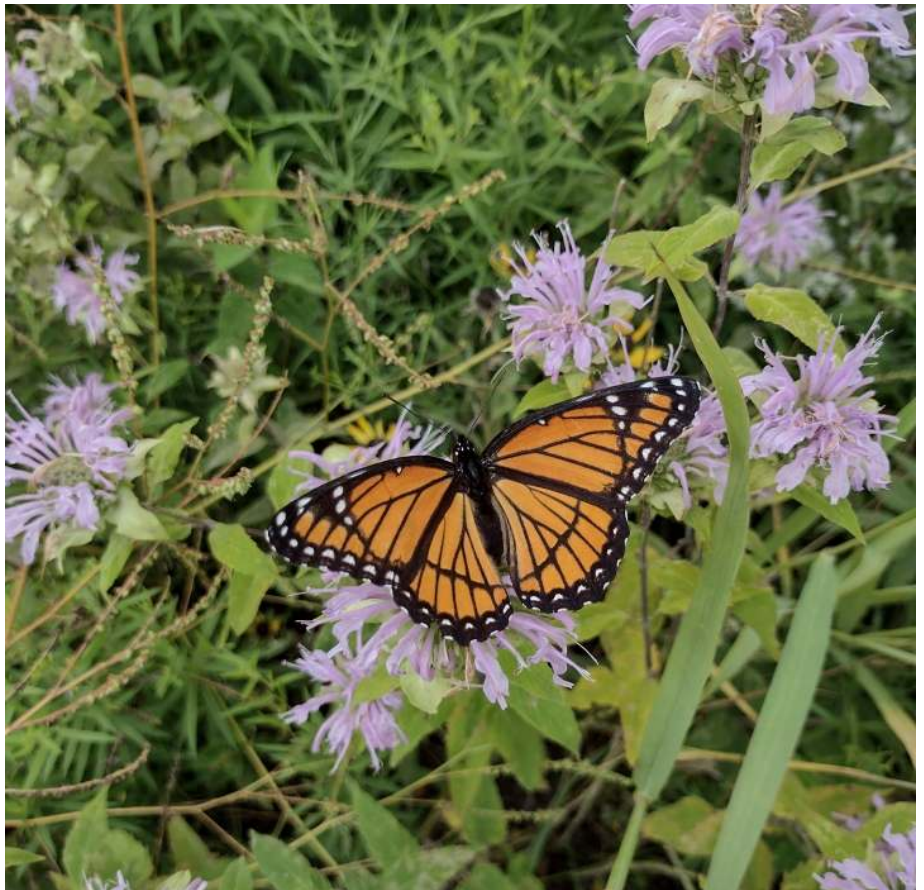


## *Local Sightings*

Right: Giant Swallowtail  
Photo credit: Andy and Linette Barry  
Fort Wayne, IN  
7/24/23



Right: Viceroy  
Photo credit: John Brittenham  
Mike Metz Fen, Pine Knob Park, Howe, IN  
7/29/23



## Community Calendar

Contact the event host prior to traveling to make sure it's not cancelled.

### Marvelous Monarchs

Tuesday, August 1, 1:00 p.m.

Pokagon State Park, Nature Center, Angola, IN

See Monarch caterpillars and learn more about them. Free with park entrance fee.

### Monarch Parenting 101

Saturday, August 5, 11:00 a.m.

Stanley Schoolhouse, Chain O' Lakes State Park, Albion, IN

Meet the naturalist to discover how to find Monarch eggs and caterpillars and the necessary duties to raise and release them successfully. 1 hour program. Free with park entrance fee.

### Monarch Migration

Saturday, August 12, 11:00 a.m.

Stanley Schoolhouse, Chain O' Lakes State Park, Albion, IN

Join a naturalist to learn about the Monarch's incredible journey. If butterflies are available, you can participate in tagging and release. 1 hour program. Free with park entrance fee.

### Monarch Mania

Saturday, August 19, 10:00 a.m. - 2:00 p.m.

Chain O' Lakes State Park, Albion, IN

Craft table, butterfly tagging (when butterflies are available), pollinator gardens, and Monarch Olympics. Free with park entrance fee.

SAVE THE DATE

### Monarch Festival

Sunday, September 10, 12:00 - 5:00 p.m.

Little River Wetlands Project, Fort Wayne, IN

Visit their website <https://www.lrwp.org/events> for more information or to register as a vendor or volunteer.

(No endorsement or discrimination of specific events or vendors on this community calendar is intended or implied.)

## Butterfly House

Sarett Nature Center

2300 Benton Center Rd.

Benton Harbor, MI 49022

Hours: Tuesday—Sunday, Memorial Day through Sept. 30, or as butterflies persist

Member fee: Adults \$5, Children \$3

Non-member fee: Adults \$8, Children \$4

## Tagging Monarchs - Monarch Watch

<https://monarchwatch.org/tagging/>

2023 Monarch Tags are now available to order:

Online: <http://shop.monarchwatch.org>

Mail, Phone, Fax:

Monarch Watch Shop

c/o Nonprofit Business Solutions

2701 Centerville Rd.

Wilmington, DE 19808

1-800-780-9986

1-877-687-4878 - Fax

If you would like paper copies of tagging instructions and an order form, please let me know and I'll mail you some. According to Monarch Watch, due to our Latitude, our region should begin tagging mid-August.

If you'd like your event information to be in September's newsletter, please turn it in by Aug. 26. Local sightings are my favorite part of the newsletter, so please report what you're seeing. Don't be shy!

Photos are great!

To subscribe and submit, contact:

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