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THE OFFICIAL PUBLICATION OF THE SOUTHERN LEPIDOPTERISTS' SOCIETY ORGANIZED TO PROMOTE SCIENTIFIC INTEREST AND KNOWLEDGE RELATED TO UNDERSTANDING THE LEPIDOPTERA FAUNA OF THE SOUTHERN REGION OF THE UNITED STATES (WEBSITE: www.southernlepsoc.org/)

J. BARRY LOMBARDINI: EDITOR

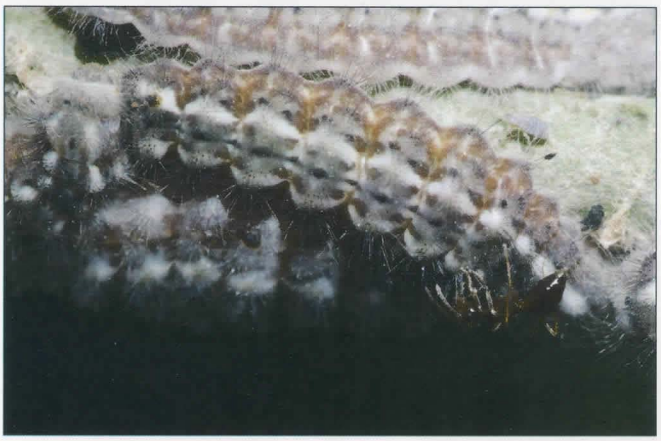
FUN WITH HARVESTERS, *FENISECA TARQUINIUS*

BY

BRYAN REYNOLDS

I gave a photography workshop to a group of botanists from the University of Oklahoma on Tuesday, 19 September. We went to Saxon Park on the south edge of Norman, Oklahoma. This is a small park that has running/walking trails through mixed habitat. We were concentrating on techniques to photograph plants, but as we walked along, I couldn't help checking out any butterflies that would fly by. Anyway, as we entered a wooded area, I saw a satyr, perhaps a gemmed or Carolina, fluttering close to the trail. I mentioned this to the group, but as I got closer, I realized it wasn't a satyr, but a harvester, *Feniseca tarquinius*. I've only seen a couple of these in central Oklahoma, and I've only gotten one decent photo of an adult (on slide film). So, I was thrilled. The butterfly then landed on a leaf of a greenbrier. I then noticed the greenbrier had a ton of aphids on it, to the point that it looked strange, like it was covered in rough bumps. Unfortunately, I didn't






bring my 'grandpa' glasses with me, so I couldn't see any detail. I wanted to get some close-up photos, but I wasn't set up for such high magnification photography, not to mention we were in a deeply shaded part of the woods which would require flash (which was back at the vehicle). I was really hoping there were harvester larvae in among the aphids, but I couldn't tell without my glasses. Well, we had to move on, and I had other commitments right after my program, so I left with the plan of coming back the next day.

The harvester is very unique, in that it is the only butterfly found in North America whose caterpillars are dedicated carnivores. The larvae eat wooly aphids and sometimes other homopterans. Even though this species is found where I live, I had never personally observed any larvae. So, needless to say, I was pretty excited at the opportunity to photograph caterpillars, if they were even there.

The following day, I went back to get photos. It took me a bit to find the exact spot, but after a little searching I found the greenbrier. I also brought my reading glasses and immediately noticed a bunch of larvae along with the aphids as well as a few tending ants. So, I earnestly photographed all of the sections of the vine, along with some close-ups of interesting behavior. After I processed the images, I then got all of the subjects identified.

There were two adult harvesters perched on leaves of the vine on the 19th. I went back on the 20th for photography, and no adults were present. I went back again on 25 September for more photos, and the entire colony was gone. The vine was still there and looked the same, but no insects were on it at all. I searched the immediate area and a lot of the greenbrier was present, but I could not find any more aphids or harvesters. So, this event might be a fleeting phenomenon. I also looked around the original vine for any harvester pupae, but with no luck.

(Bryan E. Reynolds, E-Mail: nature_photo_man@hotmail.com.

Previously published on the Xerces blog.)

The host aphids have been identified by Natalie Hernandez, entomologist and aphid specialist for the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS), as Woolly Maple Aphids, *Neoprociphilus aceris*. The tending ants have been identified by Dr. James Trager, ant specialist from Missouri, as the False Honey Ant, *Prenolepis imparis*. And the host plant has been identified as bristly greenbrier, *Smilax tamnoides*, by Amy Buthod of the University of Oklahoma (she was present with me when I spotted this colony on 19 September).

In the photos, you can see a few of the caterpillars feeding on the aphids. You can also see a few have added aphid parts to their backs. I know the ants receive honeydew from the aphids, and you can see some of the aphids with clear drops of fluid on the tips of their abdomens, but I wonder if the ants receive honeydew from the caterpillars. Or perhaps they emit a calming pheromone?

I enjoyed my brief encounter with the harvesters, ants, and aphid colony. Now that I've seen this phenomenon and know what to look for, I'll be keeping my eyes open for the next encounter with this interesting butterfly.

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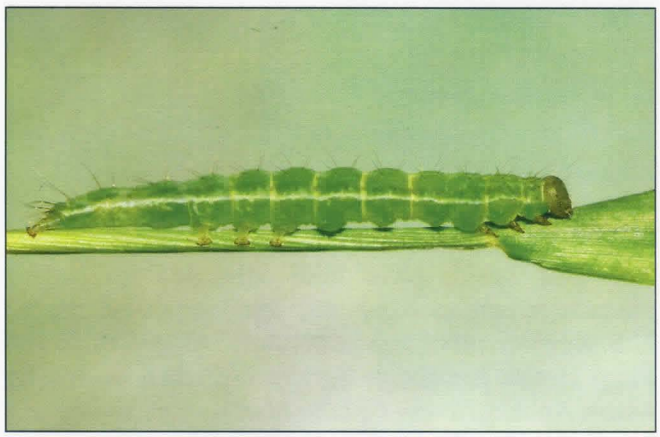
A LOCAL RESIDENT ESTABLISHES A CLOSE RELATIONSHIP WITH A MIGRANT

BY
DELMAR CAIN

At our home I try to weed out introduced species of plants in order to support the local wildlife. One of those plants is the annual, bur clover (*Medicago polymorpha*), an introduced species from the Mediterranean region of Europe. According to the USDA bur clover has found a place in agriculture due to its high protein content and its ability to increase nitrogen in the soil by fixing atmospheric nitrogen in its root nodules. However useful or not for agriculture, it also produces an abundance of spiraled fruit with hooked prickles that fix into the long hair of our golden retriever and make brushing him a real chore. When I find bur clover in our yard I pull it, roots and all.

However, I missed some of the plants in early spring in 2016. In March 29, 2016, I found two green caterpillars of an unknown species munching away on the bur clover leaves. I collected them and continued to feed them with their food of choice. By April 7, 2016, I took a photo of a mature caterpillar. By April 9, 2016, the larva had pupated and it emerged as an adult *Hypena scabra* (Green cloverworm moth) on April 24, 2016. Apparently the local resident recognized the migrant plant as something good to eat. The local resident lived up to every part of one of its common names, "green cloverworm moth". Also our local resident is itself a migrant in some parts of the U. S.



Larger larva collected March 29, 2016, reared on bur clover and pupated April, 9, 2016. Emerged April 24, 2016 [*Hypena scabra*, Green Cloverworm Moth (Fabricius, 1798)].

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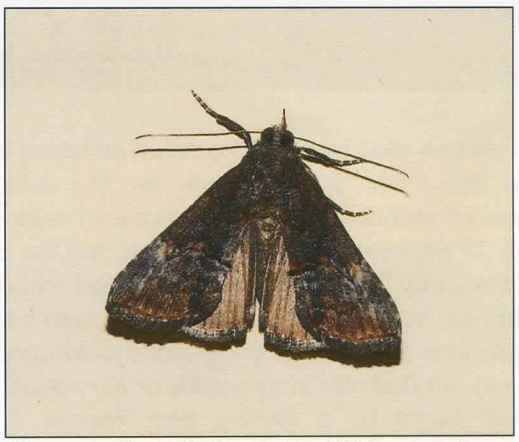

Larva collected March 29, 2016, reared on bur clover and pupated April 9, 2016. Emerged April 24, 2016 [*Hypena scabra*, Green Cloverworm Moth (Fabricius, 1798)].

(Delmar Cain, E-Mail: dlc1942@gvtc.com)

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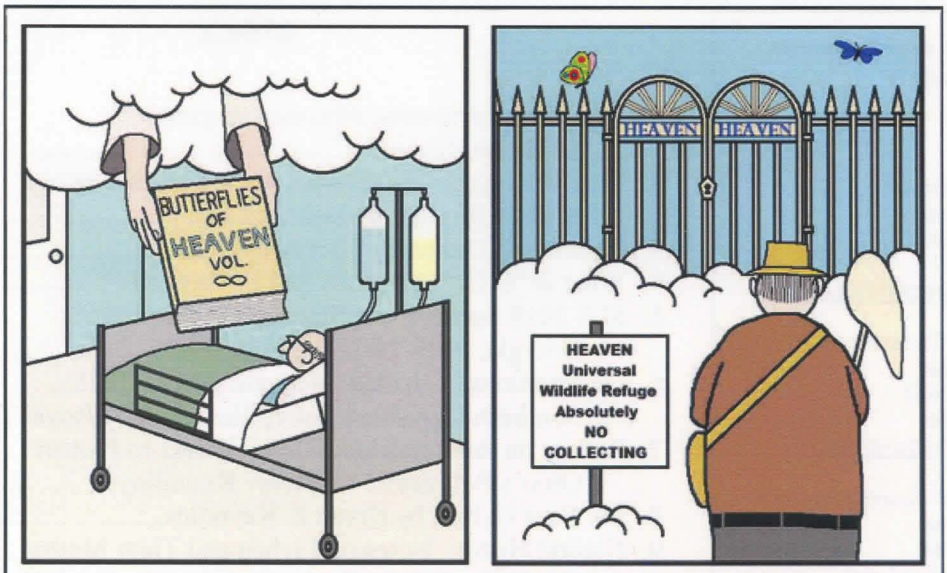
"Cover illustration: First known drawing of a North American butterfly from the Modern Age: Eastern Tiger Swallowtail (*Papilio glaucus*) by John White, North Carolina, 1587 (original design by J.V. Calhoun, 1996)."



Dr. Hemmerschmitten, at a ripe 95 years, widely-respected among his peers, with over 2000 papers, having discovered and described over 500 new lepidoptera, and a collection the envy of the world's best museums, now awaits the final judgement. A vision appears and it's promising.

Alas! The pearly gates and the infinite butterfly fields beyond - beckon the good doctor.

Collector's Corner
Harry Pavulaan

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MANY THANKS TO THE FOLLOWING DONORS TO THE SL SOCIETY

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WHAT IS "O.E."?

BY

LINDA AULD, "BUGLADY"

The Monarch butterfly is our national insect and it is in trouble. Habitat destruction, neonicotinoid chemicals and weed killers, mixed with a heaping helping of parasites, and diseases spell a disastrous recipe for certain doom. It's a wonder that any could live amidst this array of life challenges. And yet, these tiny, fragile creatures have persevered and continue to amaze us with their beauty and their unique ability to migrate over two thousand miles from as far as Canada all the way to Mexican forests to overwinter.

Monarch caterpillars are very picky eaters! They will only eat leaves of the milkweed plant. For decades Monarch caterpillars growing up in our state of Louisiana have been eating Tropical Milkweed, *Asclepias curassavica*, also called Mexican Milkweed, Scarlet Milkweed, or Silky Gold. This species of milkweed has naturalized itself in our state and has become the Monarch caterpillars' mainstay diet over our Louisiana native milkweeds because it is very easy to grow, sprouts and grows quickly, plus Monarch caterpillars love to consume it! Tropical milkweed contains high levels of toxins that make the Monarch caterpillar distasteful to predators such as lizards, wasps, birds, etc. In the insect world, the caterpillar's yellow, black and white stripes it sports are a signal to predators that "I taste bad!"

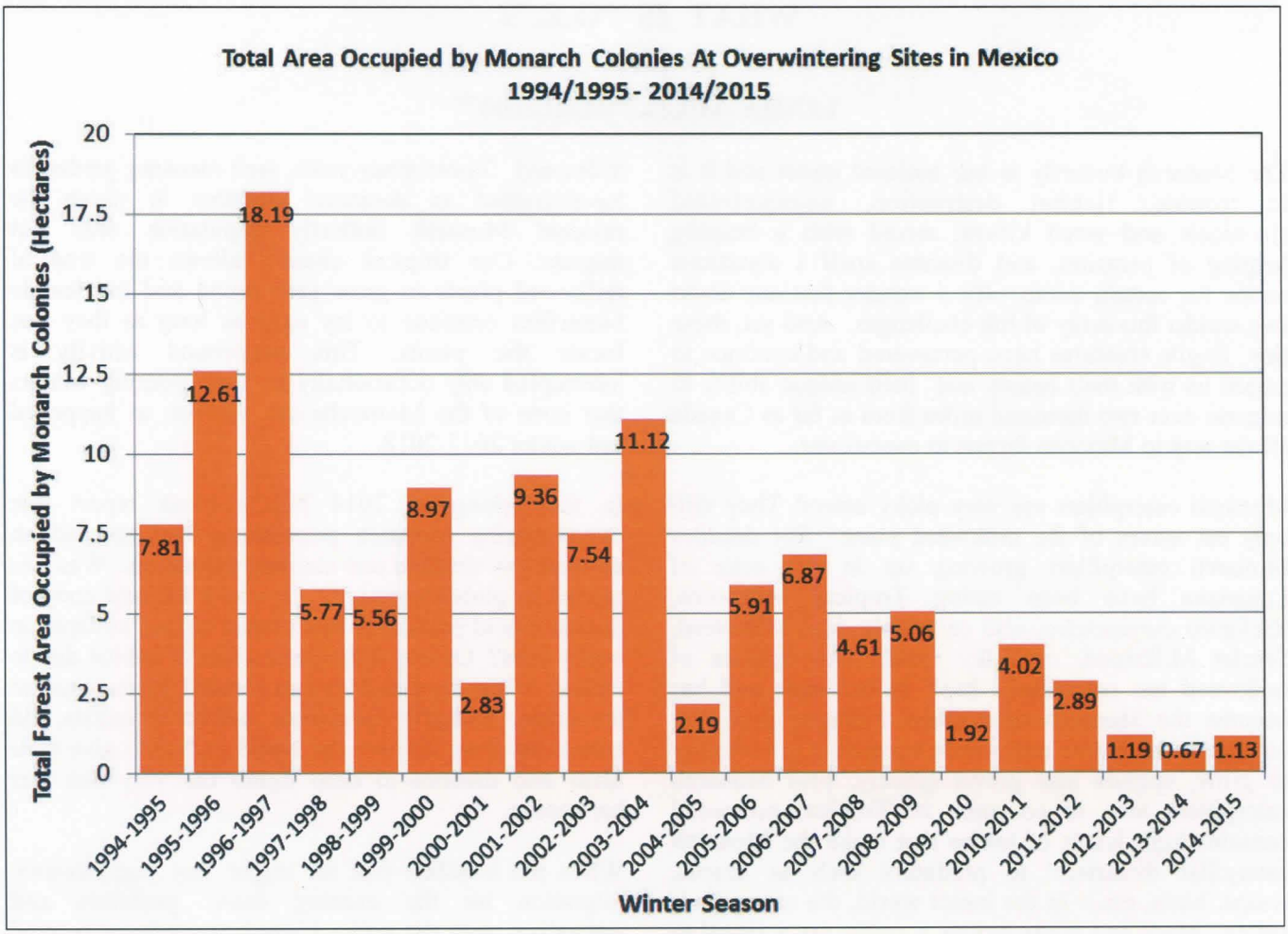
For years, the national conservation group Monarch Watch has sponsored the Monarch Tagging Program which studies the Monarch butterflies' migration habits. Interesting graphs and other findings can be viewed on their website, which shows all of the overwintering population areas and their annual migration routes. Their sister website, Journey North, allows citizen scientists to post their Monarch sightings online to share with other interested folks who like to follow their annual flights.

I personally can report that my raising Monarchs records go as far back as 1983 when I was participating in the Monarch tagging program started by Dr. Fred Urquhart in Toronto, Canada. (Dr. Urquhart is the person whose tagging program helped North Americans discover the Mexican overwintering grounds back in 1975.) Raising Monarchs year round, from January through December, has been and still is common here in New Orleans, using tropical milkweed. In fact, for as long as I can remember, tropical milkweed seeds and plants have been the only milkweed variety readily available in our local garden centers and plant nurseries. My mentor, Frances Welden, has raised Monarch caterpillars on tropical milkweed since the mid 1950's, also using tropical milkweed. These many years, well-meaning gardeners have created an unnatural situation in which the resident Monarch butterfly population does not migrate. Our tropical climate allows the tropical milkweed plants to grow year round and the female butterflies continue to lay eggs as long as they can locate the plants. This year-round activity is interrupted only occasionally by hard freezing winters that none of the Monarchs can survive, as happened last winter 2017-2018.

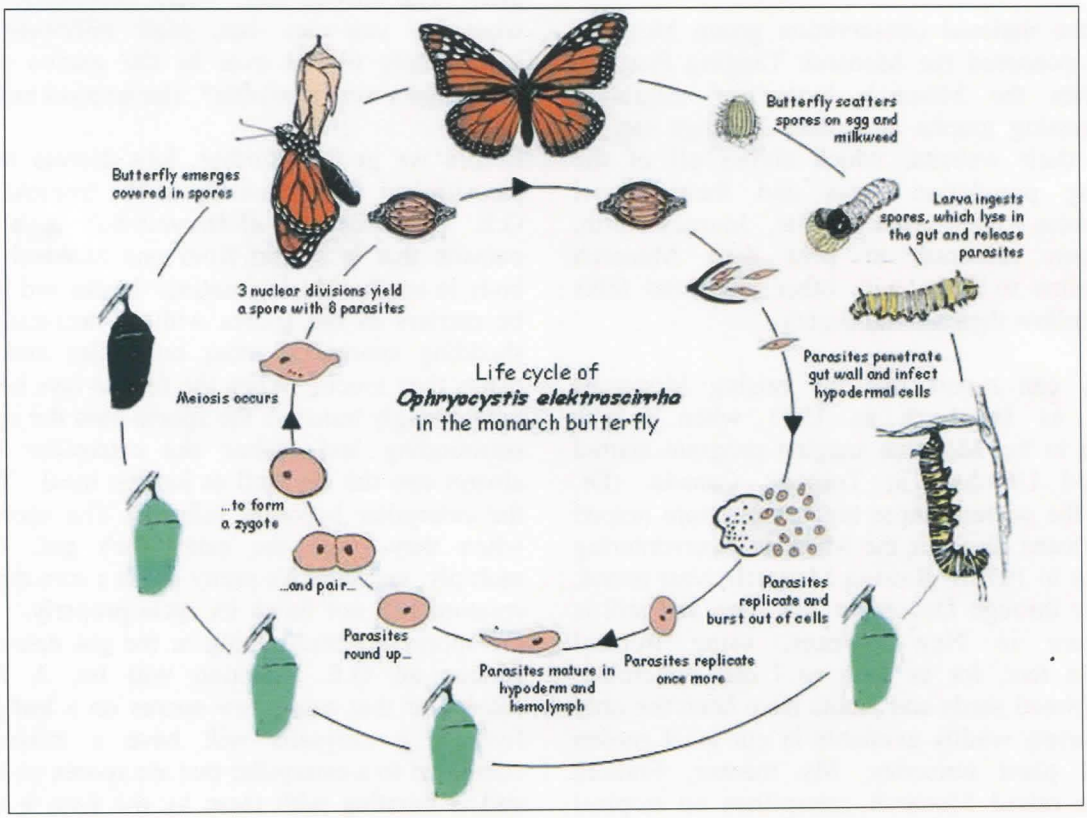
In the Spring of 2014 NBC's bleak report that overwintering Monarch populations had reached an all-time low shocked and alarmed the nation. Was this caused by global warming? Or was it the new array of neonicotinoid pesticides that caused colony collapse in honey bees? Or was it the destruction of habitat due to cutting of the special Mexican forests? In response to the crisis, butterfly specialists, citizen scientists and naturalists from all over the world rushed to give their ideas and theories to help figure out why this was happening.

When the headline that we might lose our Monarch migration hit the evening news, gardeners and naturalists over the entire United States were spurred into action, questioning "What must we do to remedy this?" The answer was, "Plant milkweed—use native whenever you can—but, plant milkweed." We all immediately trotted over to the garden center, and what plants were available? The tropical milkweed!

Before we go any further, let's discuss the dreaded parasite and its relationship to the tropical milkweed. O.E. (*Ophryocystis elektroscirrha*) is a protozoan parasite that is spread from one Monarch butterfly's body to another during mating. Males and females can be carriers of the spores without becoming infected, shedding spores on other butterflies and also onto plants they touch. When the female lays her eggs, she unknowingly transfers the spores onto the eggshell and surrounding leaf. When the caterpillar hatches, it always eats the eggshell as its first meal. This is how the caterpillar becomes infected. The spores activate when they reach the caterpillar's gut. The spores multiply, and then it's pretty much a sure thing that the creature will not finish its cycle properly. How long the spores are multiplying in the gut determines how serious an O.E. infection will be. A fifth instar caterpillar that eats a few spores on a leaf just before forming a chrysalis will have a minor infection compared to a caterpillar that ate spores on its eggshell and is bursting with them by the time it is ready to pupate.

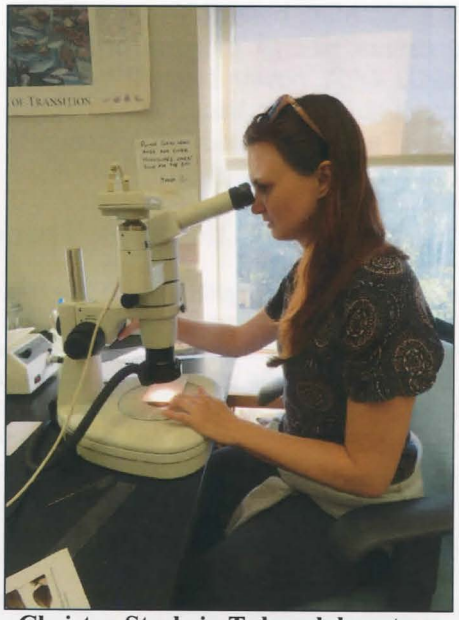


Life Cycle of O.E. in the Monarch butterfly

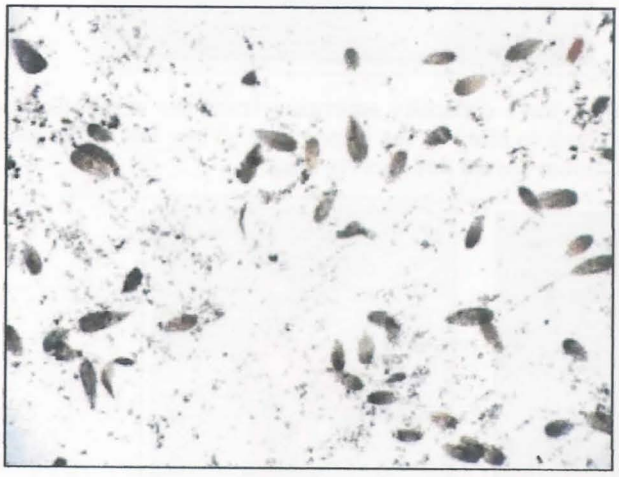


What really clarified the severity of this issue for me was a conversation I had with Christen Steele, a Tulane researcher working locally on the O.E. issue. Christen told me that last fall she monitored 40 gardens in the Uptown-Carrollton-Garden District of New Orleans. Her data showed that our Monarch population was 97.37% sick with O.E. I was totally shocked. I was always in the opinion that, if we did lose our main Monarch migration, wouldn't it be good that we have a separate resident population overwintering here in New Orleans? Well, if 97.37% is sick with O.E., how could this be good? Many folks who have raised Monarchs have witnessed the different stages of O. E. infection but were unaware of what it was or what it meant.

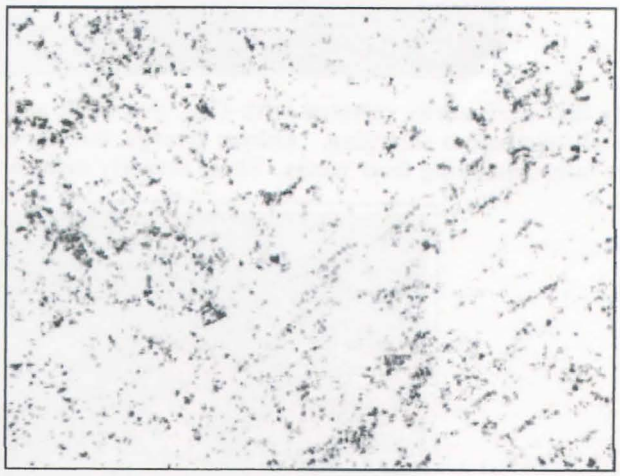
Christen invited me to her Tulane laboratory and showed me how to test the Monarch butterfly for O.E. infection. Holding the live adult butterfly with its abdomen and legs pointing up toward you and the wings pointing down, gently and softly press a piece of clear tape to the abdomen then peel it off. Under a microscope the long oblong objects are the butterfly scales. Dots that look like pepper are the O.E. spores. At high magnification, the spores are shaped like footballs. Any butterfly that tests positive for O.E. should not be released into nature.



Christen Steele in Tulane laboratory



Digital picture of scales and spores obtained from an infected monarch. OE spores look like dust particles in this picture.



Same picture after digitally removing scales. Computer then does the rest. There are approximately 3600 spores in this picture!

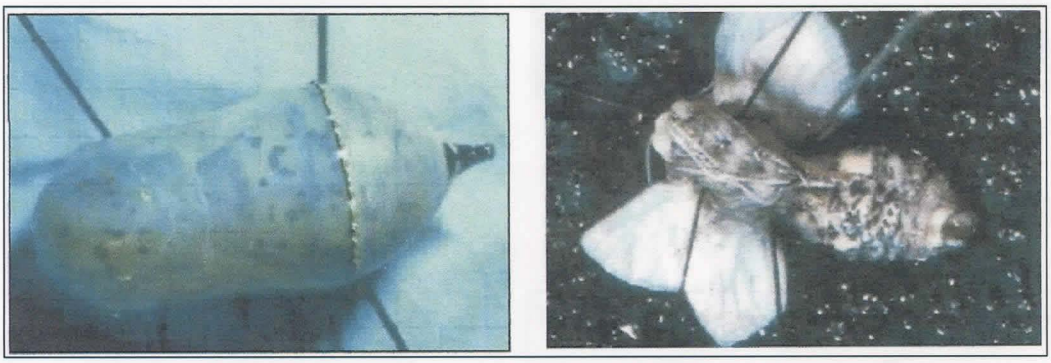
The four symptoms of serious O.E. infections are:

1) When the caterpillar begins its "J" formation to pupate, only the head turns green and it does not completely form a chrysalis.

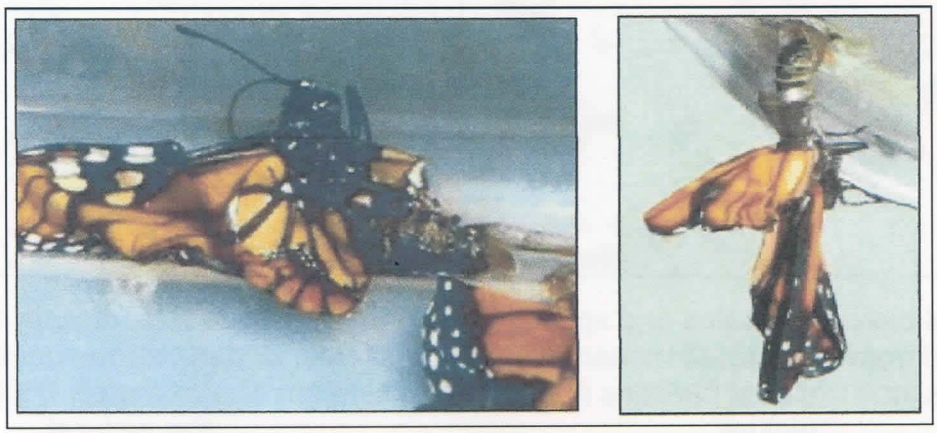
2) The chrysalis has black spots, is all black and/or does not hatch, **3)** A hatchling butterfly is stuck inside the pupal casing, cannot emerge properly and/or its wings are deformed, **4)** A newly hatched butterfly does not have enough strength to hang onto its pupal casing and then falls to the ground in a mangled mess. Any of these four signs would confirm that the caterpillar or butterfly is infected with O.E. and should not be released into nature. Personally, I have placed the hatched butterflies with mildly deformed wings into a designated container filled with flowers and fruit so they can live out their lives contained until they die.

How to tell if butterflies are infected with O.E.

An infected pupa may develop dark spots or blotches two or three days before the butterfly emerges. These abnormal dark areas are parasite spores. Spores form on the eyes, antennae, wing veins, but mostly on the abdomen. You can see the spores through the outside layer of the pupa a day or two before pigments that color the butterfly normally darken the pupa. Before a butterfly emerges from the chrysalis, pigments are laid down coloring the scales that cover the butterfly. This normal change in the color of the pupa is symmetrical. The color change of an infected monarch happens earlier and does not create a balanced pattern on the pupa.



Adults that are heavily infected with O.E. are weak and often have difficulty emerging from the chrysalis. Some monarchs die before emerging. Others emerge, but are too weak to cling to the pupal case. They fall to the ground before fully expanding their wings. These severely deformed monarchs do not survive long.



All of this information can be viewed online through MonarchHealth.

Those of us living in the New Orleans metropolitan area are in a transition period now with understanding the link between Monarch butterflies, O.E. and varieties of milkweed. Acting as citizen scientists, we can contribute scientific study to investigate whether tropical milkweed is sheltering and fostering the O.E. parasite by keeping it alive and well through the winter months, thus causing the Monarchs to stay year round in our area instead of migrating to Mexico.

Three years ago, I purchased nine different Louisiana native milkweeds and began experimenting in growing them. I discovered that each one requires different site-specific growing conditions. For instance, the "Butterflyweed", *Asclepias tuberosa*, prefers a sunny spot with very good drainage. By trial and error, growers have found that pine bark and sand is its perfect mixture. Aquatic milkweed, *Asclepias perennis*, as well as the Swamp milkweed, *Asclepias incarnata*, prefer wet roots. I have seen the Aquatic actually growing in standing water during field trips to the Bonnet Carre Spillway and at Honey Island Swamp. This past winter's frigid temperatures did not faze the Aquatic milkweed plants, whereas the tropical froze to the ground.

"Butterflyweed" *-Asclepias tuberosa-* Native

-"Swamp" - *-Asclepias incarnata-* Native

-"Aquatic"- *-Asclepias perennis-* **The best Native**

"Silky Gold" "Scarlet" *- Asclepias curassavica-* Not Native

As gardeners, many of us have a bed of tropical milkweed and no native milkweed plants. As we transition to the more desirable native plants, what are our options in regards to our established tropical milkweed? My recommendations, like so much in nature, are evolving, but here is what I currently think are the **best 3 options**:

1) Keep it but cut it down to the ground in June and October.

2) To prevent "egg-bombing", get tomato cages and cover the tropical plants with netting so that Monarchs cannot overload the plants with eggs.

3) Remove and replace tropical with native milkweed.

Cutting down the tropical milkweed in June and October forces it to grow on the same cycle as the native milkweeds and the Monarch migration. Personally, after much contemplation, I have chosen to dig up the tropical milkweed and replace it with multiple patches of Aquatic and Butterflyweed at both my home and work gardens. I potted up the tropical milkweed plants and quarantined them in my greenhouse to see if the Monarchs will use the native plants. Most of these tropical plants died back with this past winter's freezes. The new growth in spring was free of spores since our resident population was killed by the 22-degree temperatures and the migration had not flown through our area yet. Many of my friends are using the netting process to either stop Monarchs from using the existing tropical milkweed plants—keeping leaves uncontaminated for use in raising caterpillars—or controlling the number of eggs laid on the plants in their gardens.

Because of the high rate of O.E. found in our area and the fact that the spores are extremely easy to spread in home Monarch raising operations, I am personally recommending, this year, that my "Caterpillar Mamas" join me to leave their Monarch caterpillars in the yard and not bring them indoors to raise. Only the strong shall survive! I admit it influenced me when I realized the work it would take to make indoor raising hygienic. O.E. spores cannot be controlled by ordinary cleaning agents and the spore life is longer than one year. Winter doesn't kill it. Anyone who feels they must raise Monarchs indoors should be willing to run a sterile operation and should follow specific guidelines set by Monarch Watch to avoid contributing to the Monarch demise.

1) First, caterpillars must be raised singly, only one caterpillar per container, because one infected caterpillar will infect all of the rest. Wooden containers are difficult to keep sterile—glass or plastic is better.

2) All milkweed plant material fed to caterpillars must be sprayed with a 10% Clorox bleach solution, then triple rinsed and thoroughly dried before offering it as food to your caterpillar.

3) Clean all raising containers at least once daily—twice is better—of frass and uneaten plant material.

4) Each container and all equipment and surfaces must be thoroughly cleaned after each caterpillar completes its chrysalis—20 minutes soaking in the 10% Clorox bleach solution, triple rinse and dry—before housing another critter.

Now that you have read all of this information, think it over and decide how you will attack this issue in your own garden. Here are some positive steps you can take:

1) Replace your tropical milkweed with native plants. I sell the Aquatic milkweed at my retail store— Barber Laboratories located at 6444 Jefferson Highway in Harahan. (504-739-5715—call me with any questions). You can ask your local garden center to order the native milkweed plants for you. Plants are available through Monarch Watch Milkweed Market online.

2) Participate in the Monarch butterfly monitoring process to help prove or disprove the link between O.E. and the tropical milkweed.

3) Talk to your friends, relatives and neighbors who raise Monarchs to inform them of this issue.

4) Raise other butterfly species that do not have these parasites and issues. There are about 135 species of butterflies in Louisiana that are equally as amazing and exciting to watch as they go through their metamorphosis.

In closing, I ask each of you to accept the gardening challenge to grow Louisiana native milkweeds which will not only strengthen your yard's eco-system by providing a fuel stop of nectar for a variety of insects but will also help provide the proper diet Monarchs need to survive. If the tropical milkweed is the cause of this O.E. issue, we have the power to change the situation. You won't see tropical milkweed growing out in the wild when you are hiking our local forest trails. Tropical milkweed exists in our gardens where we planted it. If we will join together to choose your method(s) by cutting it down in June and October, covering the plants with netting to prevent "egg-bombing", replacing the tropical milkweed with Louisiana native milkweeds, and leaving the Monarch caterpillars in the garden, we can make a difference to Help Bring Back the Monarchs!

Appendix 1: Various Scientists Currently Studying O.E. in Monarchs and their websites

1. Dr. Sonia Altizer, University of Georgia: https://www.altizerlab.org/
   a. Has studied O.E. since 2000 (during her PhD). Worked with Dr. Karen Oberhauser.
   b. Runs citizen science project "Monarch Health" which teaches citizens to catch and sample butterflies for O.E.: http://www.monarchparasites.org/

2. Dr. Jacobus de Roode, Emory University: http://deroodelab.org/
   a. Primarily studies the evolution of O.E. and how it may become more lethal when butterflies are fed tropical milkweed.

3. Dr. Dara Satterfield, recently completed PhD with Dr. Sonia Altizer at UGA and now working at the Smithsonian National Zoo.
   a. https://nationalzoo.si.edu/conservation/dara-satterfield

4. Christen Steele, current PhD student at Tulane University working with Dr. Sonia Altizer and Dr. Caroline Taylor.
   a. Studying the effect of tropical milkweed and O.E. on the ability of monarchs to end migration, break diapause and remain along the Gulf Coast through winter.
   b. Also tracking the prevalence of O.E. in New Orleans throughout the year.

Appendix 2: The results of Christen Steele's monitoring in uptown New Orleans:

In total, 79 caterpillars were sampled between October 17, 2017, and December 22, 2017. Some of these were caught in the field as adults and sampled for O.E., and some were reared in the lab and sampled for O.E. upon emergence from pupa. These data are extremely preliminary and further sampling may reveal lower infection rates during spring, summer and fall when uninfected migratory butterflies move into the Gulf Coast region. It is expected that infection rates are highest in the winter months (November – February) when the amount of milkweed is limited to relatively isolated patches of tropical milkweed (*Asclepias curassavica*). These few patches in primarily urban and suburban areas would cause butterfly and caterpillar density to increase on milkweed patches in comparison to densities during the breeding season when ample native milkweed patches are available.

Infection Prevalence in Monarchs in New Orleans, LA, from October 17th - December 22nd 2017

Total Number of Monarchs Surveyed	Percent with any O.E. Infection
78	97.37

Thanks to the following for their help in gathering information, pictures, and/or editing: Ginna Hoff, Christen Steele, Amy Graham, and Hope Coulter. Permission was given by Angie Babbit (Communications Coordinator, Monarch Watch) to the Southern Lepidopterists' Society to reprint the Monarch Watch diagrams, pictures, and graphs used in this article. The web address is www.MonarchWatch.org.

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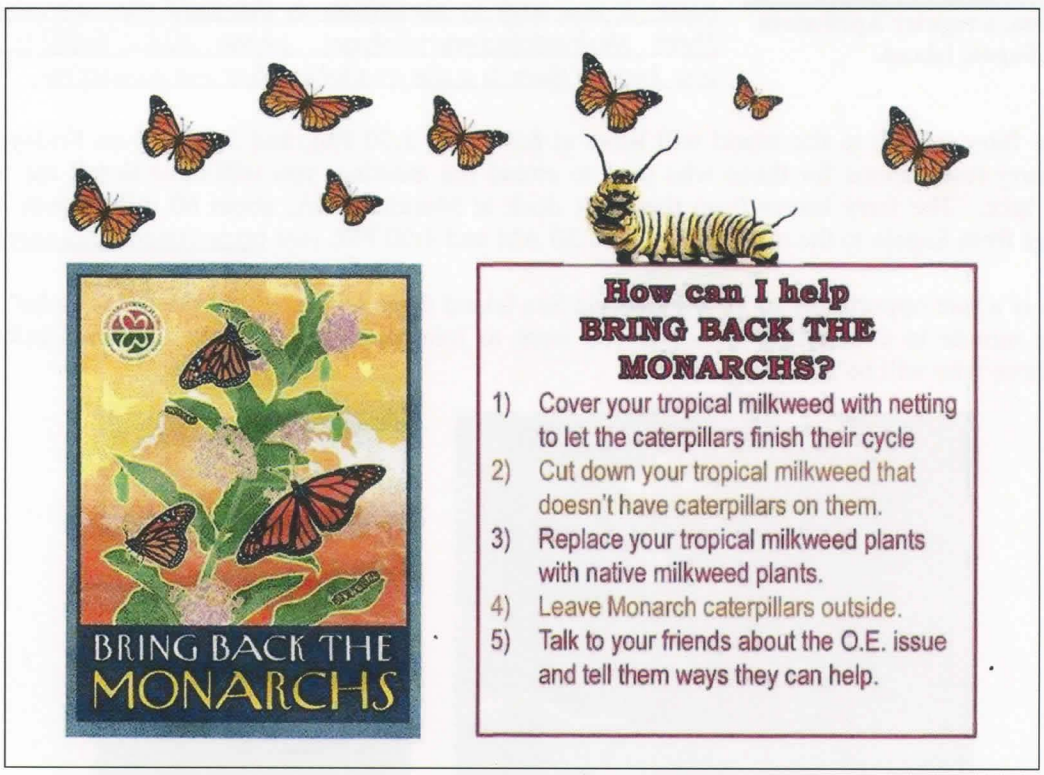


(Linda Auld, E-Mail: Thisauldhouse@bellsouth.net)

SLS 2019 SPRING FIELD MEETING: SAPELO ISLAND, GEORGIA, APRIL 26 - 28

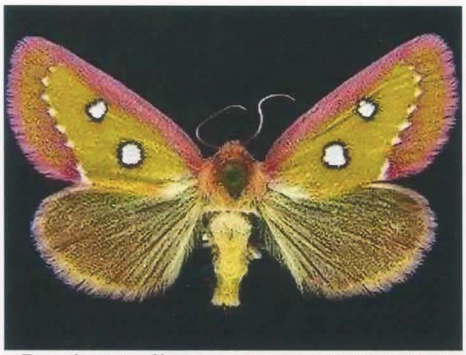
BY

JOHN HYATT

The Southern Lepidopterists' Society will hold a Field Meeting on the weekend of April 26-28, 2019, on Sapelo Island in McIntosh County on the central Georgia coast.

Sapleo Island is one of the very few largely undeveloped barrier islands on the Atlantic coast. Most of the island is state property, managed by the Georgia Dept. of Natural Resources (DNR). The island is the site of the Sapelo Island National Estaurine Research Reserve (SINERR) and the R.J. Reynolds Wildlife Management Area, both administered by the DNR. The University of Georgia operates its Marine Institute on Sapelo as well. See these websites for more information: http://sapelonerr.org/ and https://ugami.uga.edu/.

Sapelo is the site of an ongoing Lepidoptera faunal study being carried out by the author and fellow SLS members James Adams, Lance Durden, and Brian Scholtens. To date this group has identified over 1,000 moth species and 81 butterflies on the island. Choice April species include *Derrima stellata*, the new and so far endemic *Sympistis eleaner, Idaea retractaria, Hellula kempae, Unadilla maturella*, and possibly early-flying *Catocalas* (*C. delilah* flies on Sapelo).



***Derrima stellata*, a regular April moth on Sapelo Island.**

We will be staying in lodging operated by the University of Georgia Marine Institute; there will be a fee of approximately $35/person charged for the use of their apartments for the weekend. Full kitchen facilities will be available. The DNR will provide one or two vehicles for our transportation on the roughly 12 x 2 mile island. Nothing can be purchased on the island, so it will be necessary for collectors to bring their own food and drink (other than potable water, which is available on the island).

Lodging is available for a maximum of 8 visitors. Therefore SLS members will be given reservations for the field meeting on a first-come basis. If you wish to participate in this field trip, e-mail or call John Hyatt (jkshyatt@centurylink.net; phone 423-279-0827). I will let you know if there is a slot available when you contact me.

DNR-operated ferry service to the island will leave at 8:30 AM, 3:30 PM, and 5:30 PM on Friday, April 26. I will arrange ferry reservations for those who plan to attend the meeting; you will have to tell me which sailing you intend to take. The ferry leaves from the DNR dock at Meridian, GA, about 60 miles south of Savannah. Sunday sailings from Sapelo to the mainland are at 8:30 AM and 4:00 PM. (see https://ugami.uga.edu/ferry/).

This field trip is a rare opportunity to visit a Georgia Sea Island that's still "the way they used to be", so don't put off to the last minute to contact the author if you want to join us. I will supply additional information and directions to those who will be attending.

A typical road on Sapelo Island.

A Bait trap on Sapelo Island, May 2016.

OBSERVATIONS OF *ARCHIPS RILEYANA* (GROTE, 1868), SOUTHERN UGLY-NEST CATERPILLAR MOTH

BY
ROYAL TYLER

This species doesn't seem to be as commonly documented as other Tortricid leafrollers, but is one of the more common ones in spring months on my study site, the Royal Hills farm. It is a 153 acre tree farm located in Caddo Parish, Louisiana. This is the NW corner of the state, not far south of Texarkana, and near to Oklahoma, Texas, and Arkansas.

This tree farm is approximately 120 acres of upland shortleaf and loblolly pine ecosystem, with approximately 25 acres of creek bottoms including a variety of oaks, gum, maple, as well as a few areas of cypress. There are 2-3 miles of woods roads and pipelines providing a good amount of openings, as well as a several acre home site that is managed to promote insects.

A quick online search for information about this species shows that much is still to be learned. Louisiana is frequently not even included in mentions of documented occurrences. BOLD, BugGuide, and other citizen science sites just reference Wikipedia which is incomplete and not very detailed.

On this NW Louisiana study site, the dominant host species is *Aesculis pavia*, Red Buckeye. This species is a small tree (or shrub) that prefers well-drained sites. Published accounts mention a preference for rich moist sites, but they do quite well on the study site which is an extremely well drained, sandy site. Most of the trees are about eye level, 5-6 feet tall. They are most noticeable in spring (red blooms) and late summer (first to defoliate). On the study site, the Red Buckeye start to bloom most years in late March, and April is quite showy with bright red blooms. The blooms can hang on for quite a while, with fresh ones often seen well into summer. In 2013 I even documented them blooming in November during a warm winter spell.

Closeup of *Aesculus pavia* (Red Buckeye) blossoms. Photo taken March 18, 2016.

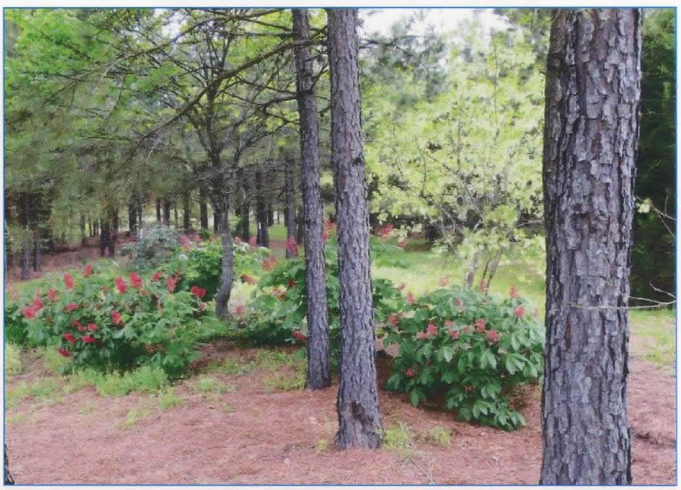


Photo taken April 13, 2014, showing mature Red Buckeye in bloom. They frequently bloom alongside whitefringetree making for a showy month of April.

Archips rileyana (Grote, 1868) appears soon after the foliage appears on the Red Buckeyes. Over the last several years I have documented *A. rileyana* caterpillars predominantly from mid-April through mid-May. The adults emerge primarily in mid-May. The adults included in photos (next page) here emerged May 23, 2018, after being collected from webs on May 5, 2018.

The caterpillars spin protective webs in which they spend much of their time as they grow and develop. The webs come in a variety of sizes with some just being a few leaves wrapped up, to others that seem to envelop the entire tree.

This species was one of the easiest I have attempted to rear in captivity, with a high success rate and low maintenance required.

Adult specimens were sent to a Tortricid expert, Michael Sabourin, for confirmation of species before publication.

Photo taken May 23, 2018, of *Archips rileyana* adults emerging.

Photo taken May 23, 2018, of *Archips rileyana* adults emerging.

Photo from May 5, 2018, of some Red Buckeye leaves wrapped up by *Archips rileyana* caterpillars.

Photo taken May 5, 2018, showing Red Buckeye after a good crop of *Archips rileyana* have fed there for a while.

Photo taken May 5, 2018, Caddo Parish, LA (Royal Hills farm).

Photo taken April 17, 2017, Caddo Parish, LA (Royal Hills farm).

(Royal Tyler, E-Mail: Whitefringetree@gmail.com)

REFUGE ON THE ROADSIDE: ODOT WORKS TO PROTECT OHIO'S POLLINATORS

BY

CANDY KOUNDINYA

Driving along Ohio's roadsides, you may have noticed something. Less of the roadside is being mowed, and milkweed and other native wildflowers are flourishing in areas that normally would have been mowed during the summer. Maybe you've noticed a few more butterflies than usual too. That's all due to the hard work of the Ohio Department of Transportation in its efforts to preserve and create monarch butterfly habitat.

[Zachary Wertz took all the photos in this article. These 2 photos were taken in Fulton County along US 20A at mile marker 17.7 (SR 20A west of SR 109 Delta, across from Northwest Street.]

