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J. BARRY LOMBARDINI: EDITOR

Outis Skipper, *Cogia outis*, Lexington Wildlife Management Area, Cleveland County, Oklahoma, 5 August 2010.

Bryan Reynolds makes the following statement: "*The Outis Skipper is a scarce butterfly that lives in semi-open country and prairies. The range map shows it should be found right in my backyard, but after years of intently searching, I never saw one. This changed on 5 August 2010 when ...*" "*...On this day, I was looking for mud-puddling butterflies along the edge of a lake. There were several species...I took a closer look....Here was my lifer* ***Outis Skipper***."

Bryan's story continues on page 234-238, ***The Hunt for Outis***.

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CAMOUFLAGED LEPS

BY

BRYAN E. REYNOLDS

When I'm out photographing subjects, I try hard to find them before I flush them. Of course, many of my photos are of subjects I've flushed, since sometimes that's about the only way to find them. However, I get a lot of satisfaction by finding them before they flee. And out of those, I really have fun searching and finding camouflaged subjects. Here are a selection of my favorite camouflaged leps:

Ochre Euchlaena, *Euchlaena marginaria*, camouflaged in leaf litter, McGee Creek Wildlife Management Area, Atoka County, Oklahoma, 5 April 2013

Goatweed Leafwing, *Anaea andria*, camouflaged on forest floor, Pontotoc Ridge Preserve, Pontotoc County, Oklahoma, 9 May 2013

Woolly Gray, *Lycia ypsilon*, camouflaged on tree bark, Cleveland County, central Oklahoma, 22 March 2017

Goldenrod Stowaway, *Cirrhophanus triangulifer*, camouflaged on Stiff Sunflower, *Helianthus pauciflorus*, Lexington Wildlife Management Area, Cleveland County, Oklahoma, 7 September 2017

Little Wood-Satyr, *Megisto cymela*, camouflaged in leaf litter, Little River National Wildlife Refuge, McCurtain County, Oklahoma, 30 May 2019

Sad Underwing, *Catocala maestosa*, camouflaged on tree bark, Lewisville Lake Environmental Learning Area, Denton County, Texas, 10 July 2019

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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)."

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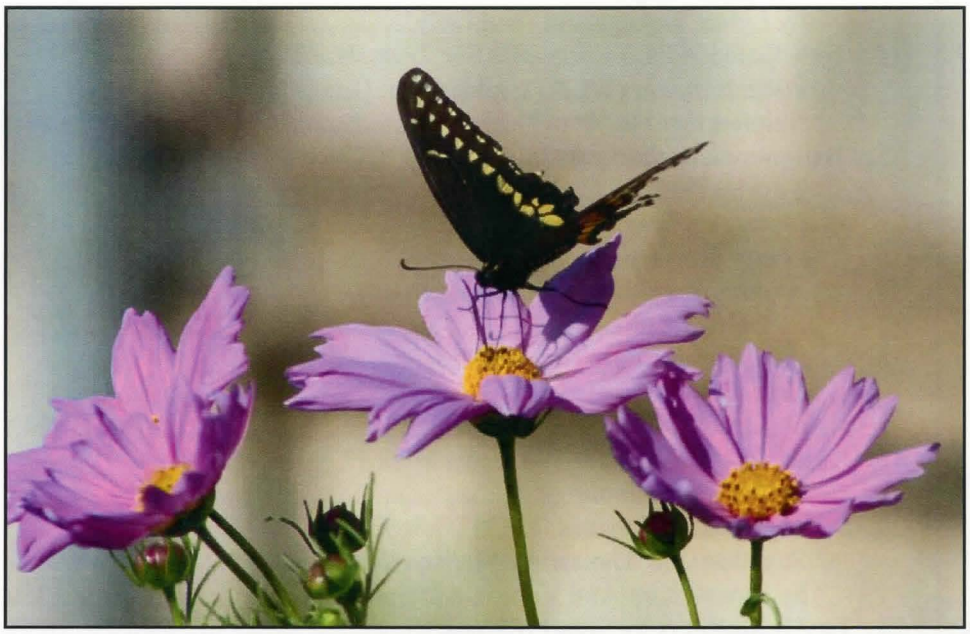
Black Swallowtail caterpillar (*Papilio polyxenes*) feeding on dill, Horticulture Gardens, Texas Tech University, Lubbock, Texas, June 2019 (photo by James Bowers).



Black Swallowtail (*Papilio polyxenes*), Lubbock, Texas, June 2019.

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ANATRACHYNTIS SIMPLEX (WALSINGHAM) IN FLORIDA AND TEXAS, WITH DIAGNOSTIC NOTES (LEPIDOPTERA: COSMOPTERIGIDAE)

BY

JAMES E. HAYDEN

Introduction

Anatrachyntis simplex (Walsingham, 1891), the false pink bollworm, slipped into North America shortly before the publication of the MONA fascicle on Cosmopterigidae (Hodges 1978) and was recognized recently (Hayden 2015). This article diagnoses the species and gives distribution data, including records from Texas.

The caterpillars of *Anatrachyntis* Meyrick are scavengers in a wide range of vegetable detritus. The three species discussed below are tramp species with extensive bibliographies that are not given here. *Anatrachyntis simplex* gets its common name because in the Old World, the caterpillars are often encountered scavenging in old, rotten cotton bolls (Fletcher 1914, Chamberlain 1993). Authoritative diagnosis of the larvae from early instars of *Pectinophora gossypiella* (Saunders), the (true) pink bollworm (Gelechiidae), requires examination of chaetotaxy. If one finds small pink caterpillars in a boll, one should not simply assume that they are early-instar *P. gossypiella* without a microscope.

The false pink bollworm (Figs. 11–15) resembles *Anatrachyntis rileyi* (Walsingham, 1882) (Figs. 1–5) and *A. badia* (Hodges, 1962) (Figs. 6–10), which are native or long-established in North America (Hodges 1978). They were traditionally placed in *Pyroderces* Herrich-Schäffer or *Sathrobrota* Hodges, both of which Hodges (1978) treated as junior synonyms of *Anatrachyntis*. Fletcher (1917) originally transferred *A. simplex* to that genus, and Zimmerman (1978) transferred *A. rileyi* and *A. badia*. Koster and Sinev (2003) also separated *Anatrachyntis* from *Pyroderces*, diagnosed them, and illustrated all three species, all of which are now established in Europe. The only clear differences in their generic diagnoses is in the female genitalia: female *Pyroderces* have a simple ostium bursae and rows of granular signa in the corpus bursae, whereas female *Anatrachyntis* have the ostium bursae as a pouch, often stuffed with scales, and a cylindrical sterigma, and signa are absent. All three *Anatrachyntis* species in North America have the latter characters. A fourth species in the South, *P. albistrigella* (Möschler) (not shown), has signa and a simple ostium bursae, so it remains in *Pyroderces*. It occurs from Florida and Louisiana (Hodges 1978) west to Jasper Co., Texas (Knudson genitalia slide #1262).

Males of *A. simplex* are attracted to the pheromone lure of *Epiphyas postvittana* (Walker), the light brown apple moth (Tortricidae), which is how I first encountered them. Since they were on sticky Jackson traps, the genitalia were the only undamaged parts. At first, I despaired because there are about eighty species in the *Pyroderces-Anatrachyntis* group (Hodges 1978), and the genitalia are not illustrated for most. Only later, after Lyle Buss (University of Florida) brought good, spread specimens from rearings, could I see the maculation. The illustration of the male genitalia in Koster and Sinev (2003) and other references helped to identify them as *A. simplex*. Searching in collections revealed more specimens. *Anatrachyntis simplex* is not as abundant as *A. badia* in Florida, but it is more common than *A. rileyi*.

The earliest North American specimen of *A. simplex* in the Florida State Collection of Arthropods / McGuire Center for Lepidoptera (FSCA & MGCL) was collected in 1975 at ultraviolet light in the Everglades by John B. Heppner. By 1980, Linwood C. Dow was collecting it in Central Florida. In 1983, Edward C. Knudson collected some in southern Texas. He dissected a male and female and labeled them as "*Pyroderces* n. sp."; they are accessioned with the Knudson-Bordelon collection in the MGCL. Julieta Brambila reared *A. simplex* from cattail (*Typha* sp.) seedheads collected in several counties in Florida in a survey of that plant's arthropod fauna, and Lyle Buss reared them from the same host. Indeed, all of Brambila's reared *Anatrachyntis* moths appear to be *A. simplex*, plus a few of *Limnaecia phragmitella* Stainton, the cosmopterigid that more commonly infests cattails in the North. Evidently, the false pink bollworm is especially attracted to cattails in Florida, to the near-exclusion of other cosmopterigids.

I have not yet found how to identify the immature stages to species. Adamski et al. (2006) described the larvae of *A. badia* in detail. They were not able to distinguish them from those of *A. rileyi*, nor have I tried to differentiate the larvae of *A. simplex*. Thus, rearing or sequencing COI is necessary. Distinct barcode sequences have been obtained from *A. simplex* that closely match barcodes from the Old World.

Fortunately, one can distinguish adult moths of the three species without dissection by examining the labial palpi and the hind legs. I examined specimens in the FSCA

and MGCL, and I also examined specimens of *A. simplex* in the U.S. National Museum (USNM) from the Philippines, India, and Egypt, all bred from cotton bolls. The maculation of the palpi and legs of the latter specimens are the same as those from Florida.

Diagnoses

Anatrachyntis rileyi (Walsingham): The labial palpi have indistinct pale-brown spots (Fig. 2). The hind tibia has three dorsolateral areas of brown scales: two long fields and a narrow row between them (Fig. 3: r). In males, the left lobe of the juxta has a blunt, almost square apex (Fig. 4: j), and the right brachium is acute (b). In females, the posterior margin of the seventh sternite (the lip of the ostium) is slightly emarginate; the process inside the ostium (sterigma, Fig. 5: st) is short and does not protrude far outside; and the corpus bursae (not shown) is spherical.

Anatrachyntis badia (Hodges): The labial palpi on the anterior-facing edge have three distinct, broad black spots (Fig 7: ps). The hind tibia has two areas of scales, and there is no narrow row of brown scales between; the distal area of scales (Fig. 8: ds) is darker, almost black, than the proximal one, which is mid-tone brown. The left lobe of the juxta and the right brachium are both acute (Fig. 9). In females, the posterior margin of S7 is convex; the sterigma (Fig. 10: st) is elongate and protrudes far outside the ostium; and the corpus bursae is spherical.

Anatrachyntis simplex (Walsingham): The labial palpi have a narrow, nearly continuous row of black scales on the anterior-facing edge, hardly separated into spots (Fig. 12: ps). The hind tibia has two areas of scales without a row between them, but unlike *A. badia*, the distal area of scales (Fig. 13: ds) is rather pale brown and nearly concolorous with the proximal area of scales. The body size tends to be larger than *A. badia* and similar to *A. rileyi*. In males, the left lobe of the juxta is rather truncate, with the apex squared at an angle; the right brachium (Fig. 14: b) is long, bent through a right angle, and apically blunt; and the valvae are mitten-shaped with a thumb-like lobe (vl). In females, the posterior margin of S7 is convex; the sterigma (Fig. 15: st) is rather elongate but does not protrude far outside the ostium, the pocket of which is twice as deep as wide; and the corpus bursae (not shown) has a large lateral diverticulum that leads into the ductus seminalis.

Hodges' key (1978: 47) may be modified as follows:.