ODOT has had a long history of working to beautify Ohio roadsides. In the past, sunflowers were planted along roadsides. But that program has since evolved, as ODOT team members have come to recognize the importance of protecting monarch butterflies and other pollinators. ODOT has formed a Pollinator Habitat Team, consisting of individuals from the ODNR Division of Wildlife, Toledo Zoo, Pheasants Forever, Monarch Watch, Wild Ones, Ohio Certified Volunteer Naturalists and ODOT district representatives. The volunteer team has been working to identify roadside sites which serve as quality monarch habitat, and have begun reduced mowing programs at these sites. Some of the sites have already

[These 3 photos were taken in Henry County along State Route 109 at mile marker 19.6 (SR 109 and US 24 Liberty Center.)]

been marked with signage identifying them as habitat sites. The team has also taken their efforts a step further, by identifying areas in every county to create roadside pollinator habitat. These areas are being prepped and planted with a native seed mix. Some sites have already planted, including in Wood County and Seneca County. Other sites, such as those in Lucas County, are currently being herbicided in preparation for planting. The habitat creation process will take some time—sites will be treated for invasives, warm-season grass seed will be planted in spring and native forbs will be dormant-seeded in November. The sites will take about 3 years to mature—a schedule that many restorationists refer to as "sleep, creep then leap." Native wildflowers will spend the first year growing roots, with little top growth visible. The second year, the public can expect to see some top growth, and ODOT will manage the sites for invasives. By the third year, native plants will "leap," reaching maturity and making their growth most visible. Ultimately, the goal for these sites is to create habitat that will support monarchs, bees and other beneficial insects while beautifying our Ohio roadsides.

Why is pollinator habitat important? Over 70% of native plants and 30% of our crops nationwide are pollinated by insects. In Ohio, farmers rely on bees to pollinate more than 70 crops, including apples, strawberries and pumpkins. The agricultural industry in Ohio contributes $105 billion annually to the state's economy, making pollinator habitat critical to Ohio's food supply as well as its economy. Unfortunately, however, our pollinators are in steep decline. From April 2014 to April 2015, Ohio beekeepers reported losing 50% of their hives. Wild bees are in trouble as well. According to a 2015 study by Koh et al. of Michigan State University's Isaacs Lab, between 2008 and 2013 wild bee abundance declined across 23% of the U.S. land area. Researchers found 139 counties where low bee abundances correspond to large areas of pollinator-dependent crops. The crops most highly dependent on pollinators tend to experience more severe mismatches between declining supply of bees and increasing demand for pollination. In other words, the crops most in need of pollinators are precisely the crops suffering from a low supply of wild bees. Researchers concluded this trend may increase costs for U.S. farmers and may even destabilize crop production over time.

[The above 3 photos were taken in Williams County along US 127 at mile marker 16.1 (north of West Unity near the Ohio turnpike.)]

It is important to realize that most bees live close to their food source. Their food consists of nectar and pollen from flowers. Honeybees will generally not travel more than a mile from their food source, even though they can fly up to 4 miles. Some wild bees, such as squash bees, often make their home within 200 feet of their food source, which includes squash, melon and pumpkin crops. If you walk down a row of squash, chances are you will find squash bee nests beneath your feet. Supplying bees with habitat near our croplands can provide food and nesting sites for them and other pollinators, while also helping farmers. And additional habitat can act as a wildlife corridor, connecting other habitat areas. Since Ohio has over 19,000 miles of roadsides, ODOT is well positioned to make a significant contribution to pollinator habitat creation throughout the state.

Of course, driver safety is of utmost importance. ODOT will still maintain a clear zone and line of sight for driver safety. ODOT also expects that reduced mowing will decrease costs related to fuel, personnel hours, and fertilizer;

improve worker safety by requiring fewer maintenance crews on roadsides; help reduce snow drift; and improve plant diversity and abundance at existing habitat sites.

[The above 2 photos were taken in Williams County on US 127 at mile marker 20.1 (the intersection of US 127 and US 20).]

[These 2 photos were taken in Williams County on US 20 at mile marker 17.8 (West of Alwordton). Notice the mow line in the first photo. The mower had just mowed through earlier that morning. Another great example of how we can maintain visibility and promote pollinator habitat. Great job Williams County ODOT!"]

ODOT is already seeing the benefits of their reduced mowing program in terms of monarch abundance. Zachary Wertz of ODOT has been documenting monarch activity at newly-protected roadside sites. He photographed 5th instar monarch caterpillars feeding on milkweed in 4 counties, at sites that would have normally been mowed over the summer. Wertz stated, "In just one year, we have already seen the benefits of our reduced mowing program. It really is helping monarchs." The ODOT District 6 Office team recently restored two office flower beds with native wildflowers, including 150 milkweed stems. They have been rearing monarch caterpillars they collect, and just tagged their first monarch. A male, named AJ DOT 6, was tagged and released by planning and environmental staff on August 28th at the ODOT District 6 office in Delaware, Ohio.

Congratulations ODOT! And thank you for your efforts to create monarch habitat so that future generations will continue to enjoy this iconic butterfly.

If you too would like to thank ODOT, please send a note to the appropriate district administrator, you can find his or her contact information here. It is important to make ODOT aware that their efforts truly are appreciated, both by monarch butterflies and those who love them! http://www.dot.state.oh.us/districts/Pages/default.aspx

Resources

Saving Ohio's Pollinators—ODOT program https://monarchjointventure.org/news-events/news/saving-ohios-pollinators-odot-state-initiative

Mowing: Best Practices for Monarchs factsheethttps://monarchjointventure.org/images/uploads/documents/MowingForMonarchs.pdf

Insu Koh, Eric V. Lonsdorf, Neal M. Williams, Claire Brittain, Rufus Isaacs, Jason Gibbs, and Taylor H. Ricketts (2015) Modeling the status, trends, and impacts of wild bee abundance in the United States http://www.pnas.org/content/113/1/140

[The above 2 photos are from Lucas County. Zachary says: "US 20 at mile marker 1.3 (US 20 just west of SR 295). This is a very large patch of milkweed, however, I was only able to find one caterpillar."]

[These last 3 photos are from Lucas County on SR 295 North of Shaffer Road. The sign indicates Harding township line.]

(Candy Koundinya, E-Mail: koundinya @buckeye-express.com)

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MY FIRST HYBRID

BY

BRYAN E. REYNOLDS

I've lived in central Oklahoma for 13 years and throughout this time, one of my favorite spots to photograph butterflies is the Lexington Wildlife Management Area located in Cleveland County. The southern edge of this 10,000 acre refuge is only a mile from my home and is mostly made up of secondary crosstimbers mixed with prairie. There are also several ponds and creeks throughout. I've spent countless days photographing many subjects on the refuge including several species of butterflies. Two of my favorites are the Viceroy, *Limenitis archippus archippus*, and the Red-spotted Purple, *Limenitis arthemis astyanax*. Both species can be commonly found near their larval

Red-spotted Purple, *Limenitis arthemis astyanax*, mud-puddling, Lexington Wildlife Management Area, Cleveland County, Oklahoma, 22 September 2017.

Red-spotted Purple, *Limenitis arthemis astyanax*, probing leaves of sugarberry, *Celtis laevigata*, Lexington Wildlife Management Area, Cleveland County, Oklahoma, 15 September 2017.

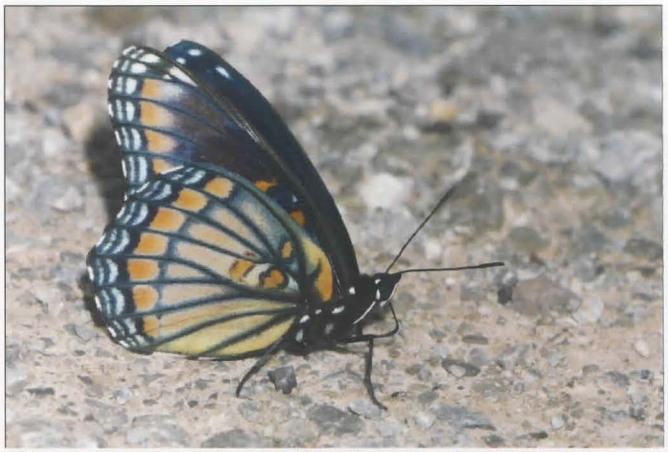
food plant, Black Willow, *Salix nigra*, which abundantly grows on the refuge, especially along any wet areas. One particular spot I frequent, is actually the closest access road from where I live. It is a one mile, dead-end gravel road and for exercise, my wife and I walk the whole circuit making a total of two miles. We try to do this on a daily basis (when I'm home) and we've probably now done this thousands of times. On each walk, we observe all of the flora and fauna, and track the seasons. Of course, I'm always checking out all of the butterflies. Recently, there's been a nice brood of both Viceroys and Red-spotted Purples. Halfway along our walk, there's a seep that flows along the road and down to a temporary pond. Along the pond are several Black Willows. There are always a host of mud-puddling butterflies that we kick up as we walk. On 28 September, we were walking along and as we passed the pond, we both noticed a strange butterfly sitting on the gravel road and imbibing from a wet spot. I was confused at first and thought this must be some sort of rare stray, but after a second, I realized it was a hybrid between a

Viceroy, *Limenitis archippus archippus*, Lexington Wildlife Management Area, Cleveland County, Oklahoma, 22 September 2017.

Viceroy, *Limenitis archippus archippus*, Lexington Wildlife Management Area, Cleveland County, Oklahoma, 16 September 2017.

Viceroy and Red-spotted Purple, *Limenitis archippus archippus* X *Limenitis arthemis astyanax,* hybrid form Rubidus. Unfortunately, I don't do my exercise while carrying my heavy camera, but thankfully, we only live a couple miles away. So, while my wife kept an eye on the butterfly, I sped home, grabbed my camera, and sped back. Fortunately, the butterfly was still there and I was able to get the accompanying photos. I've also included dorsal and ventral shots from each full species which were all taken in September 2017 and on my exercise road. It was an exciting experience to see this beautiful creature and from this point on, I'll be watching for more of these hybrids and I'll always have my camera waiting just in case the opportunity comes again.

Viceroy and Red-spotted Purple hybrid, *Limenitis archippus archippus* X *Limenitis arthemis astyanax*, hybrid form Rubidus, Lexington Wildlife Management Area, Cleveland County, Oklahoma, 28 September 2018.



Viceroy and Red-spotted Purple hybrid, *Limenitis archippus archippus* X *Limenitis arthemis astyanax*, hybrid form Rubidus, Lexington Wildlife Management Area, Cleveland County, Oklahoma, 28 September 2018.

[Bryan E. Reynolds, Email: nature_photo_man@hotmail.com;

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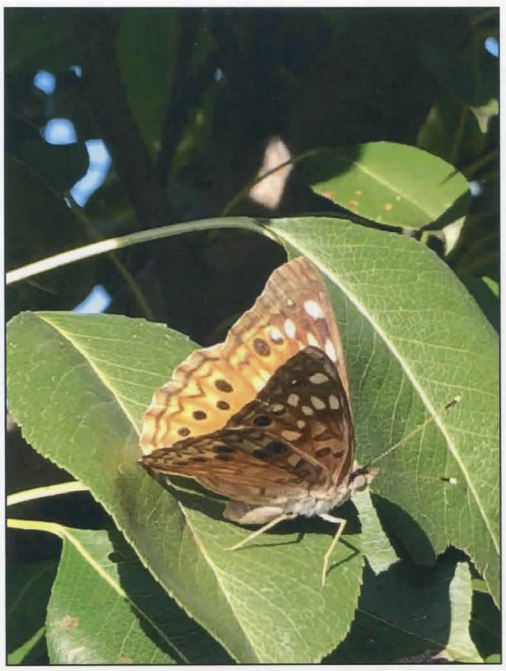

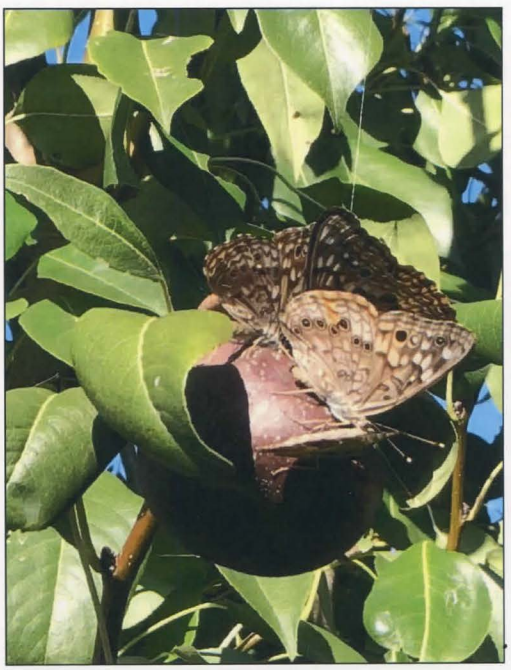

Fort Worth, Texas, October 2018, Photos by Andrea Kass

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NATURAL HISTORY NOTES ON LICHEN AND TIGER MOTHS (EREBIDAE, SUBFAMILY ARCTIINAE) OF THE CATSKILL MOUNTAINS, NEW YORK

BY

ROBERT DIRIG

This is the fourth article on large moths of the Catskills. The first, which treated the Saturniidae (10 species), described the study area and general methods that apply to succeeding parts (Dirig, 2015). Accounts of the Sphinx Moths (Sphingidae, 27 species) and Underwings (Erebidae, subfamily Erebinae, 23 species) followed (Dirig, 2016a-b). By synthesizing unpublished records with information that originally appeared in scattered notes, the set provides a thorough baseline of historical moth flight dates and life history observations from a heretofore poorly studied region. This paper completes documentation for the five groups of large moths that were highlighted in *Growing Moths* (Dirig, 1975a:5).

Northeastern North American Lichen and Tiger Moths are well known, and usually easy to identify (Covell, 1984; Beadle & Leckie, 2012; North American Moth Photographers' Group, *http://mothphotographersgroup.msstate.edu/Plates.shtml*), but their local life histories, like those of other large moths, remain mostly undocumented. These notes supplement regional faunal lists by Cleveland (1896) and Forbes (1928, 1960).

The dark red line in Fig. 1-B surrounds the **Catskill Plateau**, as defined by Fenneman (1938) and Brooks (1979). My field work was centered at **FRENCH WOODS** (**F.W.**, *red dot*). A few arctiid records from Bramley Mountain Rd. near Bovina Center, Delaware Co. (**B.C.**, *orange dot*) were provided by Ronnie Miller (Dirig, 1975b). Max Richter's Butterfly Farm at East Durham, Greene Co., is indicated by **M.R.** (*yellow dot*); and nearby Windham, Greene Co., by **W** (*brown dot*). We are fortunate to have a historical annotated list of Lichen and Tiger Moths collected at Oneonta, Otsego Co. (**O,** *blue dot*), in the Susquehanna River valley, on the northern edge of the Catskills, during the 1893-1894 seasons (Cleveland, 1896). Colleen Seeley (1963) provided a more recent window of information for a few species from Oneonta.

My records of F.W. Lichen and Tiger Moths date primarily from 1963-1983, with several field photographs from 1974 and 1996-1999 (Figs. 11-12, 17-22). Most are of adult captures at ultraviolet light (**UV**), with a few of moths nectaring during daylight hours. Collecting and rearing methods were detailed in Dirig (1975a, 1977, 2015). I occasionally found wild larvae, and reared them through to adults. In 1965, I made several drawings of adults, egg placement, and pupae, resulting from larvae that were grown on cut food indoors, as an additional method of recording information (Figs. 7-10, 15).

Food sources for lithosiines (Tribe Lithosiini) are often imprecisely known, due to the general unfamiliarity of most lepidopterists with lichens and other cryptogams (see LARVAL FOOD SOURCES below). Likewise, natural larval foodplants of arctiines (Tribe Arctiini) may be difficult to ascertain, because many larvae are general feeders on low herbs, shrubs, or trees. Forbes (1928, 1960), Covell (1984), and Wagner (2005) mentioned specific foodplants for a few species (see SPECIES LIST below).

These additional **abbreviations and symbols** are used in this article: **Co.** = County. * = a non-native, naturalized plant. † = a cultivated plant. **1-I** = first instar, **2-I** = second instar (etc.). ♂ = male, ♀ = female. Other F.W. collectors included Bette J. Dirig (***BJD***), Rodney Dirig (***RD***), Matthew F. Dirig (***MFD***), J. Francis Dirig (***JFD***), Andrea Barron (***AB***), Mabelle Maxson (***MM***), and John F. Cryan (***JFC***). A few records from Robert Hendrickson, Jr. (***RH***), who collected and reared lithosiines and arctiines in Oneonta between 1967-1971, are included. Specimen repositories are the Cornell University Insect Collection (**CUIC**) for moths, and the Bailey Hortorium Herbarium at Cornell (**BH**) for botanical vouchers of nectar sources and larval foodplants.

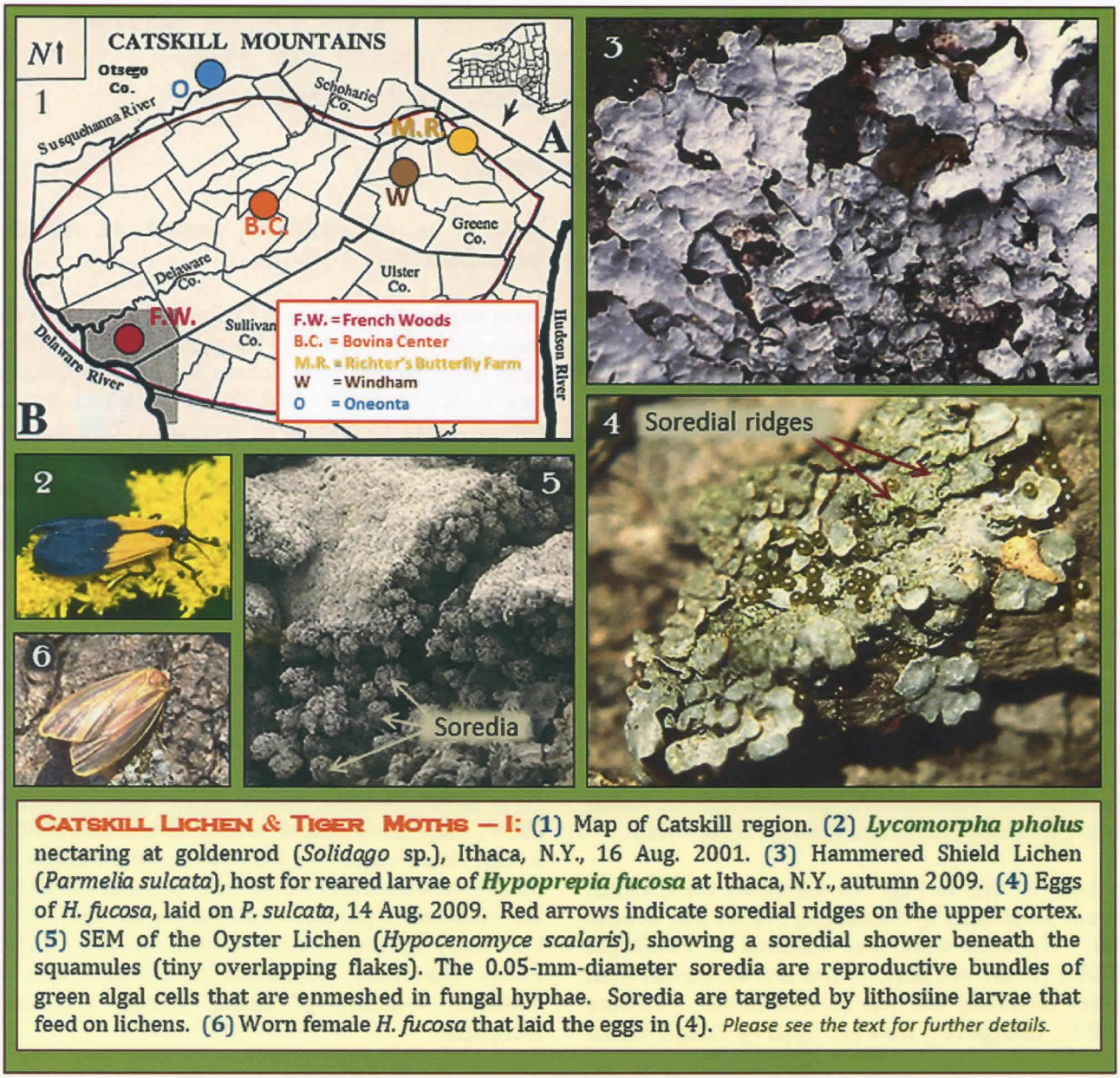
SPECIES LIST

Scientific names, arrangement of moths, and species numbers (six numerals) follow Pohl *et al.*'s (2018) checklist of Canadian and Alaskan Lepidoptera. Older "Hodges numbers" (four numerals) are also provided from Hodges *et al.* (1983:109-112). Plant nomenclature follows the online *New York Flora Atlas (http://newyork.plantatlas.usf.edu/browse.aspx?cat=Scientific+Name*). Clock hours are in Eastern Daylight Savings Time.

Lichen Moths (Tribe Lithosiini)

***Lycomorpha pholus* (Drury) 930201, 8087**
(Black-and-Yellow Lichen Moth)

Despite its common name, the dark, dorsal wing margins of this beautiful little moth are actually reflective steel-blue, not black, set against basal parts that are



CATSKILL LICHEN & TIGER MOTHS — I: (1) Map of Catskill region. (2) ***Lycomorpha pholus*** nectaring at goldenrod (*Solidago* sp.), Ithaca, N.Y., 16 Aug. 2001. (3) Hammered Shield Lichen (*Parmelia sulcata*), host for reared larvae of ***Hypoprepia fucosa*** at Ithaca, N.Y., autumn 2009. (4) Eggs of *H. fucosa*, laid on *P. sulcata*, 14 Aug. 2009. Red arrows indicate soredial ridges on the upper cortex. (5) SEM of the Oyster Lichen (*Hypocenomyce scalaris*), showing a soredial shower beneath the squamules (tiny overlapping flakes). The 0.05-mm-diameter soredia are reproductive bundles of green algal cells that are enmeshed in fungal hyphae. Soredia are targeted by lithosiine larvae that feed on lichens. (6) Worn female *H. fucosa* that laid the eggs in (4). *Please see the text for further details.*

orange, not yellow (Fig. 2). **RECORDS** (Fig. 24): One brood, diurnal adults rarely seen. **Delaware Co.: Pea Brook:** 2 Aug. **1966** & 6 Aug. **1967**, along a crumbling stone fence covered with foliose Boulder Lichens (*Xanthoparmelia* spp.) and Common Greenshield (*Flavoparmelia caperata*), nectaring (in 1966) at Canada Goldenrod (*Solidago canadensis*); **Bouchouxville:** 17 July **1983**, nectaring at Indian Hemp (*Apocynum cannabinum*) in a riverside marsh at the confluence of Bouchoux Brook with the Delaware. **Ulster Co., Big Indian Valley:** Forbes (1928:670).

This species was also seen **nectaring** three times at goldenrods (*Solidago* spp.) in the Finger Lakes Region (Ithaca, Tompkins Co., N. Y., Fig. 2; and near Watkins Glen, Schuyler Co., N. Y.), and at *Spotted Knapweed (*Centaurea stroebe*, ssp. *micranthos*) in the Helderbergs (a limestone ridge south of Albany, Albany Co., N.Y.).

Life History: Dyar (1897) recorded details of the life history. A captive ♀ from Ithaca laid eggs singly on the upper surface of foliose Rough Speckled Shield (*Punctelia rudecta*) and Common Greenshield lichens that grew on tree trunks from the habitat (16-18 Aug. 2001). Ova were globose, greyish-green, with a shiny surface. Catskill and Finger Lakes habitats were always near rivers or lakes. I expect that this moth is associated with *lichens that grow on rocks*.

***Hypoprepia fucosa* Hübner 930205, 8090**
(Painted Lichen Moth)

RECORDS: F.W. (Fig. 24): One summer brood, all at UV. **1967:** Very common in July. **1968:** 20 July. **1975:** 11 & 13-14 July (males). **Delaware Co.: Delhi,** 4-H Camp Shankitunk: **1967:** 19 July (♀, at edge of swamp).

Life History: Moskowitz & Westphal (2002) reviewed a few life history details, and mentioned the dearth of

information about this moth and its lichen hosts. I take this opportunity to append notes on the eggs, early-instar larvae, and lichen food sources at Ithaca, ca. 100 mi. northwest of F.W.: A wild ♀ was confined in a small, translucent plastic bottle with a foliose rosette of Hammered Shield Lichen (*Parmelia sulcata*, Figs. 3-4) growing on bark. She laid about forty globose, shiny, dark olive-green, ½-mm-diameter **eggs** on the thallus and bark between 7-13 Aug. 2009 (Figs. 4, 6). High magnification revealed that the eggshells had a finely reticulate, pitted surface. The moth was very uneasy when exposed to bright sunlight, rapidly crawling under the bark. Eggs were bronzy-brown on 20 Aug., and the black summits of the larval face caps showed through the shells on 21 Aug. **Eggs hatched** by 24 Aug., each **larva** exiting through a hole chewed at the top of the egg, leaving the rest of the shell. They were 2 mm long, dark olive with black-tipped setae, and had glossy black face caps. **Feeding** began on 25 Aug., on *P. sulcata*. ***Larvae targeted the photosynthesizing partner of the lichen*** (a green alga, genus *Trebouxia*; Brodo *et al.*, 2001:479), rasping away the ***upper cortex*** (which is composed of dense fungal hyphae) to access the **medulla** (where a layer of spherical, emerald-green algal cells is beaded in a looser hyphal lattice). Larvae also ate the powdery ***soredia*** — tiny vegetative (reproductive) capsules of a few algal cells that are wrapped in fungal hyphae, and erupt in masses through breaks in the cortex (Figs. 4-5, *arrows*). The **2-I** was attained by 8 Sept., the face cap glossy black, the body shiny yellow with dark setae, and the olive gut showing through. On 21 Sept., they also nibbled a piece of Orange-cored Shadow Lichen (*Phaeophyscia rubropulchra*; photobiont likely *Trebouxia* sp. — Brodo *et al.*, 2001:538) that was intergrown with the *Parmelia sulcata* that I continued to supply. On 22 Sept. (**3-I**), the larvae were 7 mm long, with glossy black face caps and light olive, shiny bodies with sparse, pale, long setae; pale dorso-lateral marks on each segment, paralleling darker marks, with subtle lines along the sides; and pale brown legs and prolegs. They rested in dark places under the lichen thallus or bark, probably feeding nocturnally. On 12-16 Oct., larvae were resting on the bottom of the container, signaling impending diapause. In nature, these moths **overwinter** as partly grown caterpillars that feed up the following spring and early summer, then pupate to produce adults in July (Fig. 24). This moth appears to be associated *with lichens that grow on tree bark.*

Larval Food Sources: Lithosiine larvae may potentially feed on the photosynthetic (algal or cyanobacterial) partners of any available ***lichens***, but likely most often on foliose species growing on rocks or tree bark. Forbes (1960:49) reported that J. G. Franclemont grew *Hypoprepia* on fruticose Reindeer Lichens [*Cladina* spp.; photobiont also *Trebouxia* spp. (Brodo *et al.*, 2001:224)]. ***Unlichenized green algae*** (*Protococcus* sp.) that grow on tree trunks are also eaten by *H. fucosa* larvae (Moskowitz & Westphal, 2002; Tim L. McCabe, *email, 24 Aug. 2009*). Wagner (2005:458) additionally listed unlichenized ***cyanobacteria*** ("blue-green algae") that grow on tree trunks as *Hypoprepia* food sources. The superlative book by James and Patricia Hinds (2007) on *The Macrolichens of New England* provides excellent color photographs, accessible keys, and detailed information on all ***foliose*** and ***fruticose*** species of this region that might host Lithosiini. Brodo *et al.* (2001) and Brodo (2016) additionally described and beautifully illustrated hundreds of ***crustose*** lichen species, which could also serve as hosts (I wonder if sorediate crusts are used, due to ease of accessing solid masses of the algal partner?). *This subject begs further observation and documentation.* A piece of the lichen host that fills the palm of one's hand can be collected, dried, and labeled (with notes on the substrate, and the same locality data used for associated moth specimens), to facilitate the host-identification process. Regional amateur or professional lichenologists may be able to help. The ***Eastern Lichen Network*** website [*https://www.nybg.org/bsci/lichens/eln/*] includes a directory of lichenologists who are based in eastern North America.

Tiger Moths (Tribe Arctiini)

***Apantesis virgo* (Linnaeus) 930244, 8197**
(Virgin Tiger Moth)

RECORDS: F.W. (Fig. 24): **1966:** Two full-grown larvae found on 15 & 21 June, while picking Wild Strawberries (*Fragaria virginiana*) on sunny road banks and in old fields, were reared to adults (Dirig, 1966:10). **1967:** Very common, up to 8 males per night in July; known dates are 26 & 31 July, 1-2 Aug. (UV), 2 Aug. (♂, UV, *BJD*). **1970:** 1 Aug. (♂, UV). **1974:** 27 July (3 males, UV), 28 July (5 males, UV); Fig. 7. **1975:** 6 & 14-15 July (males, UV). **1976:** 30 June (♂, UV); 26-28 July (3 males, UV); & 30 July (2 males, UV, one with much white on the forewings and only a few small black hindwing spots). **1977:** 24 July (♀, porch light, 10:30 p.m., *JFC*). **1980:** 24 July (porch light, *JFD*). **Delaware Co.:** Rock Valley, **Halsey Hill, 1966:** 24 July ♀, *MM*), 1 Aug. (♂, *MM*); **Davenport, 1977:** 10 July (♀, *RD*); **Somerset Lake, 2013:** at light (Reuter, 2014, *photo*). **Sullivan Co.:** Forbes (1928: 666). **O:** "Common" (Cleveland, 1896); Forbes (1928:666); **1962:** 12 Aug. (♀, UV; Seeley, 1963:29).

Life History: A ♀ from Sullivan Co. laid ca. 500 loose white **eggs** on 24-25 July 1966 that hatched on 1-2 Aug. A few larvae were grown on *Dandelion (*Taraxacum officinale*), pupating on and after 3 Sept. Mature **larvae** had shiny black face caps, and were covered with tufts of long setae, black dorsally, brown on the sides and venter. **Pupae** were 1 in. long and 3/8 in. thick,

dull black, with a fine white "bloom." In nature, larvae **hibernate** when partly grown, then feed to maturity in spring, pupate, and produce adults in July and Aug. In the wild, *A. virgo* larvae eat herbs and the leaves of low woody plants, with a special fondness for Bedstraws (*Galium* spp., Rubiaceae), according to Wagner (2005:470).

***Apantesis parthenice* (W. Kirby) 930246, 8196**
(Parthenice Tiger Moth)

RECORDS: F.W. (Fig. 24): **1963:** 21 Aug. (♀, porch light, 10:10 p.m.). **1965:** 2-11 Aug. (five males, at porch light & UV; Fig. 8); 12 Aug. (♀, porch light, *laid ova*). **1966:** ca. 15 males throughout season (UV), known date 24 Aug. (Dirig, 1966:10). **1967:** 8 males (UV) throughout season, including 1 & 24-25 Aug. **1976:** 2 Sept. (porch light). **Greene Co., Onteora Mt.:** Forbes (1928:666). This moth flew primarily in Aug., while *A. virgo* appeared mostly in July (Fig. 24).

Life History: A ♀, caught 12 Aug. **1965,** laid ca. 50 yellowish-white, round, loose **eggs** inside a brown paper sack on 13-14 Aug. Eggs became top-shaped with a dark spot (larval face cap) before hatching on 20-21 Aug. **First-instar larvae** were ca. 1/8 in. long, banded yellow and black, with long setae. They were fed *Dandelion, and curled and dropped when disturbed. Larvae molted to the **2-I** on 29-30 Aug. (5/16 – 3/8 in. long, with dark chocolate-brown setae that became almost black). They molted to the **3-I** on 7-8 Sept. (¾ in. long, with setae black on the dorsum, but chestnut-brown on the lower sides and venter). They attained the **4-I** on 14 Sept. (similar coloring), reaching a 1 1/8-inch length by 20 Sept. A molt to the **5-I** occurred on 26-28 Sept., with the same colors. Larvae reached 1 3/8 in. in length before pupating on 10-29 Oct. Eight **pupae** formed on the bottom of a plastic container *without a cocoon*; at first these were tannish-orange, then reddish-brown, and finally black with a chalky-white bloom; and ¾ in. long and ¼ in. in diameter (Fig. 9). The remaining larvae died (in nature, they would have overwintered outdoors). A ♂ emerged on 29 Nov. indoors, but could not expand, probably due to lack of humidity in a heated room (see NOTES ON REARING for *Arctia caja*, below).

***Apantesis virguncula* (W. Kirby) 930247, 8175**
(Little Virgin Tiger Moth)

RECORDS: F.W. (Fig. 24), all males, UV: **1967:** 19 June (*AB*). **1968:** 25 June (*AB*), 1 July (a very dark male with wide black streaks instead of spots on the hindwings).

***Apantesis williamsii* (Dodge) 930264, 8186**
(Williams' Tiger Moth)

RECORDS: F.W. (Fig. 24): **1967:** 12 June (worn ♂, very small and dark, UV), only record.

***Apantesis nais* (Drury) 930280, 8171**
(Nais Tiger Moth)

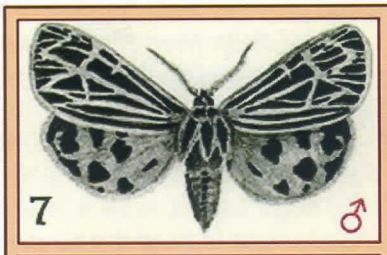
RECORDS: F.W. (Fig. 24): **1966:** 29 June (♂, UV). **1967:** 10 July (♂, UV). **1968:** 1 June (♂, UV); *ex wild larva*, 10 June (♀); 17 July (♂, UV). **1974:** 14 June (♂, UV). **1975:** 4 -5 July (3 males, UV). **1976:** 9 & 18 June (males, UV). The dorsal hindwings were sometimes entirely yellow, but on most individuals were pink- or red-flushed inwardly, with yellow on the outer edges. (This moth is larger than *A. carlotta*, with an earlier flight.) Identification verified by Hugh McGuinnes, 2017.

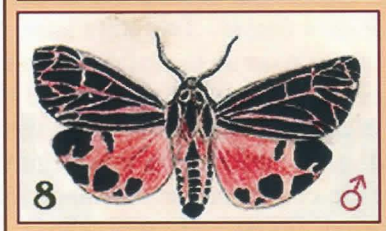
***Apantesis carlotta* Ferguson 930281, 8171.1**
[Scientific name follows Lafontaine & Schmidt, 2010]
(Carlotta's Tiger Moth)

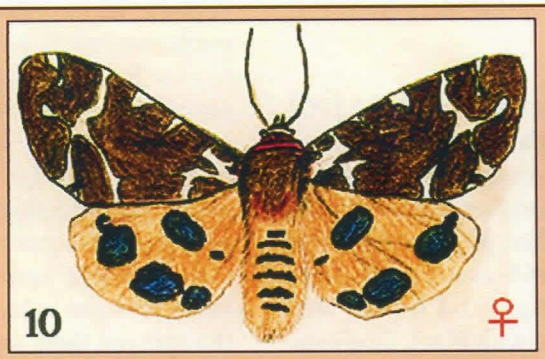
RECORDS: F.W. (Fig. 24), males, UV: **1965:** 7 Sept. **1966:** 8 Aug. **1967:** 7 Sept. Smaller than *A. nais*, with narrower pale bands and a black costa on the dorsal forewing, and a later flight (det. by Hugh McGuinness, 2017).

***Arctia caja* (Linnaeus),**
ssp. *americana* Harris 930290, 8166
(Great Tiger Moth)

RECORDS: F.W. (Fig. 24): One flight in Aug. **1965:** 18 Aug. (♀, UV, Fig. 10). **1967:** 7 Aug. (♂, UV), 9 Aug. (♂, porch light), 10 Aug. (♀, UV), 30 Aug. (infertile ♀, UV); Dirig (1967:10). **1968:** 10 Aug. (♂, UV). **1974:** 10 Aug., (3 males, UV), 11 Aug. (battered & fresh males, UV, Figs. 11-12), 12 Aug. (♂, UV), 17 Aug. (battered ♂, UV), 18 Aug. (rubbed males, UV). **1975:** 9 Aug. (♀, UV, *laid eggs, see below*). **1980:** 19 Aug. (♀, in grass). ***Recorded times*** at UV of five females were 9:30 p.m., and 1:10, 4:45, 5:00, & 8:00 a.m.; and of twelve males were from 9:30-10:30 p.m., and 4:45-6:30 a.m., with ***the majority in early morning***. Recorded ***night temperatures*** were 56°-73°F. (Great Tigers were not seen in 1966, 1969-1973, or from 1976-1979 at F.W.) **Delaware Co.: Delhi: 1965** (in a 4-H coll.); **B.C.: 1974:** 13 Aug., 6:00 a.m., UV (R. Miller, *letters of Sept. 1974 & Jan. 1975*; Dirig, 1975b:24); **Somerset Lake: 2013:** at light (Reuter, 2014, *photo)*. **Sullivan Co., Fremont: 1970:** 24 Aug. [♀at UV; laid eggs in brown paper bag, hatched 2 Sept.; larvae were fed Common Plantain (*Plantago major*); cocoons formed 7-15 Oct.; small adults emerged 8-14 Nov. (*RH*)]. **Greene Co., Windham: 2013: 13 Aug.** [♂ attracted by floodlights, resting under lettuce leaves in the morning, *JFC, email & photo* (Fig. 13), with redder hindwings than usual]. "Catskills" (Forbes, 1928:666). **O** (Fig. 24, *blue dots in graph*): **1962:** 9 Aug. (♀, UV, in rain), 10 Aug. (UV), (C. Seeley, 1963:37-39). **Otsego Co., Mt. Vision,** ca. 1975 (Cole family). **Otsego/Chenango Co. line, New Berlin: 1972:** 30 July, Tammie Cole (♂, UV). **Chenango Co., Greene,** along the Chenango River: **2009:** 27 July (UV), 11:25 p.m. (Ed Komperda, *email*).







CATSKILL LICHEN & TIGER MOTHS — II: **(7)** ***Apantesis virgo,*** pencil art, 1974. **(8-9)** ***Apantesis parthenice,*** colored art, 1965; pupa, drawn 10 Oct. 1965. **(10)** ***Arctia caja,*** art from specimen, 18 Aug. 1965; **(11-12)** male at UV, 11 Aug. 1974; **(13)** *"They come to ... floodlights in the gardens. I find them in the mornings torpid on the undersides of the lettuce,"* Windham, Greene Co., N.Y., John F. Cryan, 13 Aug. 2013; **(14)** egg mass inside a paper bag, 16 Aug. 1967; **(15)** cocoon & pupa, ink sketch from specimen, 1974. **(16)** ***Estigmene acrea,*** fully grown larvae on *Plantago lanceolata,* Nov. 1966. **(17)** ***Pyrrharctia isabella,*** a pre-hibernation larva nibbling *Gentianella quinquefolia,* 27 Sept. 1996. All from French Woods vicinity except (13).

Catskill Elevations (and Nearby): Windham is ca. 9 air-miles SW of East Durham (*M.R.* site in Fig. 1-B). Max Richter never saw wild *caja* there (Seeley, 1963:38); the 535-ft. elevation of his Butterfly Farm may be a factor, as **Windham** is at 1893 ft. In comparison, **F.W.** is 1840 ft., **Somerset Lake** is 1400 ft., **B.C.** is 1500-2000 ft., and **Delhi** is 1500 ft. (all Delaware Co.). **Fremont Center** (Sullivan Co.) is 1400 ft. **O** is 1200-1500 ft., **New Berlin** is 1200 ft., and **Mount Vision** is 1300-1500 ft. (all Otsego Co.). **Greene** (Chenango Co.) is ca. 1100 ft.

Life History: This magnificent arctiid, the glory of the group in our fauna, was reported from the northern edge of the Catskill region at Oneonta by Colleen Seeley. Her identification was verified by Frederick H. Rindge

of the American Museum of Natural History in N.Y.C. (Seeley, 1963:37-39).

I reared Great Tigers from F.W. stock in 1965 and 1967. In **1965,** a wild female that came to UV laid a patch of 442 white, pearl-like **eggs** in neat, even rows on 19 Aug. [Other females laid 330 eggs in one mass (on 19 Aug. 1980); and ca. 1400 eggs altogether, in several patches (on 9-11 Aug. 1975).] The 1965 ova turned black before hatching in 6 days (25 Aug.). **1-I larvae** were 1/8 in. long, light grey and setose, with black face caps, and devoured *Dandelion leaves to the midrib. Larvae molted to the **2-I** in 5-6 days (30-31 Aug.), turning darker greyish-black with longer setae, and darker and paler longitudinal stripes. They molted again (to **3-I** on 4-5 Sept.), being ¼ in. long, and exhibiting more lengthy dark grey setae, with greater contrast in the longitudinal stripes, eventually appearing mostly grey on the abdomen, and orangish-brown on the thorax. Following another molt (**4-I,** 11-12 Sept.), some larvae had brick-red face caps, with grey and whitish stripes on the body, and longer whitish setae. They continued to feed, but grew slowly, and several died. Some kept on molting, looking much the same, but with longer setae. By mid-October they had essentially ceased feeding. I had expected them to go through, but all eventually expired. Outdoors, they would have hibernated, and finished growing the following year. Not yet knowing of Max Richter's rearing protocol (*summarized below*), larvae were not kept at the even temperatures that produce direct metamorphosis without diapause. Those reared in **1967** yielded four full-sized adults between 26-29 October [♀ at UV, 6 Aug.; 220 eggs laid 8-10 Aug. (Fig. 14); hatched 15-17 Aug.; larvae fed *Dandelion, and housed and tended like those in 1965 (*details below*), but I was living in a college dorm room with even temperatures that autumn]. Larvae constructed oval cocoons of white silk and larval setae, wrapped in leaves, 1½ in. long and ¾ in. in diameter, around shiny, mahogany pupae that were 1 in. long and 3/8 in. wide (Fig. 15). See Wagner (2005:468) for a color photograph of the mature caterpillar.

In **1975,** J. G. Franclemont reared 29 specimens (CUIC) from ova I supplied, laid by a F.W. ♀ caught at UV on 9 Aug. His adults emerged between 29 Oct. and 12 Nov. 1975, from larvae reared on *Dandelion. There is no larval photo from this brood in Franclemont's digital archive at CUIC.

Notes on Rearing: Richter (1967) described his large-scale rearing strategy for *A. caja*: He kept larvae in a 20 X 20 X 15 inch box, **feeding** them parsley, carrot leaves, cabbage, and scraps of fruit (except citrus) [especially in winter], adding fresh leaves of cherry (*Prunus* sp.), maple (*Acer* sp.), and other trees in warmer seasons, to prevent messy frass. An ***even temperature*** kept the larvae eating and growing well. As soon as the pupae hardened, he ***removed them from their cocoons*** to a cardboard carton with a dampened linen cloth on the bottom, and ***moistened them daily with a spray of lukewarm water***. After about four weeks, the ***moths emerged*** perfectly. To ***mate adults,*** he enclosed 10-15 males and females in a large carton, with a shallow container of water on the bottom to keep the air moist, and ***a cover to keep it dark inside***. Two days later, the females began to lay ***egg masses*** on the inside of the box (he sprayed them again with lukewarm water). He also ***moistened the eggs daily*** with a fine spray of water. When the eggs turned yellow and darkened, he removed them to a closed plastic container for hatching. In a separate communication (*letter, 31 July 1967*), he mentioned *Dandelion and plantains (*Plantago* spp.) as ***additional larval foods***. When Seeley (1963:38) showed Richter her Oneonta larvae, which she was feeding plantain, he suggested she use *Dandelion instead. I kept F.W. larvae in tightly closed, transparent plastic containers with paper towels on the bottom, feeding them *Dandelion, and cleaning them daily. I did not spray them with water at any stage. In 1965, larvae were kept in an unheated upstairs room that did not have an even temperature as autumn progressed.

Distributional Context: Forbes (1928:666, 1960:36) listed additional **N.Y. localities for *A. caja*:** ADIRONDACK REGION: ***Peru & Black Brook*** (Clinton Co.) and ***Essex Co.***; Ed Komperda (*email, 27 July 2009*) also reported *caja* from ***Lake Placid*** (Essex Co.); and Steve Daniel found it at ***Edwards*** (St. Lawrence Co.) on 12 Aug. 2011 (Mello, 2016:244). WESTERN N.Y.: ***Lockport*** (Niagara Co.); ***Allegany State Park*** (Cattaraugus Co.); also ***Olean*** (Cattaraugus Co.), 7 Aug. 2004, John T. MacRoy (Mello, 2005:86); and ***Canaseraga*** (Allegany Co.). FINGER LAKES REGION: ***Ithaca & McLean*** (Tompkins Co.); ***Elmira*** (Chemung Co.). MOHAWK RIVER CORRIDOR: ***Trenton Falls*** (Oneida Co.); ***Canajoharie*** (Montgomery Co.); ***Gloversville*** (Fulton Co.); ***Sharon*** (Schoharie Co.). UPPER HUDSON RIVER VALLEY: ***Albany*** (Albany Co.); and ***Saratoga Springs*** (Saratoga Co.). Some of these localities represent historical occurrences.

Arctia caja was collected in **Pennsylvania** (Lackawanna Co.) by Max Rothke on 15 June 1929 (*the early date is suspect, unless a larval record*), BMNA website [*https://www.butterfliesandmoths.org/sighting_details/729340*], but was not mentioned by Tietz (1951); Wagner (2005:468) also listed this state in his range description. A distribution map on the Moth Photographers' Group website [*see first page for address*] shows additional eastern U.S. records in the upper Midwest (**Minnesota, Wisconsin, Michigan, Ohio**) and New England (**Vermont, New Hampshire, Maine**). I found a fully grown wild *caja* caterpillar

resting on Joe Pye Weed (*Eutrochium* sp.) at East Inlet, Coös Co., N.H., on 14 June 2004. This moth also occurs as a disjunct rarity at high elevations in the **southern Appalachians**. Backstrom & Lynch (2011:158-161, 165, Figs. 5-6 & 9) recorded several **North Carolina** occurrences: earlier reports from Mt. Mitchell State Park (Yancey Co.) and Elk Knob State Park (Watauga Co.), and a new one they discovered (31 individuals at lights at 3400 ft. on 30-31 July 2011, in a forest glade on public land in the Amphibolite Mountains region, Watauga Co., north of Boone near the Tennessee line). The Moth Photographers' Group also mapped records from **South Carolina**. Elsewhere, *A caja* is widely distributed in the **western U.S.**, southern **Canada**, and **Eurasia**.

***Spilosoma congrua* Walker 930309, 8134**
(Agreeable Tiger Moth)
RECORDS: F.W. (Fig. 24): **1966:** 7 June (♂, UV). **1969:** 30-31 May (males, UV). **1976** (males, UV): 11 May, 2 June (five); 8 June (♀, UV). **Sullivan Co., Fremont: 1975:** 1 June (♂), flushed in an old field in the daytime. **Catskills:** Forbes (1928:667).

***Spilosoma virginica* (Fabricius) 930316, 8137**
(Virginian Tiger Moth; *larva*: Yellow Bear)
RECORDS: F.W. (Fig. 24): **1964:** Aug. (porch light). **1966:** May (♀, UV); Dirig (1966:10). **1967:** Very common (UV). **1968:** 31 May (♂, UV). **1975** (males, UV): 1 June, 5 July (two). **Delaware Co., Delhi,** 4-H Camp Shankitunk: **1967:** 17 July (♂, UV). **O:** "common" (Cleveland, 1896). **Life History:** A wild larva was found at F.W. in late Sept. **1965** (1½ in. long, very furry, with yellowish-orange setae). It formed a thin cocoon of silk and its setae among leaves on 1 Oct.; the pupa (5/8 in. long, ¼ in. diameter) was kept in a heated room, yielding a ♂ on 24 Jan. 1966.

***Estigmene acrea* (Drury) 930317, 8131**
(Acrea or Salt Marsh Tiger Moth)
RECORDS: F.W. (Fig. 24): Adults uncommon, apparently two broods, mid-June to early July, and late Aug. **1966:** 27 Aug. (♀, *laid eggs*; Dirig, 1966:10). **1968:** 8 July (♀, UV). **1972:** 16 June (♂, UV). **1973:** 16 June (♂, UV). **1974:** 11 June (♂, UV). **O:** "common" (Cleveland, 1896); Forbes (1928:666). **Life History:** A ♀, caught 27 Aug. **1966,** laid a mass of 35 spherical eggs, which hatched on 30 Aug. (another mass had 54 eggs). Caterpillars were reared on *Narrow-leaved Plantain (*Plantago lanceolata*). Final-instar larvae had black face caps and body; with long tufts of black and rusty-brown setae, and three lateral rows of orange warts (Fig. 16). The shiny, mahogany-brown pupae formed on 4 Nov. A larva from eggs laid by another ♀ on 8 July **1968** produced a pupa, from which a ♂ adult emerged on 10 Sept.