1. Forewing with transverse marks, without a pale yellowish-white line on anal fold... 2, *Anatrachyntis*

1'. Forewing without transverse marks, with a pale yellowish-white line on anal fold...*Pyroderces albistrigella*

2. Labial palpi with pale brown scales; hind tibia with median white streak having dorsolateral row of brown scales; male with left lobe of juxta blunt apically, apex slightly capitate; female with posterior margin of seventh sternum emarginate...*A. rileyi*

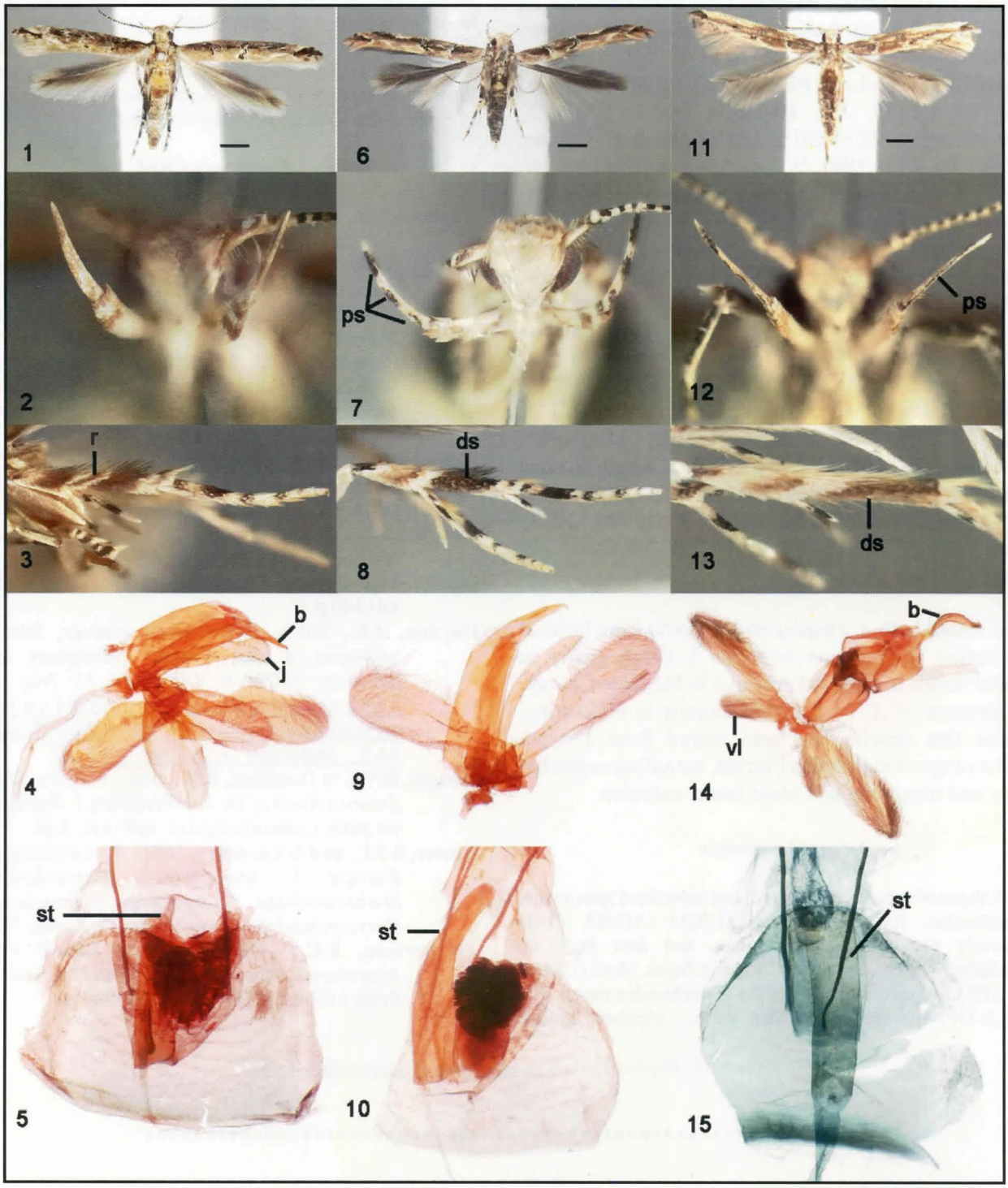
2'. Labial palpi with black scales; hind tibia with median white streak unicolorous; male with left lobe of juxta acute or truncate at an angle, apex not capitate; female with posterior margin of seventh sternum convex... 3

3. Labial palpi with black scales in three distinct spots; hind tibia with distal scales much darker than proximal scales, nearly black; male with left lobe of juxta acute apically, right brachium short and straight, and valva without a ventral lobe; female with pocket of ostium bursae not deeper than wide, filled with black scales, and corpus bursae without seminal diverticulum...*A. badia*

3'. Labial palpi with black scales in narrow continuous row; hind tibia with distal scales brown and concolorous with proximal scales; male with left lobe of juxta angularly truncate, right brachium long and curved at 90° angle, and valva with a ventral lobe; female with pocket of ostium bursae deeper than wide, black scales absent, and corpus bursae with a diverticulum into ductus seminalis...*A. simplex*

Records of *A. simplex* (specimen count omitted; all specimens in FSCA & MGCL):

FLORIDA: Alachua Co.: Gainesville, 4100 SW 75th St. Veterans Memorial Park, reared from cattail (*Typha* sp.) seed head, 24.xi.2006, adults eclosed 22 & 26.xii.2006, 15 & 19.i.2007, L.J. Buss; same site and host, 24.ix.2017, 23.vii.2019, J. Hayden; Gainesville, 2004 SE 41st Ave. 23.ix & 4.xi.2005, G.T. Austin. **Broward Co.:** [locality unknown], ex *Typha* seedhead coll. 18.v.1997, J. Brambila. **Charlotte Co.:** On Hwy. 31, 1.5mi S. of Bermont Rd (SR 74), ex *Typha* seedhead coll. 10.xi.1997, J. Brambila. **DeSoto Co.:** Arcadia, CAPS *Epiphyas postvittana* trap, 10.xii.2014, E. German-Ramirez. **Highlands Co.:** Lake Placid, ex *Typha* seedhead, coll. 18.v.1997, J. Brambila; Sebring, CAPS *E. postvittana* trap, 25.xi.2015, M. Payne. **Hillsborough Co.:** Plant City, 28.00129, -82.11287, CAPS *E. postvittana* trap, 21.xii.2015, E. German-Ramirez. **Indian River Co.:** On corner C.R.s 510/512 and along 512W, in ditch, ex *Typha* seedhead coll. 8.viii.1997, J. Brambila. **Lake Co.:** Leesburg, ex *Typha* seedhead coll. 27.x.1996, J. Brambila. **Lee Co.:** [locality unknown], ex *Typha* seedhead, coll. 8.viii.1997, J. Brambila. **Manatee Co.:** Bradenton, Ungarelli Preserve, reared ex cotton bolls, CAPS *Helicoverpa* survey, 23.vii.2015, eclosed 10.viii & 18.ix.2015, J. Hayden & J. Brambila; Bradenton, Neal Preserve, ex



Figures: ***Anatrachyntis rileyi:*** **1, habitus; 2, labial palpi; 3, hind leg; 4, male genitalia (slide MGCL 4768); 5, ostium bursae of female genitalia (slide MGCL 4769).**

Anatrachyntis badia: **6, habitus; 7, labial palpi; 8, hind leg; 9, male genitalia (slide MGCL 4767); 10, ostium bursae (slide MGCL 4770).**

Anatrachyntis simplex**: 11, habitus; 12, labial palpi; 13, hind leg; 14, male genitalia (slide MGCL 4581); 15, ostium bursae (slide MGCL 4582).**

Scales = 1 mm. b: right brachium of gnathos; ds: distal scales of hind tibia; j: lobe of juxta; ps: palp scales; r: middle row of scales on hind tibia; st: sterigma; vl: valve lobe.

cotton boll collected 22.vii.2015, ecl. 16.viii.2015, J. Hayden, J. Brambila. **Martin Co.:** Port Mayaca, ex *Typha* seedhead coll. 8.viii.1997, J. Brambila; Jonathan Dickinson State Park, 8–10.viii.1999, J.B. Heppner. **Miami-Dade Co.:** Long Pine Key, Everglades Nat. Pk., UVL, 26.iv.1975, J.B. Heppner; Doral, CAPS *E. postvittana* trap, 22.vi.2015, A. Derksen & C. Urbina; Florida City, 15.ix.1991, W. Lee Adair Jr.; Florida City, SW 167 Ave. & Card Sound Rd. 14.vii.2015, J. Hayden. **Orange Co.:** Ocoee, UVL, 23.viii.1980, L.C. Dow; Moss Park, 17.vii.1984 & 16.viii.1986, L.C. Dow. **Osceola Co.:** Kissimmee, UVL, 15.xi.1981, L.C. Dow; US Hwy 441 near Turnpike, ex *Typha* seedhead coll. 29.xii.1996, J. Brambila. **Putnam Co.:** Palatka, MV/UVL, 31.viii.1990, H.D. Baggett. **Volusia Co.:** Blue Springs S.P., MVL, 15.xii.1984, L.C. Dow.
TEXAS: Hidalgo Co.: Bentsen S.P., 20.x.1983 & 7.x.1991, ECK; Santa Ana Refuge, 18.xi.1984, 28.x.1986, 22.xi.1987, 24.vi.1988, E.C. Knudson (one from 1984: slide ECK 1069). **Harris Co.:** Bellaire, 12 & 17.xi.1985 (slide ECK 1278), 7.xii.1986, ECK; Spring Valley, 17.v.1994. **Tyler Co.:** BTNP/Ranch Hs. Turkey Cr. Unit 25.ix.1994.

I have reared both *A. simplex* and *A. badia* from bolls of wild cotton (*Gossypium hirsutum* L.) that grows in isolated stands in a coastal preserve in Manatee County. The absence of *A. badia* from cattails is interesting, because that species has been reared from a much broader range of material in Florida, including vegetable matter and mealybug and scale insect colonies.

Acknowledgments

I thank those who collected, reared, and submitted specimens. In particular, Julieta Brambila (USDA APHIS PPQ) generously provided her specimens and data from an unpublished survey of *Typha*. I thank Mark Metz (USDA ARS SEL) for access to the USNM Gelechioidea range, and FDACS-DPI for support to visit there. Matthew Moore (FDACS-DPI) helpfully sequenced COI of *A. simplex* and *A. badia* and compared them to global sequences. Debbie Matthews-Lott (FLMNH-MGCL), Jessica Awad (FDACS-DPI), Julieta Brambila, and Paul Skelley (FDACS-DPI) constructively commented on the manuscript. Work for this paper was supported by the Florida Department of Agriculture, Division of Plant Industry.

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THE PREMIGRATION MIGRATION OF MONARCHS: WHAT IS IT?

BY
CANDY SARIKONDA

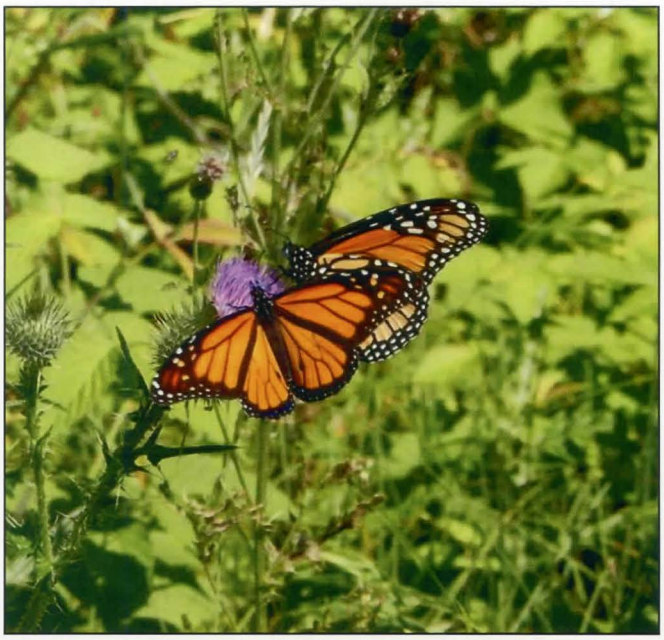
For several years, I have noticed a small wave of monarchs that arrives to my northwest Ohio yard and the Lake Erie Islands in early to mid-August. These monarchs are migrating south, BUT they are laying eggs! Their arrival each year is so predictable, that I actually prepare for their arrival by trimming and watering my milkweed to promote fresh regrowth, so these premigrant monarchs can load up my milkweed with eggs.

What are premigrant monarchs? Premigrant monarchs are monarchs that migrate south, usually starting in mid to late July in northern latitudes. But unlike the fall migration of monarchs that travels south to Mexico each year, the premigrant monarchs are not in diapause. These monarchs are migrating, but they remain reproductive, laying eggs along the way during their journey south.

Dr. Chip Taylor has described this wave of migratory, reproductive monarchs as the premigration migration. Taylor explains, "...I have been referring to a premigration migration, a migration of apparently reproductive monarchs that moves south beginning in late July and continuing, in Kansas at least, until mid-August. I have posted a number of observations of monarchs seen moving south during this period to Dplex-L. A few others have posted similar observations and we sometimes get calls from people wondering why the monarchs are migrating so early. Monarchs generally disappear or only maintain low population densities in most areas south of 37 degrees north from mid-May to August. However, the region south of 37 degrees is frequently repopulated with monarchs in August and September (before the true migration) arrives in a pattern consistent with the idea that recolonization occurs via butterflies from the north rather than from a resurgence of the local population" (cited in http://texasento.net/premig.htm).

Dr. Karen Oberhauser further explains the premigration migration. Oberhauser notes that from Monarch Larva Monitoring Project data, observers in the central and southern U.S. begin to see monarch adults, eggs and larvae after not seeing them most of the summer. She explains, "It makes evolutionary sense that some monarchs would fly south as they laid their eggs, since an egg laid in August in Missouri or Virginia is probably more likely to develop and migrate to Mexico than one laid in Minnesota, where a hard freeze in early September is not that uncommon."

Gail Morris, Director of the Southwest Monarch Study, also points out "...in the greater Phoenix area and Lake Havasu we usually see them (premigrants) right around the last few days of August each year and they load up our milkweed with eggs as they sweep through. With our warm temperatures, they have just the right amount of time to complete their life cycle and join our main migration for the 33rd latitude from September 29 to October 11." She says, "It's rather fun to look for this wave, so if you've never done this before, check your latitude and watch for monarch and egg-laying activity."



Monarchs nectaring on thistle in a small field next to the Old Presque Isle lighthouse near Alpena, MI. My colleagues believe that the thistle may be swamp thistle.

The premigrants will travel through your area about 30 days before the main fall migration. So using your latitude, check when the peak fall migration usually occurs in your area at http://monarchwatch.org/tagmig/peak.html. Then start looking 30 days before that time, and you may note evidence of the premigration.

My first experience with the premigration migration was in the Lake Erie Islands. In 2011, I was working to help Ohio State University students and staff to create a certified Monarch Waystation at South Bass Island lighthouse in Lake Erie. South Bass Island is located directly south of Point Pelee, Canada, a major monarch stopover during the fall migration, located on the northern shore of Lake Erie. All summer long, my friends and I did not see monarchs on the island. Friends kept coming to me, asking, "Where are the

monarchs?" BUT, when I arrived to the island on August 13, 2011, there were monarchs EVERYWHERE. We were all delighted—friends and I watched as monarchs oviposited, fed heavily from nectar plants and flew all around us. They were laying eggs on the milkweed at the butterfly house grounds, in two friends' yards, and at the nature center—it was a stunning sight. But what on earth was I seeing? No monarchs all summer, and suddenly WHAM!—they're all over, in numbers that suggested they were not local in origin. And in mid-August, a full month before the fall migration usually passes through northern Ohio! I shared my experience on Dplex-L, Monarch Watch's listserv, and Dr. Karen Oberhauser replied and explained to me that I was seeing the premigration migration.

Common Milkweed along Lake Huron shoreline in East Tawas, MI, July 2019.

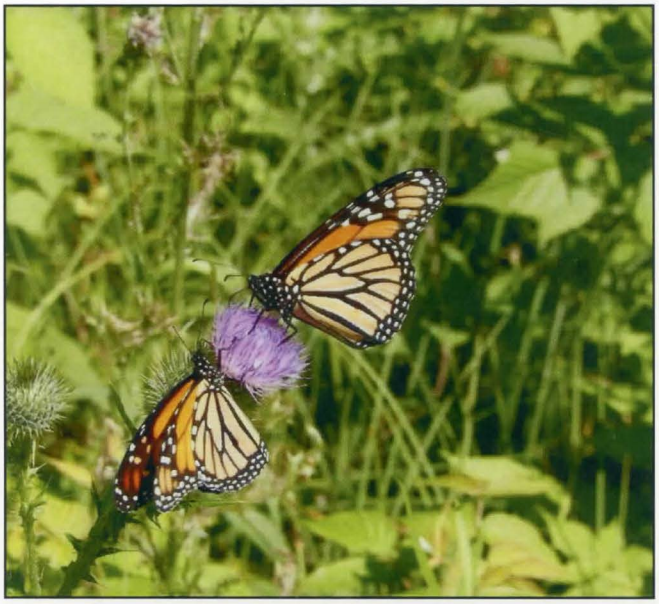
Since that time, I watch for evidence of the premigrants' arrival every year. I have routinely noted their arrival to South Bass Island each year in early to mid-August. But I have also seen evidence of the premigration elsewhere. Recently, when I drove up to Alpena, Michigan from Ohio on July 6th of this year and then back home on July 13th, I did not see monarchs in directional flight. This is important, because when monarchs are migrating, they use directional flight—they fly determinedly, and make a beeline headed south or southwest, ignoring opportunities to flit about and nectar and rest. Instead, as my family and I drove 280 miles from Ohio to northern Michigan, I noted the usual reproductive season flight behavior–monarchs searching roadside ditches and medians for nectar and milkweed. But on July 27th, as I returned to Alpena from Ohio, I noted several monarchs in directional flight! These monarchs were making a beeline headed southwest, right at car level. It was impossible not to notice them. I observed directional flight from 9am to 11 am, it was 77F and winds were from the southwest at 8mph. After a noon lunch, I noticed monarchs were primarily scanning the roadsides to nectar and/or possibly oviposit. Winds were light in the morning, but picked up considerably when I reached East Tawas in the afternoon, changing to 17mph sustained winds from the southwest. During my journey, I saw several smaller butterflies in directional flight as well. I thought they might be red admirals by their flight pattern but could not see them well enough. When I reached East Tawas, I stopped at Gateway Park on the shore of Lake Huron and a red admiral flew by as my kids played. It tried to fly in a southerly direction, but repeatedly had to take cover in the grass to shield itself from the strong southwest wind. I lost sight of the red admiral as it flew around a tree. It was fascinating to see red admirals and monarchs migrating at the same time.

This led me to recall a report by Dave Agazzi, in which he also observed monarchs migrating at the same time as red admirals. Dave Agazzi, captain of a fishing charter boat on Lake Michigan, has been boating on Lake Michigan for over 20 years. He sees monarchs in fall, usually in the afternoon boat trips and flying west or southwest. But on July 19, 2015, he was stunned to see a huge influx of insects while on a charter from 1:30 to 6:30 pm. The wind was calm, and he and his crew were getting bit by flies and seeing insects they had never seen before. Agazzi noted that one monarch flew by his boat about every 1-2 minutes for the five hours he was on the water, headed due west. He was 10-11 miles offshore from Kenosha, WI. The monarchs never landed on the boat, but came close enough that he was certain of their identification. They were flying fast, about 8-20 feet off the water. Red admirals were also flying, and Agazzi described them as also flying fast but more erratically than the monarchs. Dr. Chip Taylor explained the nature of Agazzi's observation, stating, "This is evidence indicating the beginning of the premigration migration."

I posted the news of my recent monarch observations in northern Michigan to my monarch conservation specialist group, and other colleagues reported they were also noting evidence of the premigration. Debbie Jackson relayed a post from Cammie Machholz, who had reported a roost of about a dozen monarchs in Whittier, Iowa on July 28, 2019. Machholz had inquired as to why the monarchs were forming roosts so early in the season, noting they seemed to "like to be together."

My other colleague, Darlene Burgess, reported finding roosting monarchs at Point Pelee National Park on July 21, 2019, near the tip of the peninsula. Burgess explained, "I went into the park that evening just because. I did not expect to see about 100 monarchs!! From the tip parking lot and south, all along west path and along the shoreline, there were monarchs nectaring

on thistle and a very fragrant white flower. I saw two mated pairs. All the way down to the tip, monarchs flitted above west path. Some settled in hackberry, hop and cedar trees. I even saw a couple monarchs flashing. A few flitted to the end of the tip tree line, then encountered strong northeast wind and turned back. Premigration has been seen since early July but I have never seen this many this early. I saw mostly males, and one female (besides the coupled females). I watched them from 7-8pm. It was 26°c/79F at the time, mostly cloudy with northeast wind at 20-32kmh."



Monarchs nectaring on thistle in a small field near the Old Presque Isle lighthouse near Alpena, MI. The thistle in this field was the preferred nectar source for the monarchs in the area this July.

Burgess, who does the fall migration counts for Point Pelee National Park, decided to start monitoring the premigration activity and began doing more frequent monarch counts at the park. On the evening of August 4, 2019, Burgess reported, "I monitored monarchs at the tip at Point Pelee National Park from 7pm-8:30pm, sunset was at 8:46 pm. It was 25°C and humid, partly cloudy with a very light breeze. Both east and west sides of the tip were calm/glassy. From the moment I exited my car at the tip parking lot, there was a monarch! The sightings continued all over west path and the shoreline, monarchs were nectaring on sweet clover and thistle, flitting over the path and down the path to the tip. So much activity for this early in August. I counted 69 monarchs in total (prior evening during the same time there were 5). To be fair, I counted only those coming from the north going toward the tip, assuming I had already counted those returning from the tip going up the path back north. There easily could have been more than the 69 I reported, perhaps hundreds. They were everywhere at the tip on the west side. EVEREEEEWHERE! Better than some evenings in September! An hour and a half of non-stop activity with often seeing 6-8 at a time. There was a system of thunder showers that arrived earlier from northwest of the park, possibly accounting for the higher than normal number. I did not observe any monarchs continue south over Lake Erie, that rarely occurs late in the day and usually stops 2 hours before sunset. I did observe a few monarchs flying out a short distance to the west over the lake, but they returned to shoreline trees. The monarchs only briefly settled on hackberry and hop trees, and on bare tree branches. It was interesting that most were male. All monarchs appeared somewhat fresh. I did not see any faded/torn monarchs like the activity throughout the day at my home outside of the park, which remains normal with 2-4 patrolling males and females laying eggs. I did not locate any clusters, however a few did fly into the interior trees. I was unable to view them due to the inaccessibility of the site as a result of high water levels."

This evidence of monarchs in directional flight and large numbers of monarchs roosting at the tip of Point Pelee strongly suggests premigration activity. With the evidence of monarchs moving south in summer, it begs the question: can tagging data reveal evidence of southward movement of monarchs during July and early August? It would be worth investigating.