***Phragmatobia fuliginosa* (Linnaeus), ssp. *rubricosa* (Harris) 930332, 8156**
(Ruby Tiger Moth)
RECORDS: F.W., all at UV (Fig. 24): **1967:** 8 Aug. **1976:** 30 & 31 July. **O:** "Three specimens," as *P. rubricosa* (Cleveland 1896).

***Phragmatobia assimilans* Walker 930334, 8158**
(Large Ruby Tiger Moth)
RECORDS: F.W. (Fig. 24): **1966:** 28 May (UV), only record. "Catskills," May (Forbes, 1960:24).

***Pyrrharctia isabella* (J. E. Smith) 930335, 8129**
(Isabella Tiger Moth)
RECORDS: (Fig. 24): Although Forbes (1960:24) and Wagner (2005:462) mentioned two adult flights, there appeared to be one extended brood at **F.W.,** flying in June and July (most at UV): **1964:** 30 July (porch light). **1966:** 4 July. **1968:** 16 June; 26 June (♀, *AB*). **1974:** 9 June (mated pair, 10:30 p.m.). **1975:** 1 June, 5 July. **1982:** 8 June (♀ at window). **1996:** Active "Woolly Bears" (pre-hibernation larvae), 25 Sept. (photo), and browsing on Stiff Gentian (*Gentianella quinquefolia*), Peas Eddy Rd., 27 Sept. (Fig. 17). **B.C.:** "*Shows up regularly throughout the season*" (R. Miller; Dirig, 1975b:24). **Catskills:** Forbes (1928:667). **O:** "*Common*" (Cleveland, 1896). **Historical Note:** A 100-year-old folk belief that the autumn larvae serve as weather prophets, based on width of the rusty band, appeared in a local newspaper (Anon., 2014:2): "*This fall [1914] the caterpillars have a coat of red, with tips of black on each end. This means that the greater part of the winter will be open, with shivery weather at start and finish.*"

***Haploa clymene* (Brown) 930341, 8107**
(Clymene Tiger Moth)
RECORDS: F.W. (Fig. 24): All at UV, not common, probably one brood. **1966:** 27 June (♂), Dirig (1966:10). **1967:** 27 July (♂), 1 Aug. (♀), 7 Aug. (♂, *BJD*). **Somerset Lake: 2013:** at light (Reuter, 2014, *photo*). A few adults were also flushed from swamp graminoids in the daytime. Larval foodplants: Wagner (2005:461) listed Boraginaceae and Asteraceae as *Haploa* foodplants, especially Joe Pye Weeds (*Eutrochium* spp.) and Boneset (*Eupatorium* spp.). These composites are common in F.W. wetlands.

***Haploa confusa* (Lyman) 930346, 8112**
(Confused Tiger Moth)
RECORDS: F.W. (Fig. 24): One brood from mid-July to mid-Aug. Adults often flushed in marshy areas with sedges in the daytime, and also came to lights at night. **1966:** 6 Aug. (UV). **1967:** 30 July, 1 Aug. (UV). **1975:** 13 July, 9 Aug. (♀ flushed in swamp, daytime). **1976:** 30 July. **1980:** 26 July (many in swamp sedges). **1981:** 18 July, 1 Aug. **1982:** 17 & 25 July, 7 Aug. **Delaware**

Co.: Pea Brook, Log Cabin Marsh: **1977:** 23 July, diurnal; **Delhi,** 4-H Camp Shankitunk: **1967:** 16-23 July (5 adults, UV). **Greene Co., Onteora Mt.:** Forbes (1928:665). **O: 1967:** 2 Aug., three adults in marsh graminoids, daytime (R. A. Arnold, R. Dirig, & C. Seeley). **Notes:** Extent of the white forewing spots varies (Figs. 18-19). Adults **nectared** diurnally at Common Milkweed (*Asclepias syriaca*) at F.W. **Larval Foodplants:** Covell (1984:64) gave Hounds' Tongue (*Cynoglossum* sp.) as a foodplant, but this was not present at F.W. Perhaps the closely related *Water Forget-Me-Not (*Myosotis scorpioides*), a widely naturalized, wetland-inhabiting European borage, might have served there for this and the previous species?

***Halysidota tessellaris* (J. E. Smith) 930360, 8203**
(Pale or Banded Tussock Moth)

RECORDS: F.W. (Fig. 24): Single-brooded, all at UV. **1967:** "Common, June-July," known dates: 24 & 26 July. **1974:** 6 July. **1975:** 5 & 13 July. **1981: Nectaring** diurnally at Common Milkweed, 19 July. **Delaware Co.: B.C.:** "Very common from mid-June to mid-August" (R. Miller; Dirig, 1975b:24). **Ulster Co., Oliverea:** Forbes (1928:668). **O:** "Common," as "*Halisidota tessellata*" (Cleveland, 1896); Forbes (1928:668). **Larval foodplants** are trees, including Alders (*Alnus* spp.), Maples (*Acer* spp.), and Hickories (*Carya* spp.), according to Forbes (1928:666, 1960:21). **Note:** This moth is very similar to *Halysidota harrisii* (Walsh) **930361, 8204** (Sycamore Tussock Moth). Eastern Sycamore (*Platanus occidentalis*), the foodplant tree, is locally distributed along the Delaware River corridor, but not in the uplands, the closest grove being ca. 8 miles from the house.

***Lophocampa caryae* Harris 930370, 8211**
(Hickory Tussock Moth)

RECORDS: F.W. (Fig. 24): All at UV, a single spring brood. **1967:** "Very common" (9 & 11 June). **1968:** 25 June (AB). **1974:** 14 June (males). **1976:** 19 June. **O:** "Common" (as *Halisidota c.*) (Cleveland, 1896). This species flies in June, whereas *H. tessellaris* appears in July. **Larval foodplants** are Hickories (*Carya* spp.) and other Juglandaceae, as well as many other woody plants (Wagner, 2005:470). Bitternut Hickory (*C. cordiformis*) grew within sight of the yard.

***Euchaetes egle* (Drury) 930412, 8238**
(Milkweed Tussock Moth)

RECORDS: F.W. (Fig. 24): Encountered only as ***larval mats*** on leaves of Common Milkweed, in early Aug. **1967,** Sept. **1972,** 7 Sept. **1987,** & 22 Aug. **1999** (Fig. 20). A ***cocoon,*** spun by a wild larva in **1972,** was ½ in. long and 3/16 in. wide, incorporating the caterpillar's long greyish-brown hairs, and tightly encasing a stout, shiny, blackish pupa (no moth emerged). **O:** "Rare" (Cleveland, 1896); Forbes (1928:666).

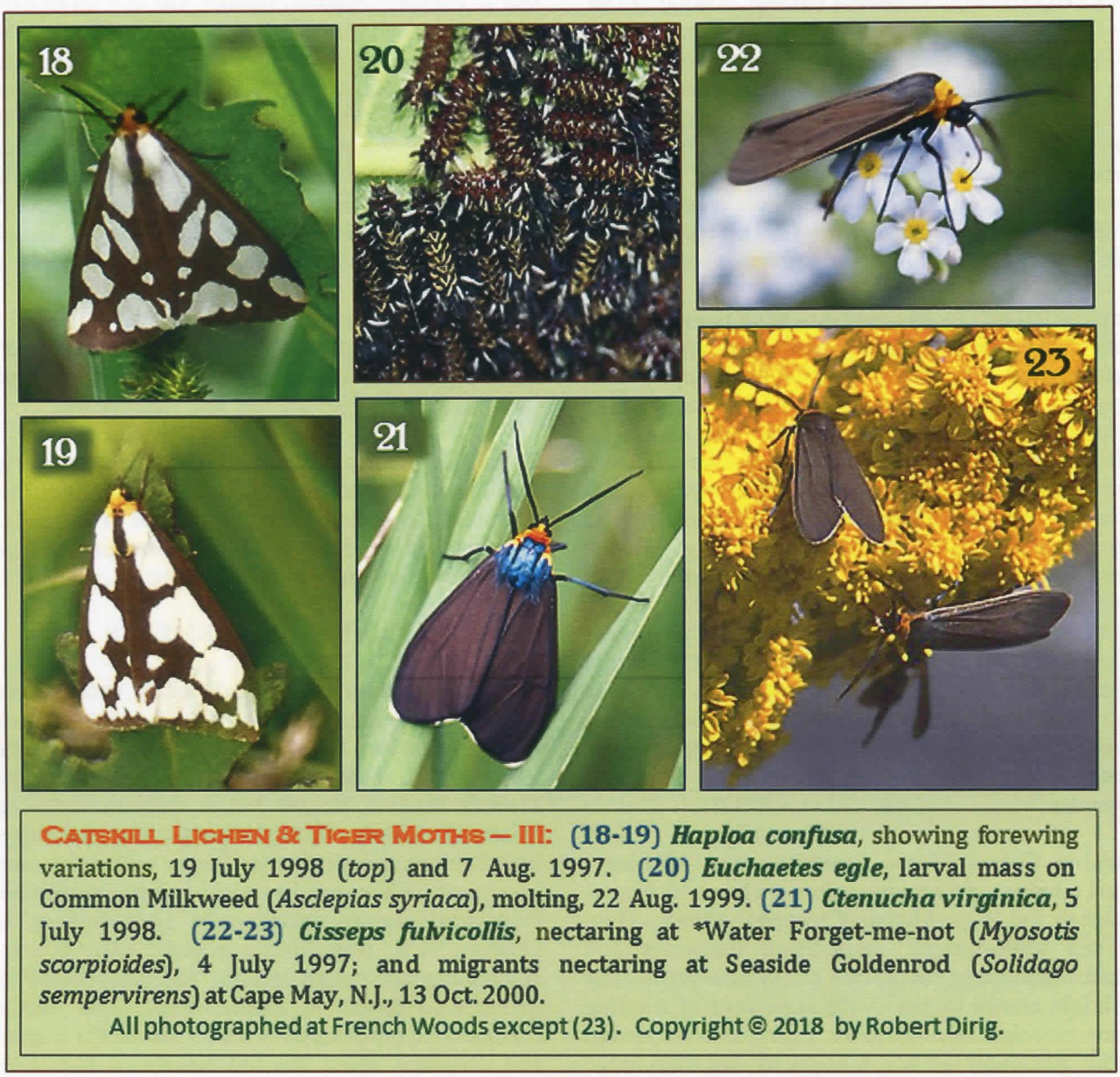
***Ctenucha virginica* (Esper) 930435, 8262**
(Virginia Ctenucha)

RECORDS: F.W. (Fig. 24): This very common moth is probably univoltine. **1966:** 14 June (♂, UV). **1968:** 25 June (♂, UV, *AB*). **1973:** 8 July (♀). **1975:** 15 June (♂, UV); 4 July (♀, old field; ♂, UV), 5 July (males, UV). **1977:** 18 June (♂, porch light). **1980:** 13 July (*MFD*); 17 July; 23 July (♀in sedges, daytime). **1981:** 20 June, 19 July. **1982:** 18 June; 4, 17, 18, & 24 July. **1983:** 2 July. **1986:** 5 July. **1998:** 5 July (Fig. 21). **1999:** 21 July (*photo*). **Delaware Co., Pea Brook,** Log Cabin Marsh: **1977:** 23 July (diurnal ♀); **Hungry Hill Bog** near Delaware Lake: **1975:** 5 July, on open *Sphagnum*/heath mat, in daylight. **Greene Co., Hunter, & Ulster Co., Big Indian:** Forbes (1928:620). **O:** "Common" Cleveland (1896); **5-I larvae** found in early July **1970,** feeding on "marsh grass," and **pupating** soon after; **adults** hatched 7-10 days later (*RH*).

Natural History: At F.W., adults often flushed in marshes and wet fields in daylight, but also came to lights at night. They diurnally **nectared** at *Oxeye Daisy (*Leucanthemum vulgare*), 5 July **1981**; *Water Forget-Me-Not, 18 June **1982**; Common Milkweed, 13 July in **1965** & **1980**, 5 & 18-19 July **1981**, 24 July **1982** (and additional dates); & *Canada Thistle (*Cirsium arvense*), 18 July **1982**. Moths also **fed at flowers** of *Oxeye Daisy, Indian Hemp (*Apocynum cannabinum*), Common Milkweed, & *Canada Thistle in the Finger Lakes Region, N.Y.; at Spreading Dogbane (*Apocynum androsaemifolum*) in the Finger Lakes and Albany Pine Bush, N.Y.; at †Purple Coneflower (*Echinacea purpurea*) in Ithaca, N.Y.; at New Jersey Tea (*Ceanothus americanus*) and Common Milkweed at the Pine Bush; and at Joe Pye Weed (*Eutrochium* sp.) elsewhere in the Northeast, all in daylight. **Larval foodplants** include grasses (Poaceae) and other plants (Forbes, 1960:58; Wagner, 2005:481). **Predator:** One was caught by a bat (Little Brown Myotis, *Myotis lucifugus*), which landed on the eaves of a lighted upstairs gable to feed, but dropped the moth when frightened by my movements inside (12:30 a.m., 6 July **1975**).

***Cisseps fulvicollis* (Hübner) 930440, 8267**
(Yellow-collared Scape Moth)

RECORDS: F.W. (Fig. 24): Double-brooded. **1968:** 1 July & 6 Aug. (UV). **1975:** 9 Aug. (UV). **1976:** 9-10 June (UV), 5 Sept. (diurnal, wet overgrown field). The following were at UV: **1980:** 15 June, 23 Aug. **1981:** 1 Aug. **1982:** 4 July. **1983:** 2 July. **1987:** 8 & 23 Aug., 7 Sept. **1988:** 15 Aug. **Nectaring** in sunlight (at F.W.) at *Oxeye Daisy, 4 July **1982**; *Water Forget-Me-Not, 2 July **1983**, 4 July **1997** (Fig. 22); Spreading Dogbane, late June; & *Common Yarrow (*Achillea millefolium*), 1 Aug. **1981**.



CATSKILL LICHEN & TIGER MOTHS — III: **(18-19) *Haploa confusa*,** showing forewing variations, 19 July 1998 (*top*) and 7 Aug. 1997. **(20) *Euchaetes egle*,** larval mass on Common Milkweed (*Asclepias syriaca*), molting, 22 Aug. 1999. **(21) *Ctenucha virginica*,** 5 July 1998. **(22-23) *Cisseps fulvicollis*,** nectaring at *Water Forget-me-not (*Myosotis scorpioides*), 4 July 1997; and migrants nectaring at Seaside Goldenrod (*Solidago sempervirens*) at Cape May, N.J., 13 Oct. 2000.

All photographed at French Woods except (23). Copyright © 2018 by Robert Dirig.

Additional Nectar Plants: Finger Lakes Region, N.Y.: Indian Hemp, Common Milkweed, Swamp Milkweed (*Asclepias incarnata*), Mountain Mint (*Pycnanthemum* sp.), Canada Goldenrod, Joe Pye Weed, Boneset (*Eupatorium perfoliatum*), Blue Vervain (*Verbena hastata*), and Frostweed Aster (*Symphyotrichum pilosum*). **Albany Pine Bush, N.Y.:** New Jersey Tea. **Adirondacks, N.Y.:** New England Aster (*Symphyotrichum novae-angliae*). **New Jersey:** Blue Mistflower (wild), and its culivated form, †Hardy Ageratum (*Conoclinum coelestinum*), Seaside Goldenrod (*Solidago sempervirens*, Fig. 23), Grass-leaved Goldenrod (*Euthamia graminifolia*), Slender Flat-topped Goldenrod (*E. carliniana*), and †Orange-eyed Butterfly Bush (*Buddleja davidii*).

Life History: Adults were active day and night, and apparently ***migrate south*** from Sept. to Nov. (*personal obs.*, Finger Lakes Region, N.Y., and Cape May, N.J., Fig. 23). **Late Ithaca dates:** 1 Nov. 1974, ♂ at light, 9:00 p.m., 65°F.; and 8 Nov. 2002, worn, probably a ***migrant***, nectaring at a pinkish-lavender-rayed, daisy-like †*Chrysanthemum* in a flower garden, 1:15 p.m., 60°F., bright sun. **Larval foodplants** are grasses (Poaceae; Forbes, 1928:670) and sedges (Cyperaceae; Wagner, 2005:481).

DISCUSSION

Twenty-two Lichen and Tiger Moth species were seen at F.W. Four additional species were collected in ***Oneonta***, at the northern edge of the Catskills: **Arge Moth [*Apantesis arge* (Drury)], 930240, 8199**, "very common" (Cleveland, 1896); Forbes (1928:666, 1960:33), occurring in two broods, June and Sept.; Seeleys (*personal com.*, and in their collection, 1960s). **Fall Webworm [*Hyphantria cunea* (Drury)], 930319, 8140**, "common" (Cleveland, 1896). **Great Leopard**

Moth [*Hypercompe scribonia* (Stoll)], 930323, 8146, "several specimens" (Cleveland, 1896), Forbes (1928:667), and Seeley family (*personal com.*, and in their collection, 1960s); this striking moth also occurs in the lower Hudson River valley and on Long Island in N.Y. And **Spotted Tussock Moth (*Lophocampa maculata* Harris), 930373, 8214**, "common" (Cleveland, 1896, as *Halisidota* [*sic*] *maculata*), Forbes (1928:668, as *Halysidota maculata*). This makes a total of 26 species recorded from the southern Catskills.

The phenogram (Fig. 24) compares adult flights of F.W. species. The earliest moths (*Spilosoma congrua, S. virginica*, and *Phragmatobia assimilans*) appeared in May, and the latest (*Apantesis carlotta* and *Cisseps fulvicollis*) in September. *Apantesis virguncula, A. williamsii, Spilosoma congrua,* and *Lophocampa caryae* were primarily June fliers, while *Hypoprepia fucosa, Apantesis virgo, Phragmatobia fuliginosa*, and *Halysidota tessellaris* dominated in July. August featured *Apantesis parthenice*, and *Arctia caja*. Other apparently single-brooded species (*Lycomorpha pholus, Apantesis nais, Spilosoma virginica, Pyrrharctia isabella, Haploa clymene, H. confusa*, and *Ctenucha virginica*) had more expanded flight seasons. The wide adult date spreads of *Estigmene acrea* and *Cisseps fulvicollis* suggest more than one brood. Larval mats of *Euchaetes egle* appeared in late August and early September.

Warning Colors, Toxic Exudates, and Mimicry: Visual mimicry and warning colors are frequent themes in Lichen and Tiger Moths. *Ctenucha virginica* (Fig. 21) has white-fringed, matte-black forewings and jet-black hindwings, set off by a glossy blue-green body and bright orange thorax — the same suite of warning colors modeled by the toxic Pipevine Swallowtail (*Battus philenor*) — which suggests distastefulness. *Cisseps fulvicollis* (Figs. 22-23) and *Lycomorpha pholus* (Fig. 2) share similar coloring. Chocolate-and-white forewings with bright orange, blue-spotted hindwings and a red body in *Arctia caja* (Figs. 10-13) strongly advertise its noxious taste. [The forewings of *Haploa confusa* (Figs. 18-19) are also colored like *caja's*, and their bodies have orange areas.] *Apantesis virgo* (Fig. 7), *A. parthenice* (Fig. 8), *A. nais, A. carlotta* — and *Hypoprepia fucosa* (Fig. 6), on a smaller, paler scale — wear red, in combination with bold black-and-beige markings, recalling the Monarch's (*Danaus plexippus*) warning signature [*H. fucosa* adults also visually mimic cyanogen-sequestering fireflies (Coleoptera, Lampyridae), see Chialvo *et al.* (2018:24); while larvae of *Euchaetes egle* (Fig. 20) also share the orange, black, and white warning colors and foodplant of the Monarch.] *Phragmatobia fuliginosa* and *P. assimilans* subtly feature red, but have brown bodies and forewings. Yellow-orange and black warning colors figure in *Apantesis virguncula*, some individuals of *A. nais* and *A. carlotta, Haploa clymene*, and to a lesser extent in *Pyrrharctia isabella* (which has a red abdomen); also *Halysidota tessellaris* (which features subtle blue lines on the thorax), *Lophocampa caryae*, males of *Estigmene acrea* (and the abdomens and male venters of that species), and abdomens of *Spilosoma virginica*. Some of these moths are known to exude bubbles of toxic fluid from the thorax when threatened (Wagner, 2005:470). These subtle mimicry systems, which may be founded on two well-known, poisonous butterfly models, are likely Mullerian.

Perhaps Lichen and Tiger Moths are not as noticeably declining in the Northeast as saturniids and sphingids (Wagner, 2012) — or are just less well known.

These charming, often colorful moths provide a bright window into a shadowed microcosm, where voracious nocturnal ***Bears*** prowl through jungles of grasses and broad-leaved weeds, in due season emerging as ***Tigers*** that display the brightest colors on their coats of arms.

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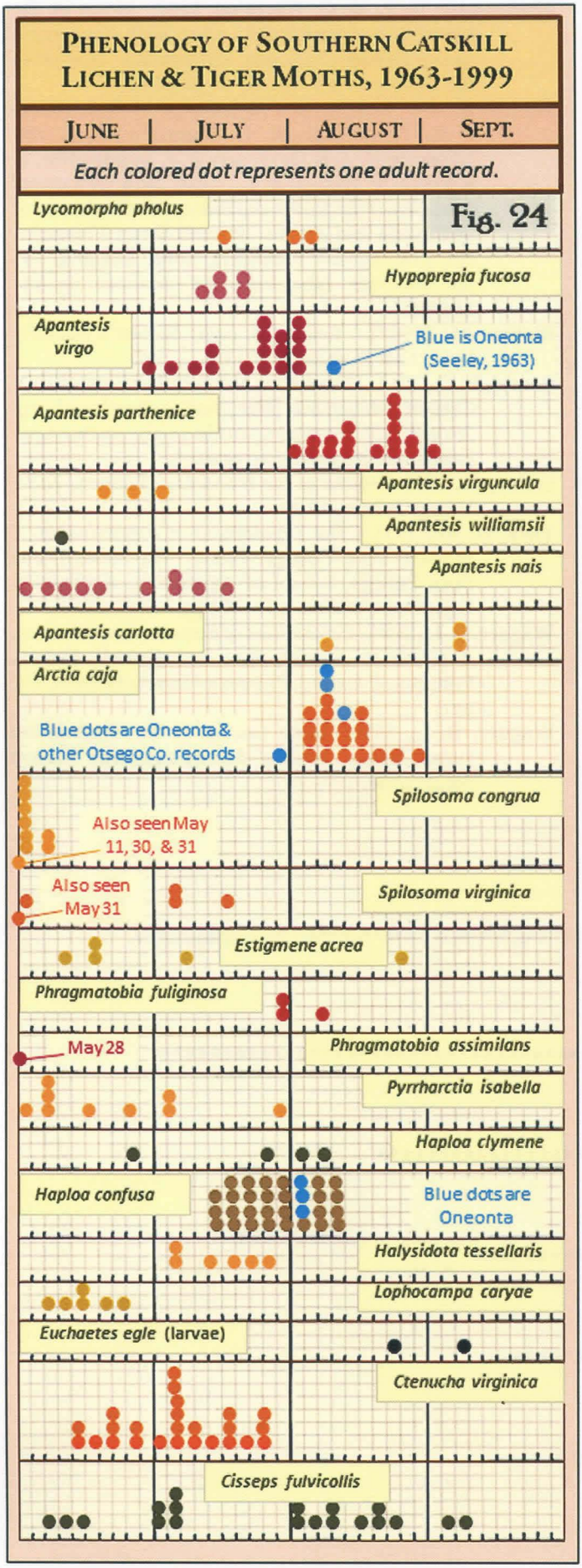

LITERATURE CITED

Anon., 2014, 17 Dec. 100 Years Ago, Additional Locals. *Hancock Herald* 142(35):2. [Woolly Bears (Isabella Tiger Moth larvae) as weather prophets.]

Backstrom, P., & J. M. Lynch, 2011. First Encounters: A (Moth) Night To Remember. *Southern Lepidopterists' News* 33:157-166 [*Arctia caja* records & photos from N.C.].

Beadle, D., & S. Leckie, 2012. *Peterson Field Guide to Moths of Northeastern North America.* Boston & New York, Houghton Mifflin Harcourt, xii + 611 pp.

Brodo, I. M., 2016. *Keys to Lichens of North America: Revised and Expanded,* first edition. New Haven, Yale University Press, xi + 427 pp., 37 figs, & 14 plates [keys to 2000+ species, including crusts].

Brodo, I. M., S. D. Sharnoff, & S. Sharnoff, 2001. *Lichens of North America,* New Haven & London, Yale University Press, xxiv + 795 pp. [939 color photos].

Brooks, K. L., 1979. *A Catskill Flora and Economic Botany. I. Pteridophyta, the Ferns and Fern Allies.* New York State Museum Bulletin 438: i-x, 1-276.

Chialvo, C. H. Scott, P. Chialvo, J. D. Holland, T. J. Anderson, J. W. Brienholt, A. Y. Kawahara, X. Zhou, S. Liu, & J. M. Jaspel, 2018. A Phylogenomic Analysis of Lichen-feeding Tiger Moths Uncovers Evolutionary Origins of Host Chemical Sequestration. *Molecular Phylogenetics and Evolution* 121: 23-34.

Cleveland, G. F., 1896. A List of Lepidoptera Taken at Oneonta, N.Y., 1894. *Entomological News* 7:72-74 [also includes a few records from 1893].

Covell, C. V., Jr., 1984. *A Field Guide to the Moths of Eastern and Central North America* (Peterson Field Guide Series), Boston, Houghton Mifflin Co., xvi + 496 pp.

Dirig, R., 1966. New York, pp. 9-10. ***In:*** Arnold, Dick (ed.), *First Annual TIEG Season's Insect Collection Summary for the 1966 Season.* Teen International Entomology Group, Cornell University, Ithaca, New York, 12 pp.

Dirig, R., 1967, Fall. Regional Reports. New York. *TIEG Newsletter* 3(4):9-10.

Dirig, R., 1975a. *Growing Moths.* Ithaca, N. Y., College of Agriculture & Life Sciences, Cornell University, 4-H Members' Guide M-6-6, 39 pp.

Dirig, R., 1975b. January. Regional Reports. New York State. [Ronnie Miller's B.C. records.] *TIEG Newsletter* 9(2-3): 24-25.

Dirig, R., 1977. *Labelling and Storing an Insect Collection.* Ithaca, N.Y., New York State College of Agriculture and Life Sciences, Cornell University, 4-H Members' Guide M-6-7, 21 pp.

Dirig, R., 2015. Natural History Notes on Giant Silkworms (Saturniidae) of the Catskill Mountains, New York. *Southern Lepidopterists' News* 37(3):132-143.

Dirig, R., 2016a. Natural History Notes on Sphinx Moths (Sphingidae) of the Catskill Mountains, New York. *Southern Lepidopterists' News* 38(1):37-50.

Dirig, R., 2016b. Natural History Notes on Underwing Moths (*Catocala* spp. and *Euparthenos nubilis,* Erebidae) of the Catskill Mountains, New York. *Southern Lepidopterists' News* 38(3):211-224.

Dyar, H. G., 1897. The Larva of *Lycomorpha pholus*. *Psyche, A Journal of Entomology* 8(254):82-83.

Fenneman, N. M., 1938. *Physiography of the Eastern United States*. McGraw-Hill Book Company, Inc., N.Y., xiv + 714 pp.

Forbes, W. T. M., 1928. Arctiidae, Lithosiidae, & Euchromiidae, pp. 665-670. ***In:*** Leonard, M. D. (ed.), A List of the Insects of New York, *Cornell Univ. Agricultural Experiment Station Memoir* 101:1-1121 + locality map.

Forbes, W. T. M., 1960. Arctiidae (pp. 12-41), Lithosiidae (pp. 41-50), & Euchromiidae (pp. 56-58). ***In:*** his *Lepidoptera of New York and Neighboring States,* Part IV. *Cornell Univ. Agricultural Experiment Station Memoir* 371:1-188.

Hinds, J. W., & P. L. Hinds, 2007. The Macrolichens of New England. *Memoirs of the New York Botanical Garden* 96:i-xxii, 1-586.

Hodges, R. W., T. Dominick, D. R. Davis, D. C. Ferguson, J. G. Franclemont, E. G. Munroe, & J. A. Powell (eds.), 1983. *Check List of the Lepidoptera of America North of Mexico, Including Greenland.* London, E. W. Classey Ltd. & The Wedge Entomological Research Foundation, xxiv + 284 pp.

Lafontaine, J. D., & B. C. Schmidt, 2010. Annotated Check List of the Noctuoidea (Insecta, Lepidoptera) of North America North of Mexico. *ZooKeys* 40: 1-239 [subfamily Arctiinae on pp. 14-22].

Mello, M. J. (Coordinator), 2005. New York, pp. 85-86. Zone 10 Northeast, 2005 Season Summary. *News of the Lepidopterists' Society* 48 (S1):83-88.

Mello, M. J. (Coordinator), 2016. New York, pp. 241-244. ***In:*** Zone 10 Northeast, 2015 Season Summary, *News of the Lepidopterists' Society* 58(S1): 237-246.

Moskcowitz, D. P., & C. Westphal, 2002. Notes on the Larval Diet of the Painted Lichen Moth *Hypoprepia fucosa* Hübner (Arctiidae: Lithosiinae). *Journal of the Lepidopterists' Society* 56:289-290.

Pohl, G. R., J.-F. Landry, B. C. Schmidt, J. D. Lafontaine, J. T. Troubridge, A. D. Macaulay, E. J. van Nieukerken, J. R. deWaard, J. J. Dombroskie, J. Klymko, V. Nazari, & K. Stead, 2018. *Annotated Checklist of the Moths and Butterflies (Lepidoptera) of Canada and Alaska.* Pensoft *Series Faunistica* No. 118. Pensoft Publishers, Sofia, Bulgaria, 583 pp. [relevant lithosiines and arctiines on pp. 334-343].

Richter, M., [1967]. Rearing *A. caja*. Richter's Butterfly Farm, East Durham, N.Y., 1 p.

Reuter, E. C., 2014. Discovering Moths in The Southern NY Catskill Mountains [*http://nationalmothweek.org/2014/01/15/discovering-moths-in-the-southern-ny-catskill-mountains-eric-c-reuter/*].

Seeley, C., 1963. *Moths of the Woodside*. Laurens, N.Y., Village Printer, 40 pp.

Tietz, H. M., 1951. *The Lepidoptera of Pennsylvania, A Manual*. State College, Penna., The Pennsylvania State College, School of Agriculture, Agricultural Experiment Station, xii + 194 pp.

Wagner, D. L., 2005. *Caterpillars of Eastern North America, A Guide to Identification and Natural History*. Princeton & Oxford, Princeton University Press, 512 pp.

Wagner, D. L., 2012. Moth Decline in the Northeastern United States. *News of the Lepidopterists' Society* 54(2):52-56.

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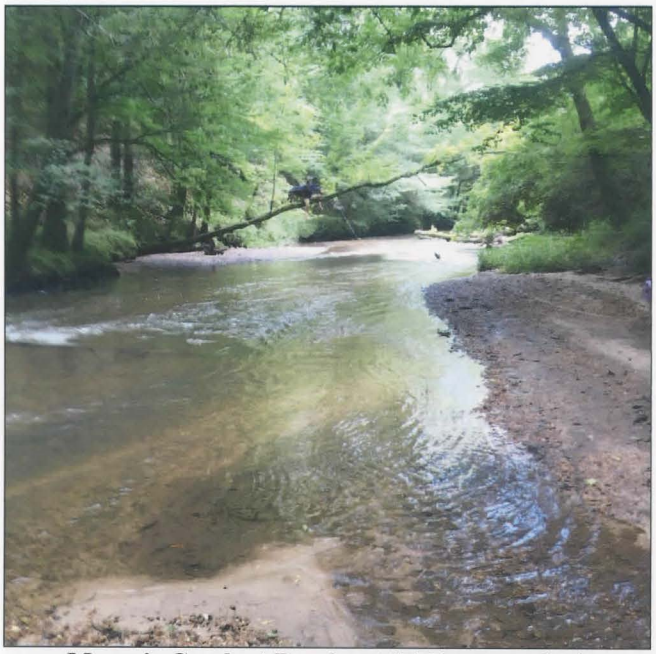
BEECHNUT NATURE RETREAT

BY

CRAIG W. MARKS

As I have discussed in past articles, my youngest daughter, Mattie, is a soccer player. After a successful high school career (including 2018 high school and club team state championships), she had offers to play soccer in college and ultimately decided to play at Mississippi College in Clinton, MS. She started in mid-August and has been playing Fridays and Sundays throughout the fall. It appears her team has qualified for a bid to the NCAA Division II tournament, so her season continues as of the writing of this article in early November.



Magee's Creek at Beechnut (T. Baumgarden)

As a result, I have spent almost every weekend on the road, traveling to watch her play. While I have visited such exotic spots as Livingston, AL, Cleveland, MS, and Montevallo, AL, I have not had many chances to get into the field to see any butterflies. On the last weekend in September, I was set to drive to Clinton to watch her play. It just so happened that Linda Auld, New Orleans' famous "BugLady," invited me to a Bug Field Day at Beechnut Nature Retreat near Tylertown, MS, on Saturday, September 29. Mattie's games that weekend were scheduled for the Friday evening before, and the Sunday afternoon after so I seized the opportunity and accepted her invitation. At 8:00 that Saturday morning, the weather was somewhat threatening, but I started south from Clinton to Tylertown anyway. The further south I drove the more the skies cleared. By the time I got to Tylertown at about 10:00, it was a pretty day.

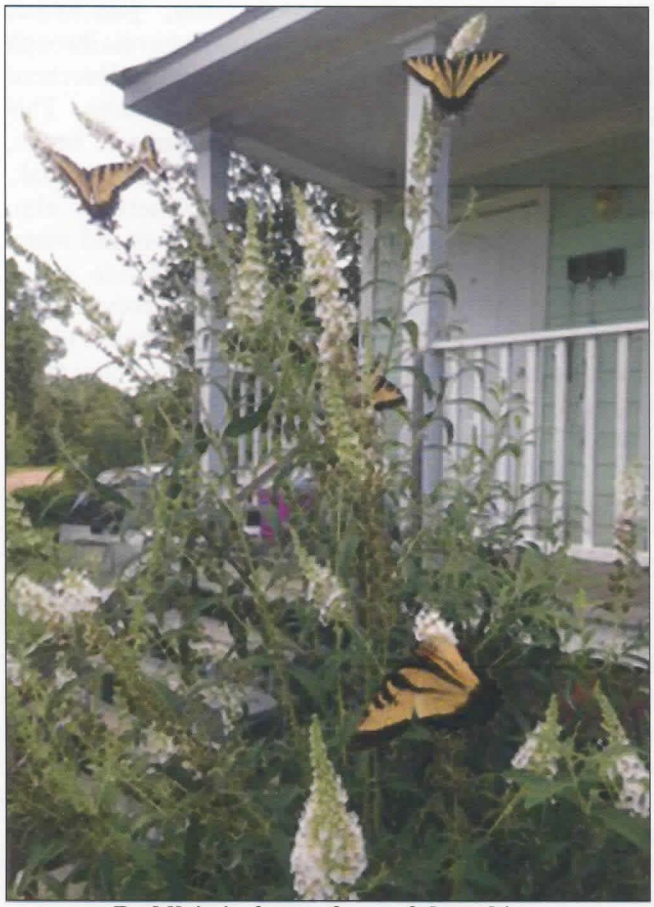
Beechnut Nature Retreat is a privately-owned property comprised of 38 acres in southern Mississippi, between the Pearl and Bogue Chitto Rivers in Walthall county, 90 miles North of New Orleans, LA. The Eastern portion of the Beechnut property is bordered by Magee's Creek. This creek is a cool water, year-round, sandy-bottom, spring-fed water-way that travels through bottomland hardwood forest on the edge of the Beechnut property for a distance of at least one-half mile. This part of the property has mature American beech, southern magnolia, water oak, red oak, willow oak, laurel oak, *Ilex opaca*, ironwood, American elm, sourwood, black gum, holly, native azaleas and many native understory woody plants like Florida anise, devilwood, Virginia willow. Water hickory occurs along, sometimes in the stream also. Herbaceous plants include many ferns, asters, crownbeard and many vines including several varieties of *Smilax*, wild grapes, *Passiflora lutea*, introduced and native Wisterias and honeysuckles as well as many ferns and aquatic plants in or at the creek edges.

Moving up from the creek toward the property's three cottages and ornamental gardens, one comes through dense spruce pine forest mixed with basket (or cow) oaks, water oak, black gum, tulip poplar, yaupon holly, ironwood, *Halesia*, witchhazel, sumac, *Aralia spinosa* and *Callicarpa*, with sunnier openings full of asters, *Eupatoriums, Solidagos*, grasses and sedges. The path up from the creek crosses deep sloughs, past, relic passageways of the creek. These create minor oxbows and deep ravines that are intermittently immersed and/or wet for periods of time and are populated with many aquatic plants like lizard's tail, bald cypress, tupelo, black willow, and many wet grasses and sedges.

One of three cottages at Beechnut (T. Baumgarden)

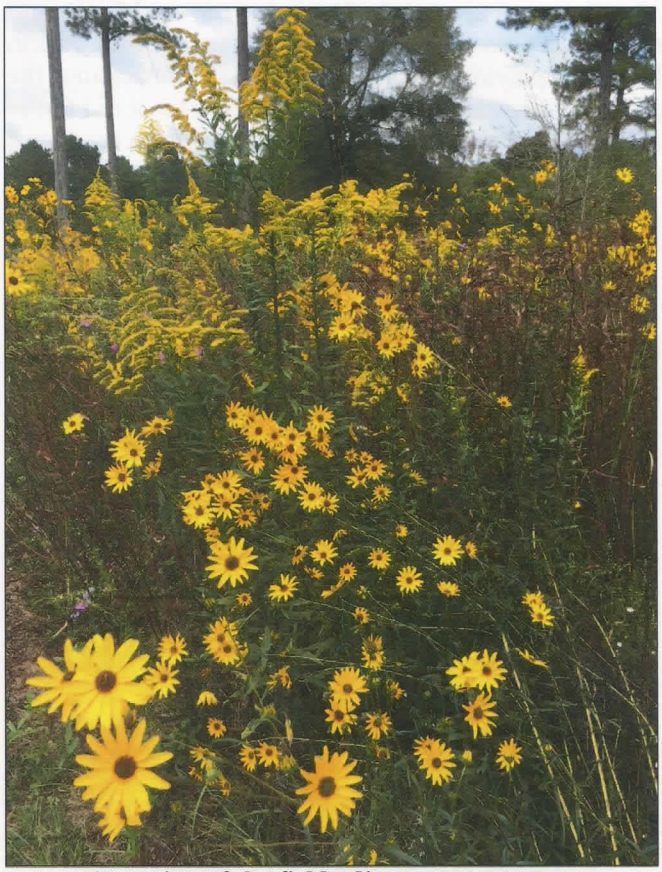
The three cottages are surrounded by ornamental and pollinator gardens overflowing with flowering annuals during the warm season. Porterweed, *Tithonia, Zinnias, Pentas, lantana*, and *Cupheas* intersperse with perennial herbaceous plants like *Echinacea*, asters, *Boltonia, Ratibida*, vitex, bush clover *lespedeza*, cultivated

goldenrods like 'Fireworks', Joe Pye Weed, ironweed, salvias of various kinds, various Phloxs like "Robert Poore" and 'John Fannick', 'Minnie Pearl', Louisiana woodland blue phlox, *Monardas*, and violets underneath all fill out the cottage gardens along with the requisite evergreen sasanquas, azaleas, gardenias, and such of a southern garden.



Buddleia in front of one of the cabins (T. Baumgarden)

Large swaths of garden and the entire field, three acres in size, across from the cabins are given over to yellow waves of partridge pea in September, followed by common goldenrod, narrow-leaf sunflower, wild blue ageratum, *Agalinis*, blue praeltus asters, white *Boltonia*. Late-flowering thoroughwort, boneset and dog fennel. Here and there are grass-leafed asters, rayless goldenrod, and Pseudognaphalium, host for the Painted Lady, all punctuated by pine trees, wax myrtle, native persimmon, buttonbush and yaupon. Wetter areas bloom with large areas of smartweed and cardinal flowers, some native milkweeds like *A. perennis* and *A. incarnata* having been planted here also. Native maypops grow in the field and pop up in many of the gardens along with cultivated varieties *P. lutea, P. cerulea*, 'Lady Margaret' and 'Incense'. Native clematis grows amongst arrowwood viburnums and *Cliftonia* in the part shade of the oaks near the houses. Some trials with hop vines are being conducted hoping to attract Eastern Commas and other like species. Pea vines, both edible and ornamental, are allowed to clamber over metal arches in the large raised-bed vegetable garden for the many skippers. The hoops and fences also support morning glory vines, and lots of cardinal creeper vines. Crossvine and coral honeysuckle vines are also cultivated on the property. *Sida rhombilfolia* is allowed to grow in various areas in order to attract checkered-skippers. Mowing is kept to a minimum throughout except to keep walking paths clear for observation.



A portion of the field adjacent to cottages, filled with wildflowers (T. Baumgarden)

Red maples, southern red cedar, parsley hawthorn, white leaf mountain mint and American wahoo grow wild near the farthest cottage from the road where sassafras and Mexican buckeye have been added. Mexican plum and several *Vaccineum* species have been identified in this area also. A large wet area nearer the highway is full of very mature sweet bay trees and the fields flanking the exit/entrance road are likewise populated with *Eupatoriums*, mistflower and goldenrod late in the season and dotted with thistle and fleabanes during the summer. Lead plant has recently been found here also.

The owner of Beechnut, Tammany Baumgarden, is a professional Horticulturist, Master Gardener and lecturer on the importance of native plantings and gardening for wildlife. I first met Tammany at the 2018 NABA 4th of July Count at Allen Acres, and was impressed with her keen eye for butterflies. In advance of Linda's Bug Field Day, Tammany and Linda had

combined to generate a list of butterfly species previously seen there at Beechnut. Linda's contributions were based on two previous visits in September (2017 & 2018) and one on Memorial Day (2018). That list includes:

Swallowtails:
Black Swallowtail
Giant Swallowtail
Palamedes Swallowtail
Pipevine Swallowtail
Spicebush Swallowtail
Eastern Tiger Swallowtail

Whites & Sulphurs:
Cabbage White
Great Southern White
Cloudless Sulphur
Little Sulphur
Orange Sulphur
Sleepy Orange

Hairstreaks:
Gray Hairstreak
Great Purple Hairstreak
Red Banded Hairstreak

Blues:
Spring Azure

Milkweed Butterflies:
Monarch

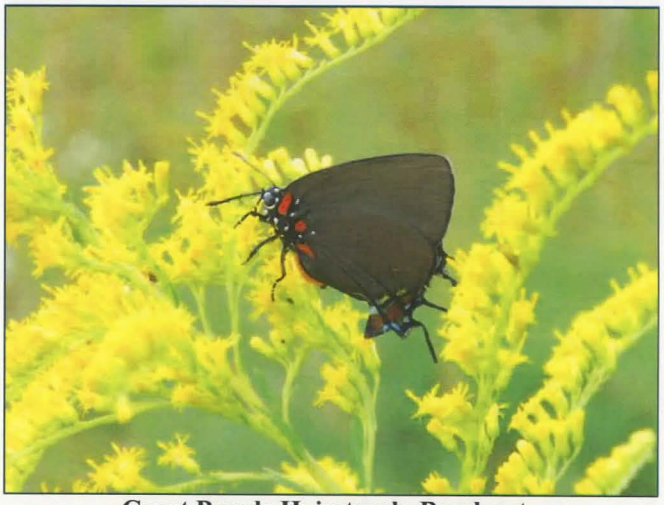
Brushfoots:
American Painted Lady
American Snout
Common Buckeye
Gulf Fritillary
Mourning Cloak
Painted Lady
Pearl Crescent
Question Mark
Red Admiral
Red Spotted Purple
Silvery Checkerspot
Variegated Fritillary
Viceroy

Satyrs:
Carolina Satyr
Little Wood Satyr

Spreadwing Skippers:
Long Tailed Skipper
Silver-spotted Skipper
Southern Cloudywing
Horace's Duskywing
Common Checkered Skipper
Tropical Checkered Skipper

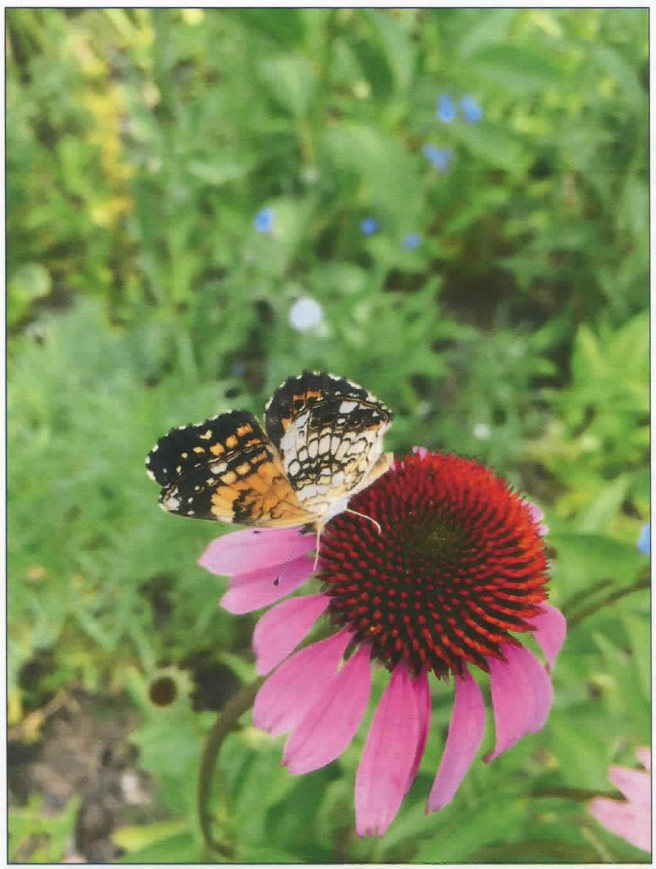
Grass Skippers:
Clouded Skipper
Dun Skipper
Fiery Skipper
Ocola Skipper
Sachem
Southern Skipperling
Whirlabout

I was able to document 30 species on September 29. Several spots on the property have native cane, and at one we were able to witness a female Southern Pearly-Eye ovipositing, the first time I've actually seen that species do so. Another highlight was two extremely fresh Great Purple Hairstreaks (the first was a male, the second a female) docilely feeding at goldenrod, allowing for numerous photo ops. Down by Magee's Creek we sighted a Silvery Checkerspot, a late season sighting.



Great Purple Hairstreak, Beechnut, 29-IX-2018 (L. Auld)

The sulphurs were present in great profusion, a combined result of the numerous larval foodplants and nectar sources. The same was true for the large numbers of Gulf and Variegated Fritillaries. As the day warmed, I found the most activity at the numerous nectar sources around the cabins. Rather than walk the trails, I simply circled those cabins. I do not recall every finding so many Whirlabouts in one concentrated location. At the end of the day, we drove to the front of the property where there was a stand of cane, and it was there the female Southern Pearly-eye was located. Along the access road were several thick stands of blooming *Eupatorium*. The number of skippers in this area was impressive. In addition to the Southern Pearly-eye, we were able to add two other species to the property list, Swarthy and Tawny-edged Skippers.