Stay tuned.

To learn more about the premigration migration in the southern United States, see Monika Maeckle's article, "Llano River Ready for 'Premigration Migration' of Monarch Butterflies." https://texasbutterfly ranch.com/2014/08/20/llano-river-ready-for-premigration-migration-of-monarch-butterflies/

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

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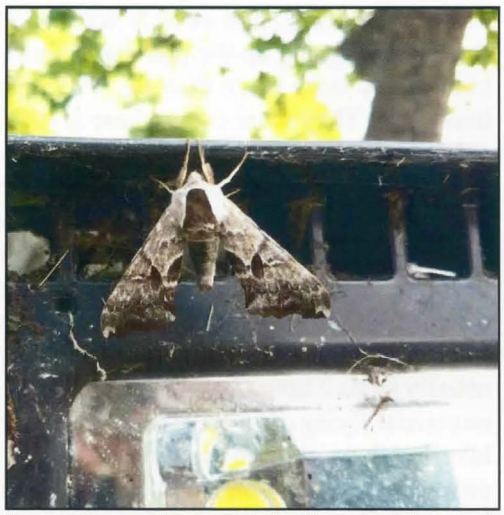
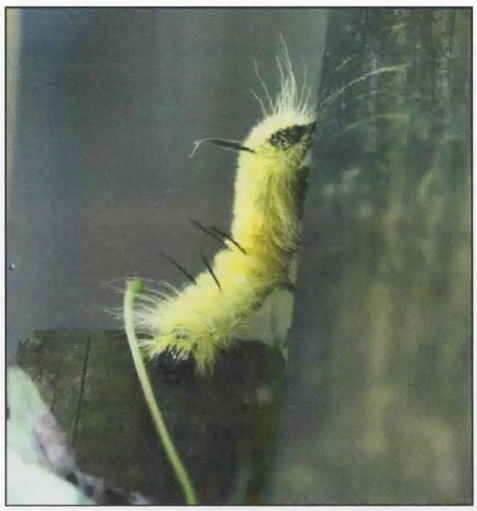
LEPIDOPTERAN ADVENTURES

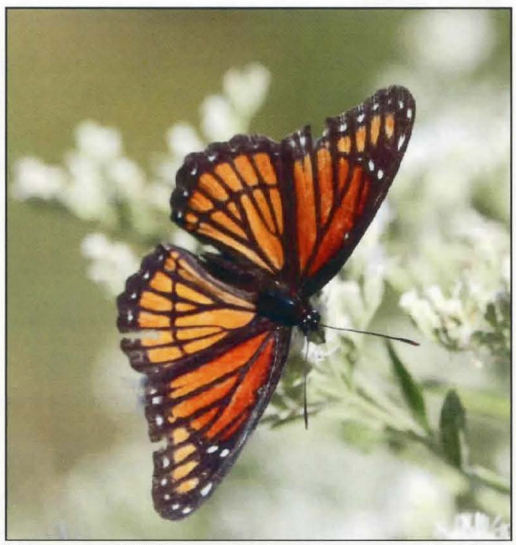
BY
MAYA SARIKONDA



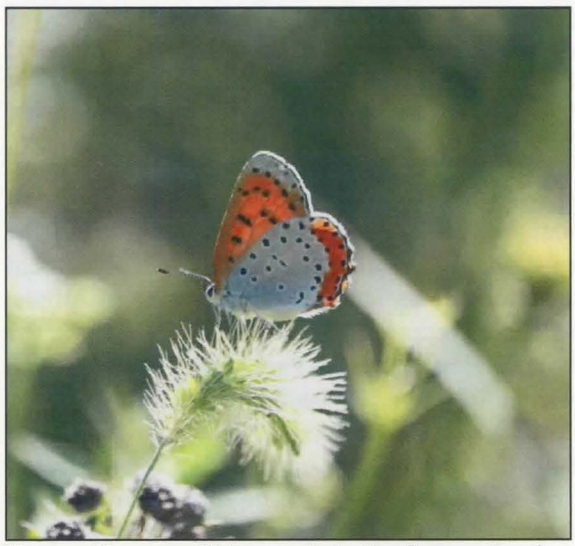
We (my mother and I) found this moth clinging to a spotlight. It was on the grounds of Old Presque Isle Lighthouse in Alpena, MI. We still have not ID'd this moth. It was a moth we have never seen before, and we were thrilled to find it.



American Dagger Moth larva: My mother has only seen this caterpillar two times in her life. It is a gorgeous bright yellow with black setae. The setae serve as a defense mechanism against bird predation — the setae (long black hairs) can come off and get into a bird's eyes. This caterpillar can cause a rash when handled. I named it, "Bananapillar" due to its coloration.



Viceroy: This worn viceroy was patrolling the garden next to the nature center at Ottawa National Wildlife Refuge. It nectared on boneset and small white asters. I (Maya) was stung by a wasp as I took this photo, a reminder not to accidentally brush up against plants and disturb other pollinators while taking photos.



Bronze Copper: This speedy butterfly was darting around the frog pond as I attempted to take some photos of it. Eventually, it landed in a spot where the orange bands on its wings glowed like fire in the sun. It stayed long enough for me to capture a few photos before taking off into the distance.

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A TALE OF TWO SWALLOWTAILS

BY

CRAIG W. MARKS

Thistlethwaite Wildlife Management Area is located in north central St. Landry Parish, northeast of Washington and accessible off of Interstate 49. Seventeen miles of all-weather shell roads are maintained within the area, allowing convenient access to virtually the entire tract. Approximately eleven miles of woods trails are also maintained. The area is 11,000 acres in size. The terrain is generally flat bottomland. Forest cover is predominantly various kinds of oak. Other species present are pecan, hickory, hackberry, sweetgum, ash, elm maple, cypress and tupelo gum.

On May 2, 2010, I had a fun day at Thistlethwaite WMA during which I saw 29 species including hundreds of Question Marks (*Polygonia interrogationis*), both adults and caterpillars. The Chinese privet (*Ligustrum sinense*) was blooming throughout the WMA, bringing in several species of butterflies to nectar including many Banded (*Satyrium calanus*) and "Southern" Oak Hairstreaks (*S. favonius favonius*), even Carolina Satyrs (*Hermeuptychia sosybius*). I visited a specific slough in which I had previously found Delaware Skippers (*Anatrytone logan*) the previous fall and found five more, both males and females, all possessing the dark dorsal markings I had also seen in the fall.

But that wasn't all I found that day. Along one of the roads I typically drive, I stopped in an area where Silvery Checkerspots (*Chlosyne nycteis*) are sometimes seen. Along with the many Question Marks puddling at a wet spot in the road I saw an unusually yellow Black Swallowtail. It was flying in a circular pattern, patrolling. Because I could clearly see more yellow that normal, I caught it (Figs. 1 and 2).

I concluded the specimen was a *Papilio polyxenes asterius*, form "pseudoamericus" Brown 1942. Tyler described this as having "wide yellow bands equal to those of Anise Swallowtails. The type is from Troy, Ill.; it occurs rarely anywhere, though more often in s. Arizona and commonly in e. Mexico." While gathering data for my book on Louisiana's Butterflies, Phillip Wallace sent me a video he took of a specimen of this form taken by him on May 29, 2004, at Bayou Sauvage NWR. Scott referred to it as a yellow form ("*Papilio polyxenes asterias* yellow form psuedoamericus") which "appears very rarely," listing Illinois, Colorado, New Mexico, west Texas, southeast Arizona, and eastern Mexico.

Fast forward to July 6, 2019. I was back at Thistlethwaite as part of the annual NABA 4th of July Count there. Specifically, I was between a quarter mile and a half mile down that same road from where I had caught the swallowtail pictured below when we (Dave Patton, Phillip Wallace, Jeff and Jean Trahan) saw a black swallowtail. However, just like back in May, 2010, it looked different as it circled in front of us with much yellow showing. Thinking we were seeing another form "pseudoamericus," I immediately netted it (Figs. 3 and 4 - next page).

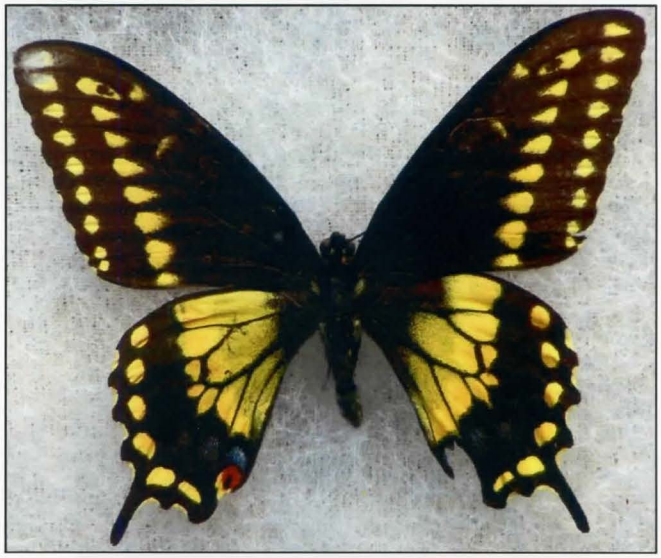
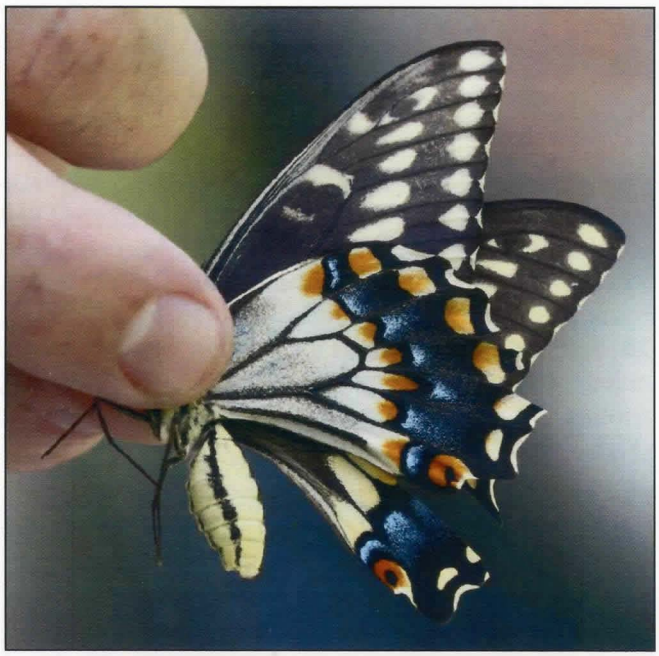


Fig. 1. Black Swallowtail, male, dorsal view, May 2, 2010, Thistlethwaite WMA.

Fig. 2. Black Swallowtail, male, ventral, May 2, 2010, Thistlethwaite WMA.

Once in my hand, I could see it was not a match to either my earlier specimen or the one filmed by Phillip Wallace. While there was less yellow on the dorsal



Figs. 3 and 4. Thistlethwaite swallowtail, July 6, 2019, ventral and dorsal view.

side, there was significantly more yellow ventrally. And, the abdomen was primarily yellow with black stripes; rather than primarily black with yellow spots. Ventrally, it looked much like a female Anise Swallowtail (*P. zelicaon*).

The North American group of primarily black swallowtails is both complex and confusing. There are, pursuant to current theory, three species, *P. polyxenes, P. zelicaon* and *P. machaon*, which have one or more subspecies/forms with primarily yellow lower wings, both dorsally and ventrally. *P. zelicaon* and *P. machaon* are both western species with Louisiana well beyond their typical range.