Silvery Checkerspot, Beechnut, 29-IX-2018 (T. Baumgarden)

The day's list included:

2 Pipevine Swallowtails
2 Eastern Tiger Swallowtails (one was a black female)
1 Palamedes Swallowtails
1 Cabbage White
10+ Cloudless Sulphurs
20+ Sleepy Oranges
10+ Little Yellows
2 Great Purple Hairstreaks
6 Red-banded Hairstreaks
1 Gray Hairstreak
20+ Gulf Fritillaries
7 Variegated Fritillaries
10+ Pearl Crescents
2 Silvery Checkers
10+ Buckeyes
2 Red Admirals
1 Viceroy
1 Southern Pearly-eye
20+ Carolina Satyrs
10+ Long-tailed Skippers
2 Southern Cloudywings
1 Horaces Duskywing (an extremely mottled female)
3 Tropical Checkered-skippers
2 Swarthy Skippers
1 Southern Skipperling
20+ Clouded Skippers
10+ Fiery Skippers
10+ Whirlabouts
3 Tawny-edged Skippers
3 Ocola Skippers

The property is continuously being developed to increase diversity and wildlife value. Recent additions include *Ptelia*, sassafras, *Eryngium yuccifolium*, several *Liatris* species, *Baptisias*, big blue stem and *Panicum* grasses, New Jersey tea, *Clethras*, additional *Eupatorium* species, additional *pycanthemum* species, hackberry and hop vines. I intend to return in the spring and early summer. I anticipate surveys conducted during those seasons will continue to expand the property's butterfly species list, adding anticipated species such as Zebra Swallowtails, Juniper and Banded Hairstreaks, Eastern Tailed Blues, Goatweed Leafwings, Hackberry and Tawny Emperors and Juvenal's Duskywings. I want to explore the sedge areas for possible Duke's and/or Dion Skippers. Other possible species include Henry's Elfins, White M Hairstreaks, Gemmed Satyrs, Least Skippers, the two Broken-dashes, Pepper and Salt and Lace-winged Roadside Skippers.

Two of the three cottages are occasionally available to rent for overnight stays, sleeping four and three respectively. Camping is allowed and welcome on the premises. If camping is not your style, the clean and well-run Liberty Inn, (601) 876-4444, is five minutes away with reasonable rates for overnight stays in single or double rooms with minifridge, Cable TV, and Wi-Fi. Tylertown has multiple fast food options, a couple of restaurants, and two grocery stores all within minutes Beechnut. For more information, to arrange a visit, or see species lists for the retreat, visit the website beechnutms.life. Three to four times a year, Beechnut hosts Outdoor Classroom-style events for naturalists and the general public by registration. Information about these events will likewise be posted on the website periodically.

I would like to thank Tammany for her hospitality and the information she provided for inclusion in this article. I also would thank Linda for the invitation and her previous work on compiling a species list for this location. Finally, I would thank Dr. Charles Allen for his editing assistance.

(Craig W. Marks, E-Mail: cmarks@landcost.com)

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EGIRA ALTERNANS (WALKER, [1857]) (LEPIDOPTERA: NOCTUIDAE) IN LOUISIANA

BY

VERNON ANTOINE BROU JR.

Fig. 1. Adult ***Egira alternans*** phenotype variations, males and females, a-j all from Abita Springs, St. Tammany Parish, Louisiana captured in February 2005-2009.

The moth species ***Egira alternans*** (Walker) (Fig. 1) is very abundant, flying during warmer hours on winter nights. The genus ***Egira*** Duponchel,1845 currently contains approximately 30 described species. ***Egira alternans*** Walker is a member of the Tribe *Orthosiini* Guenée. This species was originally described in 1857 as ***Hapalia alternans*** Walker.

Epunda onychina Guenée, 1852, currently placed in the genus ***Brachylomia***, was reclassified as a senior synonym of ***Egira alternans*** (Walker, [1857]), but the name ***onychina***, was not associated with any known species in more than 150 years, is treated as a *nomen oblitum*, so ***Egira alternans*** is a *nomen protectum* under provisions of Article 23.9.2 of the *International Code of Zoological Nomenclature* (Lafontaine, 2004).

Forbes (1954) reported this species under the name ***Xylomiges alternans*** Walker, stating it occurs Canada to Alabama and is rare. Covell (1984) stated ***alternans*** occurs Maine to north Florida, west to Kentucky and Texas in the months February to June, and common southward, rare in the north. Wagner (2005) stated ***alternans*** occurs southern Canada to Florida and Texas and having one annual brood, with a host of larval foodplants including common plants as blueberry, cherry, oak, walnut, and willow. Powell and Opler (2009) covered three species of ***Egira***, but not ***alternans***. ***E. alternans*** also was not covered by Rockburne and Lafontaine (1976), nor Heitzman & Heitzman (1987). **Heppner** (2003) stated ***alternans*** occurs Maine to Florida and Illinois to Texas in the months Februay to March. Additional larval foodplants by various authors include: ***Lonicera*** species, ***Prunus*** species, ***Quercus*** species, and ***Salix*** species.

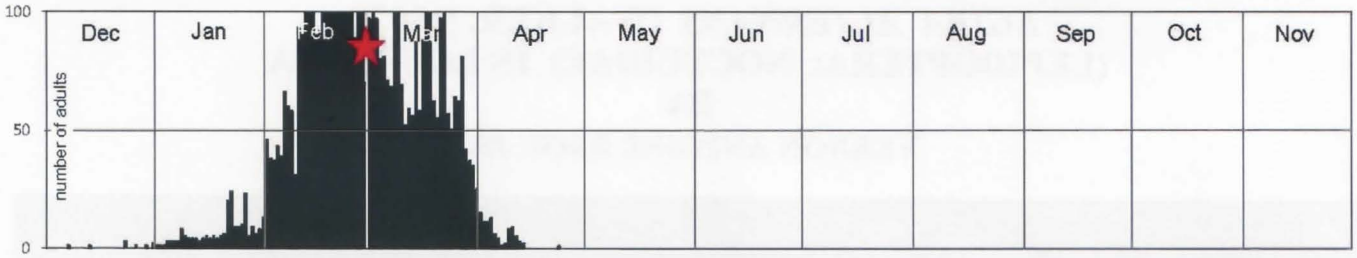

Fig. 2. ***Egira alternans*** captured at sec.24T6SR12E, 4.2 mi. NE of Abita Springs, Louisiana. n = 5,395

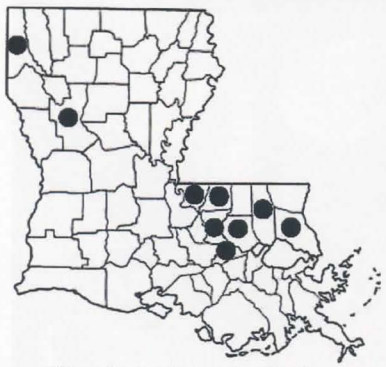

Fig. 3. Parish records for ***Egira alternans***.

Surprisingly, Chapin and Callahan (1967) did not record ***alternans*** in their study, though I have subsequently documented this species in east Baton Rouge Parish.

Within Louisiana, ***alternans*** is univoltine peaking (end of February-beginning of March), adults begin appearing in early December and stragglers continue into late April (Fig 2). The confirmed parish records are illustrated in Fig. 3.

Literature Cited

Chapin, J.B. and P.S. Callahan, 1967. A list of the Noctuidae (Lepidoptera, Insecta) collected in the vicinity of Baton Rouge, Louisiana. *Proc. La. Acad. Sci.* 30: 39-48.

Covell, Jr., C.V., 1984. *A Field Guide to The Moths of Eastern North America.* The Peterson Field Guide Series No. 30. Houghton MifflinCo., Boston. xv + 496pp., 64 plates.

Forbes, W.T.M., 1954. *Lepidoptera of New York and neighboring states, Noctuidae, Part III,* Cornell Univ. Agr. Exp. St. Mem. 329. Ithaca, New York, 433 pp.

Heitzman, J.R. & J.E. Heitzman, 1987. *Butterflies and Moths of Missouri.* Missouri Dept. of Conservation, 385 pp.

Heppner, J.B., 2003. *Arthropods of Florida and neighboring land areas*, vol. 17: Lepidoptera of Florida, Div. Plant Industry, Fla. Dept. Agr. & Consum. Serv., Gainesville. x + 670 pp., 55 plates.

Lafontaine, J. D., 2004. *Noctuoidea, Noctuidae (part), Noctuinae (part – Agrotini).* In The moths of America north of Mexico, Fasc. 27.1 Hodges, R. W., editor. The Wedge Entomological Research Foundation. Washington, D.C.

Powell, J.A. and P.A. Opler, 2009. *Moths of Western North America*, Univ. Calif. Press xiii + 369 pp + 64 plates.

Rockburne, E.W. and J.D. Lafontaine, 1976. *The cutworm moths of Ontario and Quebec.* Can. Dept. Agr. Pub. 1593.

Wagner, D. L., 2005. *Caterpillars of Eastern North America*, Princeton Field Guides, Princeton University Press 512 pp.

Walker, F., 1857 [1858]. *List of the specimens of lepidopterous insects in the collection of the British Museum London.* Vol. 13: 983-1236.

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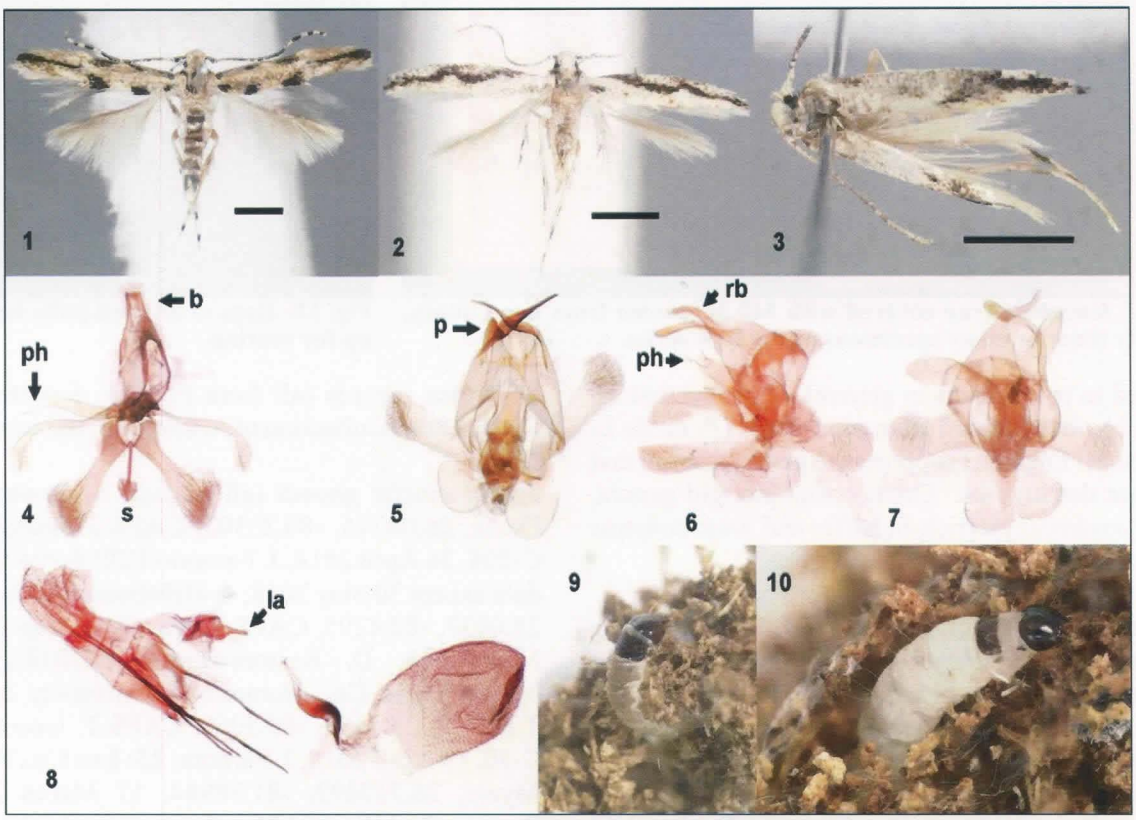
COLLECTING *MELANOCINCLIS* HODGES (COSMOPTERIGIDAE) IN FLORIDA

BY

JAMES E. HAYDEN, HEATHER A. ROHRER, AND JULIETA BRAMBILA

Melanocinclis Hodges includes five species, three of which occur in Florida. Nothing has been published since the original descriptions (Hodges 1962, 1978). In the past year, by a bit of coincidence, we have found ways to collect them reliably.

Males of two species are attracted to pheromone lure for the false codling moth, *Thaumatotibia leucotreta* (Meyrick) (Tortricidae). We have collected them in large numbers in traps (Fig. 11) set by the Cooperative Agricultural Pest Survey (CAPS), a joint State-Federal operation. Specimens of *M. gnoma* Hodges (Fig. 3) and *M. lineigera* Hodges (Fig. 2) have been collected in several counties in Central to South Florida. We remove specimens from sticky glue by soaking them in hot Histoclear II for 40 minutes with one or two changes of fluid. A couple of traps have caught both species.



Figs. 1. *Melanocinclis vibex* habitus; 2. *M. lineigera* habitus; 3. *M. gnoma* habitus (scale bars 1 mm); 4. *M. vibex* male genitalia (b: brachia of gnathos; ph: phallus); 5. *M. lineigera* male gentialia (p: process at base of right brachium); 6. *M. gnoma* male genitalia with tegumen pressed laterally (rb: right brachium; ph: phallus); 7. *M. gnoma* male genitalia with tegumen pressed face-on; 8. *M. vibex* female genitalia (la: lamella antevaginalis); 9. Larva of *M. vibex*; 10. Older larva of *M. vibex*.

The third species, *M. vibex* Hodges, is not attracted to the pheromone, but it regularly emerges from masses of frass generated by species of palm-leaf skeletonizers (*Homaledra* Busck, Pterolonchidae). To rear skeletonizers, we cut down damaged leaves of cabbage palm (*Sabal palmetto*) and saw palmetto (*Serenoa repens*), cut them up, and leave them in plastic bags for eclosion (Fig. 12). *Melanocinclis vibex* often emerges from the *Homaledra* frass after the skeletonizer moths do. We found larvae in a couple of instances (Figs. 9, 10). We have reared it out of frass on palm leaves from several other counties, as far north as Gainesville (Alachua Co.) and Gilchrist Co. Two species of *Homaledra—H. sabalella* (Chambers) and an undescribed one—damage palms in North-Central Florida, and *M. vibex* is associated with both. The only previous host record of *M. vibex* was a paratype specimen raised from a flower of saw palmetto collected at Archbold Biological Station in Highlands County. We think that *M. vibex* is more likely a detritivore that

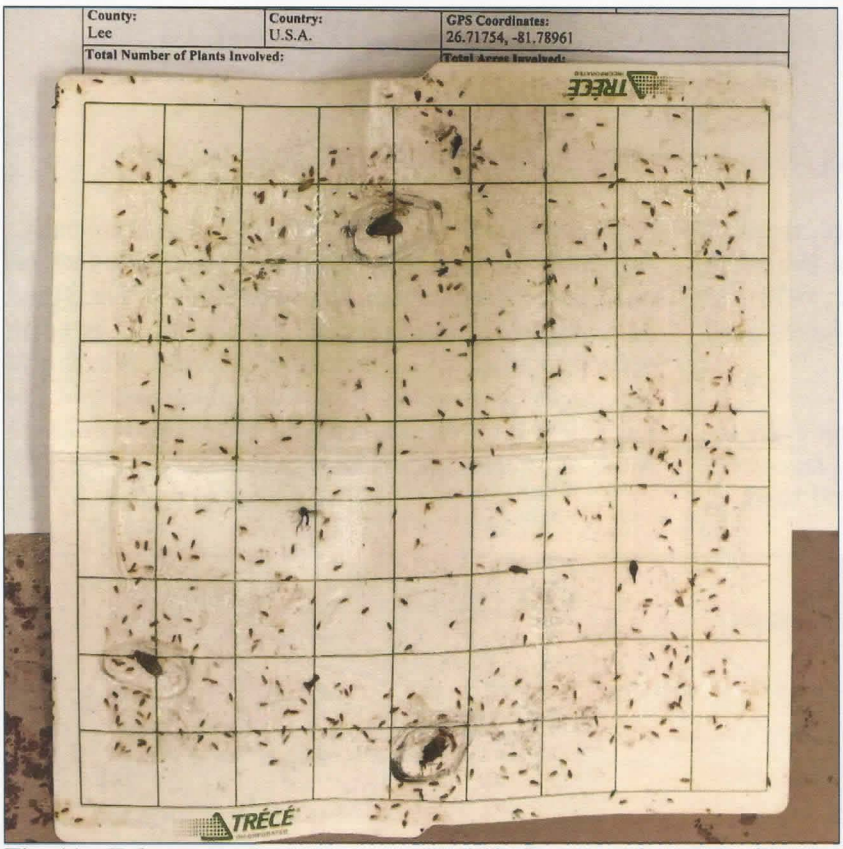


Fig. 11. *T. leucotreta* trap covered with 340 *M. gnoma* from Lee County, nearly fifty times as many specimens as the type series.

Fig. 12. Bags of infested palm leaves hung up for rearing.

is attracted to palm plants in general. The fact that *M. lineigera* has been reared from pine cones (*P. taeda* L. and *P. elliottii* Engelm.) supports the generalization that they all are detritivores. Other cosmopterigid genera, such as *Pyroderces* Herrich-Schäffer and *Anatrachyntis* Meyrick, also feed on vegetable detritus.

The male genitalia are diagnostic. *Melanocinclis vibex* (Fig. 4) has a dipper-shaped saccus, a phallus extended to a narrow point, and blunt, subequal brachia of the gnathos. Females (Fig. 8) have a spout-shaped lamella antevaginalis. In male *M. lineigera* (Fig. 5), there is a small, triangular process at the lateral base of the right brachium. In male *M. gnoma* (Figs. 6, 7), the right brachium is sinuous and has no process, and the apex of the phallus is bifid. As Hodges (1962) notes, the tegumen is better mounted laterally, like that of a tineid or a butterfly.

Both *M. vibex* and *M. gnoma* were previously known only from Highlands Co., Florida. Archbold Biological Station unquestionably has a unique fauna, but the historical focus on collecting there may overestimate how many species are endemic that are really more widespread. As Hodges himself remarked (1962:3), "[in] an eleven day period of collecting in south-central Florida, [...] eleven species of cosmopterigids were collected, six of which are new, one of them representing a new genus."

Specimen records (all from Florida, deposited in the Florida State Collection of Arthropods, Gainesville, FL):

Melanocinclis gnoma (all males): **3: Broward Co.**, Davie, 26.04745, -80.23303, CAPS *T. leucotreta* trap C-208, 26 April 2018, J. Farnum (E2018-3040); **3:** same data except 30 May 2018; **4: Hillsborough Co.,** Tampa, 28.0037, -82.4295, CAPS *T. leucotreta* trap D-13a, 16 May 2018, D. Restom-Gaskill (E2018-2932); **3: Miami-Dade Co.,** Homestead, University of Florida T.R.E.C., 25.5135, -80.5050, CAPS *T. leucotreta* trap C-50, 19 April 2018, J. Farnum; **25: Lee Co.,** North Fort Myers, 26.717492, -81.78984, 17 March 2017, D. Restom-Gaskill, CAPS *T. leucotreta* trap D-6b (E2017-1060); **19:** same data except 26.7175, -81.7896, 13 April 2018, trap D-6c; **8:** same data except 26.7175, -81.7896, 14 May 2018, trap D-6c; **8: Palm Beach Co.,** West Palm Beach, Airport, 26.6853, -80.0777, CAPS *T. leucotreta* trap C-206a, 3 May 2018, J. Farnum.

Melanocinclis lineigera (all males): **7: Broward Co.,** Davie, 26.04745, -80.23303, CAPS *T. leucotreta* trap C-208, 26 April 2018, J. Farnum (E2018-3040); **2: Manatee Co.,** Palmetto, 27.63950, -82.55531, 12 March 2018, D. Restom-Gaskill, CAPS *T. leucotreta* trap TL-D-4a, D. Restom-Gaskill (E2018-1118); **3: Miami-Dade Co.,** Homestead, University of Florida T.R.E.C., 25.5135, -80.5050, CAPS *T. leucotreta* trap C-50, 19 April 2018, J. Farnum.

Traps C-208 and C-50 yielded both *M. gnoma* and *M. lineigera*. Other specimens in the Florida State Collection of Arthropods have been collected in Monroe Co. (Key Largo, January), Highlands Co. (Archbold Biol. Sta., May), Lee Co. (Sanibel Island, Nov.), Collier Co. (Fakahatchee Strand, Sept.), Miami-Dade Co. (Homestead, Feb. and Coral Gables, August), Pinellas Co. (Largo, April), Hillsborough Co. (Tampa, March), and Hernando Co. (Citrus W.M.A., April).

Melanocinclis vibex (both sexes): **1: Alachua Co.,** Gainesville, UF Natural Area Teaching Lab, SW 34th St., 29.6307, -82.3718, ex frass on *S. palmetto*, 9 June 2018, J. Hayden, ecl. 27 July; **2: Citrus Co.,** Floral City, 9065 E. Bushnell Rd., ex frass on *S. palmetto*, 15 May 2018, J. Hayden, ecl. 1 and 15 June (E2018-3023); **2: Gilchrist Co.,** Bell Ridge W.E.A., SE 65th Ave. ex frass on *Serenoa repens*, 12 August 2018, J. Hayden, ecl. 27 Sept. (E2018-4295); **1: Hernando Co.,** Brooksville, 28.5196, -82.2615, ex frass on *S. palmetto*, 28 March 2018, N. Marquez, ecl. 14 April; **7: Lake Co.,** Groveland, 28.6294, -81.8157, ex frass on *Phoenix* sp., 7 May 2018, A. Bartlett, ecl. 29 May, 5 June (E2018-2396); **2: Levy Co.,** US 41 N. of Williston, 29.41196, -81.45341, ex *Homaledra* frass on *S. palmetto*, 22 April 2018, J. Hayden, ecl. 28 April, 8 May (E2018-2064); **1: Levy Co.,** St. Rd. 24 west of Archer, 29.50446, -82.56953, ex *Homaledra sabalella* frass on *Serenoa repens*, 12-VIII-2018, ecl. 5-X-2018, J. Hayden, E2018-4294; **2: Marion Co.,** Ocala, 9036 W. Anthony Rd., 29.28211, -82.13057, ex *Homaledra* frass on *Sabal palmetto*, 4 March 2018, ecl. 19 and 21 April 2018, J. Hayden, T. Dickel; 7: same data except 29.28231, -82.12926, ecl. 25 March, 11, 22, 29 April, 6, 7, 21 May.

ACKNOWLEDGMENTS

We thank Doug Restom-Gaskill and Jake Farnum (CAPS) for servicing traps, and we thank Abbie Bartlett, Nora Marquez, and Terry S. Dickel for collecting palm leaves.

REFERENCES

Hodges, R.W., 1962. A revision of the Cosmopterigidae of America North of Mexico, with a definition of the Momphidae and Walshiidae (Lepidoptera: Gelechioidea). *Entomologica Americana* 42: 1–171. https://www.biodiversitylibrary.org/item/205577#page/161/mode/1up

Hodges, R.W., in Dominick, R.B., et al. 1978. *The Moths of America North of Mexico*, Fascicle 6.1, Gelechioidea (in part): Cosmopterigidae. 166+x p., 6 pl.

(James Hayden, E-mail: jehayden63@gmail.com)

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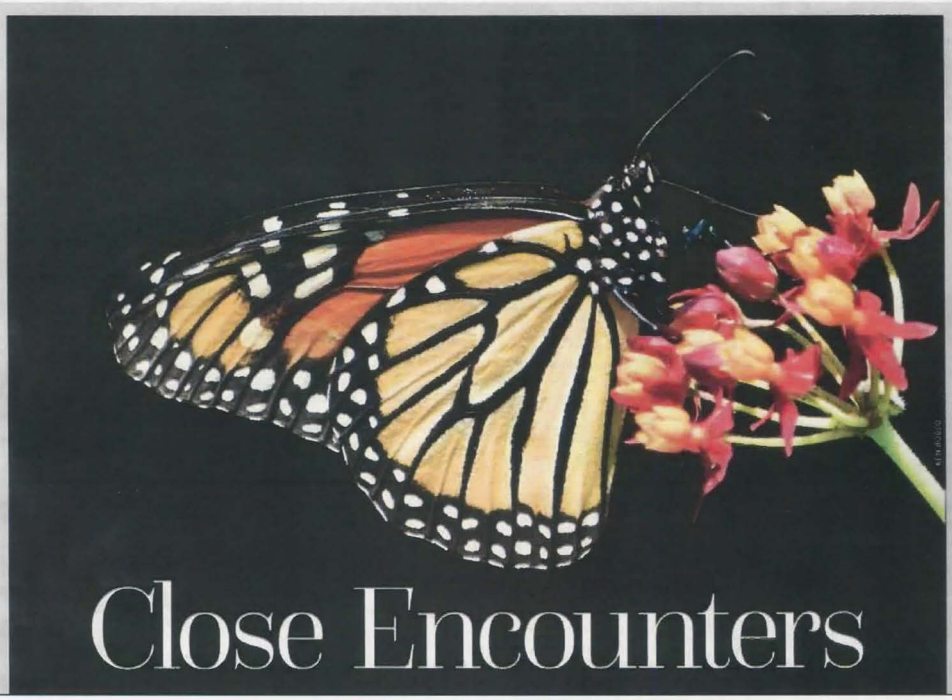
These two Photographs were taken in the garden of Matt and Dona Blaine in Laurel, Delaware (Photo taken by Matt Blaine, October 2018).

IN THE KNOW



Close Encounters

The walls of Gary Ross' Stratford Place home bring to life the countless myths that have surrounded the butterfly since ancient times. Woven tapestries depict the Aztec belief that the winged creature carries the deceased to heaven, while small sculptures demonstrate the insect's connection to both the human realm and that which lies beyond.

"Butterflies are the number one animal that is respected and honored by cultures worldwide," explains Ross. "God reveals himself in many ways, and to me the most significant is through butterflies."

As Baton Rouge fills with monarchs this time of year as the orange and black species makes its annual trip down to Mexico for the winter, it is impossible to ignore the beauty and mystery that surrounds the small creatures.

"I think a lot of the interest revolves around the transformation from caterpillar to butterfly," says Ross. "In Mexico, the over wintering monarch populations land in trees and look almost like leaves until, all at once, they fill the air so thick that you can hear their wings and see the bright orange scales falling onto your clothes."

While Ross has spent his entire life traveling in adoration and exploration of butterflies, many in the Capital City are discovering an interest later in life. One such person is Ken Bosso, who on a whim decided to start a butterfly garden after the death of his wife. Eager to share his backyard encounters, he created a Facebook group four years ago. Now expanded to include the entire state, the Louisiana Butterflies and Moths group has nearly 1,500 members and almost constant conversation.

"It's a very friendly group," says Bosso, who has connected with people across the state through the social network. "If you post a question, it will likely get answered within the hour. People are always willing to help adopt caterpillars or drop off plants to one another."

One of the main goals of any butterfly enthusiast is to ensure the planting of butterfly friendly plants and, most importantly, milkweed, which is the monarch's sole nutritional source.

"Butterflies like weeds," says Ross, who notes that while his neighbors don't necessarily appreciate his unruly landscaping, he prefers plants that attract butterflies of all kinds. "I think my yard is much more appealing than something manicured because mine attracts such beauty to it . I can't see why anyone wouldn't want that."

Join the conversation at facebook.com/groups:BRButterflyEnthusiasts/

[Louisiana Business, Inc. has given permission to The Southern Lepidopterists' News to republish Close Encounters from the November 2018 edition (Volume 30, Issue 3, Page 11) of inRegister magazine; article written by Riley Bienvenue (Community Writer). Ken Basso has given permission to The Southern Lepidopterists' News to reprint his photo of the monarch.]

THE PALM LEAF SKELETONIZER SITUATION IN FLORIDA

BY
JAMES E. HAYDEN

Introduction

I have been rearing palm-leaf skeletonizers for a year. It has taken a lot of time, and I owe an explanation to those who wonder what I am up to.

Homaledra is an odd gelechioid genus currently classified in Batrachedridae or Pterolonchidae (Heikkilä et al. 2014). The caterpillars strip the epidermis of palm leaves and live inside silken frass tubes. There are five species in Florida, three of which are pests with gregarious caterpillars: *Homaledra sabalella* (Chambers) and two apparently undescribed ones discussed below. I came to realize this circuitously.

Two other *Homaledra* species are native to Florida and not pests. The solitary larva of *H. heptathalama* Busck makes an unusual nest of several chambers on a palm leaf, arranged in a line and increasing in size (Fig. 4). The larvae of *H. octagonella* (Walsingham) (not figured) make straight, eight-sided portable cases and are said to feed on lichens (Landry 2018).

Homaledra sabalella (Figs. 1, 5–8) is a familiar pest of palms in the southeastern U.S., and its life cycle and spatial ecology have been documented by Creighton (1937) and Cronin (2011). Some of the oldest locally collected moth specimens in the Florida State Collection of Arthropods (FSCA), from 1926, are *H. sabalella*. A lack of specimens in the FSCA from 2000 onwards probably reflects the overall decline in moth collecting activity in Florida during the 2000s rather than an abatement of the pests' prevalence. They were still active. For example, skeletonizers started to infest palms in the McGuire Butterfly Rainforest in 2011, so that to this day, technicians come in Sunday mornings to prune the tall *Washingtonia* palms with a pole saw, then chop up and freeze the leaves to comply with containment procedures (Fig. 11).

As far as known, *H. sabalella* occurs across the Southeast from the Carolinas to eastern Texas and south to the Florida Keys and the Bahamas (South Andros, leg. J.Y. Miller et al., in the McGuire Center, Gainesville, FL). *Homaledra sabalella* has also been reported infesting *Phoenix* palms in San Diego, California (Penrose 2001).

The first new species

In 1995, another species turned up in southern Florida (Fig. 2). Prof. Forrest "Bill" Howard at the Fort Lauderdale IFAS Station (the University of Florida's local research campus) noticed severe damage on coconut leaves and other palms that year (Howard 1996; Fig. 9). The larvae avoided cabbage palms, unlike typical *H. sabalella*. For some years until the mid-2000s, Howard surveyed palms in South Florida, reared specimens, and studied its bionomics. It was unclear to him whether it was just a "biotype" of *H. sabalella* or a distinct species (Howard and Abreu 2007). Bill, after all, was a general authority on palm pests (Howard 2001), and he was used to seeing host shifts and cryptic species in other insect orders. He interested Dr. John Heppner in doing the taxonomic work. A couple of years later, Howard's colleague Edwin Abreu observed damage on coconut trees in Puerto Rico. Was it caused by the same species? Howard and Abreu sent a few specimens from South Florida and Puerto Rico to the Florida State Collection of Arthropods. Dr. Heppner identified them as *H. sabalella*, but he later told me that he knew it was an open question; he wanted to obtain more specimens from Puerto Rico. In the meantime, other research took precedence. Bill Howard retired in the mid-2000s, moved to Puerto Rico, and fell out of contact. The question of conspecificity was not resolved.

I became aware of the pest problem after moving to Florida in 2011, but I did not take it seriously at first. Plant inspectors and extension agents occasionally reared the South Florida pest and sent moths to DPI for determination. They are often submitted in suction trap samples from the USDA ARS station in Miami. I dissected a few old *H. sabalella* specimens for DPI's slide collection, and in 2015, I dissected the South Florida species from regulatory samples. The South Florida pest is clearly a distinct species. The maculation, male abdominal scales, male and female genitalia, and COI barcodes all differ from *H. sabalella*. Indeed, between the maculation and androconia, dissection is unnecessary. I call it Howard's *Homaledra,* the Florida coconut skeletonizer, or just "sp. 1." *Homaledra octagonella* has similarly enlarged pleural androconia, so it may be closely related despite its unique larval case and apparent feeding habit.

Howard's species is probably not connected to Puerto Rico. The few specimens that Abreu sent that I have examined evidently represent another species (not figured), differing in the genitalia of both sexes and male abdominal scales, in this case a pocket of black scales between the tergites. Abreu's species is not the only *Homaledra* endemic to Puerto Rico: the McGuire Center has specimens of yet another, larger species caught at light in the Luquillo Mountains. *Homaledra*

Figs. 1. *Homaledra sabalella*; 2. *Homaledra* sp. 1 (Howard's); 3. *Homaledra* sp. 2 (Western); 4. nest of *Homaledra heptathalama* collected in Bronson, FL.; 5. middle instar larva of *H. sabalella*; 6. prepupal larva of *H. sabalella*; 7. saw palmetto leaf entirely stripped by *H. sabalella*; 8. leaves of saw palmetto tied together by *H. sabalella*; 9. damage on coconut, presumably by *H.* sp. 1, Homestead, FL.; 10. *Homaledra* sp. 1 on *Livistona*; 11. trimming damaged leaves of *Washingtonia robusta*; 12. *Homaledra* sp. 2 on cabbage palm in Gainesville, FL.; 13. more damage on cabbage palm, Gainesville, FL.

is hardly a new problem on the island. Wolcott (1923) recorded it attacking coconut in several municipalities, and Martorell (1945) recorded it on other palms in the mountains, which might be the Luquillo species. The pests were always identified as *H. sabalella* in the literature. Unfortunately, I did not find specimens in the insect collection of the University of Puerto Rico at Mayagüez (UPRM) when I visited in 2016. Another lead to follow is the "*Homaledra sabulella*" [sic] that attacked coconut in the Dominican Republic in the 1920s; Russo (1927) believed that it was exotic to the island.

In 2018, I visited the Fort Lauderdale IFAS Station to borrow Bill Howard's specimens. A couple of years after Howard left, his office was gutted and renovated. His colleague Dr. Giblin-Davis rescued a drawer of specimens, kept them in his office, and lent me some. Bill had reared specimens of the new species from Palm Beach, Broward, and Miami-Dade Counties on several hosts, plus *H. sabalella* from sites in Georgia. Howard's species has also been reared in Naples, FL (Collier County).

Oddly, I have not found any *Homaledra* specimens

reared by Prof. Dale Habeck (UF) after 1971, although he frequently talked about *Homaledra* (Deborah Matthews, pers. comm.).

The second new species

In 2015, Jim Vargo emailed me photos of microleps that he had collected at Kissimmee Prairie, in the open dry grasslands of Central Florida. The State Park where he camps en route from South Florida has big, infested palms at the RV lot. He thought one was a new species of *Homaledra*. It had white-scaled forewing veins and more prominent terminal black spots than *H. sabalella*. I agreed that it did look different, although it was hard to say from Jim's emailed pictures without a specimen in hand. Since he caught it far away in Kissimmee, I put it in the back of my mind among the many mysterious microlepidoptera in Florida.

Sometime about a year later, I brought up *Homaledra* in a phone conversation with Mark Metz with USDA ARS. He had examined Chamber's specimens of *H. sabalella*, which are in the U.S. National Museum, and one of Busck's dissections. We discussed damage patterns and the distribution of Howard's species. He asked why I was certain that it did not occur as far north as Gainesville. Although I strongly doubted it, he was right to ask for hard evidence.

I thought *argh, thanks, Mark, now* ***I have*** *to raise these things*. Rearing *Homaledra* was hard at first. Although many of the mature cabbage palms (*Sabal palmetto*) in Gainesville show anything from a little nibbling to destruction of half of every leaf (Figs. 12, 13), most of the visible damage is old. One must pick through lots of frass to find caterpillars and pupae. Most pupae are empty exuviae, and it is easy to crush any live ones. Spiders and paper wasps nest under the leaves, which probably snack on caterpillars and which certainly discourage casual collecting. I did not know how to keep the host material fresh except by sleeving, and how do you sleeve a palm leaf? I procrastinated. I walked by infested palms many times every day, but I had other things to do.

It took Hurricane Irma in September 2017 to get me out of the office. I was at home the day after the storm because the power was out at work. The weather being clear and crisp, I spent a couple hours picking palms in the woods near my apartment. I found a couple larvae on one palm and then pulled a few pupae out of the crevices at the bases of the leaves. Three moths eclosed several days later, and I quickly pinned, spread, and shelved them.

After another week or so, I took the boards off the shelf, removed the paper, and glanced at the specimens. They looked odd. They certainly were not Howard's species, but the veins and spots were distinct. I remembered Jim Vargo's photo and fished it out of the files on my PC. I looked at the specimens again. I did not break into a cold sweat, but it was one of those moments.

How weird was this? What a coincidence that the very first time I rear palm skeletonizers, it is Vargo's species? That was supposed to be off in the wild yonder south of Orlando. I dissected a male and female, and sure enough, the genitalia were distinct from the older specimens of *H. sabalella* in our collection. Males have robust cornuti, and females have a diffuse signum of granules rather than a discrete, spiny disc.

I ran to the collection. Our most recent locally collected specimens were from 2011, from the outbreak of the infestation in the Butterfly Rainforest. The wings were matted, but the genitalia were fine—and the same as Vargo's species. I was told they came into the exhibit on palms taken from landscaping outside the building.

I found a partial answer quickly. The McGuire Center had recently accessioned Knudson and Bordelon's Texas Lepidoptera Survey collection. I found specimens collected in eastern Texas in the 1990s and in far southern Texas along the Lower Rio Grande Valley in the mid-1980s. The former specimens were the same as *H. sabalella*, but the latter had all the characters of Vargo's species. Ed Knudson photographed and figured it in Vol. 3C of the LRGV checklist (Knudson and Bordelon 2008), identified as *H. sabalella*. Ed later wrote to me that he did not suspect that it was another species. He added that he has not collected *Homaledra* in the intervening region around Houston, which suggests there is a geographic gap between the two species.

This drove me nuts. I ranged around the Natural Area near the McGuire Center, picking through masses of frass on rotten leaves within reach. I found a few more moths within days when pupae eclosed soon after collection. I hurried also because the development of *Homaledra* would slow down in cooler weather (Creighton 1937). I put out the word, and Debbie Matthews and Jon Bremer of the McGuire Center brought palm leaves from adjacent counties, which also yielded the new species. Things went slowly, but everything turned out to be the new species. I got nothing that matched *H. sabalella* until two museum volunteers, Tedd Greenwald and Mary Ellen Flowers, brought me saw palmetto leaves from sandhill habitats. The caterpillars were very gregarious in these samples, and *H. sabalella* eclosed in large numbers.

I sent Mark Metz photos of the genitalia of the new

species. He replied that it resembled something he received from a Mexican agency. Although he was not sure of the origin, indeed whether they were even from Mexico, it was said they were infesting coconut leaves.

Of course, the application of the epithet *sabalella* will ultimately depend on examining Chambers's lectotype, so I ought to visit Mark at the NMNH. At this point, all I can say is that three pestiferous species are in Florida, and for two of them, we have no evidence of their presence before 1995 (sp. 1) and 2006 (sp. 2). Considering that the type of *H. sabalella* was collected in Florida in the 19th Century and that Chambers described its maculation as nearly blank straw-colored, it would be strange if it should turn out to be anything else.

All the species differ in COI (barcode) sequences. Most of the sequences in the Barcodes of Life Database (BOLD) match *H. sabalella*, but one from Texas matches the species around Gainesville. The sequences of "*H. sabalella*" on GenBank—COI and some nuclear genes—also refer to the new species. Kaila et al. (2011), in their Gelechoidea phylogeny (2011), contacted Lyle Buss of the University of Florida's Insect ID lab in 2010 for *H. sabalella*. He went to the Natural Area by UF Entomology, collected caterpillars, reared some, and sent Kaila the rest, assuming they were the native species. The specific difference should not have affected the higher-level results of Kaila et al., which place *Homaledra* in Pterolonchidae, and that family sister to Batrachedridae.

Photographs online indicate that the Western species (Vargo's species or "sp. 2") appeared in Florida as early as 2006; there is a photo from Lake County on BugGuide (White 2006). A good macro shot of the wings of a fresh specimen may clearly show the white veins and larger terminal spots (Figs. 3, 14). The antennae are longer than the forewings, whereas *H. sabalella* has shorter antennae. "Longhorn skeletonizer" might be appropriate, although Howard's species also has antennae longer than the wings.

Figs. 14. Newly eclosed *Homaledra* sp. 2; 15. sections of tubes of sp. 2; 16. rearing bags for samples; 17. jumbo rearing bag with cabbage palm leaf; 18. leaf sandwiches; 19. bag of frass with caterpillars at top.

Thus far, the FSCA has specimens of the Western species from fifteen counties in Central to North-Central Florida, as far north as Alachua and Gilchrist Counties (Fig. 20). The southern edge, as far as known, is represented by Jim Vargo's specimen from Kissimmee Prairie (Okeechobee Co.) and specimens from Vero Beach and environs (Indian River Co.).. At this time, we need more samples from (1) north of Gainesville, (2) the area between Tampa Bay and Charlotte Harbor, such as Sarasota and Port Charlotte, and (3) St. Lucie and Martin Cos., Fort Pierce to Jupiter. We need to determine how far north both undescribed species range

and how far south the Western one does.

Pratibha Srivastava and Matt Moore, the Division of Plant Industry's (DPI) molecular diagnosticians, very helpfully sequenced COI from many samples. Rearing does not always succeed. The COI sequences are very different. Species 2 has a mean distance of 8.6% from *H. sabalella*, and Species 1 differs from both of them by about 14%. Interestingly, Sp. 1 is most similar to *H. octagonella* (Mexican specimens on BOLD), differing by about 10%, which agrees with the morphology.

I also enlisted DPI's Plant Inspectors. Late last year, they undertook a Statewide survey of lethal bronzing. This disease of palms is probably spread by an unknown heteropteran. Although a moth being the vector was biologically out of the question, the coincidence was interesting. I wrote a flier about how to sample larvae to give the Inspectors some fun. Palm leaves began to arrive and clutter DPI's mail room.

Identification

The moths are small (wing length 8–9 mm), narrow, and beige with two black spots on the forewing disc and anal fold, plus narrow spots along the termen. Howard's new species and *H. octagonella* have forewings peppered with black scales. The larvae are opaque whitish, and prepupae develop pink longitudinal stripes (Fig. 6). Not all caterpillars found in frass are *Homaledra*: I have collected scavenging cosmopterigids and a species of Sigela Hulst. One can diagnose *Homaledra* from other micro caterpillars inhabiting the frass by the presence of a submental pit, a ventral cavity on head between mouth and neck. Blastobasids and batrachedrids also have this pit, but blastobasids have sclerotized rings around the SD1 setae that *Homaledra* lacks. Chaetotaxic differences among the three pest species are hard to discern, but they seem to differ consistently in the number of subventral setae on the abdomen.

Ecology

Several ecological questions are beyond my ability to answer, such as their spatial distribution and dispersal abilities. Species 2 thrives in suburban environments in Gainesville and on any roadside cabbage palm in rural areas. They prefer mature, spatially isolated palms. Small palms in the understory show little damage, but palms with well-developed trunks, whose bottom leaves are head-height at the lowest, sustain heavy damage on those lower leaves (Figs. 12, 13). What attracts the moths to the trees? Are females attracted to signs of existing damage? Do they return to the same palm of their birth? Is it due to some interaction with natural enemies? I suspect that multiple females can start an infestation, because I often find larvae of many different instars in the same frass mass. On the other hand, moths of *H. sabalella* infestations eclose all within days of each other. What about interspecific interactions? One experiment would be to infest a broad leaf with all three and see how they compete.

What enables the success of the two invasive species? We need a comparative study of interactions with natural enemies. The carabid beetles *Plochionus amandus* Newman attack the larvae in the frass (Creighton 1937). Thus far I have seen only one *P. amandus* in a sample from a *Phoenix* sp. (date palm) that yielded *H. sabalella*. The beetles seem to be absent from the Western species. I speculate that the beetles are too wide to fit in narrow frass tubes, whereas they may have no problem cruising around in the broad frass sheets that *H. sabalella* makes.

The only good ecological study of *Homaledra* is Cronin (2011), of *H. sabalella* on *Sabal minor* (Jacq.) Pers. in Louisiana. Prof. Cronin sent me photographs of his voucher specimens, and they appear to be true *H. sabalella*. I wanted to know because his site is between Texas and Florida, and the Western species could have spread naturally across the Southeast. I have no evidence of that thus far.

Larvae of *H. sabalella* tie leaves in a way that I have not seen the others do. The caterpillars strip the entire surface of a leaf section, from side to side, and cover it with a broad mat of silk (Fig. 7). They bind together adjacent sections or leaflets with extra-strong silk, thus making "sandwiches" (Fig. 8). They do it on cabbage palms but much more frequently on *Serenoa repens* (saw palmetto) and Phoenix (date palm) species. Creighton (1937) gives a good photograph of it. This behavior might explain the comments by Comstock (1949:629) that it attacks the upper side of leaves. In fact, leaves attacked in this manner are pulled together like a folding paper fan and stripped on either side.

Knowledge of host associations is preliminary, but I suspect it depends more on leaf architecture than phytochemistry. *Homaledra sabalella* has been recorded on Sabal spp., *Serenoa, Phoenix*, and others, but other than *Phoenix*, it seldom attacks pinnate palms such as coconut. The Western species also attacks *Sabal, Washingtonia*, and other broad-leaved palms, but I have not yet reared it from *Phoenix*. The leaf-binding behavior of *H. sabalella* enables it to feed on *Phoenix* by silking together many narrow leaflets, whereas the Western species does not attack *Phoenix* because it needs palmate leaves on which to spread out. Howard's species prefers coconut and other pinnate palms, and although it sometimes attacks broad-leaved palms like *Livistona* (Fig. 10), it avoids cabbage palms in South Florida.

Collecting and rearing

Collecting the immature stages requires some effort. The caterpillars of Species 2 inhabit any sections of the tunnels, but when not feeding, they often hide in sections running along the folds. They usually pupate in folds near the leaf's base. Pupae are crushed easily, so cut leaves around the frass and put them in a sealed plastic bag for emergence. The trick to finding active damage is to look for frass tubes with fresh-looking terminations (Fig. 15). The frass at the leading end is greenish, and the leaf surface on the other side has not yet entirely dried out. Active tunnels look fluffed out, whereas older damage is matted from the elements. Then seek larvae in leaf folds closer to the petiole.

The easy way to rear moths is simply to cut up leaves and dump them in a plastic bag until pupae eclose (Fig. 16). A whole leaf can fit in a jumbo sealable storage bags for garments (Fig. 17). To extract larvae without tediously searching through the frass, just strip off the tubes, put the whole mass in a plastic bag, and hang it up for a day or two. Hungry larvae emerge overnight and crawl up into the bag's corners (Fig. 19).

A modification of Cronin's (2011) protocol is useful for rearing. Cut two strips of cabbage palm leaf, each a few inches long. Place a larva between them and paper-clip together (Fig. 18). The leaf sandwich will stay fresh several days in a sealable plastic bag. Alternate the leaves so that one is older than the other and replace them alternately. With tending every few days, one can get a larva to pupate in a week or two.

Because the damage patterns, host associations, and distributions of the species all partly overlap and are incompletely known, documenting those facts is best done with identified voucher specimens. Immature stages preserved in >70% ethanol or even isopropanol can be sequenced or examined for chaetotaxy.

Conclusions

Several taxonomic questions remain. We need to examine specimens from Hispaniola, Mexico, and California. I have not examined ova or pupae for morphological differences. As is too often the case, the species descriptions could take a while. The diagnoses are ready, but the question is how much else to do. Complete descriptions of all life stages? A survey of all Peninsular Florida? Comprehensive, accurate hostplant associations? Comparison with material from other states and countries? A full revision of *Homaledra?* What is enough?

How can it be that such invasive pests can escape notice for years? We should not take things for granted. If the damage looks a little different or is really severe, do not assume that it is just an "outbreak year" or a host shift. Collect a sample and take a look at it!

ACKNOWLEDGMENTS

I give special thanks to the many plant inspectors and colleagues who have collected samples and reared them if so inclined. I thank Pratibha Srivastava and Matt Moore (DPI) for barcoding, and Matt for calculating the p-differences among the species and for many constructive comments about the manuscript. Heather Rohrer (FLMNH) reared many caterpillars when I was overwhelmed with distractions. John Heppner solicited specimens from Puerto Rico. James Cronin sent photos of *H. sabalella* that he studied for confirmation. Jessica Awad reviewed the paper and regaled me with stories about Bill Howard. I thank Paul Skelley, Leroy Whilby, Trevor Smith, and Greg Hodges reviewing this article and FDACS-DPI for its support.

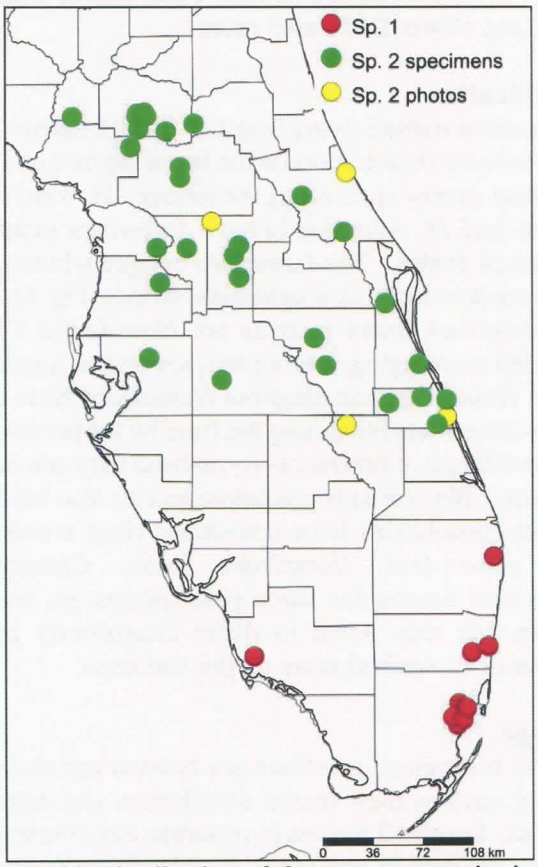


Fig. 20. distribution of the two new species in Florida. Red = sp. 1; green = sp. 2 based on specimens; yellow = sp. 2 based on photographs. *Homaledra sabalella* occurs throughout the State.

REFERENCES

Comstock, J.H., 1949. *An Introduction to Entomology* (9th ed.). Comstock Publishing Co., Ithaca, NY. xix+1064 p.

Creighton, J.T., 1937. *Homaledra sabalella* Chambers, the major pest of palms in Florida. *Journal of Economic Entomology* 30(4): 590–595.

Cronin, J.T., 2011. Spatial ecology of the palm-leaf skeletonizer, *Homaledra sabelella* [sic] (Lepidoptera: Coleophoridae). *PloS One* 6(7): 1–9.

Heikkilä, M., M. Mutanen, M. Kekkonen, and L. Kaila, 2014. Morphology reinforces proposed molecular phylogenetic affinities: a revised classification for Gelechioidea. *Cladistics* 30: 563–589.

Howard, F.W., 1996. Host preferences of the palm leaf skeletonizer. *Tropicline* (UF IFAS Fort Lauderdale) 9(1): 4.

Howard, F.W., 2001. *Insects on Palms*. Wallingford: CABI, Oxford University Press. xiv+400 p.

Howard, F.W. and E. Abreu, 2007. The palm leaf skeletonizer, *Homaledra sabalella* (Lepidoptera: Coleophoridae): status and potential pest management options. *Proceedings of the Florida State Horticultural Society* 120: 356–359.

Kaila, L, M. Mutanen, and T. Nyman, 2011. Phylogeny of the mega-diverse Gelechioidea (Lepidoptera): adaptations and determinants of success. *Molecular Phylogenetics and Evolution* 61: 801–809.

Knudson, E. and C. Bordelon, 2008. *Illustrated Checklist of the Lepidoptera of the Lower Rio Grande Valley Texas*. Vol. 3C: Micro-moths and Geometroids. Texas Lepidoptera Survey Publication 9c. Houston, Texas. 30 p.

Landry, J.-F., 2018. Comment on Species *Homaledra octagonella*, Bugguide, hosted by Iowa State University Department of Entomology, accessed 10 June 2018. https://bugguide.net/node/view/229786

Martorell, L.F., 1945. A survey of the forest insects of Puerto Rico. *Journal of Agriculture of the University of Puerto Rico* 29(3): 69–354; 29(4): 355–608.

Penrose, D., 2001. Palm Leafskeletonizer [sic], *Homaledra sabalella* (Chambers). CDFA Plant Health and Pest Prevention Services. 1 p.

Russo, G., 1927. August. Dominican Republic: Chief Insects harmful to Crops. *International Bulletin of Plant Protection* 1(7): 108-110 pp.

White, M., 2006. Palm Leaf Skeletonizer - Homaledra sabalella. Photograph on BugGuide, hosted by Iowa State University Department of Entomology, accessed 10 June 2018. http://bugguide.net/node/view/88989/bgimage

Wolcott, G.N., 1923. "Insectae Portoricensis." A preliminary annotated check-list of the insects of Porto Rico, with descriptions of some news [sic] species. *Journal of Agriculture of the University of Puerto Rico* 7(1): 5–313.

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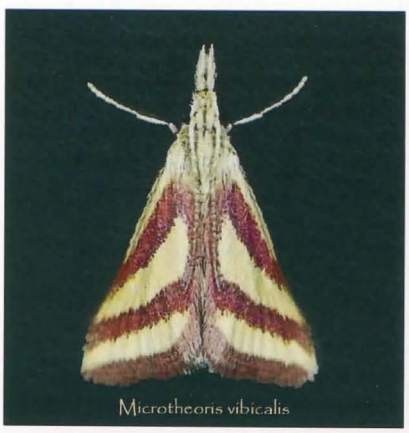

These 3 moths were photographed by Monica Krancevic in her patio (Lake Jackson, Brazoria County, Texas (August - September 2018).

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GEORGE V. HUDSON, A SHORT BIOGRAPHY [1,2,3]

HOW HE INFLUENCED YOUR LIFE?

BY

J. BARRY LOMBARDINI

George Vernon Hudson was born in 1867 in London and moved to New Zealand in 1881 with his father when he was 14 years old. Prior to the move to New Zealand he was an avid collector of British insects and published some of his findings in *The Entomologist*.

George Vernon Hudson 1867-1946

While living in New Zealand for the next 65 years until his death, it is stated that Hudson accumulated one of the "*finest*" collections of New Zealand insects which obviously must have also contained many of the butterflies and moths of New Zealand as he was acclaimed author of the " *Butterflies and Moths of New Zealand*". However, while his accomplishments in entomology were quite significant as his collection of insects was not only the "*finest*" but also the "*largest*" in New Zealand at that time and is currently housed in the Museum of New Zealand Te Papa Tongarewa (Te Papa Tongarewa meaning "*container of treasures*" in the indigenous Maori people's language).

His interests were more than just entomology, they also included astronomy. He also participated in the 1907 Sub-Antarctic Islands Scientific Expedition to study the magnetic survey of New Zealand mainly in the Auckland and Campbell Islands. An interesting side accomplishment of this expedition was the rescue of castaways from the *Dundonald* which was wrecked in the Auckland Islands.

OK, so Hudson had a great collection of insects but what else did he accomplish? His real and/or most noted contribution to society was his proposal in 1895 of "*daylight saving time*". Now the obvious question and thus one may ask – where did this "*bright idea*" come from.

Hudson, while collecting insects which was his greatest passion, was concerned that "*...dusk came so early in summer that it interfered with his evening bug-collecting rounds...*" "*He figured the problem might be solved if the clock were advanced two hours in summer and then shifted back in the winter...*"

Hudson presented a paper in 1895 to the Wellington Philosophical Society outlining his proposal of "*...a two-hour daylight-saving shift...*" His idea of this "*daylight saving time*" has been adopted by many nations and by Hudson's country, New Zealand, in 1927. So now you know where the concept of "*daylight saving time*"came from!

Hudson's seminal work was published as the: *The Butterflies and Moths of New Zealand*. Wellington: Ferguson & Osborn Ltd. 1928 (519 pgs., 62 Plates). Retrieved 10 Oct 2017.

George Vernon Hudson died in 1946.

References

1) https://en.wikipedia.org/wiki/George_Hudson_(entomologist)

2) https://en.wikipedia.org/wiki/Museum_of_New_Zealand_Te_Papa_Tongarewa

3) https://www.huffingtonpost.com/2012/03/09/daylight-såvings-time-history-george-vernon-hudson_n_1333378.html

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COLLECTING THE CARRIZO PLAIN IN OCTOBER

BY

KELLY RICHERS

The Carrizo Plain National Monument is a very different area from how most people picture California. Located between the Central Valley west of Bakersfield and the Coast Range which is populated heavily inland from the Pacific with communities such as the fast growing Paso Robles area, there is a stretch somewhat hidden from travelers where the Monument is located. In this area there are few people, and the Nature Conservancy was able to acquire a huge area some 25 miles by 15 miles (almost 350 square miles) which became the Carrizo Plain National Monument.

West of Bakersfield is the community of Taft, which is known for oil and more oil, and which lies to the east of the low mountain range known as the Temblor Range. South of Taft lies Maricopa, a very small community with more oil, and then going first south then west the CA 33 climbs out of the Central Valley from an elevation of 800' at Maricopa to 2400' nearing Cuyama.

Travelers on Rt 33 might see a sign to the north just before Cuyama for Soda Lake Road, which leads to the south entrance to the Carrizo Plain National Monument. This unassuming entrance leads directly into the Carrizo Plain National Monument on the only main road into the area.

The northern entrance to Carrizo Plain National Monument sign (note that it is Plain not Plains, as you might expect).

From the other direction, travelers on Route 58 or more likely Rt 46 crossing from the Central Valley to the coast might never realize that to the south of them lies the huge area known as the Carrizo Plain. No signs from Rt 46 indicate it, but taking Bitterwater Creek Road eventually leads after an hour to the north entrance to Carrizo Plain National Monument, near where several people live and farm.

The low level mountain area of Carrizo Plain showing arroyo and canyon areas, as seen from the grassland plain area.

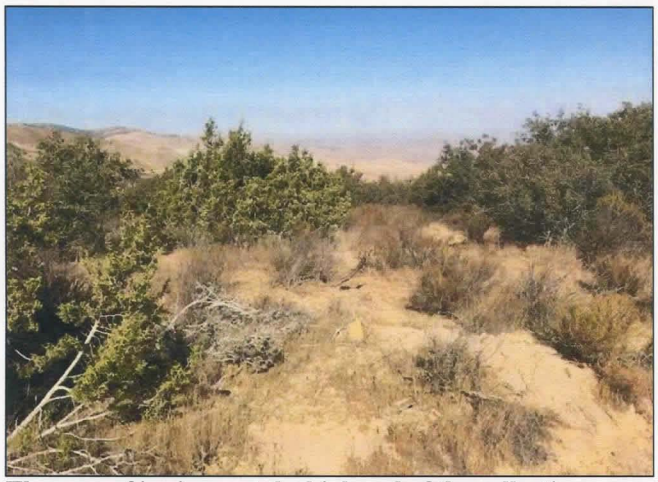
There are usually few visitors to the Carrizo Plain, except in the spring. The reason for this is that for the greater part of the year it is not a very attractive place! There is rugged beauty in the jagged arroyos during the over 35 mile trip from north to south, and there is a dried alkali lake bed (Soda Lake) which shines whitely in the sun, but these are somewhat fleeting attractions that can get old very quickly unless one is a dry desert lover. The area was and partially is used for cattle, so grasslands predominate, with a flat valley running north south and canyons on either side. The ones that divide Carrizo from Taft are the Temblor Range, and the other side is more of just a cut up bunch of canyons caused by the fact that this is ground zero for the San Andreas Fault, which has wreaked havoc in the area for many millennia.

Roads are few and far between. But, in the glory weeks of spring, flowers bloom in the grassy areas and on the lower slopes of some of the canyons areas, and a brief green spell can cast wonder over the area, causing cars to pull off the main road and people to wander through the grasses. For the other ten months of the year, however, the area is brown, brown, brown. Fifty shades of brown. From the dead grasses to the lower slopes of rock to the dry canyons and arroyos, the area is brown.

Hidden in this area, however, is wildlife. As I was leaving the area to the north, I stopped to see if a gentleman needed help next to his stopped car (since there are few people here it is a good idea to check) but he was using binoculars to view a large herd of Tule elk far out on the grasslands. I saw three different coyotes running, romping or frolicking about near the roads near

twilight. A large owl flew by, and hawks are evident periodically. Obviously smaller creatures must be in the vast grasslands. It just seems to be a bleak area at first sight.

The habitat at the lower end of the collecting area, about 2300' elevation.



The area of junipers at the high end of the collecting area. About 3500' elevation.

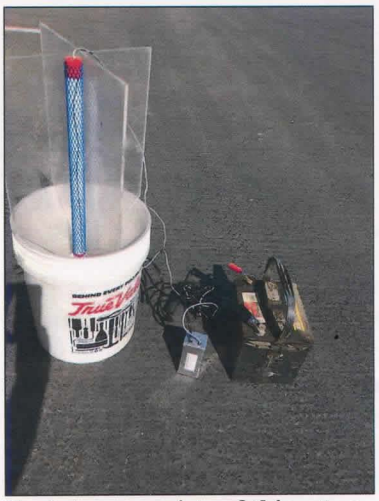
However, this does not daunt intrepid moth collectors in the least! For, usually, as with other desert areas (and this is a real desert area) there are the concomitant two seasons for moth studiers, the spring, and the late fall, when hopefully a little rain has fallen to start some growth over the winter. Having collected in both seasons previously, I calculated the fall seemed to be the least studied, and went with Dave Wikle to sample the slopes in October.

Dave and I met at the turnoff to Selby Campground, which is roughly in the middle of the National Monument. We took the road to the campground, but prior to reaching it, just before the bridge over another dry creek bed, turned right and climbed into the hills, hoping to reach the juniper area and a little more growth. (There is a stock shed just at the creek, if you are looking at a map of the area or looking for where we went). This turnoff is almost exactly 2400' in elevation. We climbed up to about 3945', where there is a turn out area. Dave said he would stay the night there, black lighting and sleeping, and I decided I would set 6 traps from there back down to the turnoff, at intervals to cover the entire area. I had to go to another location for the night so I could only trap, but we covered the area pretty well, from that top elevation to the turnoff elevation, including the dry creekbed.

Looking down from 3500' elevation to Soda Dry Lake and the actual plain area that stretches for 25 miles north to south.

In case I have not mentioned it in previous articles, the traps I use consist of a Bioquip blacklight over a bucket and funnel, held by clear plexiglass panels in a vertical position. Ethyl acetate is the killing agent, and there were no covers needed as the night was clear and relatively wind free.

Unfortunately for us, the area this year is exceptionally dry. There had been one sweeping storm running through the week before, but it appeared to have left few traces we could see. It did not appear to have been enough to set off any great adult hatching, but we had an excellent time and were undisturbed in that area completely.

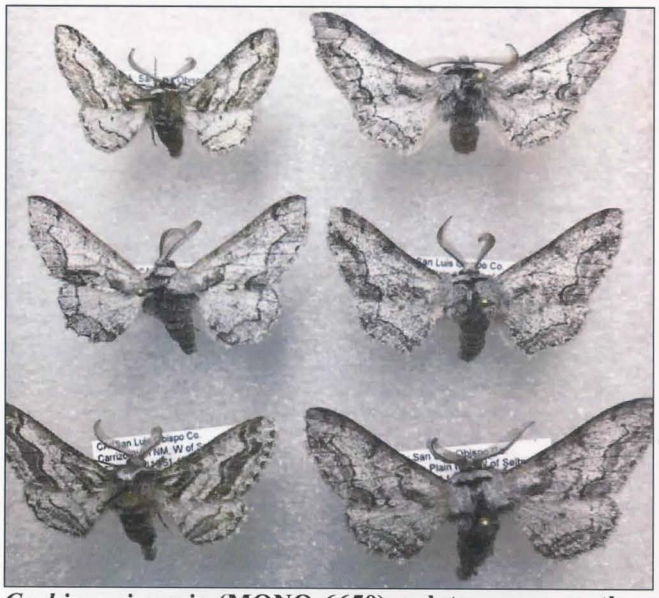


Each trap consists of this setup.

The next morning, even after forgetting where I put several of the six traps, with the help of Dave they were all eventually recovered. The resultant species are shown here, but numbers were down and the variety all represent, with only two exceptions, brown, brown and more brown moths!

A permit is required to collect in the National Monument, and the permit was acquired by Chris Grinter of the California Academy of Sciences through the Bureau of Land Management. The valid permit obtained was used for this trip and prior notice was given that we would be flailing around in the area. Permit placards were displayed on our vehicles.

Tricholita chipeta **(MONO 10631)**



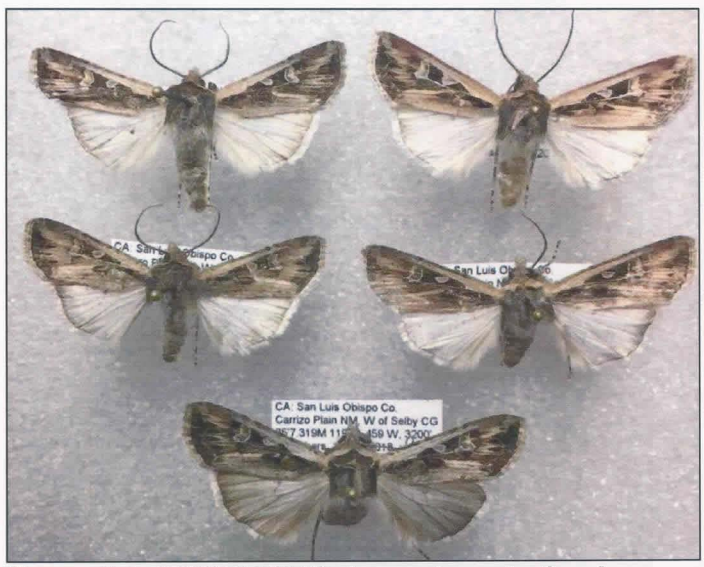
Cochisea sinuaria **(MONO 6650), a late season moth, a selection of males showing pattern variability.**

A long series of these taken, ***Crambus*** **probably** ***rickseckerellus*** **(MONO 5360)**

Pelochrista ridingsana **(MONO 3041)**

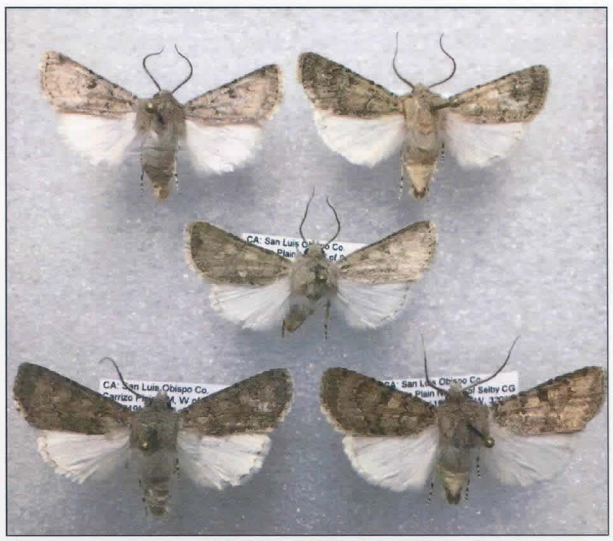
These are very probably the newly separated ***Apantesis behrii*****, not** ***nevadadensis*****. Note the large innner band and the decreased size of spots on the hind wings.**

Neoalcis californiaria **(MONO 6435), again showing huge phenotypic variability. These can be hard to identify if caught singly because of the widely variable markings.**

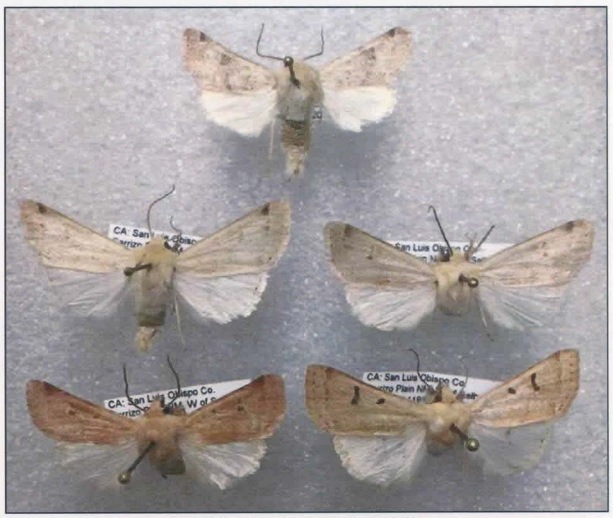


Euxoa olivia **(MONO 10841), four males and a female.**

(Kelly Richers, E-mail: kerichers@wuesd.org)



Euxoa serricornis **(MONA 10744), all males.**



Dichagyris variabilis **(MONO 10889)**

Top left, *Pero meskaria*, one of the rarer *Pero* members, top right either *Digrammia pallidata*, basesd on markings, even though it is not common here, or *Digrammia colorata*, more common but markings a little off, then bottom left female *Digrammia napensis*, and bottom right male *Digrammia excurvata*.

CIRRHOPHANUS TRIANGULIFER GROTE (LEPIDOPTERA: NOCTUIDAE) IN LOUISIANA

BY

VERNON ANTOINE BROU JR. AND CHARLOTTE DOZAR BROU

Fig. 1. ***Cirrhophanus triangulifer*** phenotypes: a-b. males, c-d. females (all St. Tammany Parish, Louisiana).

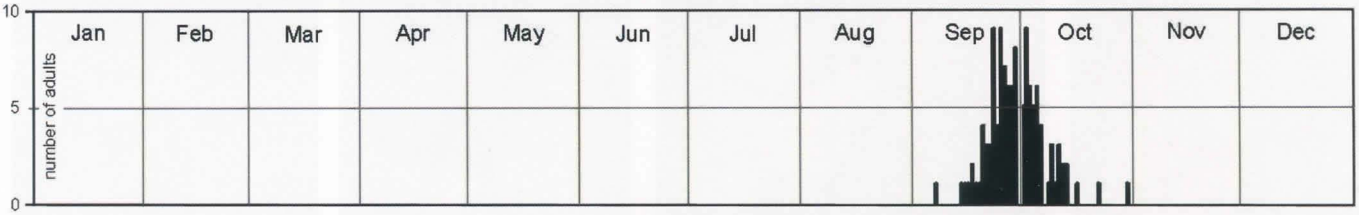


Fig 2. Adult ***Cirrhophanus triangulifer*** captured in Louisana. n =120

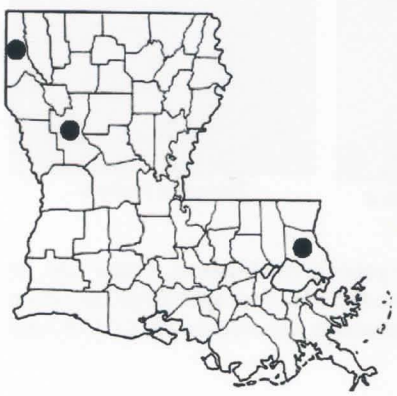


Fig. 3. Parish records for ***Cirrhophanus triangulifer.***

The early fall moth ***Cirrhophanus triangulifer*** Grote (Fig. 1) (Type locality Missouri) is one of three species of the genus ***Cirrhophanus*** Grote listed by Poole (1994) to occur within the United States, and this same author noted three additional species are known to occur in Mexico. The three US species are ***triangulifer, Cirrhophanus dyari*** Cockerell, and ***Cirrhophanus pretiosa*** Morrison. As illustrated in Fig. 1, adult colors vary from lemon yellow to orange, with darker maculation in the form of lines on the forewings.

The univoltine phenology of ***triangulifer*** in Louisiana is illustrated in Fig. 2, peaking at the (end of September - beginning of October). These few documented 120 adults are the result of operating up to eight or more high-wattage ultraviolet light traps continuously 365-366 days of each and every year beginning 1969 to present day 2018 (49 years). Poole (1994) remarks of ***triangulifer***, "*Adults fly in August and September. Specimens are not abundant in collections, possibly because the adults are rather sedentary*". It is possible that the very similar looking but smaller in size species ***Cirrhophanus pretiosa*** may eventually be encountered in northern or western areas of Louisiana, but that species flies in the spring and summer, April-July. Both Covell (1984) and Heppner (2003) stated the range of ***triangulifer*** to include New York to Florida west to Kansas and Texas (Covell stated records in late August to September) Heppner (in October). Heitzman and Heitzman (1987) reported ***triangulifer*** to be local but widespread in Missouri. The three confirmed Louisiana parish records for ***triangulifer*** are illustrated in Fig. 3. Among all of the Gulf Coastal States, Poole (1994) listed only one location for ***triangulifer*** in SE Texas, and two locations in the Florida Panhandle.

All past authors list various species of ***Bidens*** (Asteraceae) as larval foodplants for ***triangulifer***. I have found adults resting during the daylight hours upon yellow ***Bidens*** flowers. The adults sit quietly with wings closed tightly and align themselves linear, visually blending in with and upon the petals of the flower head, with the head of the moth partly resting upon the center disc. Several authors mention ***triangulifer*** have been observed on flowers of goldenrod plants. Powell and Opler (2009) covered only the southwestern species ***dyari***.

Literature Cited

Covell, Jr., C.V., 1984. *A Field Guide to the Moths of Eastern North America.* The Peterson Field Guide Series No. 30. Houghton Mifflin Co., Boston. xv + 496pp., 64 plates.

Heitzman, J.R. & J.E. Heitzman, 1987. *Butterflies and Moths of Missouri.* Missouri Dept. of Conservation, 385 pp.
Heppner, J.B., 2003. *Arthropods of Florida and neighboring land areas*, vol. 17: Lepidoptera of Florida, Div. Plant Industry, Fla. Dept. Agr. & Consum. Serv., Gainesville. x + 670 pp., 55 plates.
Poole, R.W., 1994. Noctuoidae, Noctuidae (Part) in Dominick, R.B., et al., The Moths of America North of Mexico, fasc. 26.1
Powell, J.A. and P.A. Opler, 2009. *Moths of Western North America*, Univ. Calif. Press xiii + 369 pp + 64 plates.

(Vernon Antoine Brou Jr. and Charlotte Dozar Brou, 74320 Jack Loyd Road Abita Springs, Louisiana 70420 USA
E-mail: vabrou@bellsouth.net)

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Ponometia libedis

Ponometia dorneri

Ponometia phecolisca

Tarache sedata

Mike Rickard sends in the following photos and report: I've run a blacklight nightly for ten years in my Mission, Texas yard, so it was pretty exciting to get a number of species new to both me and the yard recently. These included four species of Bird-drop Moths (Acontiinae): *Ponometia libedis* 24-IX-2018, *Ponometia dorneri* 14-X-2018, *Ponometia phecolisca* 29-X-2018, and *Tarache sedata* 16-XI-2018. (Mike Richard, E-mail: folksinger4@yahoo.com)

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Monarch Enlightenment

On November 2, 2018, Susan Schaffel found a monarch chrysalis on the hand of the Buddha in her garden in Poinsettia Heights in east Fort Lauderdale, Broward County, Florida. A perfect adult emerged eight days later (Photos taken by Susan Schaffel).

SOME LEPIDOPTERA COLLECTED AND PHOTOGRAPHED NEAR SUNNY FLAT CAMPGROUND IN THE CHIRICAHUA MOUNTAINS (COCHISE COUNTY, ARIZONA)

BY

HUGO L. KONS JR. & ROBERT BORTH

Sunny Flat Campground is located within the Coronado National Forest in Cochise County, Arizona. It lies within the Cave Creek Valley of the Chiricahua Mountains where the elevation is generally between 5100 and 5200 feet. The valley contains oak forest with sparse understory (Figure 1:G) as well as more open grassy oak savanna (Figure 1: E-F). Pine (*Pinus*), Bigtooth Maple (*Acer grandidentatum*), and Arizona Cypress (*Hesperocyparis arizonica*) are also common in the woodlands. We visited this area to collect and photograph Lepidoptera the night of 24 June 2018.

We stayed at camp site number 1 in the Sunny Flat Campground. This site is located at the edge of the campground near the intersection of 42 Forest Road and South Fork Road. These roads provided an ideal bait trail just outside of the campground, with many large trees near the side of the road to which we applied rotten banana mush/brown sugar (Figure 1:H). We also put up seven bait traps in this area (Type H bait traps as described at http://www.lepidopterabiodiversity.com/SurveyMethods.htm). We located a MV sheet near camp site 1 along a mud path at the edge of a dry rocky wash (Figure 1:A-B) at N 31.88431°, W 109.17843°. The vantage here was not as good as the large open area in the main campground, but site 1 (and adjacent site 2-vacant the night we were there) are disjunct from the main campground, so a MV light and generator could be operated here without disturbing anyone else staying in the campground. One 15 watt UV light trap was placed in oak woodland in camp site 1 (Figure 1:G) at N 31.88484°, W 109.17792°.

We documented as many species as possible by collecting at least one representative of each morphospecies encountered at the MV sheet, UV trap, and bait trail/bait traps. In addition to collecting voucher specimens we also took live photographs of each species encountered on the bait trail, as well as a small fraction of the species encountered at the MV sheet. The photos in Figures 1-9 were taken with a Canon Powershot SX50HS in TV mode with the flash that comes with the camera. Photos in Figure 10 were taken with a Canon EOS 60 D camera body with a Canon MT-24EX Macro Twin Light Flash and Canon 180 mm macro lens.

We have identified most of the species found at the bait trail; however, much of the material collected at lights has yet to be studied and processed. Here we present a list of the species found at bait, live photos of these species on the bait trail (Figures 2-10), and live photos of a small portion of the species collected at the MV Sheet (Figures 2-3 & 7-9). All of the nocturnal species found at bait were Noctuidae (sensu lato) and Geometridae.

Nocturnal Lepidoptera Species Collected and Photographed on the Bait Trail on 24 June 2018

Numbers in [ ] are from the Hodges et al. (1983) *Check List of the Lepidoptera of America North of Mexico*.

NOCTUIDAE (26 species)

***Carales arizonensis* [8226] (Figure 2):** The individual figured is the only specimen found on this date.

***Idia suffusalis* [8325] (Figure 2):** The individual figured is the only specimen found on this date.

***Idia occidentalis* [8334.1] (Figure 2):** About fifteen individuals were seen on the bait trail. This species was present in higher numbers among the bait traps, but they became very worn due to numbers of *Catcala junctura* flying around in every bait trap.

***Idia lubricalis* complex (Figure 2):** Southern Arizona contains a phenotype similar to *Idia lubricalis*, but it differs in wing pattern and COI 5' sequences from any of the several species going under the name *lubricalis* in the eastern U.S. At least one of these was present in fresh condition (Figure 2).

***Tetanolita negalis* [8369] (Figure 2):** About 15 individuals in fresh condition were found on the bait trail.

***Hemeroplanis punitalis* [8468] (Figure 2):** Only one individual came to the bait trail (Figure 2), but both *H. punitalis* and *H. rectalis* came to the MV sheet in numbers. *Hemeroplanis punitalis* and *H. rectalis* are frequently misidentified. *Hemeroplanis rectalis* [8475.1] has a fairly straight antemedial line with contrasting pale band on the basal side, whereas *H. punitalis* has a convex antemedial line with a less conspicuous pale band on the basal side. We have examined photos of the types of these species provided by J. Donald Lafontaine.

***Metalectra bigallis* [8501] (Figure 2):** The individual figured is the only specimen found on this date.

***Panopoda rigida* [8590] (Figure 3):** A single individual was found at the bait trail, and several more were found at lights.

***Melipotis indomita* [8600] (Figure 3):** This species is often common in many southwestern habitats, but on this date we only found a few individuals at both bait and lights.

***Melipotis jucunda* [8607] (Figure 3):** A few individuals were found at both bait and lights, mostly in worn condition.

***Bulia species* [8614?] (Figure 3):** Over 50 *Bulia* were seen on the bait trail and they were also numerous at the MV sheet. Specimens we previously collected and dissected from nearby Idlewilde Campground were *Bulia deducta* [8614], but similar *B. similaris* [8615] is also a possibility in this area. These similar species cannot be reliably separated from wing pattern but they differ in male genitalia and COI 5' sequences.

***Ascalapha odorata* [8649] (Figure 10):** One individual of this tropical migrant was found on the bait trail. On 25 June and from 26-29 June 2018 we found this species in numbers in Spring Canyon State Park, New Mexico and the Davis Mountains, Texas, respectively. Numerous individuals came to the bait traps and some were even flying around the traps when the sun was shining. We also found it in the Wichita Mountains of Oklahoma and Appleton, Wisconsin in July 2018, so there appears to have been a substantial northward migration in 2018.

***Heteranassa mima* [8659] (Figure 4):** Over 25 individuals were found on the bait trail, with lower numbers found at lights.

***Toxonprucha pardalis* [8670] (Figure 4):** This highly variable species was among the most common species at the bait trail, with well over 100 individuals seen. Only a few individuals were found at lights.

***Toxonprucha volucris* [8672] (Figure 4):** Over 25 individuals were found on the bait trail, and a few others came to lights.

***Matigramma* sp. (Figure 3):** Material we have previously collected and dissected from nearby Idlewilde campground included *Matigramma repentina, M. emmilta, M.inopinata*, and *M. rubrosuffusa*. A single individual found on the bait trail (Figure 3) needs to be dissected for reliable determination. *Matigramma* individuals from this group of species were fairly common at the MV sheet.

***Zale colorado* [8715] (Figure 5):** Over 25 individuals were found on the bait trail, with lower numbers found at lights.

***Zale insuda* [8696] (Figure 5):** This was the most common species on the bait trail, with over 150 individuals found. Over 25 individuals came to the MV Sheet.

***Catocala ilia* [8801] (Figure 10):** Two individuals were found on the bait trail, one of which was rather worn.

***Catocala junctura* [8829] (Figures 5 & 10):** Eight individuals were found on the bait trail, but it was much more common in bait traps, with 3-13 individuals in each bait trap. Individuals ranged from fresh to worn condition. All individuals were found within oak forest/oak savanna at some distance from the poplars (*Populus*), which presumably are the foodplant here.

***Meganola minor* [8984] (Figure 7):** The individual figured is the only specimen found on this date.

***Condica albolabes* [9695] (Figure 6):** One fresh individual was found on the bait trail.

***Hexorthodes tuana* [10285] (Figure 6):** Over 25 individuals were found on the bait trail.

***Leucana oaxacana* [10451]:** A few individuals were collected at lights and bait, but the photographed *Leucania* (Figure 6) is atypical of *L. oaxacana* and needs to be dissected.

***Neleucania praegracilis* [10613] (Figure 6):** One fresh individual was collected at the bait trail. This species was common in the Davis Mountains in western Texas on 26 and 29 June.

***Hypotrix lunata* [10606] (Figure 6):** A few individuals came to baited trees but this species was more common at lights, with over 25 found at the MV sheet.

***Dichagyris grandipennis* [10890] (Figure 6):** One individual was found on the bait trail. It dropped off the tree and was photographed on the ground before it was collected.

GEOMETRIDAE (4 species)

Numerous species of geometrids were found at lights, but only four species were found on the bait trail. We are much less knowledgeable about the geometrid fauna of this area than the noctuids, and two of these species are undetermined to genus.

***Glena nigricaria* [6448] (Figure 8):** Several worn individuals were found on the bait trail, although fresh individuals were found at the MV sheet.

***Anavitrinella* species (Figure 8):** *Anavitrinella* specimens we previously collected and dissected from nearby Idlewilde Campground were *A. atristrigaria*, and this is the likely identity of the single specimen figured from the bait trail.

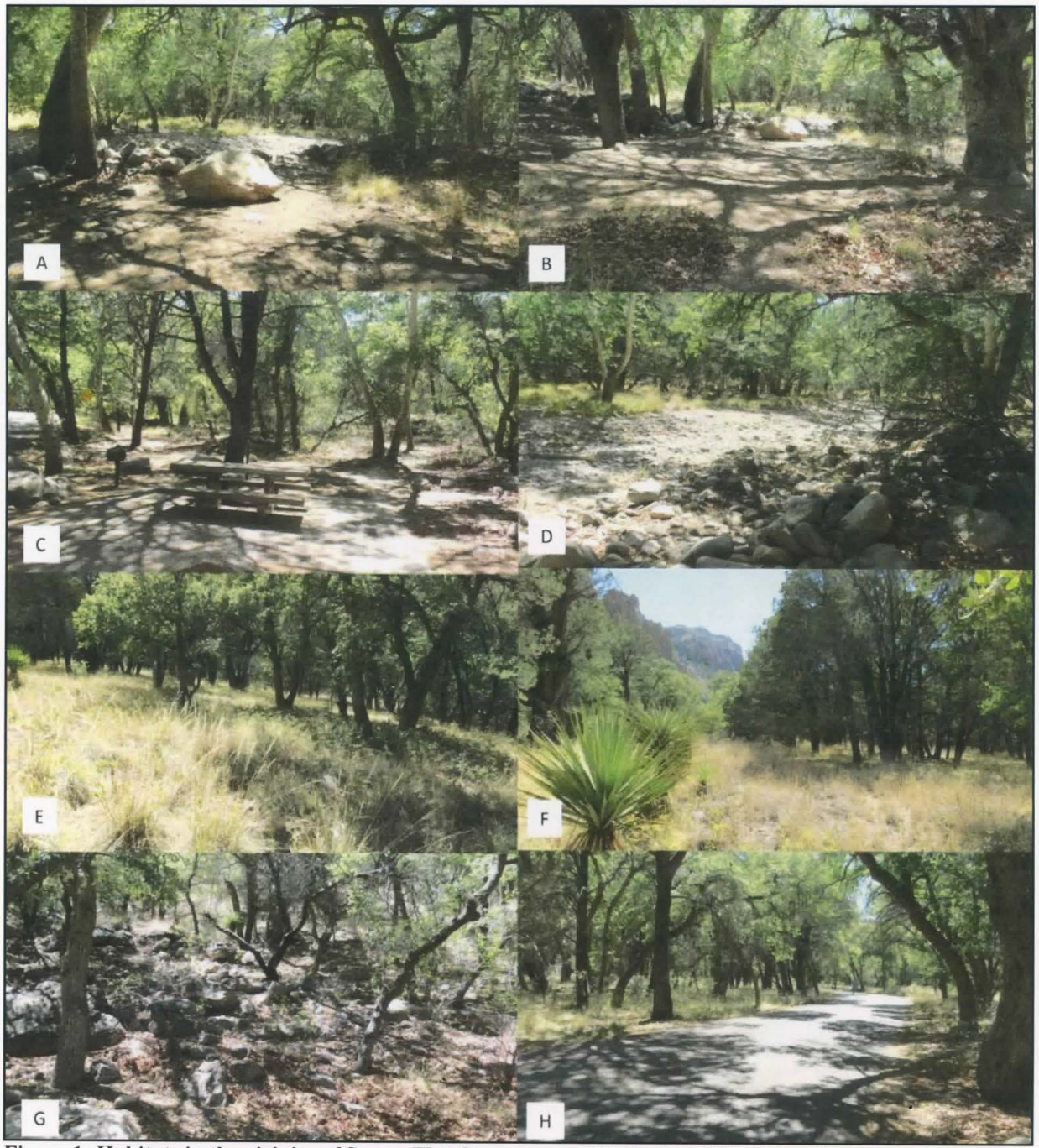

Figure 1: Habitats in the vicinity of Sunny Flat Campground Site 1: A-B: MV Sheet Site in oak woodland at edge of dry wash. C: Sunny Flat Campground Site Number 1. D: Dry rocky wash through oak woodland (right side photo) and grassy oak savanna (top of photo). E: Grassy oak savanna. F: Mixed woodland and grassy savanna. G: Oak woodland with rocky, sparsely vegetated understory at camp site number 1. H: Part of bait trail along road.

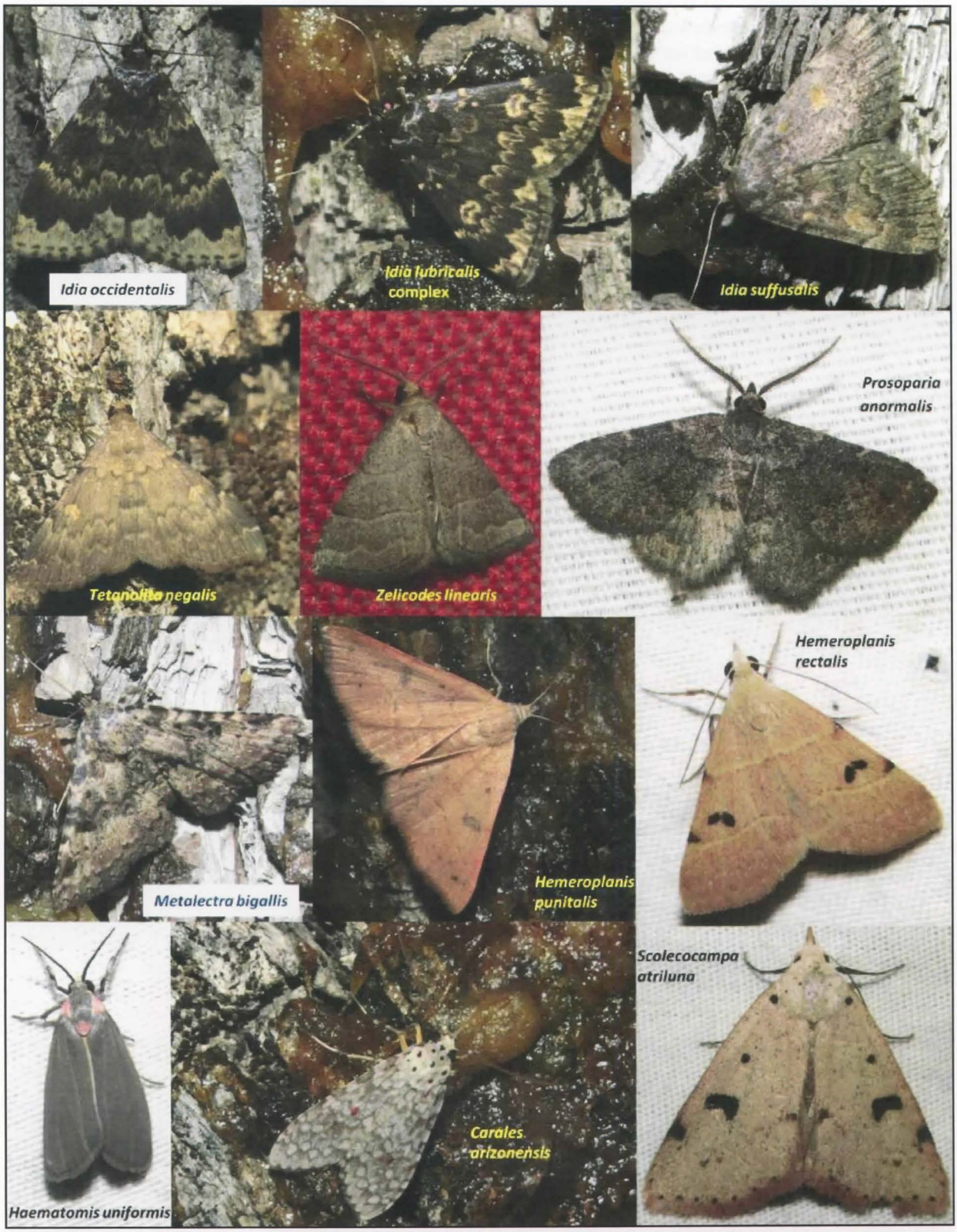

Figure 2: Arctiinae and Primitive Quadrifine Noctuidae.

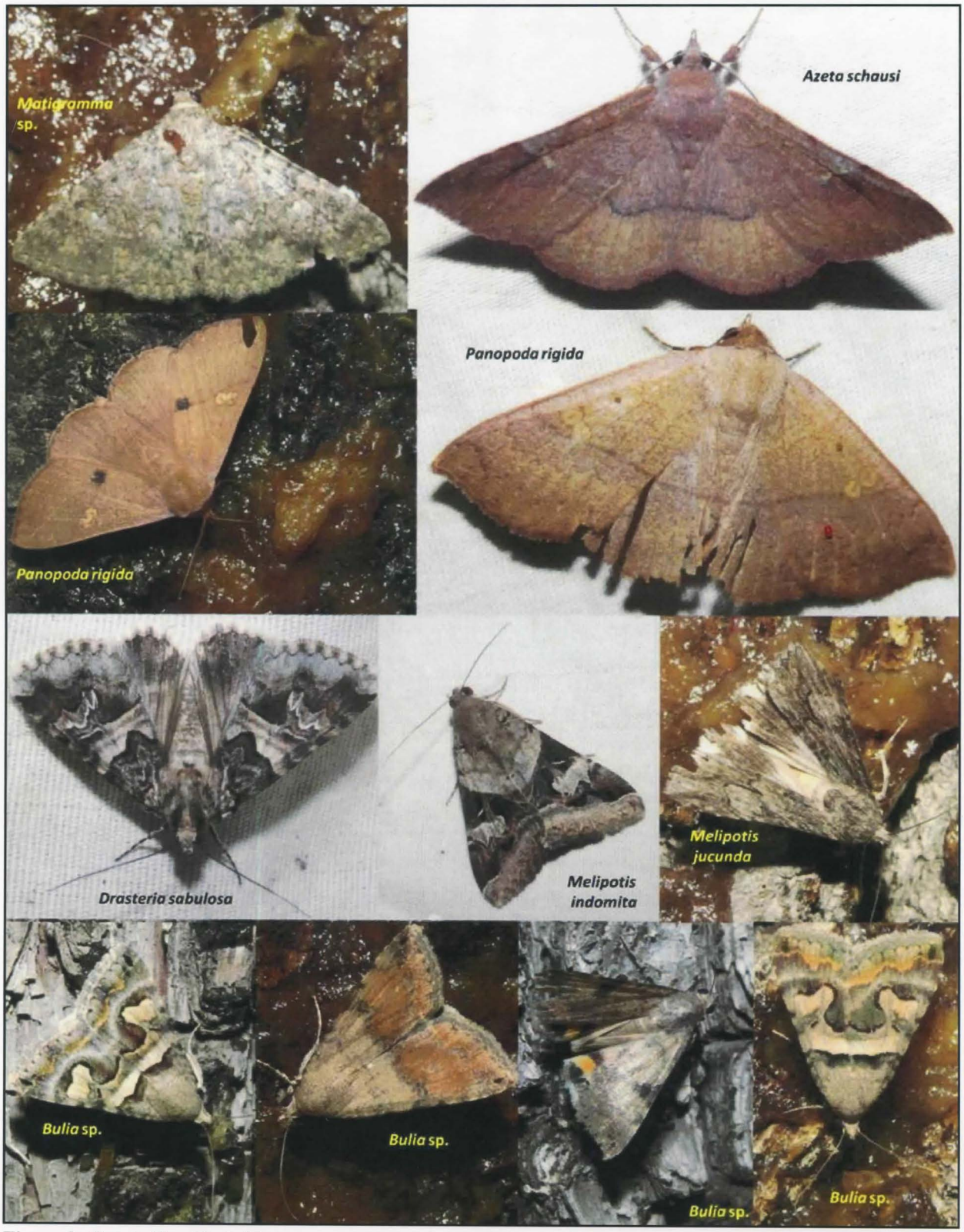

Figure 3: Quadrifine Noctuidae.