P. machaon brucei is the machaon group subspecies with primarily yellow lower wings and which extends the furthest east into the Great Plains (the other subspecies live far to the north). At one time *brucei* was considered a separate species (Bruce's Swallowtail), but studies over the last 30 years suggest it is a subspecies in the machaon group. *Brucei* has a yellow abdomen with black stripes on the top and sides, but the pupil in the anal eye spot is flattened and usually attached to the side or bottom of the wing. As the pictures reflect, the pupil on my second Thistlethwaite swallowtail is neither.

The pupil on typical *P. zelicaon* are round and free on all sides, like that seen on the Thistlethwaite swallowtail; however, the abdomen on Anise Swallowtails are black with a yellow side stripe. So, in addition to the lack of range proximity, the second Thistlethwaite swallowtail neither matches *P. machaon brueien* nor *P. zelicaon* based on their typical physical descriptions.

There is also a western subspecies of *P. polyxenes* that has extensive yellow coloring on the lower wings. Formerly known as Rudkin's Swallowtail and now referred to as *P. polyxenes coloro* form "comstocki", that subspecies' range is ever further west than *zelicaon* or *machaon*, living in the deserts of southern Nevada and California. On this subspecies, the abdomen is primarily black with some yellow spots.

P. polyxenes asterius is the eastern subspecies of the Black Swallowtail and is primarily black-winged and with a black-abdomen (with yellow dots on the side). As noted above, an exception is the rare "psuedoamericus" which is yellow-banded and resembles *P. machaon brucei* and the typical yellow *P. zelicaon*. Apparently, form "psuedoamericus" is so named because of its similarity in appearance to *P. polyxenes americus*, a South American subspecies that does not reach into the United States.

Per Scott, the abdomen on this rare form is, "suffused with yellow on each side between the yellow dots (or rarely blacker with rows of dots)." In fact, many of the pictures of this form that I have found show a black abdomen with yellow dots on the side, but there are two specimens shown on BugGuide that clearly have predominately yellow abdomens, one from New Mexico and the second from east Texas near the Gulf Coast.

Recently, Fisher opined that, "Perhaps this condition would best be defined as a bifurcate form since two distinct types are combined in one." In making these comments, he was referring not just to the variation in abdomen markings, but also specimens

where the yellow banding reached the base of the hindwings while on others it did not. He further added, at least in the context of Colorado, that the form represents, "the recessive gene expression from introgression with *P. zelicaon* or *P. machaon* (*brucei*)."

Again, Tyler commented that this form occurs more commonly in eastern Mexico. His book,"Swallowtail Butterflies of the Americas," co-authored with Brown and Wilson, contains pictures of six specimens (Plate 92), four of which are from Mexico (with another from the Big Bend region in extreme south Texas). Specimen #10 is a match to my second Thistlethwaite swallowtail dorsally, but appears to have a black abdomen with yellow spots. Specimen #9 seems to be a match ventrally and has a yellow abdomen. Both are from Mexico. Specimens #21 (from Missouri), L (from Big Bend) and O (from Mexico) more closely match my May 2010 swallowtail.

On my inquiry, Nick Grishin identified the second swallowtail as a yellow form of *P. p. asterius*. I also sent pictures to Mike Fisher who reached the same conclusion, commenting, "There can be a lot of variability because the genes for band expression include a lot of modifiers." So, I consider the mystery solved. The second Thistlethwaite Swallowtail is also form "psuedoamericus," just like the first. I will start watching any/all Black Swallowtails at this location closer to see if more of this rare form occur.

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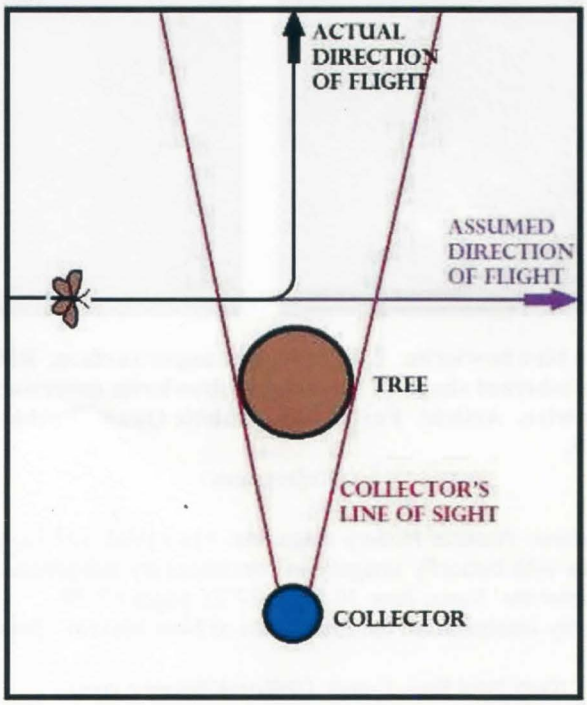
Collector's Corner
by Harry Pavulaan

Butterfly evasive behavior: Avoiding a butterfly collector's line of sight by using a tree to avoid capture.



NEW ZUNI CARVING IN NEW MEDIUM ADDED TO COLLECTION

BY
GARY NOEL ROSS

My interest in art of the Native American Zuni Tribe of northern New Mexico dates back to 2003. Since then I have been collecting fetishes/carvings, paintings, jewelry—particularly those pieces that center on butterflies, a powerful symbol in Zuni culture. Most Zuni fetishes and carvings are made from ornate stones, bone, antlers, shells, and even the wood of native juniper trees. Recently, however, I learned that several Zuni artists have been experimenting with a new medium for carving: bowlerite.

Simply put, bowlerite is the man-made outer skin (coverstock) of a recycled bowling ball, hence the name "bowlerite." The actual material is composed of petroleum-based polyurethane, urethane, or polyester resin—all commonly referred to as "plastic." (Zunis prefer polyurethane). The coverstock usually ranges between 1-2 inches in thickness and conceals the inner core of the ball that is composed of a variety of materials. Although the majority of bowling balls are black in color, there are other hues—many of which exhibit attractive marbling, swirls, and changeable lusters (chatoyancy). In addition, because bowlerite is a plastic, it is lightweight and soft, but structurally sound.

The use of bowlerite for carving is a relatively recent innovation for Zuni artisans. To prepare, a carver purchases a discarded bowling ball with a personally attractive color. (For instance, Farlan and Paulette Quam prefer blue and "root beer.") Next, the outer skin is removed by scoring with a grinding wheel and then separating each section with a chisel and hammer. The actual design is shaped with a grinding wheel, too, but often with the aid of a handheld grinder. Because the coverstock is circular, any section preserves the curvature. If the coverstock is thin, however, the artist can heat and soften it for straightening. Grinding of bowlerite creates a lot of dust, and so a mask must be used when working the medium. Although bowlerite can be easily scratched, it also can be easily re-polished.

In June 2019, the Quams, who have furnished me with butterfly carvings in the past, contacted me to learn if I had an interest in securing a new butterfly carving in the new colorful bowlerite. I responded with an emphatic "YES!" Below are images of the new carving now proudly displayed in my collection.

Zuni butterfly carving in blue bowlerite. LEFT: view of upper surface; RIGHT: view of lower surface. Curvature is due to the inherent shape of the original bowlerite coverstock. Dimensions: 4.50 x 3.75 inches—including silver wire. Artists: Farlan and Paulette Quam (Pueblo of Zuni, NM). Date carved and acquired: June 2019.

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(Gary Noel Ross, E-mail: GNRoss40@yahoo.com)

MOUNT TOTUMAS CLOUD FOREST

BY

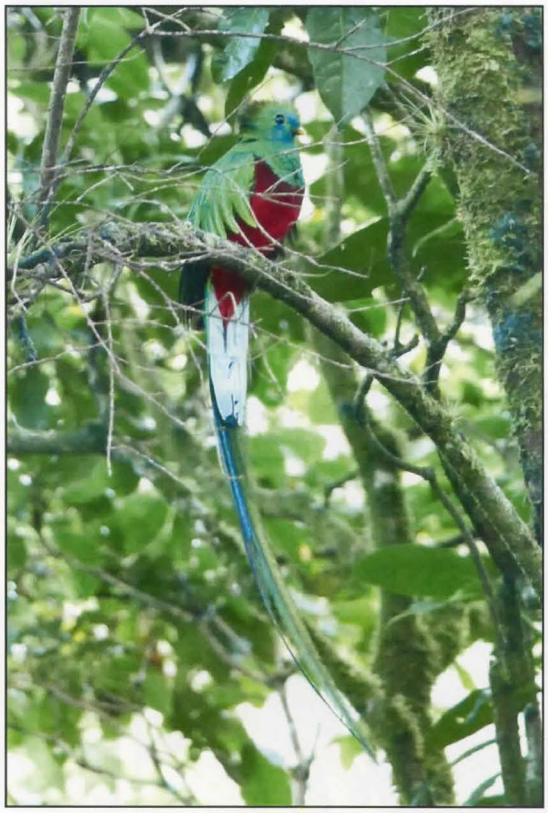
TOM NEAL

Back in 2008 my cousins Jeffrey and Michael had this crazy idea. Why not buy 400+ acres of cloud forest and improved pastureland (elev. 6-7,000 ft., 1829-2133m.) in the Chiriqui Mountains of far western Panama, adjacent to Amistad National Park and the Costa Rican border? At the time they had no idea what to do with the property once they bought it other than some nebulous sense that they were helping preserve tropical forest. Jeffrey was always interested in living there eventually; whenever he could convince his wife, Alma to leave Seattle and live isolated in the jungle. Michael has remained in the states with his extended family, but visits frequently as a technical advisor. Part of this property was a working cattle ranch comprising of an unremarkable, although fairly sizable, ranch house and a few outbuildings. Indigenous labor came along with it. Other than the promised biodiversity and the sheer grandeur of the site, the main asset of the property was a hydroelectric plant with excess power located on a vigorous mountain stream, which also supplied running water for indoor plumbing. This was, and still is, the only electricity for miles around.

When I first arrived at the site with my family in January 2010, we found it to be still pretty much as purchased. Although situated only about ten miles from Volcan, the nearest market town, travel time required about an hour and a half over what was absolutely the worst road I've ever traveled in my entire life. This road was essentially comprised of nothing but boulders and some sections were so steep we all had to get out and literally help push the 4x4 suv up the hill. Naturally, we all arrived covered in mud and pretty much worn to a frazzle.

What became immediately obvious upon arrival was that the ranch house sat upon the only area of level ground on the entire property. Fortunately, after the equatorial heat of Panama City, here was a place where the temperatures almost always ranged between 50 and 70 degrees F. Good thing, since we pretty much spent the next ten days bushwhacking along steep and barely discernible trails. Even though the rainy season had ended we frequently lost footing on muddy slopes. To this day I have clothing that is still mud-stained after many washings. The only communication with the outside world was marginal cellphone reception at one exposed location which required a short hike to access.

Birdlife and monkeys were diverse and Jeffrey was gradually formulating a plan. He would rent out rooms in the ranch house to birders looking for an exotic adventure. Alma would be in charge of food and lodging. The potential customer base soon expanded. I had brought a mercury vapor and black light along with killing jars and a more or less complete collecting kit. I was soon overwhelmed and pretty much ended up just watching the action at the lights. When I returned to Gainesville I told Howard Weems, curator emeritus of the Florida State Collection of Arthropods about our trip and the word then gradually spread among entomologists. I never did get any commissions, though.