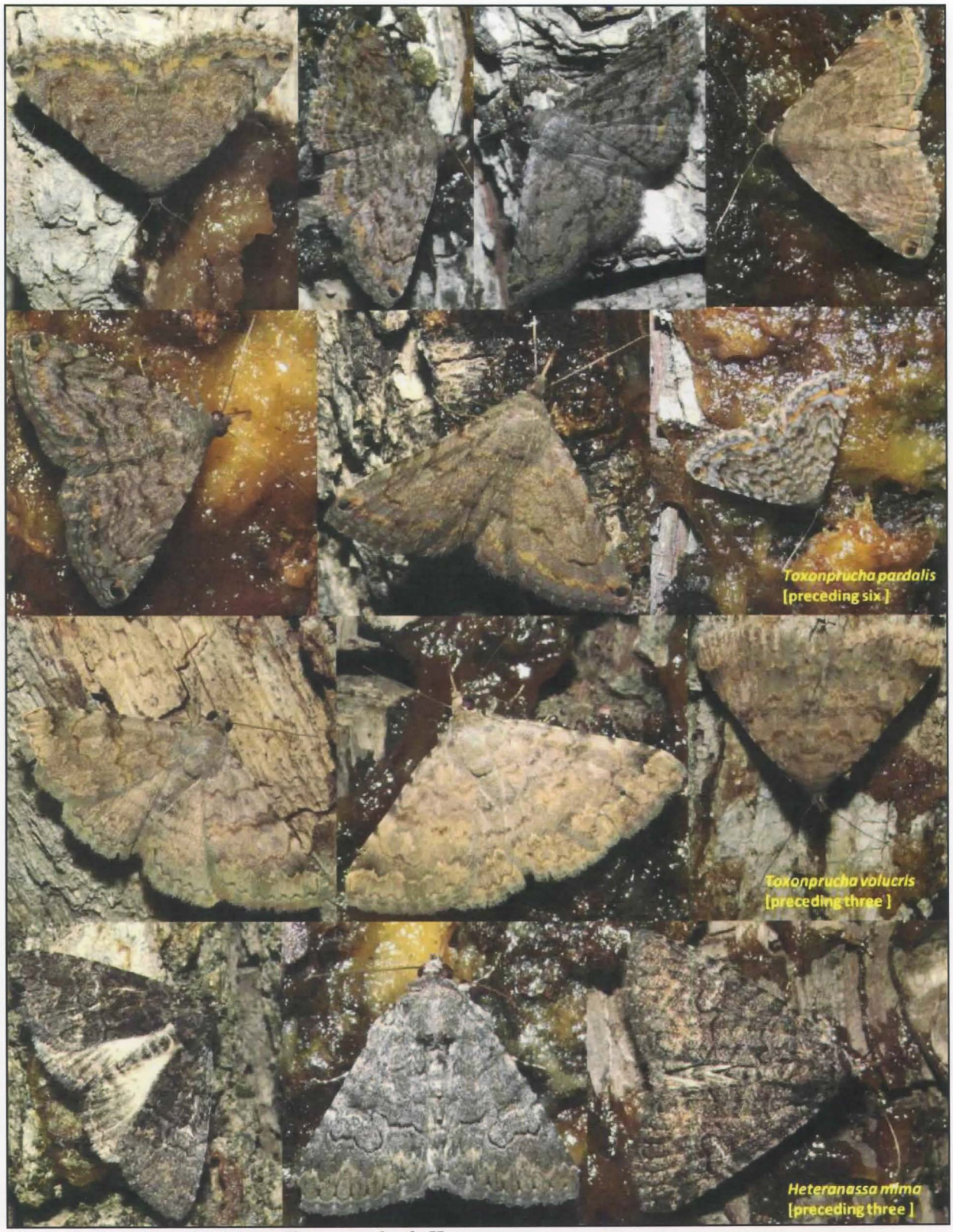

Figure 4: Noctuidae: Erebinae: *Toxonprucha* & *Heteranassa*.

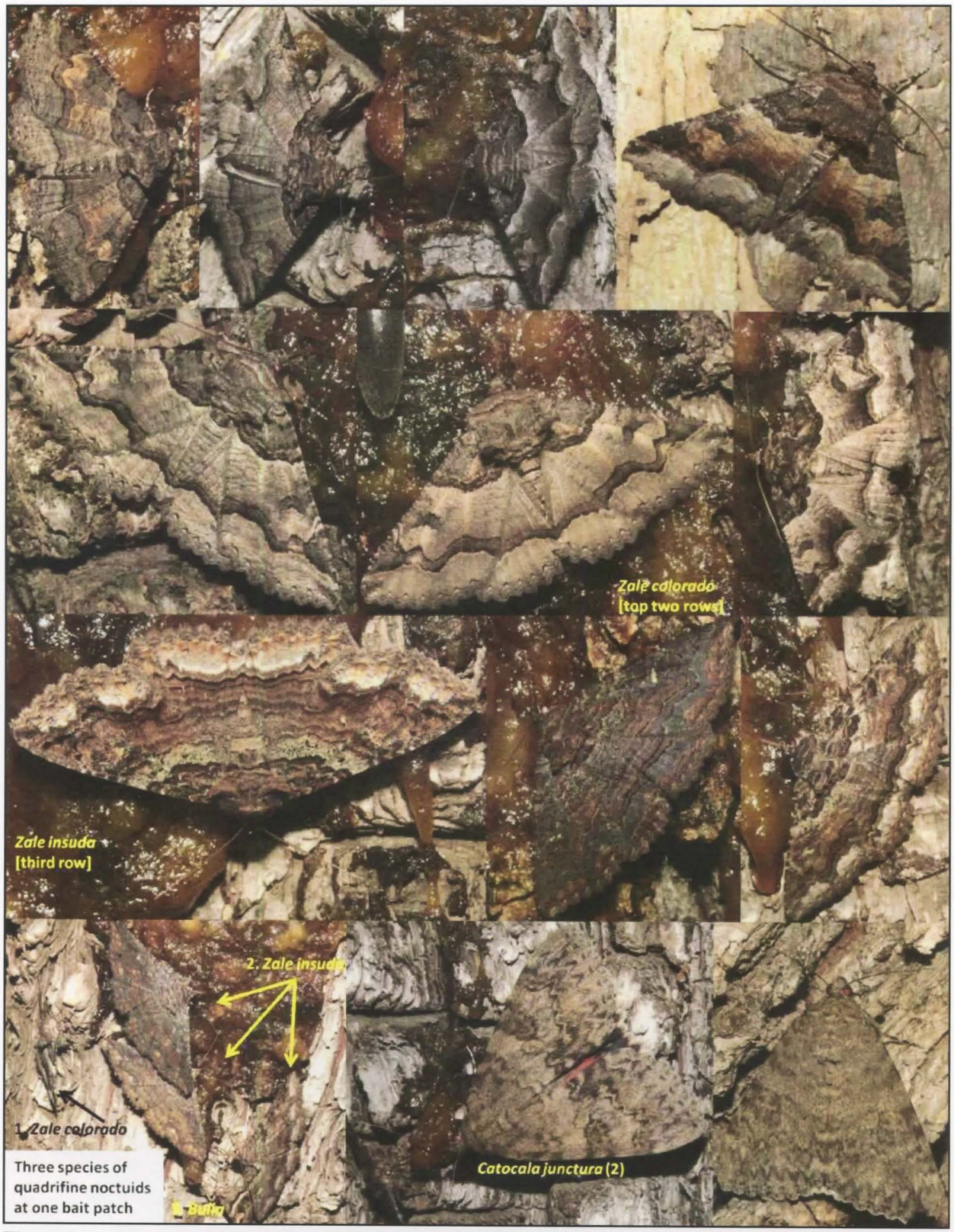

Figure 5: Noctuidae: Erebinae: *Zale* & *Catocala*.

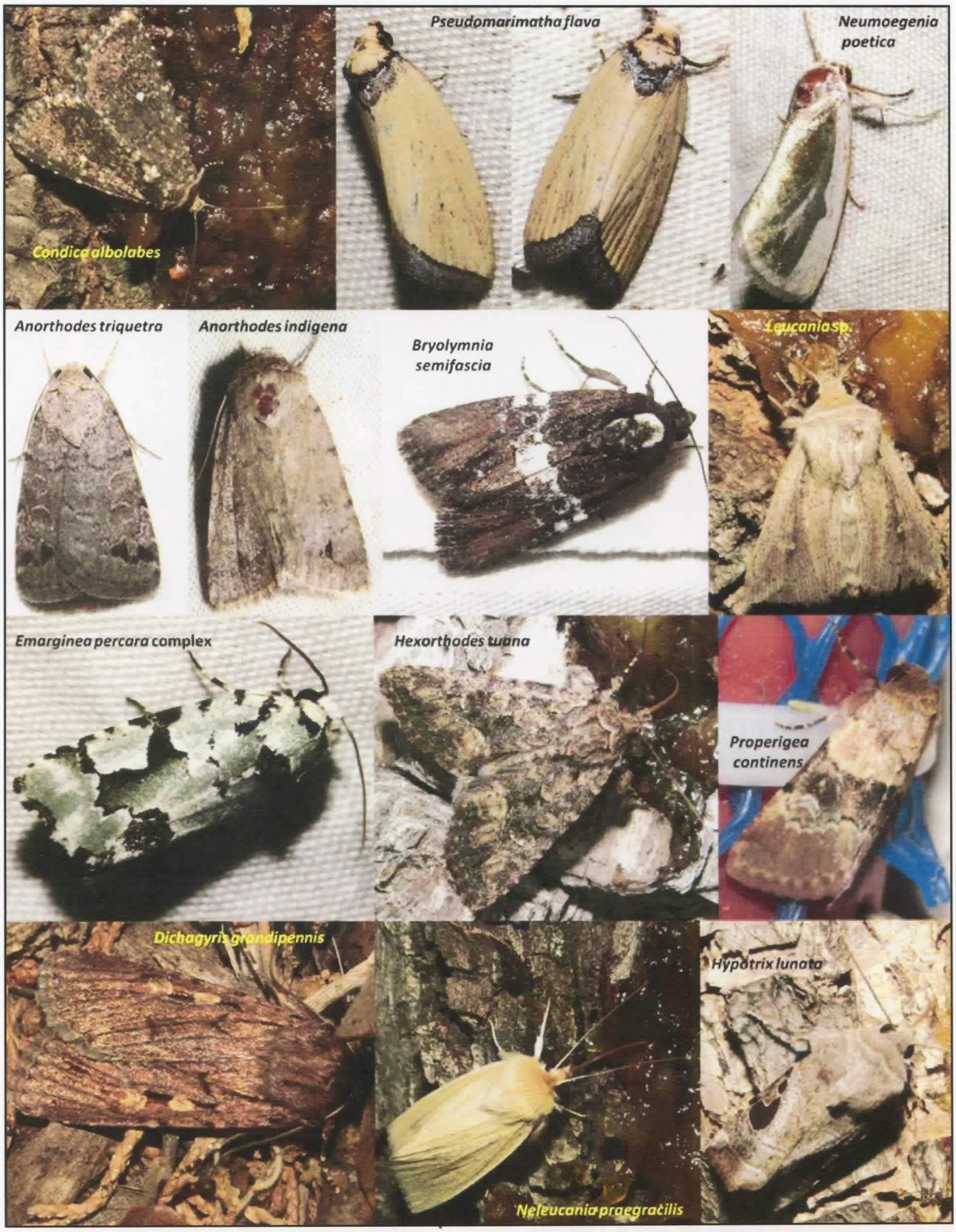

Figure 6: Trifine Noctuidae.

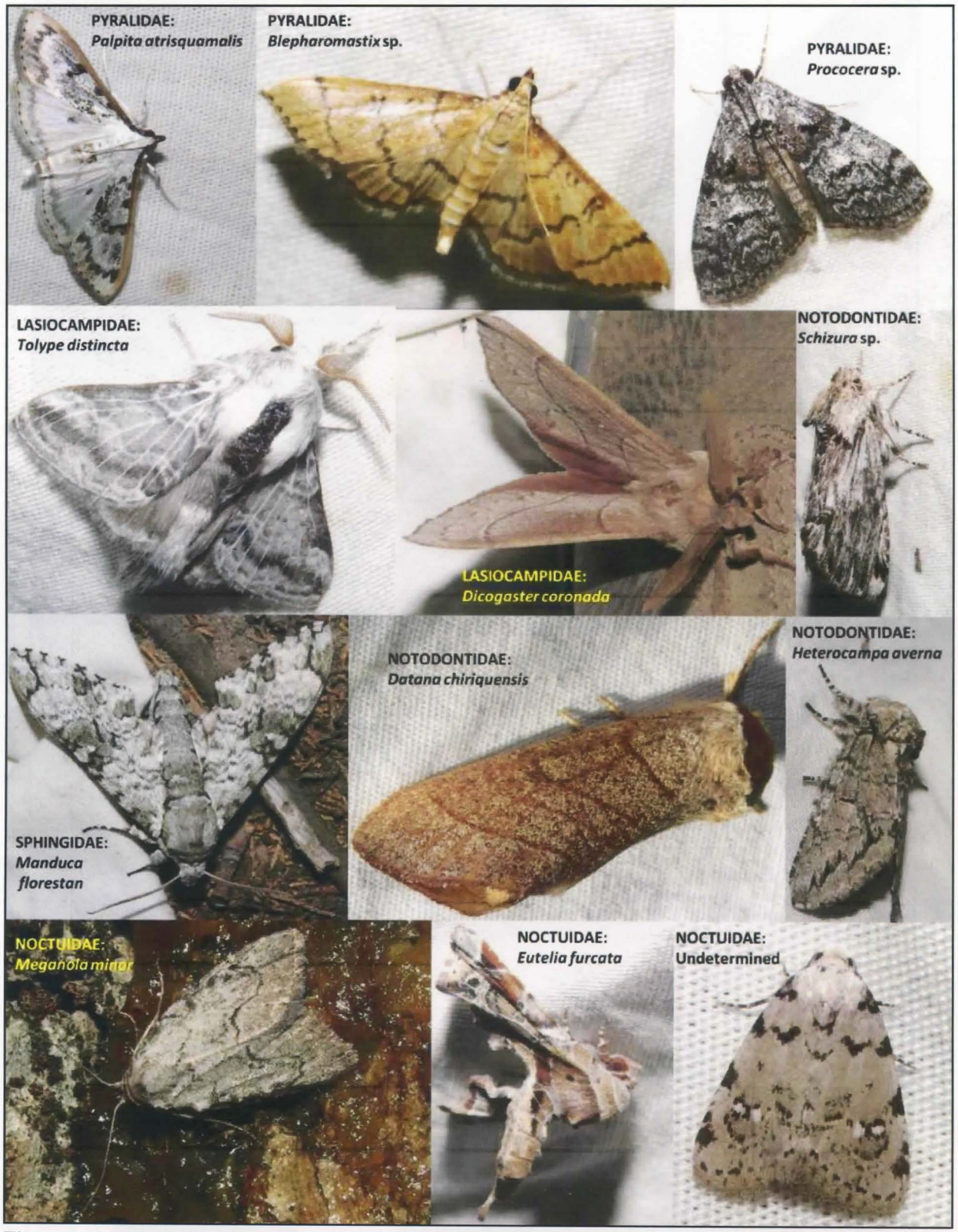

Figure 7: Pyralidae, Lasiocampidae, Notodontidae, & Noctuidae.

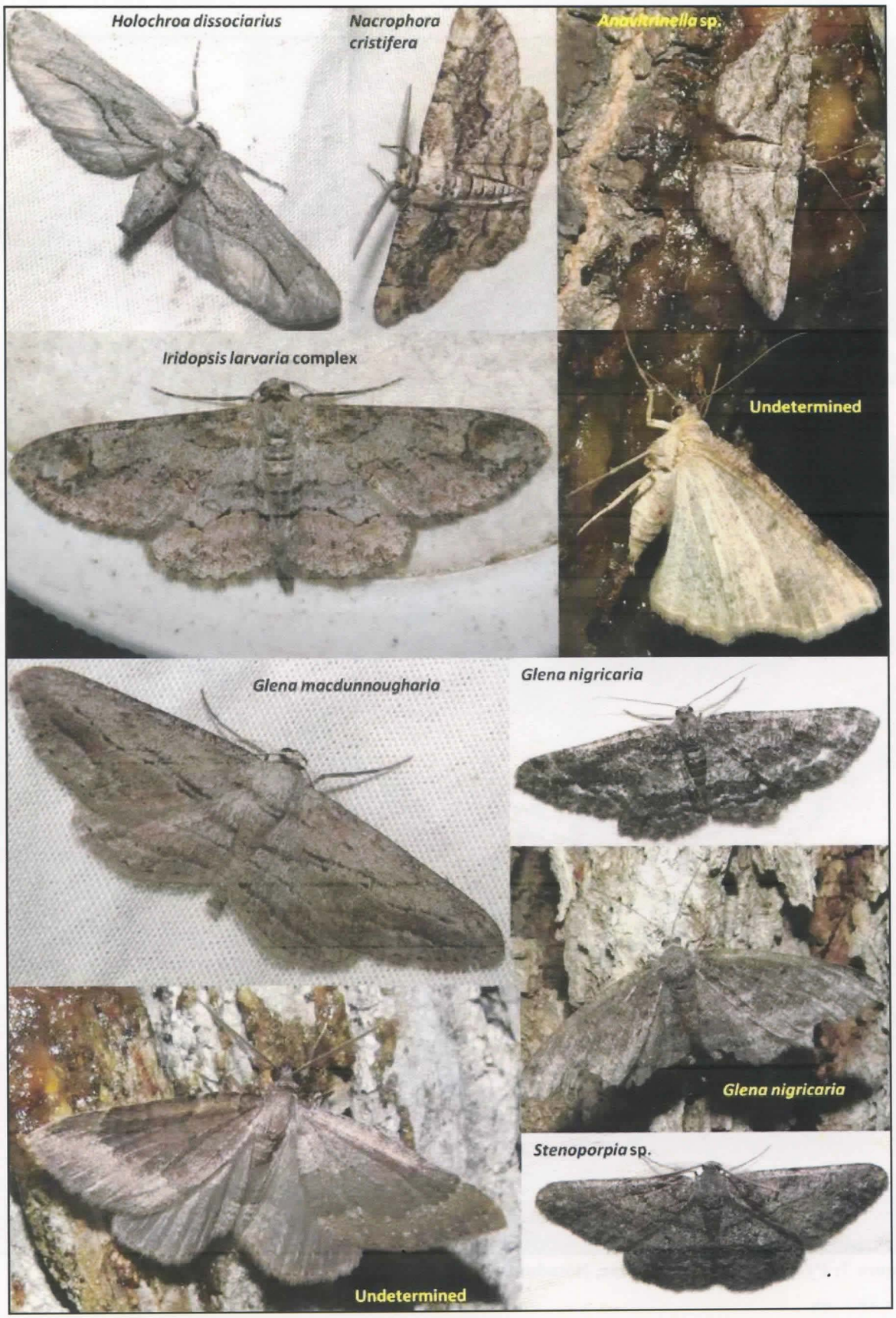

Figure 8: Geometridae.

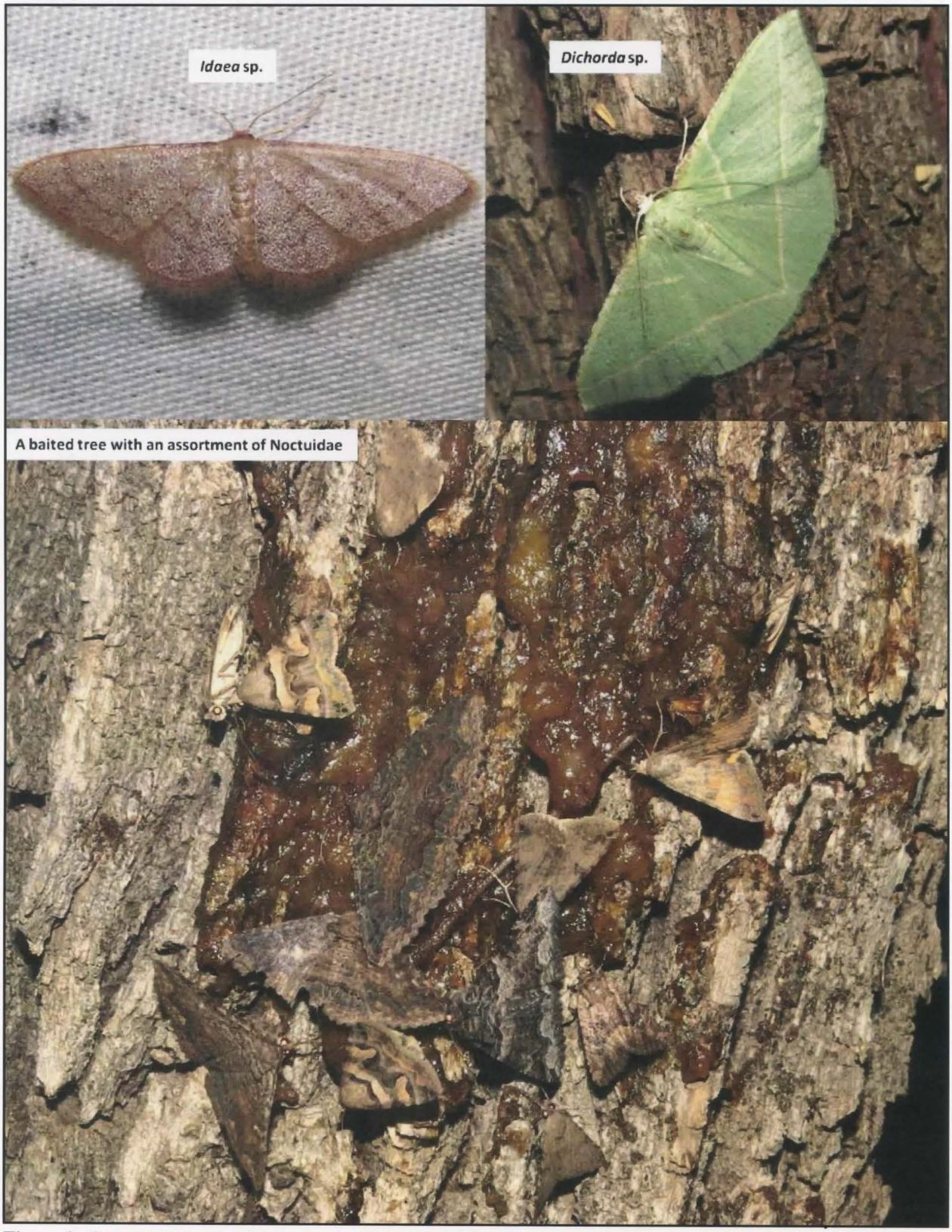

Figure 9: Geometridae and Example of a Baited Tree.

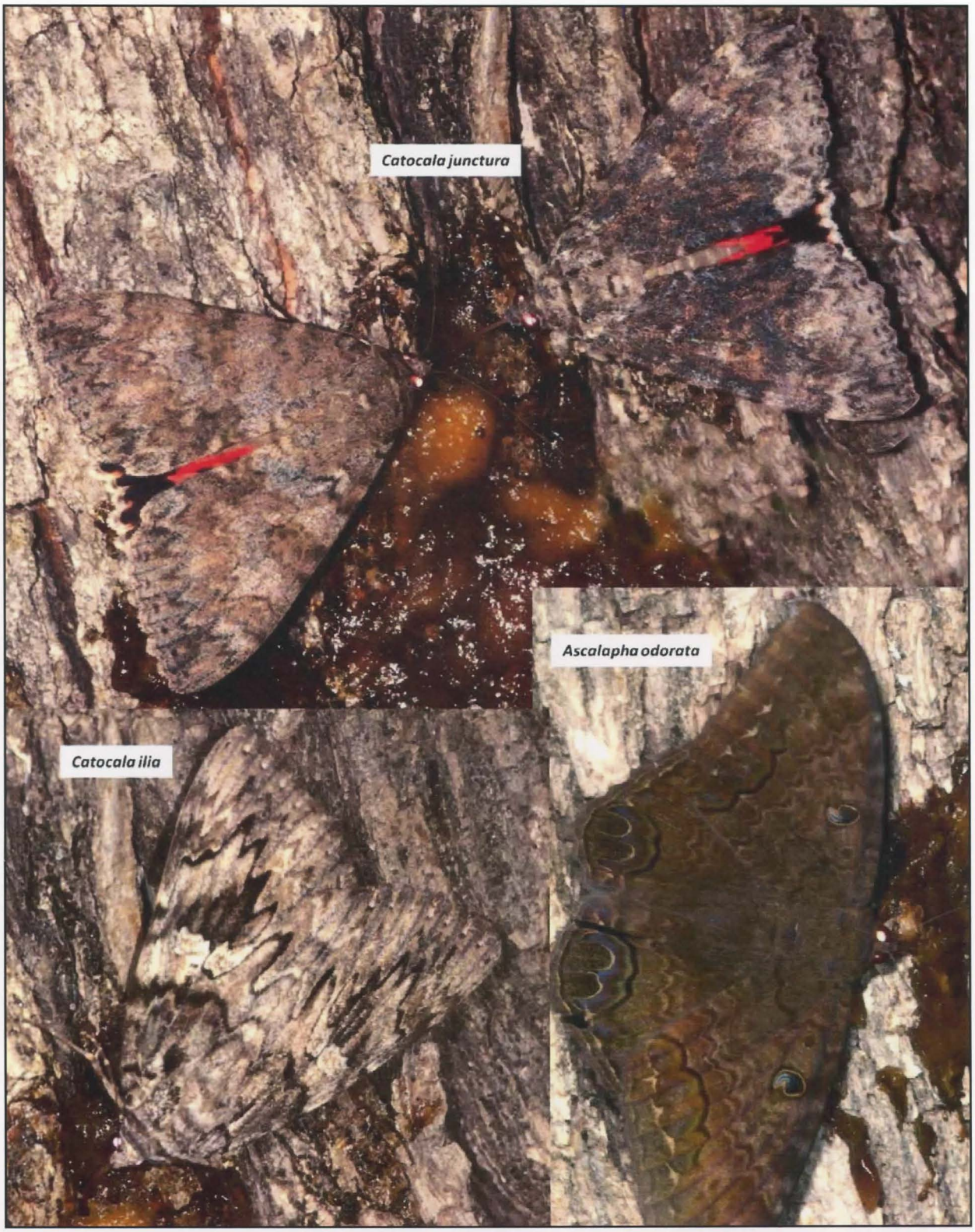

Figure 9: Noctuidae: Erebinae: *Catocala* & *Ascalapha*.

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TOXONPRUCHA SCITIOR (WALKER) AND *TOXONPRUCHA PERPUSILLA* (WALKER) (LEPIDOPTERA: NOCTUIDAE: EREBINAE) IN TEXAS

BY

HUGO L. KONS JR. & ROBERT J. BORTH

Abstract

Toxonprucha scitior and *Toxonprucha perpusilla* both occur in Texas. *Toxonprucha scitior* is known to us from one U.S. specimen from the Lost Maples State Natural Area in the Texas Hill Country. *Toxonprucha perpusilla* can be common in the Lower Rio Grande Valley of South Texas and also occurs in the Texas Hill Country, the mountains of western Texas, the Chiricahua Mountains of southeastern Arizona, and probably South Florida. The names *diffundens* and *excavata* have been applied to North American specimens of *Toxonprucha perpusilla* but their types do not match *T. perpusilla* in wing pattern.

Introduction

Knudson and Bordelon (2003) reported seven species of *Toxonprucha* from Texas: *T. pardalis* (Sm.), *T. clientis* (Grt.), *T. repentis* (Grt.), *T. diffundens* (Wlk.), *T. crudelis* (Grt.), *T. psegmapteryx* (Dyar), and *T. volucris* (Grt.). While conducting biodiversity inventories at many sites throughout Texas we collected all of these species at multiple localities. However, on 27 May 2009 we visited Lost Maples State Natural Area in Bandera County, Texas, and we collected an unusual *Toxonprucha* specimen that we were unfamiliar with (Figure 1:A). Among other Texas *Toxonprucha* it is most similar to the species which has been reported as *Toxonprucha diffundens* (Knudson and Bordelon 2004, Plate 8:9) and *Toxonprucha excavata* (Lafontaine and Schmidt 2015) (Figure 1:B-I).

Methods

We collected *Toxonprucha* specimens at MV/UV lights and at rotten banana bait. The specimen photos in this article were taken with the GT Vision imaging system of the former American Entomological Institute. We submitted representatives of *Toxonprucha* species known from Texas to BOLD (Barcode of Life Data Systems) for sequencing the 5' region of the mitochondrial gene cytochrome oxidase subunit I (COI 5'). We examined type photos provided by J. Donald Lafontaine for *Toxonprucha diffundens* (Walker), *T. noctualis* (Walker), *T. excavata* (Walker), *T. miniscula* (Walker), *T. perpusilla* (Walker), and *T. scitior* (Walker).

Type Specimens

Toxonprucha diffundens from Venezuela is most similar in pattern to *Heteranassa mima* among the Nearctic fauna, with similar forewing maculation and a pale, sparsely patterned hindwing. It doesn't resemble any of the Nearctic *Toxonprucha* species, and Lafontaine and Schmidt (2015) suggested *diffundens* may not be correctly placed in *Toxonprucha*.

Toxonprucha noctualis from Venezuela may be a more worn example of the same taxon as *diffundens*. It is considered a synonym of *diffundens* by Lafontaine and Schmidt (2015).

Toxonprucha excavata and ***T. miniscula*** are both from the Dominican Republic, appear to be the same taxon, and don't match any wing pattern phenotype we have seen from the United States. These types may represent a Hispaniolan or Caribbean endemic as they also don't match the pattern of any of the Costa Rican or Mexican *Toxonprucha* illustrated on the BOLD web site as of 19 November 2018, including a substantial amount of material from Santa Rosa National Park in Costa Rica submitted by Dan Janzen and collaborators. These two types are brownish specimens without any contrasting blue-grey or violet grey scaling, and the light brown area between the dorsal forewing antemedial and medial lines is concolorous with other light brown areas of the forewings. While very old specimens can turn more brownish in color, contrasting blue-grey scaling is evident on two other Walker types designated in 1865: *scitior* and *perpusilla*. The pattern of contrasts also differs from U.S. material: there is a contrasting dark brown dorsal forewing band between the distal side of the postmedial line and the subterminal line rather than between the postmedial line and medial line; the distal side of this band is slanted outward posterior to anterior, is fairly straight for most of its length, and does not extend all the way to the subterminal line posterior of vein M1.

Toxonprucha perpusilla from Honduras is a typical specimen of the *Toxonprucha* species that has been reported as *diffundens* or *excavata* from the United States. This type has conspicuous blue-grey scaling on the dorsal forewings. It also has a contrasting dark brown forewing band between the medial line and postmedial line posterior of vein M3; this condition is common among series of Texas material although other specimens are plainer with less contrast.

Lafontaine and Schmidt (2015) applied *excavata* to *Toxonprucha* populations in southern Texas, noting similarity in DNA barcodes from Caribbean, Mexican,

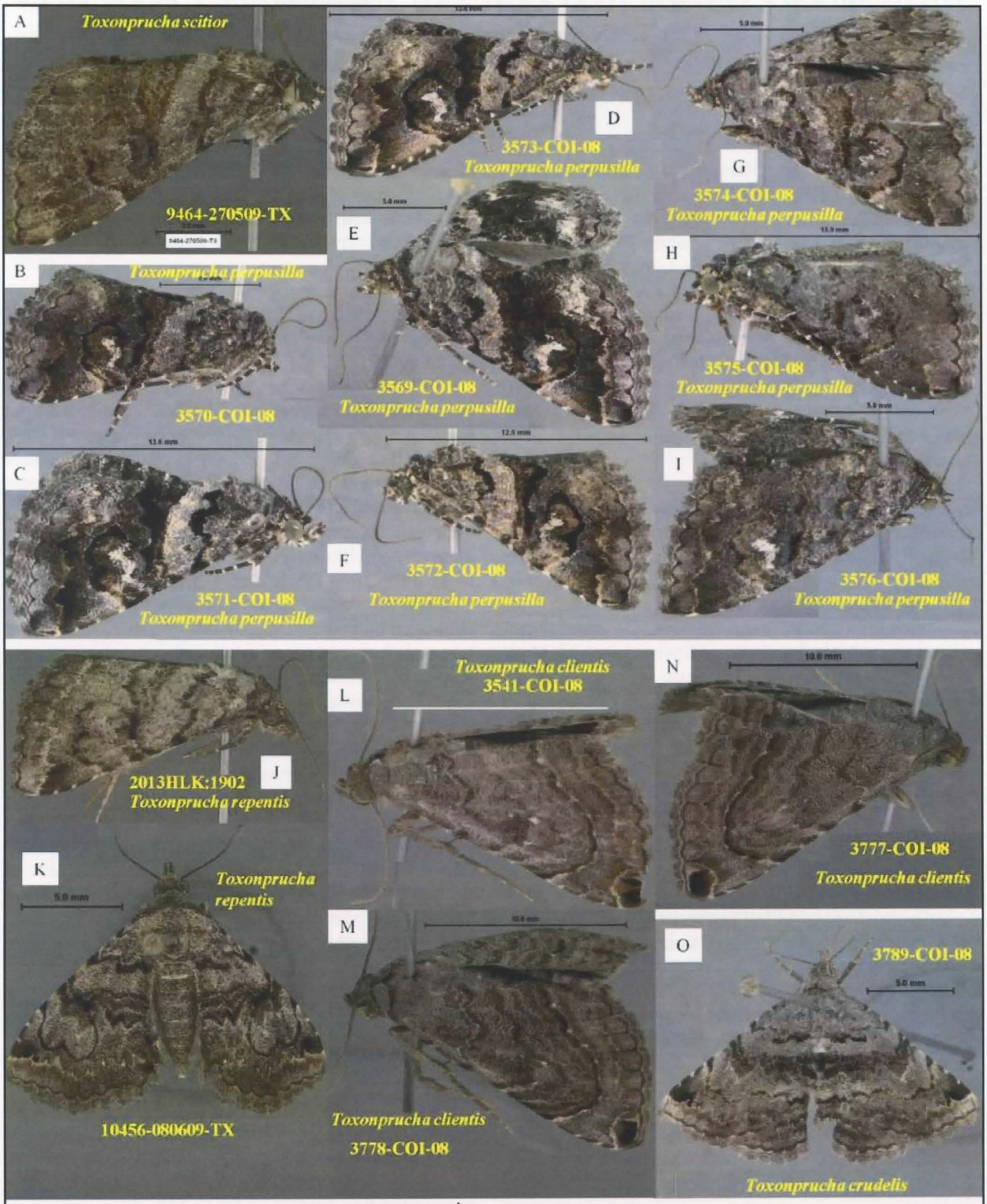

Figure 1: DNA sequence voucher specimens of Texas *Toxonprucha* species. A: *Toxonprucha scitior*; B-I: *Toxonprucha perpusilla*; J-K: *Toxonprucha repentis*; L-N: *Toxonprucha clientis*; O: *Toxonprucha crudelis*. Cross reference the four to five digit portion of the DNA code numbers with the DNA tree diagram in Figure 2. See Table 1 for collection data.

and Texan populations. However, as yet no barcoded *Toxonprucha* match the *excavata* type in wing pattern, and no *Toxonprucha* have been barcoded from Hispaniola or anywhere in the Caribbean south of Florida, according to the map in the BOLD taxonomy browser for *Toxonprucha*. In contrast, the type of *perpusilla* is a typical wing pattern phenotype that occurs in Texas populations, and this phenotype matches barcoded specimens from South Texas and Costa Rica. Therefore, we apply *perpusilla* to the South Texas *Toxonprucha* populations that had previously been reported as *diffundens* and *excavata*.

Toxonprucha scitior from Honduras is a good match in wing pattern to the specimen from Lost Maples State Natural Area shown in Figure 1:A.

COI 5' Mitochondrial DNA

All of the *Toxonprucha* species we recorded from Texas are diagnosable by unique combinations of COI 5' characters (Figure 2) as well as by wing pattern. The sequence analysis in Figure 2 is limited to sequences for material we submitted and for which we studied the associated voucher specimens. Among our other sequenced Texas/Arizona material the unusual Lost Maples SNA specimen is most similar to *Toxonprucha perpusilla*, but there are 28 consistent base pair differences between eight sequenced specimens of *T. perpusilla* from Cameron County (TX) and the Lost Maples SNA specimen (Figure 2-DNA characters, Figure 1-specimens). The Lost Maples SNA specimen is a 99.5-100% match to seven sequenced specimens of *T. scitior* from Costa Rica and Mexico (Yucatan) in the BOLD database that can be associated with an image (an eighth sequence match must be contaminated or incorrectly associated with the image, as the image shown is actually an *Ozarba* species). For the remainder the images can be accessed from the BOLD taxonomy browser (http://www.boldsystems.org/index.php/TaxBrowser_Home) and identified by the sample ID numbers: 02-SRNP-10530, 02-SRNP-10536, 06-SRNP-104600, 09-SRNP-104118, 09-SRNP-104119 (Costa Rica), and MAL-101015 and MAL-00987 (Yucatan). The Costa Rican specimens are currently called "*scitior*DHJ03" in the BOLD taxonomy browser. Another eighteen specimens with associated images from Costa Rica and Yucatan are a 99.39% to 99.22% match to the Lost Maples specimen. These Costa Rican specimens are called "*scitior*DHJ02" in the BOLD taxonomy browser, but from the associated photos we found no apparent difference in wing pattern between these and the specimens identified as *scitior*DHJ03.

Distribution and Habitat

***Toxonprucha scitior* (Figure 1:A):** The exact data for the Texas specimen are: Texas, Bandera County, Lost Maples State Natural Area, N 29.81584° W 99.57109°, MV Sheet, 27 May 2009, Hugo L. Kons Jr. & Robert J. Borth. Habitat by the MV sheet included riparian woodland with pecans and sycamore and xeric oak-juniper woodland on rocky cliff faces. Given the apparent rarity in Texas we suspect *T. scitior* is a stray or ephemeral migrant there rather than a permanent resident. As noted above, *T. scitior* is also known from Santa Rosa National Park in Costa Rica, Honduras, and Mexico: Yucatan.

***Toxonprucha perpusilla* (Figure 1:B-I):** This was the most abundant Lepidoptera species at our MV sheet when we sampled Resaca de la Palma State Park in the Lower Rio Grande Valley in Cameron, County, Texas, from 10-13 May 2008, with hundreds of individuals at the sheet each night. The habitat here is subtropical resaca ebony-anacua woodland. Elsewhere in South Texas we have also collected it in Bensten Rio Grande State Park (Hidalgo County, mesic subtropical thorny woodland) and Falcon State Park (Zapata County, Tamaulipan thorn scrub along the Rio Grande), and Knudson and Bordelon (2004) reported it (as *T. diffundens*) to be "extremely abundant in the [lower Rio Grande] valley." In the Texas Hill Country we collected a few specimens in Garner State Park (Uvalde County), Hill Country State Natural Area (Bandera County), and Hondo Creek X Highway 90 (Medina County). Hill Country habitats where we collected it include xeric savanna with oak, juniper, and/or acacia and riparian corridors with some combination of pecan, acacia, hackberry, willow, and sycamore. We have single west Texas specimens from Limpia Canyon in the Davis Mountains (Jeff Davis County) and the Franklin Mountains (El Paso County). We have also collected a specimen in oak woodland in the Idlewilde Campground in the Chiricahua Mountains (Cochise County, Arizona). Given the wide variety of habitats present among these localities this species appears to be very general in habitat affiliation, although some type of acacia was present at or near each collection site. We have also seen photos from South Florida that appear to be *T. perpusilla*, but we have not studied any of the actual specimens. The BOLD database and taxonomy browser have numerous sequences/images for specimens from Santa Rosa National Park in Costa Rica (reported as *excavata)* submitted by Dan Janzen and collaborators.

***Toxonprucha repentis* (Figure 1:J-K):** Some distributional records for this species may be suspect due to confusion with the plain brown form of *T. perpusilla* (Figure 1:G-I). We have seldom encountered *T. repentis* but have collected a few specimens from west Texas and southeastern Arizona. We visited central and/or west Texas five different seasons (2003, 2004, 2008, 2009, & 2018) during May and/or June but found this species only during 2009. We suspect

it may be an ephemeral migrant from Mexico that is not present every season and may be more numerous later in the season. In Texas we collected it at two sites in Ward County, the sand dunes of Monahans Sand Dunes State Park and Chihuahuan Desert habitat at a wayside on Highway 20 (Table 1). In 2009 in Cochise County Arizona we found one worn specimen in oak woodland in the Idlewilde Campground in the Cave Creek Valley of the Chiricahua Mountains.

Identification

Toxonprucha scitior, T. perpusilla, T. excavata*, and *T. repentis are similar in size and maculation. Analysis of wing pattern characters or genitalic characters is currently limited by sparse material for *T. scitior* and *T. excavata*. *Toxonprucha perpusilla* and *T. repentis* can be separated by male genitalia (not shown), but we have not examined genitalia for *T. scitior* or *T. excavata*. We have studied one actual specimen of *T. scitior*, and other

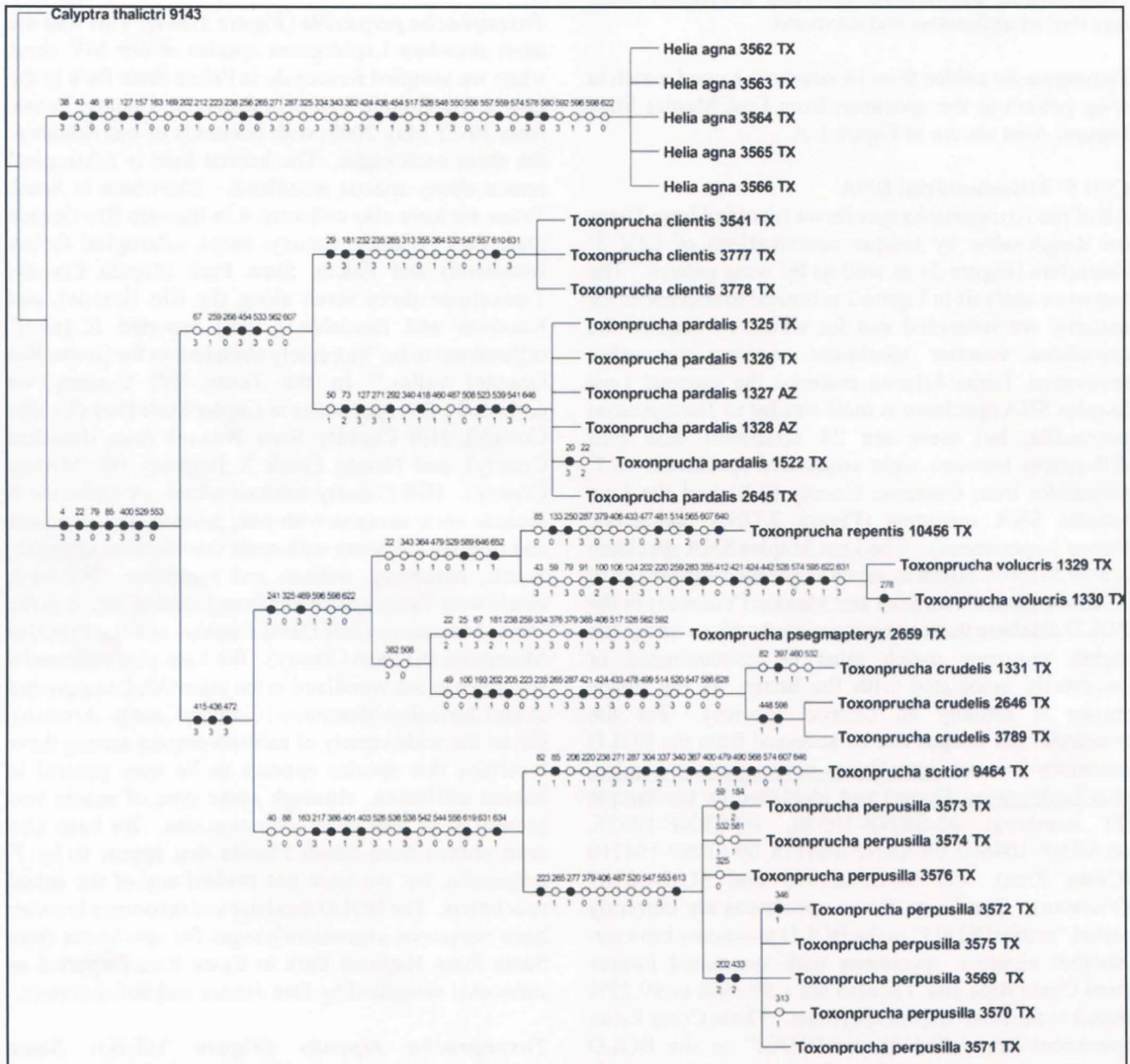

Figure 2: Unique combinations of COI 5' characters that diagnose *Toxonprucha* species occurring in Texas. Characters are mapped on the most parsimonious cladogram for the above taxa. Upper numbers represent positions on the 658 base pair COI 5' region (a.k.a. DNA barcode region). Lower numbers represent base pair character states (0=A, 1=C, 2=G, 3=T). Black circles are character states unique among the included data; for example, base pair C for COI 5' position 223 is unique to *Toxonprucha perpusilla*. COI 5' refers to the 5' region of the mitochondrial gene cytochrome oxidase subunit I. The purpose of this figure is to show the characters that differentiate *Toxonprucha* species –addressing the phylogeny of *Toxonprucha* is beyond the scope of this article.

material examined is the type photo and photos of sequence vouchers from Costa Rica and Yucatan. For *T. excavata* we only examined photos of the two Hispaniola types. The *scitior* type and Costa Rican material have good quality photos and we used these along with the Texas specimen to make a preliminary assessment of how to separate *T. scitior* from wing pattern. However, due to the aforementioned limitations, COI 5' sequences are currently the most reliable means to separate *T. scitior* from similarly patterned specimens of *T. perpusilla* (Figure 2).

Toxonprucha scitior and *T. perpusilla* have prominent bluish-grey scaling on the dorsal forewings, whereas *T. excavata* and *T. repentis* are brownish without blue-grey scaling. *Toxonprucha excavata* differs in the pattern of contrasts and is likely a Caribbean endemic as noted in the type discussion above. *Toxonprucha repentis* lacks strong contrasts except for the lines and the subapical patch on the basal side of the subterminal line (which can be present in all four species).

Toxonprucha scitior is characterized by having a contrasting light band of bluish grey scaling between the antemedial and medial lines and a predominately dark brown forewing distal to the median line. *Toxonprucha perpusilla* has bimodal phenotypic variation in wing pattern, with a boldly patterned form (Figure 1: B-F) and a plainer brown form (Figure 1:G-I). Both of these forms occur in males and and there are no differences in male genitalia or COI 5' characters between the two forms. Most specimens of *T. scitior* lack the strong contrasts present in the boldly marked form of *T. perpusilla*. Also, the boldly marked form of *T. perpusilla* has extensive light grey-bluish grey scaling distal to the postmedian line, whereas this area is predominately dark brown in *T. scitior*. However, both *T. scitior* and the boldly marked form of *T. perpusilla* have light blue-grey scaling between the antemedial and medial lines. In the plain brownish forms of *T. perpusilla* the blue-grey scaling between the antemedial and medial lines is darker and less contrasting than the relatively lighter blue grey scaling of *T. scitior*.

Table 1: Data for DNA sequence vouchers of *Toxonprucha* specimens included in Figure 2.

Taxon	DNA Code No.	State	County	Locality	Latitude	Longitude	Elev. (m)	Date
Toxonprucha clientis	3541-COI-08	Texas	Cameron	Resaca de la Palma State Park	25.996	-97.569	11	11-May-2008
Toxonprucha clientis	3777-COI-08	Texas	Medina	Hondo Creek near Highway 90	29.35	-99.055	242	09-Jun-2008
Toxonprucha clientis	3778-COI-08	Texas	Medina	Hondo Creek near Highway 90	29.35	-99.055	242	09-Jun-2008
Toxonprucha crudelis	1331-300503-TX	Texas	Uvalde	Garner State Park	29.591	-99.738	417	30-May-2003
Toxonprucha crudelis	3789-COI-08	Texas	Medina	Hondo Creek near Highway 90	29.35	-99.055	242	09-Jun-2008
Toxonprucha crudelis	2646-COI-08	Texas	Jeff Davis	Davis Mountains State Park	30.6	-103.9	1530	01-Jun-2008
Toxonprucha pardalis	1325-100603-TX	Texas	Jeff Davis	Davis Mountains: Limpia Canyon	30.677	-103.795	1354	10 June 2003
Toxonprucha pardalis	1326-100603-TX	Texas	Jeff Davis	Davis Mountains: Limpia Canyon	30.677	-103.795	1354	10 June 2003
Toxonprucha pardalis	1327-220603-AZ	Arizona	Cochise	Chirachua Mtns, J. Hands Camp	31.878	-109.223	1685	22-Jun-2003
Toxonprucha pardalis	1328-210603-AZ	Arizona	Cochise	Chirachua Mtns, J. Hands Camp	31.878	-109.223	1685	21-Jun-2003
Toxonprucha pardalis	1522-CO1-06	Texas	Jeff Davis	Davis Mountains: Limpia Canyon	30.677	-103.795	1354	06-Jun-2003
Toxonprucha pardalis	2645-COI-08	Texas	Jeff Davis	Davis Mountains State Park	30.6	-103.9	1530	01-Jun-2008
Toxonprucha perpusilla	3569-COI-08	Texas	Cameron	Resaca de la Palma State Park	25.996	-97.569	11	11-May-2008
Toxonprucha perpusilla	3570-COI-08	Texas	Cameron	Resaca de la Palma State Park	25.996	-97.569	11	11-May-2008
Toxonprucha perpusilla	3571-COI-08	Texas	Cameron	Resaca de la Palma State Park	25.996	-97.569	11	11-May-2008
Toxonprucha perpusilla	3572-COI-08	Texas	Cameron	Resaca de la Palma State Park	25.996	-97.569	11	11-May-2008
Toxonprucha perpusilla	3573-COI-08	Texas	Cameron	Resaca de la Palma State Park	25.996	-97.569	11	11-May-2008
Toxonprucha perpusilla	3574-COI-08	Texas	Cameron	Resaca de la Palma State Park	25.996	-97.569	11	11-May-2008
Toxonprucha perpusilla	3575-COI-08	Texas	Cameron	Resaca de la Palma State Park	25.996	-97.569	11	11-May-2008
Toxonprucha perpusilla	3576-COI-08	Texas	Cameron	Resaca de la Palma State Park	25.996	-97.569	11	11-May-2008
Toxonprucha psegmapteryx	2659-COI-08	Texas	Brewster	Green Gulch/Chisos Basin	29.3	-103.2	1665	28-May-2008
Toxonprucha repentis	2013HLK:1902	Texas	Ward	Hwy 20 wayside SE of Monahans	31.54020	103.06697	784	8 June 2009
Toxonprucha repentis	10456-080609-TX	Texas	Ward	Hwy 20 wayside SE of Monahans	31.54020	103.06697	784	8 June 2009
Toxonprucha scitior	9464-270509-TX	Texas	Kerr	Lost Maples State Natural Area	29.81584	-99.57109	551	27-May-2009
Toxonprucha volucris	1329-090603-TX	Texas	Jeff Davis	Davis Mountains: Limpia Canyon	30.677	-103.795	1354	9 June 2003
Toxonprucha volucris	1330-070603-TX	Texas	Jeff Davis	Davis Mountains: Limpia Canyon	30.677	-103.795	1354	7 June 2003

The voucher specimen of *T. psegmapteryx* was collected by Knudson and Bordelon. The other specimens were collected by Kons & Borth.