Resplendent Quetzal, breeds at Totumas

My son, Sam, and I returned to Mt. Totumas in August 2011. This is the early part of the rainy season, which can become a deluge in October and November. By this time Jeffrey's incremental plan included a new cabin and work was underway to turn some truly enormous dead and declining Central American oaks, *Quercus copeyensis*, into lumber. Amazingly, all this lumber was cut using a chain saw. What started out being a quick vacation ended up as hard labor helping to stack this extremely heavy lumber for drying.

When Ada and I returned this April after 8 years the road was still the SECOND worst road I've ever traveled

Blue throated goldentail, Ada found this stunned at a bug light. Turned out to be the 20th species of hummingbird recorded from Totumas

Typical night at the lights

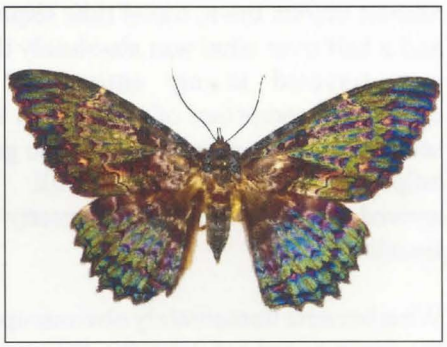
Turning tree into lumber

A hard day's work

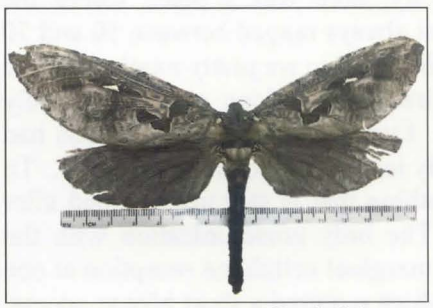
Diaethria pandama

Thysania agrippina
(Courtesy Sharon Rannels)

Automeris metzli



***Letis* sp. (Courtesy Steve Rannels)**



A truly enormous Hepialid,
***Phassus* sp.**

on, the sections requiring getting out and pushing having been improved. Still takes a good hour of travel time. However, the improvement in facilities and accommodations was nothing short of amazing. Cattle raising has been de-emphasized and large areas of pasture returned to second growth *Inga* forest, some of which is now shading a coffee plantation. All the trails have been extended and improved. A large main lodge with a panoramic view of the valley and dining facilities and guest rooms, a coffee processing area with more guest rooms, as well as other lodging areas, all with electricity, running water and WIFI. Jeffrey and Alma have been joined by their daughter Karin; in addition there is a local staff of maintenance people, housekeepers, cooks, herdsmen, and trail guides. In addition, Jeffrey has rekindled a dormant interest in insects and has amassed a 20+ drawer reference collection. He is now in an (annoyingly?) enviable position of having a steady stream of taxonomists actually making house calls. Finally, there is dry gravel road through the main lodging areas where I once sank in mud up to my knees and left my boots behind.

Totumas Reference Collection

Totumas Reference Collection, Arctiinae are heavily represented here

Totumas Reference Collection

Totumas Reference Collection (Courtesy Steve Rannels)

**Totumas Reference Collection,
Sematuridae, Uraniidae**

**Totumus Reference Collection
(Courtesy Steve Rannels)**

(Tom Neal, E-Mail: chouwah@aol.com)

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MIKE RICKARD

National Moth Week 2019

We blacklighted the following Hidalgo Co., TX, locations during this year's National Moth Week: Oleander Acres 7/20, Frontera Audubon 7/24, Estero Llano Grande SP 7/25, and Bentsen SP 7/26-7. We photographed approximately 200 species, with some not yet identified (Pyralids, Gelechiids, and other micros). The most surprising find was an unknown species of *Hypsopygia* that I first discovered in 2012. Specimens were collected at the time and are in the Smithsonian and McGuire Center collections, awaiting description. Since 2012 the species has continued to be found in a couple of locations along the Rio Grande, but during Moth Week they turned up at Frontera, Estero, and my yard!

Anacampsis paltodoriella 7/23/19, Mission yard.
Bicilia iarchasalis 7/24/19 Frontera Audubon, Weslaco.
Chloropteryx nordicaria 7/24/19 Frontera Audubon, Weslaco.
Cobubatha metaspilaris 7/27/19 Mission yard.
Coenipeta bibitrix 7/23/19 Mission yard.
Hemeroplanis habitalis 7/26/19 Bentsen SP, Mission.
Hypsopygia n. sp. 7/25/19 Estero Llano Grande SP, Mercedes.
Ofatulena luminosa 7/20/19 Oleander Acres, Mission.
Pero astapa 7/25/19 Estero Llano Grande SP, Mercedes.
Focillidia texana 7/25/19 Estero Llano Grande SP, Mercedes.

Anacampsis paltodoriella

Bicilia iarchasalis

Chloropteryx nordicaria

Cobubatha metaspilaris

Coenipeta bibitrix

Hemeroplanis habitalis

Hypsopygia n. sp.

Ofatulena luminosa

Pero astapa

Focillidia texana

(Mike Rickard, E-Mail: folksinger4@yahoo.com)

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SAVING ONLY "PERFECT" SPECIMENS IS NOT ALWAYS THE BEST PRACTICE

BY

F. MATTHEW BLAINE

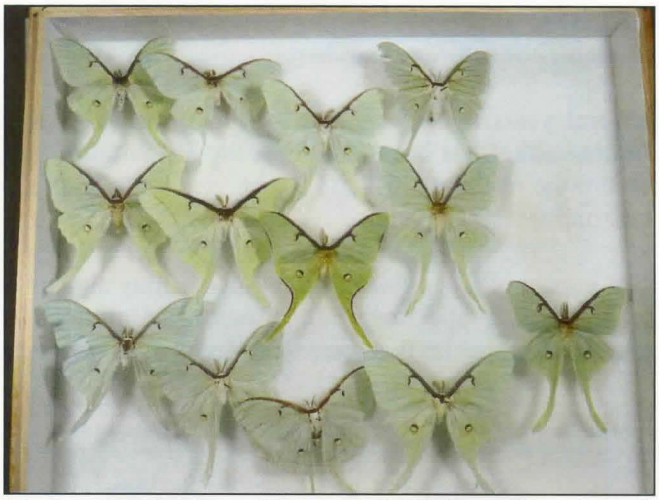
For over 45 years I have collected Lepidoptera primarily for scientific study. My tendency has been to keep most of the specimens that I catch even if they are slightly worn or damaged. I have always thought that it is important not to "waste" a dead specimen. A worn, torn, or otherwise damaged specimen can tell a lot about the life hazards and predators that the specimen encountered. What other type of information that may be gleaned from them in the future or what benefit to future research is an unknown.

A few years ago I attended a Southern Lepidopterists' Society Annual Meeting held at The McGuire Center. At that meeting I listened to a presentation about the work being done by Akito Kawahara and associates. The research was to determine how Luna Moths defend themselves from attack by bats and if their long twisted tails are part of that defense (1). One thought was that Luna Moths' long tails may generate noise or interference to disrupt sonic emissions that bats emit to locate their prey. This would be similar to military air planes dropping chaff to cause interference to radar systems on incoming missile attacks.

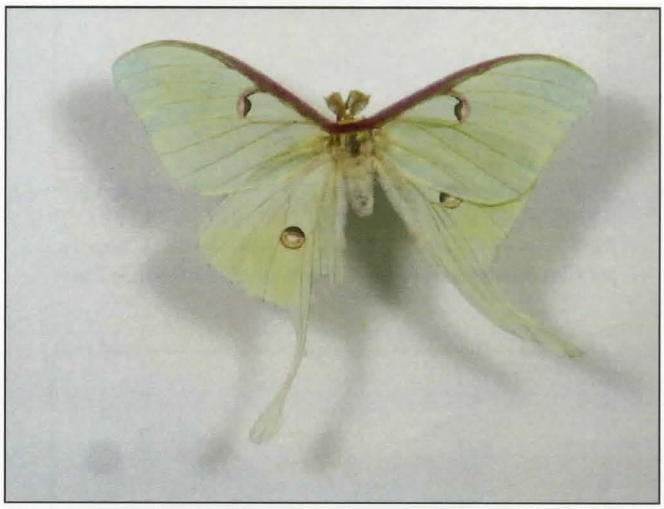
It was also a possibility that the tails might "lure" an attacker from the essential body of the moth redirecting it to a tail. If attacked there it may prevent a life ending event (1). Markings and eyespots on some lepidoptera apparently are intended to divert attack in a similar way (8).

One thing that immediately struck me was a problem mentioned, which was encountered while searching museum specimens for the Luna Moth research. It was that there were almost no damaged specimens to be found in museum collections. This lack of damaged material was even more apparent in older collected material. Apparently in the distant past collectors preferred perfect specimens for their collections. This preference to keep only perfect specimens in a collection goes back for many years (2, 5, 7). Many large museum collections are a compilation of private collections that were either purchased or donated in addition to museum sponsored expeditions for new material (2). While the pursuit of perfection may be ideal for someone collecting for esthetics or for identification, over a long period of time, it reduces the resources available for many types of research.

One common practice of collectors in history was to raise Lepidoptera from egg, larva, or crystalis to insure that a "perfect" specimen could be added to their collection (2). Damaged or worn specimens caught in the wild are often discarded due to their non-perfect appearance. The lucky damaged ones were released. Many private historic collections eventually made their way into large museum collections (2, 9). Thus this prejudice for "beautiful" specimens without tears or damage, over a long period of time, skews our major collections.



My total *Actias luna*, Linnaeus, 1758 (Luna Moth) catch for the past 45+ years. Only one specimen has a damaged tail wing but when I would check my UV/ HG trap there would occasionally be Luna Moth wings on the grass around the trap area.



Close up of the only *Actias luna*, Linnaeus, 1758 (Luna Moth) with a tail injury on left hind wing tail. Also the only one that had a wing "slip" during the drying process!

By providing museums with only perfect specimens for identification and display, the prejudice for perfection makes it impossible to research historic predatory injury patterns. In a time when some museums feel that they "don't have room" for multiple specimens or for damaged ones it is important to think about what future knowledge may be gleaned from a collection containing many and varied examples of what impact the environment has had on the species living in them. In addition, those of us who are now collecting may be preserving the only remaining evidence of such events available for future researchers.

Several years ago I was told by Floyd Shockley that "more habitat has been lost since the millennium then before the millennium!" (3) Every year since then the loss increases.

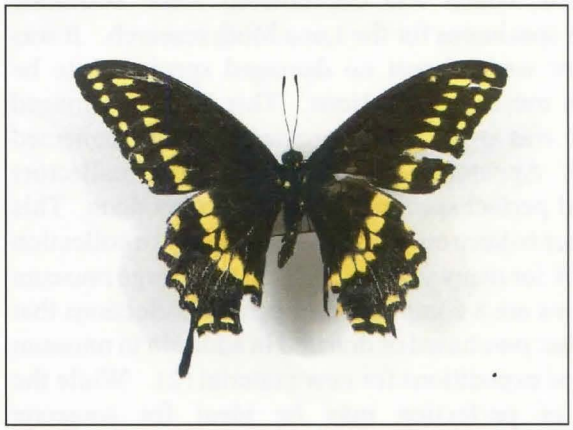
The impact of lost environmental niches may now only be recorded in specimen collections. Interactions of predators on species that were recorded in damage wings or bodies should be kept for interpretation and study in the future. Collection of large numbers of the same species collected over time can show long term change among other things (4).

In a new presentation produced by the Field Museum they explain how there are thousands of dead bird specimens in the collection. Many birds are killed by flying into buildings in Chicago and their bodies are collected and processed by the museum (4). By charting the measurements of the 9000 specimens collected over a 40 year period of bird carcasses, it was discovered that they have been decreasing in size (4). Studies like this can only be accomplished if there are a large number of specimens collected over a long period of time. There may be other discoveries hidden in damaged wings and injuries unknown until further research is accomplished. Unfortunately if only "perfect" specimens are collected and kept in the future, then such research can never be performed.

***Papilio brevicauda gaspeensis* McDunnough, 1934 (Short-tailed Swallowtail). Caught by me at Lep Soc Annual Meeting last year in Ottawa, Canada, at Carleton University. Note small holes in wings.**

***Papilio brevicauda gaspeensis* McDunnough, 1934 (Short-tailed Swallowtail). Caught by me at Lep Soc Annual Meeting last year in Ottawa, Canada, at Carleton University. Amazingly this one was flying rather well. I wonder what attacked it or how many times before my net.**

***Papilio brevicauda gaspeensis* McDunnough, 1934 (Short-tailed Swallowtail). Caught by me at Lep Soc Annual Meeting last year in Ottawa, Canada, at Carleton University. Note the tear in the left hind wing.**



***Papilio brevicauda gaspeensis* McDunnough, 1934 (Short-tailed Swallowtail). Caught by me at Lep Soc Annual Meeting last year in Ottawa, Canada, at Carleton University. Note the loss of the right hind wing tail and other damage.**

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Caprock Canyons State Park (August 23, 2019)

GLYPHIPTERIX NORDINI IN NORTH CAROLINA (LEPIDOPTERA: GLYPHIPTERIGIDAE)

BY

J.B. HEPPNER

Until this year (2019), the large eastern U.S. sedge moth, *Glyphipterix nordini* Heppner (1997), was only known from Arkansas and Kentucky. The previous records for the species include eastern Kentucky (Menifee Co.) and Arkansas (Johnson Co.), indicating that these day-flying moths are likely fairly widespread in the central Southeast, but rarely encountered.

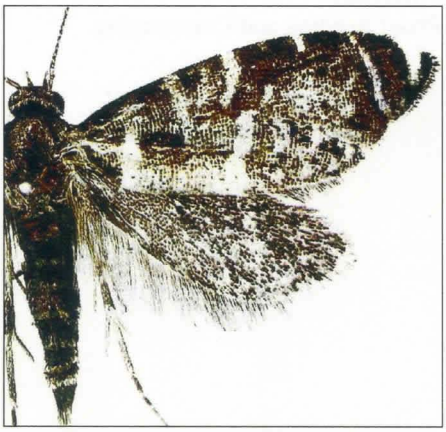

Fig. 1. *Glyphipterix nordini*, North Carolina (Ashe Co.), male (body and right wings).

Recently, J. B. Sullivan discovered a population of the species in the Smoky Mountains, on the eastern side in North Carolina, for a new state record. Several males were collected on the TNC Jones Tract (3387 ft. elevation), Ashe Co., NC, in early June 2019. As the figure shows, the North Carolina specimens are somewhat darker than those found in Arkansas and Kentucky, which have more yellow-brown on the forewings. Wing markings and genitalia features do not otherwise show any significant differences from the more westerly specimens from Kentucky and Arkansas, but more specimens (including females) are needed to fully verify this. The higher elevation may possibly promote darker maculation in adult moths, as is found sometimes on other lepidopteran groups.

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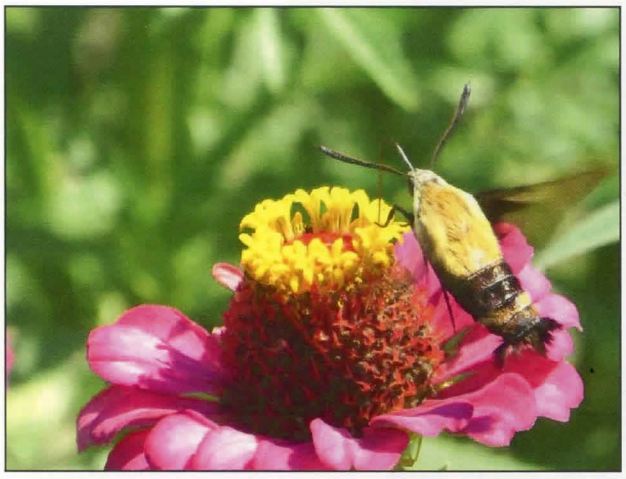

July 25, 2019 (Matt Blaine's Garden – Laurel, Delaware)

CLARIFICATION OF THE STATUS OF *PETROPHILA JALISCALIS* AND *PETROPHILA SANTAFEALIS* (LEPIDOPTERA: CRAMBIDAE) IN NORTH AMERICA

BY

CHUCK SEXTON

As part of a review of the status, distribution, and identification challenges of the species of *Petrophila* Guilding occurring in North America, I investigated the relationship between two species, *P. jaliscalis* (Schaus 1906) and *P. santafealis* (Heppner 1976), that have been widely conflated in online resources. I trace the origins of these taxa and analyze the factors that led to their recent confusion. To aid in separating these taxa, I provide a detailed description of key aspects of *P. jaliscalis* and a critical comparison to *P. santafealis*. The two taxa are distinct and widely disjunct species. *Petrophila jaliscalis* is common and widespread in the southwestern United States and adjacent Mexico. *Petrophila santafealis* remains a poorly known species from Florida; I located several *Petrophila* specimens and images from central Alabama which may be referable to *P. santafealis*. *Petrophila santafealis* is a member of the *P. fulicalis*-species group, several members of which are difficult to distinguish by pattern without reference to geography. However, all recent identifications and annotations of putative "*P. santafealis*" applied to observations and specimens from Oklahoma, Texas, and westward to California are here re-identified as *P. jaliscalis*. This investigation demonstrates the continuing need for review and clarification of the identities associated with DNA barcoding results.

Methods

Previous Literature, Descriptions, and Illustrations. I compared original descriptions of the various populations of *Petrophila* that now bear the names *P. jaliscalis* (Schaus 1906) and *P. santafealis* (Heppner 1976). The former includes the current synonym "*Elophila satanalis*" Dyar 1917 (Pohl et al. 2016). I reviewed additional published descriptions of these taxa and illustrations of genitalia. Lange (1956b) offers the only available illustration of male and female genitalia of *P. jaliscalis*. Heppner (1976) illustrates the adults and genitalia of *P. santafealis*. No type specimens or genitalic preparations were examined in person for the present review. To prepare a detailed description of *P. jaliscalis*, I reviewed approximately 500 online images of living examples and specimens of *P. jaliscalis* from throughout its range along with about 450 of my own images from Texas. Online images included but were not limited to those on Moth Photographer's Group (MPG), BugGuide.net, iNaturalist.org, Symbiota Collection of Arthropods Network (SCAN), and boldsystems.org. Most (but not all) *Petrophila* specimens that BOLD Systems analyzed from the Canadian National Collection were identified by Eugene Munroe, author of the Moths of North America fascicle on the group (Munroe 1972, 1973) (P. Hebert, pers. comm.). Images of (correctly identified) adult *P. santafealis* are few in number. These include: (a) Heppner's original illustrations of the types (Heppner 1976), (b) two images (types?) from the McGuire Collection (on MPG), (c) one barcoded specimen at boldsystems.org from the paratype series; and (d) five online images of *P. santafealis* from two Florida localities (submitted by J. Hollenbeck on BugGuide and B. Schwartz on iNaturalist).

An overview of the terms used herein is shown in Figs. 1 and 2. I include the view of wing geography (Fig. 1) because of sometimes confusing and conflicting use of such terms among previous authors. Also, there are minor differences in the facies of males and females of each species, with females typically having proportionally longer wings, but pattern elements are very similar. In the discussions that follow I ignore these sexual differences in wing patterns or colors since they are rather consistent within species and of limited use for the present comparison. For the collective variation of the color spots and wedges on *P. jaliscalis*,

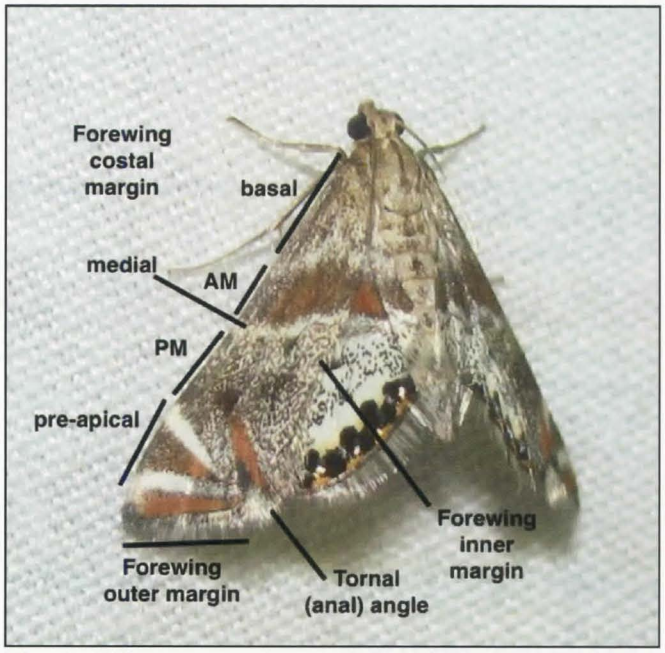

Fig. 1. Wing geography of *Petrophila jaliscalis* showing terms used in the text.

I use the term "reddish" generically for an array of hues, contrasting these with the yellow-orange color on *P. santafealis*. I use the following abbreviations in the text, table, and figures: FW = forewing, HW = hindwing; AM = antemedial, PM = postmedial. Other abbreviations: BIN, Barcode Index Number; BOLD, Barcode of Life Data System; CBG, Centre for Biodiversity Genomics; CNC, Canadian National Collection; MEM, Mississippi Entomology Museum; MONA, Moths of America North of Mexico; MPG, Moth Photographer's Group. Photos are by the author unless otherwise noted.

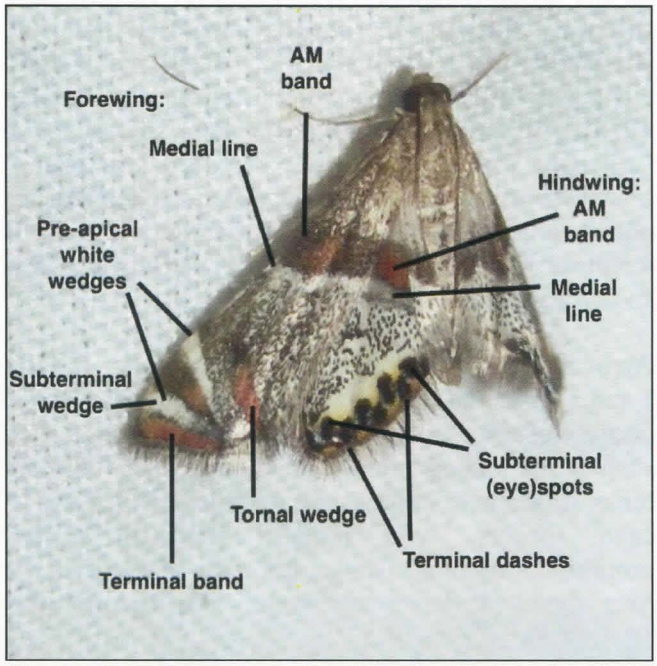

Fig. 2. Specific pattern elements of a typical *Petrophila jaliscalis* as used in the text.