Acknowledgments

We thank Ed Knudson and Charles Bordelon for hosting us for visits to the Texas Lepidoptera Survey collection. David Wahl and the former American Entomological Institute provided use of an imaging system and infrastructural support. David Riskind provided authorization to conduct research in Texas State Parks and State Natural Areas. J. Donald Lafontaine sent photos of *Toxonprucha* types. Paul Hebert's BOLD

(Barcode of Life Data Systems) lab at the University of Guelph sequenced COI 5' for our *Toxonprucha* samples. Evgeny Zakharov along with BOLD personnel assisted with management and data collection for our BOLD DNA projects. Genome Canada, the Ontario Genomics Institute, the Ministry for Research and Innovation and the Canadian Foundation of Innovation provided support for the International Barcode of Life project.

References

BOLDSYSTEMS. Taxonomy Browser: *Toxonprucha*. http://boldsystems.org/index.php/Taxbrowser_Taxonpage?taxon=Toxonprucha&searchTax=Search+Taxonomy. Accessed November 2018.

Knudson, Ed and Charles Bordelon, 2004. *Illustrated Checklist of the Lepidoptera of the Lower Rio Grande Valley, TX,* Volume 2B: Macro-Moths. Texas Lepidoptera Survey Publication 9 B.

Knudson, Ed and Charles Bordelon, 2003. *Checklist of the Lepidoptera of Texas*. Texas Lepidoptera Survey Publication 6.

Lafontaine, Donald J. and B. Christian Schmidt, 2015. Additions and corrections to the check list of the Noctuoidea (Insecta, Lepidoptera) of North America north of Mexico III. *Zookeys* 527: 127-147.

[Hugo L. Kons Jr. (hkonsjr@yahoo.com) & Robert J. Borth (bobborth@sbcglobal.net)]

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American Tortoise that Matt and Donà have seen consistently since 1973 in their garden (Laurel, Delaware). In previous years when his tomato and strawberry plants were bearing fruit the tortoise had red lips (too late in the season this time). Photo by Matt Blaine (October, 2018)].

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CRYPTIC SPECIES DIVERSITY IN *PYRRHIA AURANTIAGO* (NOCTUIDAE: HELIOTHINAE)?

BY

CHRIS SCHMIDT

Photo of *Pyrrhia* sp. (?) in the collection of J. Barry Lombardini. Chris Schmidt did DNA analysis of this specimen which led him to suggest that this may be a new species. This specimen was collected on the property of the Fort Davis Motor Inn nr. Fort Davis, TX, on 22-VIII-2009.

The heliothine noctuid *Pyrrhia aurantiago* (Guenée, 1852), variously called the Aureolaria Seed Borer, Orange Sallow or False-Foxglove Sun Moth, is an uncommon species that occurs as localized populations across eastern North America. Like most heliothines, larvae are seed-feeding obligates, in this case known from three species of False Foxglove: *Aureolaria flava*, *A. grandiflora* and *A. pedicularia* (Wyatt 1938, Schweitzer et al. 2011). Despite its large geographic range, this species is uncommon to rare, and the conservation rank at the global level is "Vulnerable" (G3). *Pyrrhia aurantiago* has not been documented in recent history in at least two states (Maine and Pennsylvania), and is ranked as Critically Imperiled (S1) to Vulnerable (S3) in a number of states, including Indiana, Virginia, Connecticut, and North Carolina. In Canada, this species is restricted to one or two populations in savannah habitats of Ontario's Carolinian zone, and currently ranked S1 (NatureServe 2018).

Southern populations of *Pyrrhia aurantiago* is where things get interesting: Florida appears to be a stronghold for this species, a pattern not so unusual for some Lepidoptera that are otherwise rare in the Northeast - but a recent discovery of a population in the Davis Mountains of Texas raises some interesting questions: do these geographically and ecologically disparate populations truly all belong to the same species? A preliminary look at wing phenotype and genetic variation (DNA barcodes), suggests not: differences among northern versus southeastern and Texas samples suggests three species are likely involved. Before appropriate conservation measures can be implemented, the taxonomy of this "species" needs to be re-evaluated: are there morphological differences associated with the geographic/genetic segregates? To which group does the name *aurantiago* apply? What are the range limits of the various segregates? What are the known or suspected larval hosts of different populations? If you have contributions that would help answer some of these questions, I would love to hear from you.

Literature Cited

NatureServe, (2018). http://explorer.natureserve.org. *Pyrrhia aurantiago*. Accessed 22. Nov. 2018.

Schweitzer D.F., Minno M.C., Wagner D.L., (2011). *Rare, declining, and poorly known butterflies and moths (Lepidoptera) of forests and woodlands in the eastern United States.* USDA publication FHTET-2011-01.

Wyatt A.K., (1938). Notes on the larvae of Heliothinae. *Bull. Brooklyn Entomol. Soc.* 33: 90-94.

(Chris Schmidt, Canadian National Collection of Insects, Arachnids and Nematodes, Agriculture and Agri-food Canada, Ottawa, Ontario;
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REPORTS OF STATE COORDINATORS

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Ken Davenport sends in the following note:

The three swallowtails I believed to be Joan's or the Ozark Swallowtail (*Papilio joanae*) [reported in the Arkansas State Report, September issue of the SLS NEWS (Volume 40 No.3, 2018, pg. 212)] were DNA tested and were found to be Black Swallowtails (*Papilio polyxenes asterius*). That was despite the abdominal markings that resemble Baird's Swallowtail (*Papilio machaon bairdii*) in the Southwest, the narrow yellow band and the pupils which connected to the hindwing margins. It seems there are phenotypic differences between Black Swallowtails in Arkansas and East Texas with southeast Arizona populations. Still the results were not all disappointing. There are few Black Swallowtail records for northwest Arkansas so this may still be worthy of publishing in the Season Summary.

This case also highlights that field marks can be indicators, but not something that can always be relied on. In important cases like this was, it can be beneficial to resolve identification issues by consulting experts to do DNA or chemical studies, or in some cases to check male or female genitalia. In this case, I sent legs in for the DNA check, the three butterflies remain in my collection and have the distinction of being the only Black Swallowtails I have from Arkansas. I have some from east Texas as well.

Ken Davenport: kdavenport93306@yahoo.com or flutterflies93306@att.net

Florida: Charles V. Covell Jr., 207 NE 9th Ave, Gainesville, FL 32601, E-Mail: covell@louisville.edu

Charlie sends in the following report: Gainesville, FL records, August – October, 2018. Most observations at 207 NE 9th Ave. (home), the McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, and Gainesville Country Club golf course.

Urbanus dorantes, Aug. 1, 11, 20, Sept. 7
Urbanus proteus, Aug. 1, 6, 7, 9, 15, 16, 17, 20, 30, Sept. 7, 12, 14, 19, 24, 26, Oct. 3, 4, 8, 17, 24
Erynnis horatius, Aug. 11, Sept. 14, 19
Pyrgus communis, Aug. 15, Sept. 21
Hylephila phyleus, Aug. 1, 4, 11, 22, Sept. 1, 5, 8, 21, 26, Oct. 3, 6, 12, 17, 24
Lerema accius, Aug. 7, Sept. 7, Oct. 24
Asbolis capucinus, Sept. 7, Oct. 24
Panoquina ocola, Aug. 1, Oct. 8
Battus polydamas, Sept. 19
Papilio polyxenes asterius, Sept. 14
Papilio glaucus , Aug. 1 (dark female), 4, 6, 8, 9, 17, Sept. 7
Papilio troilus, Aug. 4, 6, 8, 9, 11, 15, Sept. 1, 5, 8
Papilio palamedes, Aug. 4, 6, 25
Heraclides cresphontes, Aug. 6, 7, 9, 11, 15, 16, 17, 22, 30, Sept. 5, 6, 14
Phoebis sennae, Aug. 1, 4, 6, 7, 8, 9, 11, 15, 16, 17, 22, 29, Sept. 1, 5, 8, 14, 19, 21, 26, Oct. 3, 4, 6, 8, 17, 24, 29, 31
Phoebis philea, Sept. 20, Oct. 2, 6, 21
Abaeis nicippe, Aug. 1, 4, 7, 22, 30, Oct. 6, 24, 29, 31
Pyrisitia lisa, Oct. 31
Eurema daira, Aug. 11, Sept. 10, Oct. 1, 31
Strymon melinus, Aug. 14, 16
Leptotes cassius, Sept. 9, 23, Oct. 8, 17, 22
Limenitis archippus, Aug. 1, 15, Oct. 12
Limenitis arthemis astyanax, Aug. 4, 22, Sept. 1, 15
Vanessa atalanta, Sept. 19
Junonia coenia, Sept. 19, Oct. 3, 6, 12, 17, 24
Anartia jatrophae, Aug. 11
Asterocampa celtis, Aug. 4, Sept. 1, 5 (several on sap-bleeding tree), 8, 19, 21, Oct. 4
Asterocampa clyton, Aug. 8, 15, Oct. 3, 12
Agraulis vanillae, Aug. 1, 4, 6, 7, 8, 9, 11, 15, 16, 17, 22, 29, 30, Sept. 1, 5, 7, 8, 12, 14, 15, 19, 21, 23, 26, Oct. 3, 4, 6, 8, 12, 17, 31
Heliconius charithonia, Aug. 1,4, 6, 7, 9, 11, 15, 16, 17, 22, 25, 30, Sept. 1, 5, 7, 8, 9, 12, 14, 15, 19, 21, 23, 24, 26, Oct. 3, 4, 8, 28, 31
Danaus plexippus, Aug. 8, 16, Sept. 1, 5, 12, 15, 26, Oct. 24

Behavior note: On Sept. 14 I observed an *A. vanillae* looping in small circles with a dragonfly in pursuit.

Records from several Florida localities submitted by Riley Gott, graduate student at the McGuire Center for Lepidoptera and Biodiversity and Department of Entomology and Nematology, University of Florida.

USA: FL: Marion Co.: Ocala National Forest (2018)
Neographium marcellus - Feb. 18, 24, Mar. 1, 2
Battus philenor philenor - Feb. 24, Mar. 1, 2
Pterourus palamedes palamedes - Feb. 24, Mar. 1, 2
Pterourus troilus troilus - Feb. 24, Mar. 1, 2
Pterourus glaucus - Feb. 18, 24, Mar. 1, 2
Zerene cesonia - Feb. 18, 24, Mar. 1, 2
Pyrisitia lisa lisa - Feb. 18
Eurema daira daira - Feb. 18, 24, Mar. 1, 2
Phoebis sennae eubule - Feb. 18, 24, Mar. 1, 2
Calycopis cecrops - Feb. 18, 24, Mar. 1, 2
Calephelis virginiensis - Feb. 18, 24
Phyciodes phaon phaon - Feb. 18, 24, Mar. 1, 2
Phyciodes tharos tharos - Feb. 18, 24, Mar. 1, 2
Junonia coenia coenia - Mar. 2
Hermeuptychia sosybius - Feb. 24, Mar. 1, 2
Urbanus proteus proteus - Feb. 18, 24, Mar. 1, 2
Thorybes confusis - Feb. 18, 24, Mar. 1, 2
Thorybes bathyllus - Mar. 2
Erynnis brizo somnus - Feb. 24, Mar. 1, 2
Erynnis juvenalis juvenalis - Feb. 24, Mar. 1, 2
Erynnis horatius - Feb. 18, 24, Mar. 1, 2
Erynnis zarucco - Feb. 18, 24, Mar. 1, 2
Amblyscirtes alternata - Feb. 24, Mar. 1
Polites vibex vibex - Mar. 2,
Hesperia attalus slossonae - Mar. 1, 2

USA: FL: Levy Co.: Goethe State Forest (2018)
Neographium marcellus - Mar. 3, Apr. 14, Sep. 15, Oct. 1, 8
Battus philenor philenor - Mar. 3, Apr. 14, Sep. 15, 29
Heraclides cresphontes - Mar. 3, Apr. 14, Sep. 15, 29, Oct. 8
Pterourus palamedes palamedes - Mar. 3, Apr. 14, Sep. 29, Oct. 8, 12
Pterourus troilus troilus - Mar. 3, Apr. 14, Sep. 29, Oct. 8, 12
Pterourus glaucus - Mar. 3, Apr. 14, Sep. 15, 29, Oct. 8
Zerene cesonia - Mar. 3, Apr. 14, Oct. 1, 12
Abaeis nicippe - Sep. 29, Oct. 1, 8
Pyrisitia lisa lisa - Sep. 15, Oct. 1, 8, 12
Nathalis iole iole - Oct. 12
Eurema daira daira - Mar. 3, Sep. 15, 29, Oct. 1, 8, 12
Phoebis sennae eubule - Mar. 3, Apr. 14, Sep. 15, 29, Oct. 1, 8, 12
Calycopis cecrops - Apr. 14, Sep. 15, Oct. 8
Strymon melinus melinus - Sep. 29, Oct. 12
Hemiargus ceraunus antibubastus - Sep. 29, Oct. 1, 12
Parrhasius m-album - Apr. 14
Calephelis virginiensis - Sep. 15
Vanessa atalanta rubria - Mar. 3, Apr. 14
Junonia coenia coenia - Mar. 3, Apr. 14, Sep. 15, 29, Oct. 1, 8, 12
Danaus gilippus berenice - Sep. 15, 29, Oct. 1, 12
Danaus plexippus plexippus - Oct. 1
Agraulis vanillae nigrior- Apr. 14, Sep. 15, 29, Oct. 1, 8, 12
Heliconius charithonia tuckeri - Sep. 29, Oct. 8, Oct. 12,
Hermeuptychia sosybius - Sep. 29
Phyciodes phaon phaon - Mar. 3, Apr. 14, Sep. 29, Oct. 8, 12
Phyciodes tharos tharos - Mar. 3, Apr. 14, Sep. 15, 29, Oct. 8, 12
Urbanus proteus proteus - Mar. 3, Sep. 15, 29, Oct. 8, 12
Thorybes confusis - Mar. 3, Sep. 15
Thorybes bathyllus - Sep. 15
Erynnis juvenalis juvenalis - Mar. 3
Erynnis horatius - Mar. 3, Sep. 15, 29
Erynnis zarucco - Mar. 3, Sep. 29, Oct. 1, 12
Pyrgus oileus - Oct. 8
Polites vibex vibex - Sep. 15, 29, Oct. 8, 12
Polites baracoa baracoa - Oct. 1
Hesperia attalus slossonae - Mar. 3, Sep. 15, 29, Oct. 8, 12
Hylephila phyleus phyleus - Apr. 14, Oct. 12
Atalopedes campestris huron - Oct. 12
Lerema accius - Mar. 3
Lerodea eufala eufala - Sep. 15, 29
Anatrytone logan logan - Apr. 14, Oct. 1
Panoquina ocola ocola - Sep. 15, 29, Oct. 8
Oligoria maculata - Sep. 29, Oct. 8, 12
Wallengrenia otho otho - Sep. 15, Oct. 1, Oct. 12
Nastra neamathla - Sep. 15, Oct. 1, 12
Euphyes arpa - Oct. 1, 8, 12
Copaeodes minima - Oct. 12
Megathymus cofaqui slotteni – Mar. 3, Oct. 12

USA: FL: Citrus Co.: Withlacoochee State Forest (March 5, 2018)
Neographium marcellus
Battus philenor philenor
Heraclides cresphontes
Pterourus troilus troilus
Pterourus glaucus
Phoebis sennae eubule
Eurema daira daira
Zerene cesonia cesonia
Phyciodes phaon phaon
Phyciodes tharos tharos
Urbanus proteus proteus
Thorybes confusis
Thorybes bathyllus
Erynnis juvenalis juvenalis
Erynnis horatius
Erynnis zarucco

USA: FL: Putnam Co.: Etoniah Creek State Forest (March 11, 2018)

Pterourus palamedes palamedes
Pterourus troilus troilus
Pterourus glaucus
Phoebis sennae eubule
Eurema daira daira
Phyciodes tharos tharos
Vanessa atalanta rubria
Megathymus yuccae yuccae
Erynnis brizo somnus

USA: FL: Wakulla Co.: Wakulla State Forest (March 16, 2018)

Neographium marcellus
Battus philenor philenor
Heraclides cresphontes
Pterourus palamedes palamedes
Pterourus troilus troilus
Pterourus glaucus
Phoebis sennae eubule
Eurema daira daira
Calycopis cecrops
Vanessa atalanta rubria
Polygonia interrogationis
Phyciodes tharos tharos
Hermeuptychia sosybius
Thorybes confusis
Thorybes bathyllus
Erynnis juvenalis juvenalis
Erynnis zarucco
Lerema accius
Megathymus yuccae yuccae

USA: FL: Hamilton Co.: Big Shoals State Forest (March 17, 2018)

Neographium marcellus
Battus philenor philenor
Heraclides cresphontes
Pterourus palamedes palamedes
Pterourus troilus troilus
Pterourus glaucus
Phoebis sennae eubule
Eurema daira daira
Abaeis nicippe
Calycopis cecrops
Vanessa atalanta rubria
Phyciodes phaon phaon
Hermeuptychia sosybius
Megisto cymela viola
Cyllopsis gemma gemma
Thorybes confusis
Thorybes pylades pylades
Erynnis juvenalis juvenalis
Erynnis horatius
Megathymus yuccae yuccae

USA: FL: Highlands Co.: Archbold Biological Station (March 24-25, 2018)

Neographium marcellus
Pterourus palamedes palamedes
Pterourus troilus
Pterourus glaucus
Phoebis sennae eubule
Eurema daira daira
Pyrisitia lisa lisa
Ascia monuste phileta
Calycopis cecrops
Hemiargus ceraunus antibubastus
Junonia coenia coenia
Danaus plexippus plexippus
Agraulis vanillae nigrior
Phyciodes phaon phaon
Erynnis brizo somnus
Erynnis juvenalis juvenalis
Erynnis horatius
Pyrgus oileus
Lerema accius
Polites vibex vibex
Hylephila phyleus phyleus
Wallengrenia otho otho
Megathymus yuccae yuccae

USA: FL: Nassau Co.: R. E. Simmons State Forest (April 29, 2018)

Neographium marcellus
Battus philenor philenor
Pterourus palamedes palamedes
Pterourus troilus
Pterourus glaucus
Phoebis sennae eubule
Eurema daira daira
Pontia protodice
Calycopis cecrops
Atlides halesus halesus
Phyciodes tharos tharos
Junonia coenia coenia
Megisto cymela viola
Hermeuptychia sosybius
Lethe creola
Vanessa virginiensis
Danaus plexippus plexippus
Limenitis arthemis astyanax
Thorybe confusis
Thorybes pylades pylades
Erynnis juvenalis juvenalis
Erynnis horatius
Lerema accius
Polites vibex vibex
Nastra lherminier
Polites origenes origenes
Pompeius verna verna

USA: FL: Clay Co.: Jennings State Forest (2018)
Neographium marcellus - May 12, Sep. 28
Battus philenor philenor - May 12, Sep. 28
Heraclides cresphontes - May 12, Sep. 28
Pterourus palamedes palamedes - May 12, Sep. 28
Pterourus troilus troilus - May 12, Sep. 28
Pterourus glaucus - May 12, Sep. 28
Phoebis sennae eubule - May 12, Sep. 28
Eurema daira daira - May 12, Sep. 28
Nathalis iole iole - Sep. 28
Abaeis nicippe - Sep. 28
Pontia protodice - May 12
Zerene cesonia - May 12
Pyrisitia lisa lisa - May 12
Calycopis cecrops - May 12, Sep. 28
Strymon melinus melinus - Sep. 28
Satyrium favonius favonius - May 12
Parrhasius m-album - May 12
Hemiargus ceraunus antibubastus - Sep. 28
Heliconius charithonia tuckeri - Sep. 28
Limenitis arthemis astyanax - May 12
Junonia coenia coenia - May 12, Sep. 28
Agraulis vanillae nigrior - May 12, Sep. 28
Phyciodes tharos tharos - May 12, Sep. 28
Phyciodes phaon phaon - Sep. 28
Urbanus proteus proteus - Sep. 28
Urbanus dorantes dorantes - Sep. 28
Erynnis juvenalis juvenalis - May 12
Erynnis horatius - May 12, Sep. 28
Erynnis zarucco - Sep. 28
Erynnis baptisiae - May 12
Pyrgus oileus - Sep. 28
Panoquina ocola ocola - Sep. 28
Wallengrenia otho otho - Sep. 28
Wallengrenia egeremet - Sep. 28
Polites vibex vibex - Sep. 28
Hylephila phyleus phyleus - Sep. 28
Lerema accius - Sep. 28
Anatrytone logan logan - Sep. 28
Euphyes vestris metacomet - Sep. 28
Euphyes dion - Sep. 28
Amblyscirtes aesculapius - Sep. 28
Hesperia attalus slossonae - May 12, Sep. 28
Hesperia meskei straton - May 12, Sep. 28

Georgia: James K. Adams, 346 Sunset Drive SE, Calhoun, GA 30701, E-Mail: jadams@daltonstate.edu (Please check out the GA leps website at: http://www.daltonstate.edu/galeps/).

James sends in the following report:

The contributors include James Adams (JKA or no notation), Brian Scholtens (BS), John Hyatt (JH) and Lance Durden (LD). Others are indicated with their records. Most records presented here represent new or interesting records (range extensions, unusual dates, uncommon species, county records, etc.), or more complete lists for new locations/new times of year. All known new STATE and COUNTY records are indicated, and all dates listed below are 2018 unless otherwise specified.

Rocky Face ridgeline, just W of Dalton at crest of Dug Gap Battle Rd., Whitfield Co:
Oct. 2-3:
EREBIDAE: *Lycomorpha pholus* (LATE). **NOCTUIDAE:** *Argyrogramma verruca, Heliocheilus lupatus* (LATE), *Anathix ralla.*
Oct. 14-15:
NOCTUIDAE: *Argyrogramma verruca, Papaipema cerrusata.*
Oct. 31-Nov. 1:
NOCTUIDAE: *Xylotype capax, Magusa orbifera.*

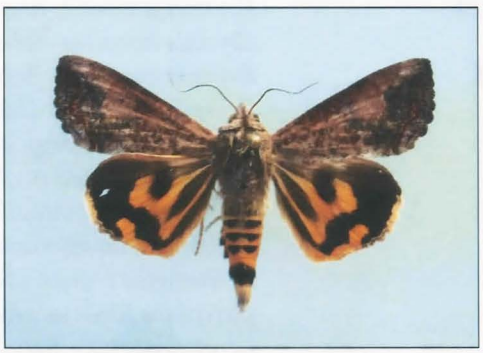
Taylor's Ridge, 5 mi. W of Villanow, Walker Co., Nov. 17 & 18:
SATURNIIDAE: *Hemileuca maia*, abundant.

North side of Sharp Mountain Creek, Ball Ground, Cherokee County, GA. 34.31335° N, 84.40687° W, Nov. 18, Zach Felix:
SATURNIIDAE: *Hemileuca maia*, 5-10, in small opening among mixed pine/oak woods.

Fall Line Sandhills WMA, Western Section, W of Parks Road, south of Hwy. 96, Taylor Co.
October 18-20, with Jeff Slotten:
This is the third outlandishly successful trip I have made to this location, new for me this year. As before, since little if any moth work has been done here before, most of these records represent COUNTY records. I have specifically indicated county records for species for which the record seems to be a bit of a range extension. **TORTRICIDAE:** *Pelochrista adamantana* (extension in from coastal plain; common). **GEOMETRIDAE:**

Scopula lautaria, Digrammia eremiata (LATE). **EREBIDAE:** *Grammia phyllira, Hypocala andremona.* **EUTELIIDAE:** *Paectes nubifera* (COUNTY). **NOCTUIDAE:** *Acronicta brumosa, Schinia sordidus, Metaxaglaea semitaria, Chaetaglaea* near *rhonda* (COUNTY), *Protorthodes oviduca, Eucoptocnemis fimbriaris* (COUNTY; first Georgia location for me personally, and VERY common), *E. dapsilis* (COUNTY; farthest inland in Georgia); *Feltia geniculata, Euxoa violaris* (COUNTY, extension in from coastal plain and first time I've collected this in Georgia).

Pelochrista adamantana

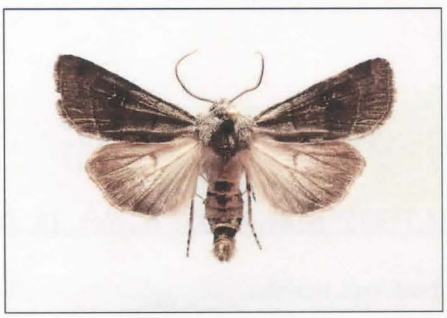


Hypocala andremona

Chaetaglaea* near *rhonda

Eucoptocnemis dapsilis

Eucoptocnemis fimbriaris



Euxoa violaris

Statesboro, Bulloch Co., (LD residence) (BS and LD) 13 Sep. 2018 (2 light sheets):

OECOPHORIDAE: *Antaeotricha humilis, A. vestalis. Promalactis suzukiella.* **GELECHIIDAE:** *Stegasta bosqueella.* **LIMACODIDAE:** *Isa textula, Isochaetes bettenmuelleri, Prolimacodes badia.* **ZYGAENIDAE:** *Acoloithus falsarius.* **TORTRICIDAE:** *Epiblema otiosana, Platynota exasperatana, P. flavedana, Thaumatographa jonesi, Eucosma raracana, Epiblema strenuana, Eucosma argutipunctana, Episimus tyrius.* **CRAMBIDAE:** *Eoparargyractis floridalis, Elophila faulalis, E. obliteralis, Glaphyria sesquistrialis, Hypsopygia olinalis, Samea multiplicalis, Diacme adipaloides, Herpetogramma bipunctalis., Dicymolomia julianalis, Glaphyria glaphyralis, Crambus praefectellus, Perispasta caeculalis, Palpita freemanalis.* **PYRALIDAE:** *Parachma ochracealis, Lepidomys irrenosa, Atascosa glareosella, Dioryctria amatella, D. clarioralis, Moodna ostrinella, Palpita magniferalis, Pococera melanogrammos, Pococera asperatella, Pococera militella, Anadelosemia texanella,* **GEOMETRIDAE:** *Euchlaena amoenaria, Lobocleta ossularia, Idaea tacturata, Scopula timandrata, S. lautaria, Cyclophora culicaria* (COUNTY, LATE), *Nematocampa baggettaria.* **EREBIDAE:** *Sigela brauneata, Redectis pygmaea, Hypena manalis, Selenisa sueroides.* **NOCTUIDAE:** *Cisthene subjecta, Clemensia albata, Virbia laeta, Schinia lynx, S. siren, S. sordidus, S. trifascia.*

Sapelo Island, McIntosh Co.:

Oct. 6-8, JKA:

LACTURIDAE: *Lactura pupula* (first Oct. record, one of the first records of *Lactura* since Hurricane Matthew last year). **LIMACODIDAE:** *Euclea delphinii* (first Oct. record). **MEGALOPYGIDAE:** *Megalopyge opercularis* (first Oct. record). **PYRALIDAE:** *Dioryctria taedivorella* (many; island record). **MIMALLONIDAE:** *Cicinnus melsheimeri* (first Oct. record). **GEOMETRIDAE:** *Scopula compensata* (first Oct. record); *Eutrapela clemataria* (including yellow morphs; first Oct. record). **EREBIDAE:** *Pygarctia abdominalis* (first Oct. record); *Palpidia pallidior* (abundant everywhere I put traps); *Phytometra rhodarialis* (first Oct. record). **NOCTUIDAE:** *Condica confederata* (first Oct. record); *Dichagyris reliqua*.

Nov. 1-2, LD:

OECOPHORIDAE: *Antaeotricha humilis* (first Nov. record). **TORTRICIDAE:** *Zomaria interruptolineana* (island record). **HESPERIIDAE:** *Urbanus dorantes, Copaeodes minimus*. **NYMPHALIDAE:** *Enodia portlandia*. **CRAMBIDAE:** *Thaumatopsis floridella* (first Nov. record). **PYRALIDAE:** *Dioryctria taedivorella* (first records were in Oct; see above). **PTEROPHORIDAE:** *Hellinsia balanotes* (first Nov. record). **GEOMETRIDAE:** *Iridopsis pergracilis* (first Nov. record); *Nemoria elfa* (first Nov. record). **EREBIDAE:** *Apantesis parthenice* (island record), *Abablemma brimleyana* (first Nov. record), *Dyspyralis nigella* (first Nov. record), *Palpidia palpidior* (again lots; first Nov. record), *Ascalapha odorata* (island record). **NOCTUIDAE:** *Condica concisa, Elaphria georgei* (first Nov. record), *Meropleon cosmion, Papaipema stenocelis* (island record; COUNTY, second known from the STATE), *Agrotis vetusta, Eucoptocnemis dapsilis* (lots).

Alligator Creek WMA, Wheeler Co., GA, small pitcher plant bog, 17 Oct. 2018, LD & Dirk Stevenson:
TORTRICIDAE: *Zomaria rosaochreana*. **CRAMBIDAE:** *Diasemiopsis leodocusalis*. **PYRALIDAE:** *Caudellia apyrella*. **GEOMETRIDAE:** *Nemoria catachloa.*

Bioblitz at Grassy Pond (organized by Valdosta State), off Loch Laurel Road, Lowndes Co., Sept. 28-29:
TORTRICIDAE: *Eucosma argutipunctana, Sparganothis sulfureana, Eugnosta bimaculana*. **LIMACODIDAE:** *Isa textula, Euclea delphinii*. **MEGALOPYGIDAE:** *Megalopyge opercularis*. **CRAMBIDAE:** *Elophila obliteralis*, E. *gyralis, E. icciusalis, Parapoynx allionealis, P. diminutalis, Glaphyria glaphyralis, Spoladea recurvalis, Samea ecclesialis, Syngamia florella, Desmia funeralis/maculalis, Pyrausta insignitalis, P. phoencealis, P. tyralis, Hypsopygia binodulalis, H. nostralis, Apogeshna stenialis, Diacme adipaloides, Glyphodes sibilalis, Epipagis huronalis, Lygropia tripunctata, Diastictis argyralis, Herpetogramma theseusalis, Arta statalis, Carectocultus perstrialis, Parapediasia decorellus, Argyria lacteela, A. auratella, Urola nivalis*. **PYRALIDAE:** *Galleria mellonella, Sciota univella*. **HESPERIIDAE:** *Urbanus proteus, Calpodes ethlius, Erynnis horatius, P. oileus, Ancyloxypha numitor*. **PIERIDAE:** *Eurema daira, Pyrisitia lisa*. **LYCAENIDAE:** *Atlides halesus*. **NYMPHALIDAE:** *Heliconius charitonius*. **SPHINGIDAE:** *Paonias myops, Enyo lugubris, Eumorpha fasciatus* (larva). **GEOMETRIDAE:** *Scopula timandrata, Idaea tacturata, Leptostales pannaria, L. crossi*. **EREBIDAE:** *Idia lubricalis, Zanclognatha lituralis, Z. theralis, Redectis pygmaea, Hormoschista latipalpis, Metalectra albilinea, Dasychira obliquata, Crambidia lithosioides, Cisthene plumbea, C. striata, C. subjecta, Hypoprepia miniata, H. fucosa, Mocis disseverans, Selenisa sueroides* (larva). **NOLIDAE:** *Afrida ydatodes*. **NOCTUIDAE:** *Acronicta oblinita, Homophoberia apicosa, Condica cupentia, Schinia siren, S. saturata, S. sordida, S. trifascia* (small), *Elaphria fuscimacula, E. nucicolora, Bellura densa, B. gortynoides*.

Louisiana: Michael Lockwood, 215 Hialeah Avenue, Houma, LA 70363, E-Mail: mikelock34@hotmail.com

REPORT (5) ON BUTTERFLIES OBSERVED ON AVERY ISLAND, IBERIA PARISH, LOUISIANA

Contributed by Gary Noel Ross, 6095 Stratford Ave., Baton Rouge, LA 70808, E-mail: GNRoss40@yahoo.com

On Tuesday August 21-Sunday August 26 2018, I revisited Avery Island. Weather was party cloudy with no rain, but a strong downpour the day before (Aug. 20). Temperature varied between 71-92 degrees F., winds were calm. Relative humidity was exceptionally high on Tuesday—virtually 95-99 percent in grassy areas in the morning due to previous rain. A weak cold front passed on Wed. and reduced relative humidity and morning temperature. Deer flies were still common, especially in low, wet areas; not so bad in higher regions. Mosquitoes were common in shaded areas.

On Aug. 24, I met with Nathan Boles (Mine Manager) of CARGILL SALT so that I could survey their extensive

property leased from the McIlhenny Co. Federal; regulations require all visitors who engage in on-site projects to sign a "Visitor Agreement" and a "Certificate of Training" after viewing a 20 minute live presentation. The documents permit me five visits to the property before I have to re-certify. For each visit I will have to sign in, and secure someone who will take me to any destination I wish. A hard hat and goggles are mandatory at all times. Not very convenient for surveying butterflies, but I understand the company's concerns.

Shane Bernard (Historian/Archivist) downloaded an APP on my Tracfone so that he and I can locate each other through our smart phones.

The Louisiana Department of Wildlife and Fisheries posted a sign at the boat launch by the entrance to the island stating "Manatee Area." The sign is in response to reports from sightings in Vermilion Parish, New Iberia Parish, St. Mary Parish, Washington Parish, and the Bonne Carre Spillway in St. Charles Parish.

Wading birds in *Bird City* had completed their nesting, and the invasive duckweed (*Lemna minor*) now completely covered the water's surface. Cattle egrets, however, were still common in Saline Lake. Roseate spoonbills, however, had vacated.

Sacred lotus (*Nelumbo nucifera*) was now seeding in *Bird City*.

The large grove of Moso bamboo (*Phyllostachys edulis*) located off the "Bear Corridor" road contained at least double its number of plants since last April. The density of stalks made the grove very dark. I had to photograph at a speed of ¼ second with the camera mounted on a tripod. Garrie Landry (botanist) states that all new stalks retain a black sheath at ground level, making it easy to separate new stalks from old. This year's stalks are now approximately 50-60 feet in height. The grove was the home to both the Creole pearly eye and the southern pearly eye butterflies; both species were represented by only 1-3 individuals. Because of the grove's darkness, butterflies were exceedingly difficult to see after they settled on the ground.

Picking began for Tabasco peppers; pickers work a few hours per day for several days during the week. I happened to miss those days, but picking will continue until November.

Butterfly populations had increased with a greater diversity in species. Plant taxa most attractive to butterflies were lantana (*L. camara* var. "ham and eggs" and "Spanish Flag"; both blooming profusely now), buttonbush (*Cephalanthus occidentalis*) around *Bird City* and Saline Lake, the low-growing frog fruit (*Lippia nodiflora*) abundant in most mowed low grassy areas that retain moisture, and Brazilian vervain (*Verbena brasiliensis*) in a grassy area along side one of the pepper fields. Partridge pea (*Chamaecrista fasciculata*) was blooming but common in only one area—an unmowed line between a mowed field and a patch of woodland along the Pepper Field road. A taller cassia-type plant (?) not blooming as yet was observed in two areas; one was attracting female cloudless sulphurs for oviposition.

Milkweed plants that had been transplanted to the property of Lisa Osborn were doing poorly, although the fenced-off plants had reseeded (specimens near the road had been mowed, but were resprouting). Lantana throughout the island was in much better bloom than before, and passionvine was still in full bloom on the mine site and near the Moso bamboo grove. Gulf Fritillaries were common around the host plant, and also attracted to common lantana and limited Brazilian vervain for nectar.

Paw paw trees were beginning to drop fruit although squirrels/birds were getting most. I could locate no immatures of the zebra swallowtail.

Arrowleaf sida (*Sida rhombifolia*), host to checkered skippers, was just beginning to grow and blossom in a few disturbed areas such as dirt roads near pepper fields.

Species of butterflies that I documented are listed below. [NOTE: Bold type indicates new for this survey; asterisk (*) indicates unique to site for this survey; capitalized common name indicates first listing EVER.] Many specimens, especially skippers, were extremely fresh, indicating recent emergence.

Jungle Gardens (1 day)

Giant Swallowtail (*Papilio cresphontes*)—1 (nectaring on buttonbush in *Bird City*)
*Eastern Tiger Swallowtail (*Papilio glaucus*)—1 male (nectaring on buttonbush in *Bird City*)
Spicebush Swallowtail (*Papilio troilus*)—20 plus (flying in venues with an abundance of camphor and nectaring on buttonbush in *Bird City*)
Palamedes Swallowtail (*Papilio palamedes*)—1 (nectaring on buttonbush in *Bird City*)
Cloudless Sulphur (*Phoebis sennae*)—1 (flying through *Bird City*)
*Pearl Crescent (*Phyciodes tharos*)—2 (resting in grass near pond in *Bird City*)
Viceroy (*Limenitis archippus*)—1 (resting on leaf of willow in pond of *Bird City*)
***PAINTED LADY (*Vanessa cardui*)**—1 (flying through "Venitian Gardens")
Southern Pearly Eye (*Enodia portlandia*)—1 (flying in thick wide-leaf bamboo in "Sunken Gardens")
Carolina Satyr (*Hermeuptychia sosybius*)—4 (flying low to ground near forested venues)
*Red-banded Hairstreak (*Calycopis cecrops*)—1 (darting about in "Sunken Gardens")
*Zarucco Duskywing (*Erynnis zarucco*)—1 (resting in grass near *Bird City*)
Least Skipper (*Ancyloxypha numitor*)—5 (in grass near edge of pond in *Bird City*)
***FIERY SKIPPER (*Hylephila phyleus*)**—1 male (in grass near edge of pond in *Bird City*)
*Brazilian Skipper (*Calpodes ethlius*)—1 (resting on leaf of Canna-type plant growing near stairway to observation tower in *Bird City*; leaves of plant indicated caterpillar damage)

(SUBTOTAL SPECIES FOR SITE: 15; only 7 unique to site)

Sites on private property (4 days)

*Black Swallowtail (*Papilio polyxenes*)—1 male (nectaring on lantana near salt mine)
Giant Swallowtail (*Papilio cresphontes*)—8 (flying along roadsides and nectaring on buttonbush in Saline Lake)
Spicebush Swallowtail (*Papilio troilus*)—100 plus (most common butterfly on island and sighted in practically all habitats)
Palamedes Swallowtail (*Papilio palamedes*)—2 (flying in swampy habitat in back of pepper fields)
Cloudless Sulphur (*Phoebis sennae*)—30 (virtually everywhere, ovipositing on partridge pea)
***SLEEPY ORANGE (*Eurema nicippe*)**—2 (flying in grassy area on side road off Pepper Road)
***GULF FRITILLARY (*Agraulis vanillae*)**—45 (flying near patches of passionvine near salt mine and nectaring on Brazilian vervain and lantana along dirt roadsides in bear corridor)
*Phaon Crescent (*Phyciodes phaon*)—12 (flying around frog fruit near skeet range and dirt road that is a "bear corridor")
Viceroy (*Limenitis archippus*)—3 (resting on leaf of black willow near skeet range, and nectaring on Brazilian vervain on secondary road that is part of the "Bear Corridor")
Southern Pearly Eye (*Enodia portlandia*)—1 female (in same grove of Moso bamboo as the Creole pearly eye); flight of SPE is not as erratic as that if the CPE and color appears a mousy brown
*Creole Pearly Eye (*Enodia creola*)—2 males (chasing each other in grove of Moso bamboo); in flight is very strong and erratic; the color appears as dark chocolate with a tinge of pink
Carolina Satyr (*Hermeuptychia sosybius*)—10 (flying in shade near edges of forest near Saline Lake and edge of forest near *Bird City*)
***SILVER-SPOTTED SKIPPER (*Urbanus proteus*)**—2 (1 near salt mine, 1 in backyard of an elderly resident whose property is behind post office)
***COMMON CHECKERED SKIPPER (*Pyrgus communis*)**—1 male (near young flowering arrowleaf sida plants on dirt side road to a pasture accessed from Pepper Road)
Least Skipper (*Ancyloxpha numitor*)—10 (in grass near marsh at end of bear corridor)

(SUBTOTAL SPECIES FOR SITE: 15; only 7 unique to site)

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TOTAL SPECIES FOR TWO SITES: 22

TOTAL INDIVIDUALS FOR TWO SITES: 271

NEW SPECIES FOR CURRENT SURVEY: 6

CUMULATIVE SPECIES FROM FIVE REPORTS: 36

CUMULATIVE INDIVIDUALS FROM FIVE REPORTS: 717

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REPORT **(6)** ON BUTTERFLIES OBSERVED ON AVERY ISLAND, IBERIA PARISH, LOUISIANA

Contributed by Gary Noel Ross, 6095 Stratford Ave., Baton Rouge, LA 70808, E-mail: GNRoss40@yahoo.com

On Wednesday September 19-Sunday September 23, I revisited Avery Island. Weather was party cloudy with no rain, but a strong downpour the day before (Sept.18), a rain shower on the morning of Sept. 21, and scattered showers throughout both Sat. (Sept. 22) and Sun. (Sept. 23). Temperature varied between 75-94 degrees F., winds were calm except breezy on Sept. 21. Relative humidity was exceptionally high on all days—virtually 95-99 percent in grassy areas in mornings due to previous rains. Deer flies were still common, especially in low, wet areas; not so heavy in higher regions. Mosquitoes were abundant in shaded areas, pesky elsewhere.

Only a few cattle egrets were evident at Saline Lake.

Lantanas and passionflower vines were in the same condition as last month. Gulf Fritillaries were abundant near patches of the latter and practically every where else on the island. Fall flowering had just begun—seemingly late due to excessively hot August and September. Most common blooming plant was white snakeroot (*Eupatorium rugosum*). Butterflies (especially Gulf Fritillaries and Gray Hairstreaks) were attracted to it. Partridge pea (*Chamaecista fasciculata*) was much more noticeable about the island. The unidentified cassia-type plant observed in August was identified by Garrie Landry as (*Senna obtusifolia*); it now was evident in several waste places. Cloudless Sulphur butterflies were ovipositing on both, which can explain their increased abundance and visibility about the island. Brazilian vervain (*Verbena brasiliensis*) was going to seed, although a few fresh plants were still evident. Yellow crownbeard (*Verbesina helianthoides*) was coming into bloom and attracting the Delaware Skipper, but white Virginia crownbeard (*Verbesina virginica*) was still in bud. Red spider lily (*Lycoris radiata*) had emerged from dormancy and was in full bloom in old residential sites around the island; no butterflies were attracted to it.

Butterfly populations had increased significantly along with a greater diversity in species. Plant taxa most attractive to butterflies were lantana (*L. camara* var. "ham and eggs" and "Spanish Flag"; both blooming profusely now), buttonbush (*Cephalanthus occidentalis*) around *Bird City* and Saline Lake, the low-growing frog fruit (*Phyla=Lippia nodiflora*) abundant in many mowed grassy areas that retain moisture, and white snakeroot (*Eupatorium rugosum*), abundant throughout the island and creating a good show. Snout bean (*Rhynchosia minima*) was locally common, serving as the host for the Gray Hairstreak (*Strymon melinus*), which was attracted to white snakeroot for nectaring.

Lantana throughout the island was in much better bloom than before, and passionflower vine was still in full bloom on the mine site and near the Moso bamboo grove. Gulf Fritillaries were common around the host plant, and also attracted to common lantana and limited Brazilian vervain for nectar.

The leaves of several paw paw trees were beginning to show some yellowing, and there was no new apical growth. No Zebra Swallowtails were seen, indicating the flight and breeding periods were now past.

An oil well of the Texas Petroleum Investment Company (TPIC) near the company's headquarters on Pepper Field Road was being refurbished. The dirt road in from PFR had a heavy concentration of the low-growing frog fruit. The plants were nurturing a sizable colony of Phaon Crescent butterflies. While photographing, a representative of the company, Chris Sanfilippo (Environmental Manager—Eastern Division), introduced himself. He was excited about the plants and butterflies. He stated that he would stake the colony I order to keep his employees from mowing or otherwise disturbing the site. I, of course, was, thankful, and will acknowledge this in my completed study.

A surprise from the pepper fields: In many cases, no weeding had taken place in the furrows between the raised rows of peppers. As a result, arrowleaf sida (*Sida rhombifolia*), a pioneer species, had proliferated on the bare soil. This attracted both Common Checkered Skipper (*Pyrgus communis*) and the Gray Hairstreak (*Strymon melinus*) butterflies, two species that utilize sida as hosts. So far, this venue was the highest concentration of these butterflies on the island. Seems as if the Tabasco fields nurture at least two species of small butterflies! (Sida is difficult to find elsewhere on the island because of the extensive mowing, and even those areas that aren't mowed, are usually too congested for the pioneering sida.) Incidentally, many of the peppers were ripe for picking.

Within the giant timber bamboo grove, four Southern Pearly Eyes were flying (netted to confirm ID); no Creole Pearly Eyes sighted.

Jungle Gardens had the poorest showing yet. Other than one or two blossoms of buttonbush in *Bird City*, nothing was in bloom other than anglestem primrosewillow (*Ludwigia leptocarpa*), which was abundant and in full bloom along the edges of the pond, but which was not attracting any butterflies—just bees and wasps. The only butterflies on the wing were Spicebush Swallowtail, Cloudless Sulphur, and Gulf Fritillary; all were in very low numbers. However, I did see an unmistakable male Orange Barred Sulphur flying through the *Venetian Gardens* area. No doubt the individual was a transient from Florida—as it has been for the past few years in several parts of LA.

Species of butterflies that I documented are listed below. [NOTE: Bold type indicates new for THIS survey; asterisk (*) indicates unique to site for THIS survey; capitalized common name indicates first listing EVER.] Many skippers were extremely fresh, indicating a recent emergence.

Jungle Gardens (1 day)

Spicebush Swallowtail (*Papilio troilus*)—5 (flying in venues with an abundance of camphor trees)
Cloudless Sulphur (*Phoebis sennae*)—4 (flying through *Bird City* and *Venetian Gardens*)
***ORANGE-BARRED SULPHUR (*Phoebis philea*)**—1 male (flying over *Venetian Lagoons*)
Gray Hairstreak (*Strymon melinus*)—1 (resting on a blade of grass near pond)
Southern Pearly Eye (*Enodia portlandia*)—1 (flying in thick wide-leaf bamboo in *Sunken Gardens*)
Carolina Satyr (*Hermeuptychia sosybius*)—1 (flying low to ground near forested venue)
Gulf Fritillary (*Agraulis vanillae*)—1 male (flying near *Venetian Gardens*)
Least Skipper (*Ancyloxypha numitor*)—8 (in grass near edge of pond in *Bird City*)
*Fiery Skipper (*Hylephila phyleus*)—1 (resting in grass near edge of pond)
***PALATKA SKIPPER (*Euphyes palatka*)**—2 (resting on blades of grass on edge of pond in *Bird City*
*Brazilian Skipper (*Calpodes ethlius*)—2 (resting on leaf of Canna-type plant growing near stairway to observation tower in *Bird City*

(SUBTOTAL SPECIES FOR SITE: 11; only 4 unique to site)

Sites on private property (4 days)

*Black Swallowtail (*Papilio polyxenes*)—3 males (flying in various venues)
*Giant Swallowtail (*Papilio cresphontes*)—4 (flying along roadsides and ovipositing on a citrus in the garden of a resident)
Spicebush Swallowtail (*Papilio troilus*)—30 plus (third most common butterfly on island, and in practically all habitats; probably in between generations)
*Palamedes Swallowtail (*Papilio palamedes*)—3 (flying in swampy habitat in back of pepper fields and in old rent-house site near salt mine)
Cloudless Sulphur (*Phoebis sennae*)—70 (most common butterfly on the island)
***LITTLE YELLOW (*Pyristia lisa*)**—1 female (in patch of frog fruit and grass in pepper field)
Gray Hairstreak (*Strymon melinus*)—15 (using snout bean near salt mine as host), and 10 (probably using sida in inter-rows in pepper fields)
*Painted Lady (*Vanessa cardui*)—1 (flying along main road near post office)
Gulf Fritillary (*Agraulis vanillae*)—60 (second most common species on island, flying near patches of passionflower vine near salt mine and nectaring on Brazilian vervain and lantana along dirt roadsides)
*Phaon Crescent (*Phyciodes phaon*)—8 (flying around frog fruit near skeet range, dirt road that is a bear corridor, and along road on grounds of the new oil well of Texas Petroleum Investment Company)

*Viceroy *(Limenitis archippus)*—2 (resting on leaf of black willow near skeet range, and nectaring on Brazilian vervain on secondary road near marsh and that is part of the "bear corridor")

Southern Pearly Eye (*Enodia portlandia*)—3 males,1 female (in same grove of Moso bamboo as in previous reports); resting on trunks of trees and stalks of bamboo)

Carolina Satyr (*Hermeuptychia sosybius*)—6 (flying in shade near edge of forest bordering Saline Lake and edge of forest near *Bird City*)

*Monarch (*Danaus plexippus*)—1 (flying along Pepper Road)

***LONG-TAILED SKIPPER (*Urbanus proteus*)**—2 (one flying near vegetation on the grounds of a resident, and one nectaring on a white snakeroot growing along the fence of a pepper field)

*Common Checkered Skipper (*Pyrgus communis*)—1 male (near flowering sida on dirt road to a pasture accessed from Pepper Field Road), and 15 mixed sexes in furrows containing abundant sida between raised rows of maturing peppers)

Least Skipper (*Ancyloxpha numitor*)—6 (in grass near marsh at end of "Bear Corridor" road)

*Dun Skipper (*Euphyes vestris*)—3 (on lantana near salt mine)

*Delaware Skipper (*Anatrytone logan*)—4 (nectaring on yellow crownbeard near paw paw grove)

(SUBTOTAL SPECIES FOR SITE: 19; only 12 unique to site)

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TOTAL SPECIES FOR TWO SITES: 23

TOTAL INDIVIDUALS FOR TWO SITES: 239

NEW SPECIES FOR CURRENT SURVEY: 4

CUMULATIVE SPECIES FROM SIX REPORTS: 40

CUMULATIVE INDIVIDUALS FROM SIX REPORTS: 956

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REPORT (7) ON BUTTERFLIES OBSERVED ON AVERY ISLAND, IBERIA PARISH, LOUISIANA

Contributed by Gary Noel Ross, 6095 Stratford Ave., Baton Rouge, LA 70808, E-mail: GNRoss40@yahoo.com

On Tuesday October 16-Sunday October 21, I revisited Avery Island. A weak cold front with rain was passing through LA on my drive, dropping temperatures in south LA into the mid 70s in the day, low 60s at night. Water in Bayou Petite Anse was up to the road. Oct. 17: wind northerly at 10 mph, sky cloudy with occasional mist, but brightening now and then. Roads very wet, some too risky for my SUV. Oct. 18: wind northeasterly at 9 mph., temp. ranged between 62 and 80 degrees; sky partly cloudy to cloudy to clear. Oct. 19: wind northeasterly at 4 mph., switching to the south by noon; temp. ranged between 62 and 87 degrees; sky partly cloudy to clear. Oct. 20: wind northeasterly at 1 mph., temp. ranged between 72-83 degrees; sky partly cloudy to cloudy with two heavy rain showers during mid day. Oct. 21: wind northeasterly at 12 mph., temp. ranged between 60 and 70 degrees; sky partly cloudy to clear. Some dirt roads still too wet for me to navigate. Deer flies were knocked out by the cold front on Oct. 16, but mosquitoes remained a nuisance. Fortunately, still no ticks or chiggers.

No wading birds in residence on Saline Lake although several were seen in nearby ponds and bayous.

An abundance of peppers on the plants in the fields even though I was told that a harvest of 40 barrels had taken place by hand.

Lantana and passionflower vines were in the best condition so far. Gulf Fritillaries were abundant near patches of the latter and practically every where else on the island. Fall flowering was at its peak. Most common blooming

plants were: common goldenrod (*Solidago altissima*), bacharris (*Baccharis halimifolia*), climbing hempweed (*Mikania scandens*), scaleleaf aster (*Symphyotrichum adnatum*), Virginia crownbeard (*Verbesina virginica*), and yellow crownbeard (*Verbesina helianthoides*). White snakeroot (*Eupatorium rugosum*), partridge pea (*Chamaecista fasciculata*), and frog fruit (*Phyla=Lippia nodiflora*) were on the decline. Buttonbush (*Cephalanthus occidentalis*) was in seed. The limited Bazilian vervain (*Verbena brasiliensis*) was still in bloom. In addition, blue mist flower (*Conoclinium coelestinum*) was evident along some ditches, in some waste places, and especially along Skeet Range Road and the road behind the pepper fields. Both frog fruit and chain-leaf aster are particularly tolerant of water intrusions and mowing.

Butterflies were most attracted to Brazilian vervain and Virginia crownbeard. The massive displays of goldenrod failed to attract even a single butterfly.

Arrowleaf sida (*Sida rhombifolia*) was mature and quite common in the pepper fields and along several service roads bordering the fields. Both Common Checkered Skipper (*Pyrgus communis*) and Tropical Checkered Skipper (*Pyrgus oileus*) were using the plant as their host. However, whereas the CCS was abundant in the pepper fields. The TCS was confined to a road and canal edge near the bear crossing dirt and the community dump.

With the decline of the heretofore pesky deer flies, I was able to sample lower/wetter habitats, particularly the edge of the fresh-water marsh on the western flank of the island. These wetter habitats combined with the lateness of the season proved productive. In fact, four of the seven new species were a result of these observations.

Butterfly populations had increased significantly along with a greater diversity in species.

Snout bean (*Rhynchosia minima*) was spent but producing new growth. Only a few individuals of the Gray Hairstreak (*Strymon melinus*) were present in the vicinity.

Lantana throughout the island was in full bloom, passionflower vine was still in full bloom on the mine site and near the Moso bamboo grove with Gulf Fritillaries abundant virtually everywhere. Adults were typically attracted to the nectar of common lantana and the limited Brazilian vervain.

No Zebra Swallowtails were seen, indicating that flight and breeding periods were now past.

Whereas Southern Pearly Eyes were flying (netted to confirm ID) in spite of the cool/wet weather; no Creole Pearly Eyes were sighted, a sign that perhaps they are restricted to a few populations in spring.

Jungle Gardens celebrated its third annual "Fall Fest" on Saturday October 20. Unfortunately a thundershower interrupted many activities. As far as butterflies are concerned, the gardens had the poorest showing yet. In *Bird City*, only anglestem primrosewillow (*Ludwigia leptocarpa*), climbing hempweed (*Mikania scandens*), larger bur-marigold (*Bidens laevis*), and creeping spilanthes/spot flower (*Acmella repens*) were in bloom in isolated sites along water's edge. All attracted bees and wasps. Small grass skippers were attracted to climbing hempweed and creeping spilanthes; Gulf Fritillaries were also attracted to creeping spilanthes. The only butterflies on the wing were Spicebush Swallowtail, Cloudless Sulphur, and Gulf Fritillary. All were in low numbers—especially the Spicebush Swallowtail, which I presume had died out, having left behind larvae that would pupate for the winter. The Least Skipper was still common within the grasses at water's edge. Water in the pond was virtually covered by small invasive plants such as duckweed (*Lemna, Spirodela, Wolffia, Wolffiella*) and Mosquito fern (*Salvinia minima, Azolla*). (Thanks to Garrie B. Landry, official botanist for the McIlhenny Co., for the identifications.) No wading birds were present, of course. Many of the ponds in *Venetian Lagoons* were in the process of being dredged because of their massive growth of giant salvinia (*Salvinia molesta*), a highly invasive water fern from South America that is corrupting many ponds and lakes throughout LA; the smell of fermenting vegetation was pervasive.

Documented species of butterflies are listed below. [NOTE: Bold type indicates new for THIS survey; asterisk (*) indicates unique to site for THIS survey; capitalized common name indicates first listing EVER.]

Jungle Gardens (half day due to rain)

Spicebush Swallowtail (*Papilio troilus*)—1 (flying near *Bird City*)

Cloudless Sulphur (*Phoebis sennae*)—3 (flying through *Bird City* and *Venetian Gardens*)
Carolina Satyr (*Hermeuptychia sosybius*)—1 (flying low to ground near grove of bamboo near *Bird City*)
Phaon Crescent (*Phyciodes phaon*)—2 (flying near frog fruit growing near water's edge in *Bird City*)
Gulf Fritillary (*Agraulis vanillae*)—5 males (flying near *Bird City* and *Venetian Gardens*)
COMMON BUCKEYE (*Junonia coenia*)—1 (nectaring on climbing hempweed on edge of *Bird City*; have been expecting this species but this is a first)
Viceroy (*Limenitis archippus*)—1 (resting on willow leaf)
Long-tailed Skipper (*Urbanus proteus*)—1 (nectaring on larger bur-marigold)
Least Skipper (*Ancyloxypha numitor*)—3 (in grass near edge of pond in Bird City)
Dun Skipper (*Euphyes vestres*)—2 (nectaring on climbing hempvine)

(SUBTOTAL SPECIES FOR SITE: 10; none unique to site)

Sites on private property (5 days)

*Black Swallowtail (*Papilio polyxenes*)—1 female (flying in field near Cargill Salt dock)
*Giant Swallowtail (*Papilio cresphontes*)—1 (flying in field near Cargill Salt dock)
Spicebush Swallowtail (*Papilio troilus*)—1 (flying in field near Cargill Salt dock)
*Palamedes Swallowtail (*Papilio palamedes*)—5 (flying in field near Cargill Salt dock)
Cloudless Sulphur (*Phoebis sennae*)—6 (flying along roadsides)
Little Yellow (*Pyristia lisa*)—2 females (1 flying in grass near Bear Crossing Road, 1 flying in grass along road behind pepper fields)
*Gray Hairstreak (*Strymon melinus*)—3 (using snout bean as host near Cargill Salt dock)
*American Snout (*Libytheana carinenta*)—1 (flying behind pepper fields)
Gulf Fritillary (*Agraulis vanillae*)—150 (most common species on island, flying near patches of passionflower vine near Cargill Salt dock, nectaring on Brazilian vervain and lantana, and flying virtually everywhere else on island)
Phaon Crescent (*Phyciodes phaon*)—20 (flying along the road to the Cargill Salt dock and along Skeet Range Road where frog fruit was still in bloom)
*Pearl Crescent (*Phyciodes tharos*)—2 (flying in grass with blooming scalefleaf aster near Cargill Salt dock)
***SILVERY CHECKERSPOT (*Chlosyne nycteis*)**—2 (flying at ground level near colony of flowering yellow crownbeard located in sunny spot on shaded wet dirt road directly behind Saline Lake)
COMMON BUCKEYE (*Junonia coenia*)—2 (1 flying in mowed area near capped oil well on a dirt road near Bear Crossing Road, and 1 flying in mowed area near capped oil well on Skeet Range Road; both areas had colonies of rejuvenated, i.e., new growth following recent mowing, scaleleaf aster in full flower)
Viceroy (*Limenitis archippus*)—2 (resting on leaf of black willow near skeet range, and nectaring on Brazilian vervain on secondary road near marsh and that is part of the "bear corridor")
*Southern Pearly Eye (*Enodia portlandia*)—3 males (2 in same grove of Moso bamboo as in previous reports, and 1 along trail in heavily wooded area that accesses the site from below; all tended to fly up when disturbed and then perch on the trunks of sweet gum trees; all individuals were extremely skiddish when approached)
Carolina Satyr (*Hermeuptychia sosybius*)—30 (flying in shade near edge of forest bordering Saline Lake; second most common species for survey)
*Monarch (*Danaus plexippus*)—2 (1 flying along Pepper Road, and 1 feeding on Virginia crownbeard along the road to the docking facilities for Cargill Salt. The nectaring male remained in the same location for the three days of my observations there.)
*Silver-spotted Skipper (*Eparagyreus clarus*)—1 (flying near black/honey locust tree (*Robinia pseudoacacia*) growing along the grass road behind pepper fields that orders a marsh and swamp; the tree is a host to the butterfly)
Long-tailed Skipper (*Urbanus proteus*)—2 (1 flying near vegetation on the grounds of a resident, and one nectaring on a lantana growing along the road leading to the Cargill Salt dock)
*Common Checkered Skipper (*Pyrgus communis*)—1 male (near flowering sida on dirt road to a pasture accessed from Pepper Field Road), and 15 mixed sexes in furrows with abundant sida plants growing between raised rows of maturing peppers)
***TROPICAL CHECKERED SKIPPER (*Pyrgus oileus*)**—3 (flying and resting near arrow-leaf sida in grassy area near Bear Corridor road and back canal near bridge)

*__SOUTHERN CLOUDYWING (*Thorybes bathyllus*)__—1 (feeding on lantana growing in overgrown semi-wet trail leading to old grave site near Cargill Salt terminal)
**Southern Skipperling (Copaeodes minimus)*—2 (flying in grass along Bear Corridor road near small dump site)
*Fiery Skipper (*Hylephila phyleus*)—10 (nectering on scale leaf aster around oil well site off Skeet Range Road)
*__AARON'S SKIPPER (*Poanes aaroni*)__—6 (flying and feeding in a patch of rejuvenated flowering scale leaf aster abundant near a capped oil well along Skeet Range Road adjacent to fresh water marsh)
*__DUKES' SKIPPER (*Euphyes dukesi*)__—1 (flying and feeding in a patch of rejuvenated flowering scale leaf aster near a capped oil well off Skeet Range Road adjacent to fresh water marsh)
*Palatka Skipper (*Euphyes palatka*)—2 (nectaring on Virginia crownbeard in field near Cargill Salt dock)
*Delaware Skipper (*Anatrytone logan*)—2 (nectaring on Virginia crownbeard in field near Cargill Salt dock)
*__TWIN-SPTTED SKIPPER (*Oligoria maculata*)__—2 (feeding in a patch of Virginia crownbeard at site of old "salt minners village" near Cargill Salt dock)
Least Skipper (*Ancyloxpha numitor*)—3 (in grass near marsh at end of road in bear corridor
Dun Skipper (*Euphyes vestris*)—10 (on lantana and in grass near Cargill Salt dock)

(SUBTOTAL SPECIES FOR SITE: 31; only 20 unique to site)

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TOTAL SPECIES FOR TWO SITES: 31

TOTAL INDIVIDUALS FOR TWO SITES: 296

NEW SPECIES FOR CURRENT SURVEY: 7

CUMULATIVE SPECIES FROM SEVEN REPORTS: 47

CUMULATIVE INDIVIDUALS FROM SEVEN REPORTS: 1,252

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REPORT (**8**) ON BUTTERFLIES OBSERVED ON AVERY ISLAND,
IBERIA PARISH, LOUISIANA

Contributed by Gary Noel Ross, 6095 Stratford Ave., Baton Rouge, LA 70808, E-mail: GNRoss40@yahoo.com

On Monday October 29-Tuesday October 30, I revisited Avery Island for a quick check on the status of Monarchs as well as a brief survey of all butterflies. A weak cold front with rain had passed four days prior, and Monarchs were now common in my zinnia garden in Baton Rouge. Furthermore, reports from friends visiting the Cameron coast and an area near St. Francisville indicated that Monarchs were now common there, also.

Oct. 29: wind southwesterly (weak), sky clear after dense fog lifted about 10:00 am.; temperature ranged between 66 and 87 degrees. Oct. 30: wind southwesterly (weak), heavy fog until about 9:00 am, but then sky was clear to partly cloudy; temperature ranged between 67 and 83. Some dirt roads still wet from previous rain and heavy fog. Mosquitoes as pesky as ever; a larger species had joined forces with the more common small species. Fortunately, still no ticks or chiggers.

An abundance of peppers on the plants in the fields. Arrow-leaf sida was still abundant and still hosting the Common Checkered Skipper.

Lantana and passionflower vines were still in excellent bloom. Most other plants mentioned in my previous report, however, were a bit past their peak but still productive. Frog fruit (*Phyla=Lippiea nodiflora*) was now virtually flowerless although Phaon Crecents were still abundant near the plant colonies. Scale leaf aster (*Symphyotrichum adnatum*) was still in full bloom and attracting skippers and both crescents (*Phyciodes*). Gulf Fritillaries were still abundant. The Common Buckeye, rare during my last survey, was now locally common—particularly adjacent to old well-head sites near Bear Corridor Road and Skeet Range Road. The butterflies often rested on the crushed limestone at the site. In addition, broadleaf plantain (*Plantago major*), a

small, naturalized exotic, and most likely the butterfly's host plant, was sporting new leaves and flower stalks. Willowleaf aster (*Symphyotrichum praealtus*) was locally common and attractive to bees, wasps, and several butterflies—especially Buckeyes and skippers.

Butterflies were most attracted to lantana (*L. camara*), Brazilian vervain (*Verbena brasiliensis*), Virginia crownbeard (*Verbesina virginica*), and scale leaf aster. Still, the massive displays of goldenrod (*Solidago altissima*) and baccharis (*B. halimifolia*) failed to attract even a single butterfly.

I did not undertake a detailed survey of *Jungle Gardens*. I did, however, drive through the gardens on both days, but failed to observe any Monarchs.

In the end, I concluded that at the time, the island was not hosting significant numbers of migrating Monarchs or serving as a venue for overnight roosts.

Documented species of butterflies are listed below.

Sites on private property (2 days)

Black Swallowtail (*Papilio polyxenes*)—1 female (flying in field near Cargill Salt dock)
Spicebush Swallowtail (*Papilio troilus*)—1 (flying in field near Cargill Salt dock)
Palamedes Swallowtail (*Papilio palamedes*)—2 (flying in field near Cargill Salt dock)
Cloudless Sulphur (*Phoebis sennae*)—8 (flying along roadsides and other open venues)
Little Yellow (*Pyristia lisa*)—6 (flying in grass near Bear Crossing Road and in grass along road and canal behind pepper fields)
Sleepy Orange (*Eurema nicippe*)—3 (flying in grass on Bear Crossing Road and near Cargill Salt dock)
Gulf Fritillary (*Agraulis vanillae*)—100 (most common species on island, flying near patches of passionflower vine near Cargill Salt dock, nectaring on Brazilian vervain and lantana, and flying virtually everywhere else)
Phaon Crescent (*Phyciodes phaon*)—40 (flying along the road to the Cargill Salt dock, near refurbished well off Pepper Field Road, and along Skeet Range Road where frog fruit was abundant, but now not in bloom; second most-common butterfly although individuals are usually restricted to colonies of the host plant)
Pearl Crescent (*Phyciodes tharos*)—12 (flying in grass with blooming scale leaf aster in several sites, particularly along Bear Crossing Road)
Common Buckeye (*Junonia coenia*)—15 (flying in mowed areas especially near capped oil well on a dirt road near Bear Crossing Road and on Skeet Range Road; both areas had colonies of scale leaf aster and fresh broadleaf plantain sprouting in limestone surrounding wells and roads accessing wells; one pair courting on ground)
Viceroy (*Limenitis archippus*)—3 (flying about low vegetation near black willow trees that are common near skeet range and Bear Corridor Road)
Carolina Satyr (*Hermeuptychia sosybius*)—15 (flying in shade near edge of forest bordering Saline Lake and Bear Corridor Road)
Monarch (*Danaus plexippus*)—8 (7 flying along Pepper Road in southwest direction and 1 feeding on Virginia crownbeard along the road to the docking facilities for Cargill Salt)
Long-tailed Skipper (*Urbanus proteus*)—15 nectaring on a lantana growing along the road leading to the Cargill Salt dock and on willowleaf aster near Bear Corridor Road)
Common Checkered Skipper (*Pyrgus communis*)—10 (near flowering arrow-leaf sida on dirt road to a pasture and refurbished well site accessed from Pepper Field Road)
Tropical Checkered Skipper (*Pyrgus oileus*)—8 (flying and resting near arrow-leaf sida in grassy area near Bear Corridor road and back canal near bridge)
Southern Skipperling (*Copaeodes minimus*)—1 (flying in grass along Bear Corridor road near small dump site)
Fiery Skipper (*Hylephila phyleus*)—10 (nectering on chain-leaf aster around oil well site off Skeet Range Road)
Palatka Skipper (*Euphyes palatka*)—3 (nectaring on Virginia crownbeard in field near Cargill Salt dock)
Least Skipper (*Ancyloxpha numitor*)—4 (in grass near marsh at end of road in bear corridor)
Dun Skipper (*Euphyes vestris*)—15 (on lantana and in grass near Cargill Salt dock and beside back canal on Bear Corridor Road)

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TOTAL SPECIES: 21

TOTAL INDIVIDUALS: 280

NEW SPECIES FOR CURRENT SURVEY: 0

CUMULATIVE SPECIES FROM EIGHT REPORTS: 47

CUMULATIVE INDIVIDUALS FROM EIGHT REPORTS: 1,532

Mississippi: Ricky Patterson, 400 Winona Rd., Vicksburg, MS 39180, E-Mail: rpatte42@aol.com

All records by Ricky Patterson unless otherwise indicated:

9 September 2018, Vicksburg, MS *Urbanus proteus proteus*

6 October 2018, near Pecan community, Jackson county, *Anartia jatrophae guantanamo*

10 October 2018, Vicksburg, Warren county *Catocala luctuosa*

4 November 2018, Vicksburg, MS *Catocala maestosa*

North Carolina: Steve Hall, Moths_of NC_ Website@outlook.com, E-Mail: stephen.phall@outlook.com

The following report by Steve includes selected moth records from the summer and fall seasons. Between 15 May and 10 November, 2,544 records were submitted to the Moths of North Carolina website, representing 904 species and coming from 48 of our 100 counties. Seventy-two people submitted records: Salman Abdulali, S. Adams, J. Anderson, George Andrews, Amanda Auxier, Alicia Ballard, Erla Beegle, C. Bennett, K. Bischof, B. Bockhahn, J. Brown, Susan Carroll, Ed Corey, Nancy Cowal, L. Doepker, Steve Dowlan, Renee Dunaway, Simpson Eason, Becky Elkin, L Faulconer, Kathryn Fawcett, Robert Gilson, Susannah Goldston, Matthew Guilin, Steve Hall, Brad Hallenbeck, S. Halling, Jamie Harrelson, David Heavner, Chris Helms, Cynthia Hever, J. Hovis, Ali Iyoob, Bobby Jefferson, V. Jones, Derek King, Kyle Kittelberger, Ken Kneidel, Alan Krakauer, Gary Maness, Dwayne Martin, Owen McConnell, Pat McConnell, Melissa McGaw, J. Mickey, R. Newman, Zoie Nixon, J. Oksnevad, Lori Owenby, Jim Petranka, John Petranka, Hunter Phillips, M. Prinz, Stephanie Puckett, Robin Riddlebarger, K. Sanford, Mark Shields, Gordon Simmons, Cathy Songer, Vin Stanton, J.B. Sullivan, J. Summers, W. Taft, K. Trotter, Rob Van Epps, Phil Weinrich, Danielle Wieberg, F. Williams, S. Williams, N. Williamson, Meredith Wojcik, and Sam Woolwine. The 23 species selected for this report have relatively few North Carolina records. Those designated as STATE represent new additions to the Moths of North Carolina database, but are not necessarily entirely new to the state; we include them here primarily to indicate the progress we are making in documenting our fauna.

LECITHOCERIDAE:
Scythropiodes issikii, SEP 3, Guilford, Gary Maness (**State**)

SESIIDAE:
Podosesia aureocincta, SEP 5, Madison, Jim Petranka and Becky Elkin (**State**); SEP 8, Madison, Jim Petranka and Becky Elkin; SEP 10, Madison, Jim Petranka and Becky Elkin
Carmenta pyralidiformis, SEP 4, Madison, Jim Petranka and Becky Elkin (**State**); SEP 5, Mecklenburg, Rob Van Epps (**County**)

TORTRICIDAE:
Acleris flavivittana, SEP 30, Madison, Jim Petranka and Becky Elkin (**State**)
Decodes basiplagana, SEP 30, Guilford, Gary Maness (**State**)

CRAMBIDAE:
Samea baccatalis, AUG 24, Mecklenburg, Ken Kneidel (**State**)

Diathrausta harlequinalis, MAY 23, Guilford, Gary Maness (**State**); SEP 8, Madison, Jim Petranka and Becky Elkin (**County**)

PYRALIDAE:
Sciota celtidella, MAY 19, Madison, Jim Petranka and Becky Elkin (**State**)
Laetilia coccidivora, SEP 26, Madison, Jim Petranka and Becky Elkin (**State**)

PTEROPHORIDAE:
Hellinsia linus, SEP 6, Buncombe, David L. Heavner (**State**)
Hellinsia balanotes, SEP 19, Guilford, Gary Maness (**State**)

GEOMETRIDAE:
Heliomata infulata, AUG 8, McDowell, Alan Krakauer (**County**) – our records for this species come primarily from the Fall-line Sandhills in the Coastal Plain; this is only our fourth record from the Mountains
Lytrosis permagnaria, MAY 16, McDowell, K. Bischof (**County**); MAY 21, McDowell, K. Bischof – we now have seven records for this species from the Piedmont versus only three for the Mountains
Idaea bonifata, AUG 14, Buncombe, David L. Heavner (**County**); SEP 9, Madison, Jim Petranka and Becky Elkin (**County**)
Idaea scintillularia, MAY 27, Guilford, Gary Maness (**County**)

SPHINGIDAE:
Aellopos titan, NOV 8, Catawba, Lori Owenby and Dwayne Martin (**State**) -- this represents the first confirmed North Carolina record that we know of for this subtropical stray; this observation made the newspapers

EREBIDAE:
Grammia doris, AUG 11, Yancey, Ken Kneidel (**County**) – this is only the fourth North Carolina record we know of and the reasons for the apparent rarity of this species remain a mystery
Parahypenodes quadralis, OCT 8, Guilford, Gary Maness (**County**) – this species pops up at scattered locations across the state; its host plants and habitat preferences are still unclear
Thysania zenobia, SEP 12, Buncombe, Renee Dunaway (**State**) – a spectacular first North Carolina record for another subtropical stray

NOCTUIDAE:
Argillophora furcilla, JUN 13, Madison, Jim Petranka and Becky Elkin (**County**); JUN 16, Buncombe, Jamie Harrelson (**County**); JUN 20, Madison, Jim Petranka and Becky Elkin; SEP 5, Madison, Jim Petranka and Becky Elkin – associated with River Cane at this montane site but most of our records come from Switch Cane in the eastern Piedmont and Coastal Plain and Hill Cane along the Blue Ridge Escarpment
Protapamea louisae, JUL 6, Madison, Jim Petranka and Becky Elkin (**County**); JUL 11, Madison, Jim Petranka and Becky Elkin; JUL 23, Madison, Jim Petranka and Becky Elkin – also associated with River Cane; these are the first North Carolina record we know of for this species since it was first discovered by Franclemont in Macon County in the late 1950s; one specimen was confirmed by dissection by J.B. Sullivan
Papaipema cerina, SEP 24, Yancey, Ken Kneidel (**County**) – this is second record for this species in North Carolina, where it appears to be highly disjunct; both of our records come from Rich Cove Forests from widely separated sites in the Mountains
Papaipema furcata, SEP 26, Madison, Jim Petranka and Becky Elkin (**County**); SEP 30, Buncombe, David L. Heavner (**County**) – this species is likely to be more common than our current records suggest; it may, however, become truly imperiled if the massive impacts of the Emerald Ash Borer on its host plants come to pass

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Harry LeGrand sends in the following report for North Carolina:

Records are from September through November 2018, unless otherwise indicated (with a different year). Names in parentheses are counties.

Fall 2018 was wetter than normal, owing to two hurricanes hitting the state, Florence in September and Michael in October. Sadly, Florence dumped as much as 30 inches of rain on some parts of the southern Coastal Plain, and thus it is expected that many wetland species, especially skippers, may well have been impacted by flooding. Of course, impacts won't be known until well into 2019. Otherwise, the temperatures were above normal in September and the first half of October, but below normal thereafter. The expected push of migrants from the South never really happened, and very few strays were reported, exemplified by an absence of reports for *Anartia jatrophae* and *Heliconius charithonia*. Thankfully, there was a single report of *Ascia monuste*. There were only scattered reports of *Vanessa cardui*, clearly an off-year for them here, but the strong push of *Calpodes ethlius* from the summer continued in the eastern half of the state into early November.

PAPILIONIDAE:

Papilio cresphontes, one was photographed by R. Weiss in a Burlington (Alamance) (**COUNTY**) yard on September 2; the species is a rare stray in most of the Piedmont. Where a very scarce resident (mountains), one was photographed by Pete Dixon at Hot Springs (Madison) on September 20.

PIERIDAE:

Ascia monuste, one was seen at very close range (in flight only) at North River Preserve (Carteret) on October 1 by Jeff Pippen and Derb Carter. This is about the 5th state record, though it is not a first record for the county. However, it is surprisingly the first state record in the fall season; the previous late date was only August 20.

Eurema daira, Salman Abdulali dug up a very old specimen record for which the *Butterflies of North Carolina* website was previously unaware: one was collected by William Gertsch at Tuxedo (Henderson) (**COUNTY**) on August 31, 1927. This is roughly the 12th known record for the state, but none have been found in the state since 1992. The specimen is at the Ohio State University insect collection. This species and *Zerene cesonia* were somewhat regular strays into the state 50 or more years ago, but records of both have been extremely scarce since then.

LYCAENIDAE:

Feniseca tarquinius, the species is very rare in the southeastern Coastal Plain; thus notable was one seen on September 7 by Derb Carter at the Lanes Ferry boat landing on NC 210, at the Northeast Cape Fear River (Pender) (**COUNTY**).

Atlides halesus, a very good count, especially for so late in the season, was 20 tallied by Derb Carter, Ricky Davis, and Harry LeGrand at Alligator River National Wildlife Refuge (Dare) on October 13.

Parrhasius m-album, quite late was one photographed at Rocky Mount (Nash) on October 29 (fide Ricky Davis). Even later were singles photographed in Orange County on October 31 (Lori Carlson) and seen in Forsyth County on October 31 (Gene Schepker).

NYMPHALIDAE:

Agraulis vanillae, an excellent count for an inland locale was 21 at Hot Springs (Madison) on October 19, as seen by Pete Dixon.

Phyciodes phaon, an excellent count in recent years was 63, as tallied by Jeff Pippen and Harry LeGrand at several sites in New Hanover County on October 4; most were at Fort Fisher. John Fussell had a good tally of 12 at Rachel Carson Estuarine Reserve (Carteret) on September 29. Derb Carter had 31 at the Fort Fisher area on November 3. This species was strongly impacted by hurricane flooding in 2016, and it was thought to be in great trouble in the state, especially after Hurricane Florence passed through these areas in mid-September 2018. Thankfully and surprisingly, at least some coastal locales for this species have bounced back nicely.

Vanessa cardui, there were around 20 reports of this migrant for the season, not bad for some years but hardly a major push this year, after a big year in 2017. Also, nearly all records were just of one or two individuals. Most records were for the mountains and Piedmont, but a very few managed to range into the Coastal Plain (assuming the flight direction is mainly west to east for this species).

Danaus gilippus, John Taggart had a very good count of seven at Fort Fisher (New Hanover) on September 7. However, after the passage of Hurricane Florence in mid-September, observers on several dates into October were unable to find any adults, and the conclusion is that the species was indeed impacted by flooding or salt spray damage.

HESPERIIDAE:

Hesperia leonardus, one was photographed by Dave Heavner on September 3 at the Biltmore Estate (Buncombe) for the only state record this year. It was looked for repeatedly at several previously known sites in the Piedmont without success. There is growing concern that the species is in serious trouble in the state, at least in the Piedmont, despite its occupying common habitats – powerline clearings and wooded margins. Could herbiciding or collecting be impacting the species in the Piedmont, but not in the mountains (where most recent records have been)? Is global warming really an issue, as the Piedmont is at the southeastern edge of the species' range? Note also that *Hesperia metea*, with a similar state range and array of habitats, also seems to have "disappeared" from the Piedmont in recent years.

Hesperia meskei, extremely early for the second brood was one seen by Derb Carter on September 1, in the Sandhills Game Land (Scotland). There were no previous records for this brood prior to September 10, and most records fall between September 20 and October 15.

Problema byssus, Jeff Pippen photographed two individuals in Duke Forest (Durham) (**COUNTY**) on September 11. This represents a slight range extension to the north. Finally, the species was found in Mecklenburg (**COUNTY**), where Chris Talkington photographed one at McDowell Nature Preserve on September 4. This species is somewhat rapidly expanding northward, with Cleveland, Gaston, Mecklenburg, Chatham, Durham, Wake, and Craven counties now representing the northern periphery of the range.

Calpodes ethlius, after a remarkable and unprecedented summer for adults of this species, there was no let-up in reports for the fall season. There were numerous reports from Raulston Arboretum in Raleigh (Wake), with a peak of 10 on September 17 (Richard Stickney). Piedmont reports outside of Wake County, nearly all documented with photos, came from Elon (Alamance) (**COUNTY**) on September 19 (A. Demory); at Chapel Hill (Orange) on September 26 (Lori Carlson, John Jarvis); and in Durham on September 18 and October 10 (Stickney). In the Coastal Plain, the best record was one photographed by Will Stuart on October 17 in the Sandhills Game Land (Richmond) (**COUNTY**); the species is seldom seen in the Sandhills region, as Canna plants are likely scarce in the region. Salman Abdulali saw a few in Greenville (Pitt) on October 30 and November 3, John Taggart had the species in Wilmington (New Hanover) on September 9 and October 4, and Jeff Pippen and others saw one at Fort Fisher (New Hanover) on October 4.

Megathymus yuccae, Salman Abdulali found a record of a specimen collected by B. Grooms in the Wilson area (Wilson) (**COUNTY**) on April 10, 1989; it is in the Ohio State University insect collection. This is the northernmost record for NC, though it has been found (historically) in southeastern Virginia.

South Carolina: Brian Scholtens, College of Charleston, Charleston, SC 29424, E-Mail: scholtensb@cofc.edu

Brian reports the following South Carolina records (**bold = county record**):

Charleston Co., James Island; 24 Jun 2018; Dennis Forsythe

Erebidae:

Ascalapha odorata

Charleston Co., Charleston; 28 Jul 2018; Nathan Dias

Lycaenidae:

Leptotes cassius

Clarendon Co., Santee NWR visitors center butterfly garden; 28 Aug 2018; Linda Romine

Hesperiidae:

Erynnis funeralis

Berkeley Co., Bonneau Ferry WMA, Cordesville; 22 Sep 2018; Marty Kastner

Papilionidae:

Papilio palamedes

Pieridae:

Pyrisitia lisa
Abaeis nicippe
Phoebis sennae

Nymphalidae:

Agraulis vanillae
Phyciodes tharos
Polygonia sp.
Junonia coenia
Limenitis arthemis astyanax
Hermeuptychia sosybius
Hermeuptychia intricata

Hesperiidae:

Urbanus proteus
Ancyloxypha numitor
Euphyes vestris
Lerema accius

Berkeley Co., Childsbury Towne HP, Moncks Corner; 22 Sep 2018; Marty Kastner

Papilionidae:

Papilio glaucus
Papilio palamedes

Pieridae:

Pyrisitia lisa
Abaeis nicippe
Phoebis sennae

Lycaenidae:
Calycopis cecrops
Strymon melinus
Celastrina neglecta
Nymphalidae:
Agraulis vanillae
Heliconius charthonius
Phyciodes tharos
Junonia coenia
Hermeuptychia sosybius
Hermeuptychia intricata
Hesperiidae:
Epargyreus clarus
Urbanus proteus
Pyrgus oileus
Polites vibex
Polites origenes
Euphyes vestris
Poanes zabulon
Lerema accius

Charleston Co., Roxbury Park, Meggett; 27 Sep 2018; Tom Austin & Dennis Forsythe

Papilionidae:
Papilio palamedes
Pieridae:
Phoebis sennae
Pyristitia lisa
Abaeis nicippe
Lycaenidae:
Strymon melinus
Nymphalidae:
Agraulis vanillae
Junonia coenia
Phyciodes tharos
Limenitis arthemis astyanax
Hermeuptychia sosybius
Hesperiidae:
Urbanus proteus
Ancyloxypha numitor
Polites vibex
Oligoria maculata
Panoquina ocola

Jasper Co., Laurel Hill Wildlife Dr.; 29 Sep 2018; Dennis Forsythe

Papilionidae:
Papilio palamedes
Pieridae:
Phoebis sennae
Lycaenidae:
Strymon melinus
Nymphalidae:
Agraulis vanillae
Heliconius charithonius
Limenitis archippus
Hesperiidae:
Urbanus proteus
Poanes viator
Panoquina ocola

Jasper Co., Savannah NWR, maintenance area; 29 Sep 2018; Dennis Forsythe

Pieridae:
Phoebis sennae
Abaeis nicippe
Hesperiidae:
Urbanus proteus
Hylephila phyleus
Poanes viator
Panoquina ocola

Jasper Co., Purrysburg Rd. @ I-95 bridge; 29 Sep 2018; Dennis Forsythe

Pieridae:
Phoebis sennae
Pyrisitia lisa
Abaeis nicippe
Lycaenidae:
Calycopis cecrops
Strymon melinus
Hemiargus ceraunus
Nymphalidae:
Agraulis vanillae
Junonia coenia
Hesperiidae:
Urbanus proteus
Erynnis zarucco
Pyrgus oileus
Polites vibex
Problema byssus
Euphyes vestris
Panoquina ocola

Jasper Co., Savannah NWR butterfly garden; 29 Sep 2018; Dennis Forsythe

Nymphalidae:
Agraulis vanillae
Junonia coenia
Hesperiidae:
Urbanus proteus
Hylephila phyleus
Panoquina ocola

Charleston Co., Hutchinson House, Point of Pines Rd., Edisto Island; 27 Sep 2018; Tom Austin

Pieridae:
Ascia monuste

Charleston Co., Hutchinson House, Point of Pines Rd., Edisto Island; 4 Oct 2018; Tom Austin

Pieridae:
Phoebis sennae
Pyrisitia lisa
Abaeis nicippe
Lycaenidae:
Hemiargus ceraunus

Nymphalidae:
Agraulis vanillae
Anartia jatrophe
Junonia coenia
Euptoieta Claudia
Limenitis archippus
Hermeuptychia sp.
Hesperiidae:
Urbanus proteus
Hylephila phyleus

Union Co., Sumter NF; 6 Oct 2018; Dennis Forsythe
Pieridae:
Phoebis sennae
Pyrisitia lisa
Nymphalidae:
Agraulis vanillae
Junonia coenia

Newberry Co., Hwy 66 @ Fendley Rd.; 6 Oct 2018; Dennis Forsythe
Pieridae:
Phoebis sennae
Pyrisitia lisa
Abaeis nicippe
Lycaenidae:
Cupido comyntas
Nymphalidae:
Agraulis vanillae
Hesperiidae:
Erynnis horatius
Urbanus proteus
Pyrgus sp.
Lerema accius
Hylephila phyleus
Panoquina ocola

Charleston Co., Hyde Park Rd., Ravenel; 7 Oct 2018; Dennis & Donna Forsythe
Papilionidae:
Papilio palamedes
Pieridae:
Phoebis sennae
Pyrisitia lisa
Abaeis nicippe
Lycaenidae:
Strymon melinus
Nymphalidae:
Junonia coenia
Phyciodes tharos
Agraulis vanillae
Limenitis arthemis astyanax
Limenitis archippus
Lethe portlandia
Hermeuptychia sp.
Hesperiidae:
Urbanus proteus
Erynnis zarucco
Pyrgus sp.
Nastra lherminier
Ancyloxypha numitor
Lerema accius
Hylephila phyleus
Wallengrenia otho
Paones zabulon
Lerodea eufala
Panoquina ocola
Euphyes vestris
Amblyscirtes aesculapius

Charleston Co., Holy Cross Cemetery; 9 Oct 2018; Dennis Forsythe
Pieridae:
Pyrisitia lisa
Nymphalidae:
Junonia coenia
Agraulis vanillae
Hesperiidae:
Urbanus proteus
Pholisora catullus
Panoquina panoquin

Charleston Co., Ft. Johnson; 9 Oct 2018; Dennis Forsythe
Nymphalidae:
Agraulis vanillae
Hesperiidae:
Urbanus proteus

Tennessee: John Hyatt, 233 Park Ridge Court, Kingsport, TN 37664, E-Mail: jkshyatt@centurylink.net

Texas: Ed Knudson, 8517 Burkhart Road, Houston, TX 77055, E-Mail: eknudson@earthlink.net

Monica Krancevic submits the following report for **August 13 – November 15 2018**: **Lake Jackson, Brazoria County, TX,** Residence (29.04N, 95.42W, 5m elev). Dismal moth-ing this autumn. 22" rain in September; October saw continual aerial and ground spraying for mosquitos that eliminated many insects (except mosquitos); November has been a total bust.

All observations are posted at: https://www.inaturalist.org/observations/krancmm

NEW at LOCATION

Family	Species	Dates	Comments
Crambidae	*Microtheoris vibicalis*	08/26	
Erebidae	*Neoplynes eudora*	08/27	
Erebidae	*Zanclognatha obscuripennis*	10/03	ID:ECK
Noctuidae	*Basilodes pepita*	09/28	
Noctuidae	*Plagiomimicus pityochromus*	09/26	
Noctuidae	*Schinia ultima*	09/28	ID:ECK
Notodontidae	*Peridea angulosa*	09/28	
Tortricidae	*Strepsicrates smithiana*	08/26	

Stuart Marcus sends this report for **August 13 – November 15 2018**: Trinity National Wildlife Refuge, Liberty, Liberty County, TX (30.097N, 94.765W). Haven't yet looked through later sightings (September & October) for new records.

NEW at LOCATION

Family	Species	Dates	Comments
Cosmopterigidae	*Cosmopterix scirpicola*	08/15	
Crambidae	*Haimbachia squamulellus*	08/24	
Erebidae	*Hyperstrotia nana*	08/10	
Erebidae	*Oruza albocostaliata*	08/08	ID:ECK
Psychidae	*Oiketicus abbotii*	08/28	

Virginia: Harry Pavulaan, 606 Hunton Place, Leesburg, VA. 20176, E-mail: Pavulaan@aol.com

Harry sends in the following Fall report for Virginia:

The worst year for butterfly diversity and numbers in much of northern Virginia finally let up around August 24. It is not clear why butterflies suddenly broke out in "normal" numbers after a year of almost NO butterflies, and they did so during another period of heat and drought in late August. What is interesting is the pattern of weeks of heat and drought alternating with weeks of dreary rainy weather that certainly confused things.

Butterflies [all reports H. Pavulaan except where noted].

Battus philenor – Loudoun County: Leesburg, Ida Lee Park, 9/5/2018. 12+ larvae of various sizes observed feeding on a large *Aristolochia* vine (possibly not *A. macrophylla* because the leaves are very small).

Papilio polyxenes – Loudoun County: Leesburg, late August through early September. Many fully-grown larvae found on a single large Bronze Fennel plant. Total of 25 gathered on 9/5/18.

Neographium marcellus - Loudoun County: Leesburg, late August through early September. Large late flight, unusual for this area. 20+ observed in Potomac River woodlands on 9/5/18.

Colias philodice – Loudoun County: Leesburg, Ida Lee Park, 9/5/2018. 10+ all over the gardens. Interestingly, these are the only ones I've seen all year! The park's many acres of lawns, overgrown with *Trifolium repens*, might be a good draw.

Abaeis nicippe – Loudoun County: Leesburg, 9/5/18. Two observed flying about *Senna marilandica* plants growing behind my house.

Mitoura gryneus – Loudoun County: Leesburg, 9/5/18. One adult in very fresh condition indicates rare third brood for this region.

Everes comyntas – Loudoun County: Leesburg, Veteran's Memorial Park, 9/5/2018. 20+ counted. Unusually common. The host *Trifolium repens* is very common on the park's extensive lawns.

Phyciodes tharos – Loudoun County: Leesburg, Ida Lee Park, 9/5/2018.

Chlosyne nycteis – Loudoun County: Leesburg, 8/24/2018 through 9/11/18. Full third brood but not nearly as numerous as the July irruption. 50+ counted in Veterans Memorial Park on 9/5/2018.

Limenitis arthemis astyanax – Loudoun County: Leesburg. Large flight during last week of August through third week of September with 20+ on my *Buddleia* shrubs on 9/5/2018. 10+ observed in Veterans Memorial Park on 9/5/2018. Last female seen on 10/19/2018. Many dozens of eggs and young caterpillars found on my potted *Prunus serotina* shrubs.

Enodia anthedon – Loudoun County: Leesburg, Veteran's Memorial Park, 9/5/2018. About 5+ very fresh adults are either very late second brood or early third brood. A second brood flew earlier in August, but the early September flight seems to be soon to already be a third brood.

Pyrgus communis – Loudoun County, Leesburg, Ida Lee Park Community Gardens, 10/9/2018. 50+ observed (unusually high numbers for this area).

Lerema accius – Loudoun County: Leesburg, Veteran's Memorial Park, 9/5/2018. Two males(?) observed along woodland trail, acting territorial along forest edge. One net/released for positive identification.

Ancyloxypha numitor – Loudoun County: Leesburg, Veteran's Memorial Park, 9/5/2018. 20+ counted. Unusually common.

Atalopedes campestris – Loudoun County: Leesburg. Spotty occurrence. Only singletons seen in my garden all summer while 100+ were observed in the Leesburg Community Gardens on 9/5/18. Flying through Sept. and Oct. to 10/19/2018.

Calpodes ethlius – LOUDOUN County: Leesburg, 9/6/18, nectaring on *Buddleia*. Photographed. Fits the pattern of an unusual regional northward movement in 2018, with several reports from Maryland, New Jersey and Connecticut.

Panoquina ocola - Loudoun County: Leesburg, 10/10/18, nectaring on *Buddleia* and *Zinnia* (20+ observed, 1 collected). Many flying through 10/18/2018, with only one observed on 10/19/2018. This appears to be an irruption of historic proportion. Like *C. nycteis*, these flights contradict the otherwise low numbers or absence of most other species in this area in 2018.

Moths [all reports H. Pavulaan except where noted].

Udea rubigalis – Loudoun County: Leesburg, ex-larva on *Aster novaeanglicae*, em: 9/5/2018, 10/10/18. Many observed through 10/19/2018.

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The Southern Lepidopterists' News is published four times annually. Membership dues are $30.00 annually. The organization is open to anyone, especially those with an interest in the Lepidoptera of the southern United States. Information about the Society may be obtained from Marc Minno, Membership Coordinator, 600 NW 34 Terrace, Gainesville, FL 32607, E-Mail: mminno@bellsouth.net, and dues may be sent to Jeffrey R. Slotten, Treasurer, 5421 NW 69th Lane, Gainesville, FL 32653.
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