Barcodes. I reviewed barcoding analyses for *Petrophila* as presented on the BOLD website and in TaxonID Trees obtained from BOLD Systems (P. Hebert, pers. comm.). I examined available specimen images on the BOLD website of several BINs identified as *Petrophila* or lower taxa. I also attempted to contact original observers, collection managers, and barcoding "project managers" to elucidate the origin of taxon names associated with various BINs. Results and discussions below address only those BINs related to either of the species of concern in the present comparison.

Results

TAXONOMIC HISTORY

Schaus (1906) described *P. jaliscalis* from Guadalajara, Jalisco, Mexico, placing it in the inclusive genus *Cataclysta* Hübner. Dyar's "*Elophila satanalis*" (Dyar 1917) described a similar moth from the Devil's River in Texas and southern Arizona. From an examination of wing venation, wing shape, genitalia and other considerations, Lange (1956a) erected many new genera for the subfamily Nymphulinae including *Parargyractis* which encompassed most species that are now placed in *Petrophila* Guilding. In a contemporary publication, Lange (1956b) described "*Parargyractis jaliscalis*" in detail including wing patterns and, for the first time, genitalia. Lange described *P. jaliscalis* as a "widely distributed species" ranging from Mexico northward to Texas, New Mexico, Arizona, and California. Lange (1956b) placed Dyar's *E. satanalis* into synonymy under *jaliscalis*. In his MONA monograph on the Nymphulinae (now Acentropinae), Munroe (1972, 1973) continued the use of the genus *Parargyractis* Lange, placing 14 species of North American moths in the genus including *P. jaliscalis* (Schaus) and maintaining the synonymy of *satanalis* (Dyar).

Subsequent to Munroe's monograph, Heppner (1976) described *P. santafealis* from Florida, continuing the use of the genus *Parargyractis* and its placement in the Nymphulinae. The Hodges et al. Checklist (1983) resurrected *Petrophila* Guilding (without comment) to encompass *Parargyractis* Lange and gave precedence to Acentropinae for its subfamilial placement over Nymphulinae (see also Solis 1999, Scholtens & Solis 2015). Blanchard & Knudson (1983) named *Petrophila heppneri* from Texas. Habeck & Solis (1994) moved *Petrophila drumalis* (Dyar) to *Argyractis* Hampson. Scholtens & Solis (2015) and Pohl et al. (2016) listed 15 species of *Petrophila* in North America, including both *P. jaliscalis* and *P. santafealis* as valid species. Most recently, Solis & Tuskes (2018) described two new *Petrophila* species from Arizona, resulting in the present array of 17 species of *Petrophila* in North America north of Mexico.

WING PATTERNS AND COLORS

Below I describe aspects of pattern and color that are visible in images of living adults, emphasizing those features that help distinguish *P. jaliscalis* from *P. santafealis*. More detailed descriptions of each species are found in the literature (Lange 1956b; Munroe 1972, Heppner 1976). Critical elements of pattern and color that separate *P. jaliscalis* from *P. santafealis* are summarized in Table 1.

Petrophila jaliscalis (Schaus)(Figs. 1-4, 8)

Thorax and abdomen: Ground color dull white to pale buff with varying amounts of dark brown scaling. Typically, brown scaling is denser on the lateral edges of the thoracic disk and in a narrow line along its center. A dark line usually extends through the center of the pro- and mesothorax; the dorsum of the metathorax is pale buffy white with sparse brown speckling. The abdomen of all but the terminal two segments

Table 1. Comparison of Critical Factors Distinguishing Two Species of *Petrophila*.

Feature	*P. jaliscalis*	*P. santafealis*
Color patches	Reddish hue	Yellow or yellow-orange
FW: Color patch on AM band	Evident	Inconspicuous or absent
FW: White band between basal area and AM band	Diffuse to absent	Fairly conspicuous
FW: Medial white line	Slightly sinuous	Zigzag near costa
FW: PM area	Speckled dark brown	Pale patches with orange-filled dusky loop
FW: Terminal band and tornal wedge	Separated	Connected
HW: Dark line over inner black spots	Absent	Present
HW: White band preceding black spots	Narrow at inner spot	Even width throughout
Abdominal segments	Rarely appear banded	Fairly obviously banded

is typically pale buffy white; each segment may appear slightly darker anteriorly (perhaps the reveal of the underlying tergite) but in typical living posture, the effect does not look banded in a majority of individuals. More often there is dark brown scaling in a diffuse central line or patch on the anterior 2 to 5 (rarely 7) abdominal segments creating a broken brown band along the dorsal portion of the abdomen. The 8th abdominal segment is more heavily suffused dorsally with dark brown scaling and the 9th segment is mostly dark.

Forewing: Ground color of the FW is white or dull white but most areas are heavily infused with darker colors. Basal area heavily speckled with dark brown, heaviest along costal margin. This brown basal area is usually vaguely separated from the wide dark brown AM band by a narrow ill-defined white band, sometimes absent, rarely set off clearly by a narrow dark brown line on its basal side. The basal edge of the broad AM band is generally straight from costa to inner margin but more often too ill-defined to be properly gauged.

The AM band is approximately perpendicular to the inner FW margin and slightly inwardly oblique at the costal margin; the AM band at the costa spans about 15% of the wing length (ranging from 12 to 18% in a random sample of 10 males and 10 females). Almost invariably, there is a color patch in the middle third of the AM band which can be burnt orange, chestnut-red, or salmon pink to light pink. The AM band is bordered on the distal side by a well-defined narrow white medial line. This medial line is slightly sinuous, typically bending slightly towards the base at the costa and straight or with a gentle basally convex curve in the inner half. The white medial line is of approximately equal width throughout but may have a small distal bulge in the middle. A thin dark line bordering the distal side of the white medial line may be distinct or may be entirely subsumed in the dark brown salt-and-pepper speckling ("irroration") of the PM area. The speckling is heaviest approaching the costa and sparsest towards the inner margin. Often there are two small blackish spots within the PM area, one on the distal margin of the white medial line, which is more frequently ill-defined or absent, and another at the anterior end of the reddish tornal wedge (see below). The distal quarter of the FW has a series of alternating light and dark wedges that originate at the costal margin and converge near the tornal (anal) angle of the FW. The more basal of the two white wedges is straight while the outer ("subterminal") wedge may appear slightly concave outward. The two white

wedges narrow and converge into a dark-scaled but silvery metallic "tornal spot" near the anal angle of the FW. The dark/silver scaling occupies the lower one quarter to one third of the subterminal white wedge. Separating the two white wedges is a dark brown wedge, about 2X as wide as either white wedge at the costa, which has the lower third filled with a reddish color similar to the color patch on the AM band. The terminal band of the FW is mostly filled with the same reddish color, separated very narrowly from the subterminal white wedge and the fringe by narrow brown lines. Angling from the anal corner obliquely towards the costa is a "tornal wedge" of the same reddish color; it extends about one third to one half of the width of the FW. It is sometimes bounded basally by a very narrow white streak (Fig. 1), but that streak is often not evident (Fig. 2). *Variation* (Fig. 3a-3d, 4): Wear may cause the reddish color patches to lighten towards dull yellow-orange (Fig. 3b) or pale pink (Fig. 3d). There is variability in the density of brown speckling in the basal and PM areas, but rarely does the white ground color dominate these areas (Fig. 3c). Wear on the FWs seems to cause a loss of brown scales, thus leaving these areas whiter. The reddish color spot in the AM band may be barely expressed, faded, or worn and unrecognizable in about 2 to 5% of individuals. The set of reddish color spots and wedges vary in hue as indicated above and, while characteristic of the species across its range (Fig. 4), may be deeper orange in some populations. This variation has not been investigated in detail.

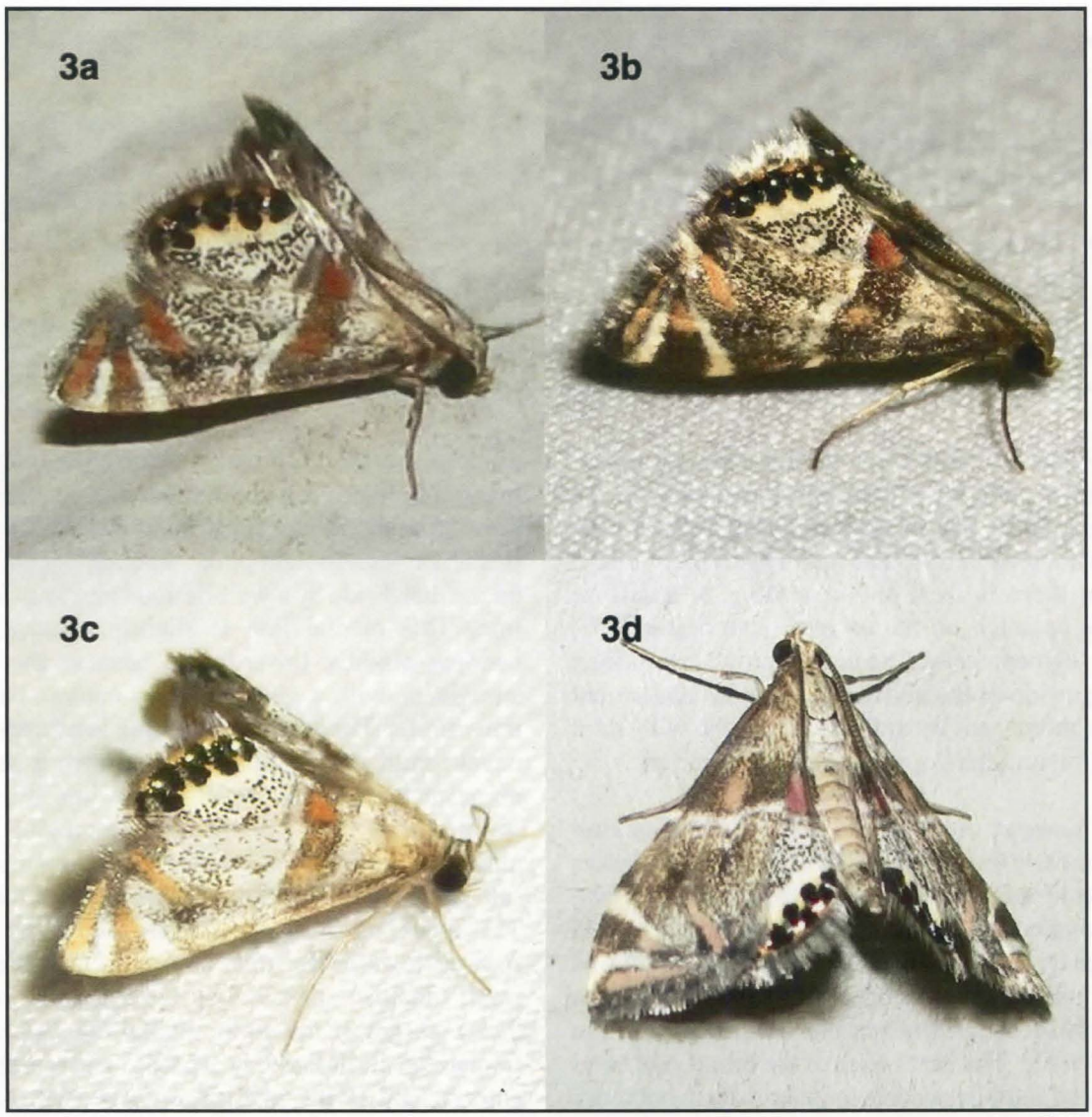

Fig. 3. Variation in color hue on *Petrophila jaliscalis*. 3a. Richly colored example with dark red-brown color areas; 3b. Light orange example, probably faded; 3c. Exceptionally pale example (palest in collection); 3d. Light pink example. Note richer/darker AM patch on HW on all specimens. All photos from Austin, Travis Co., Texas; C. Sexton.

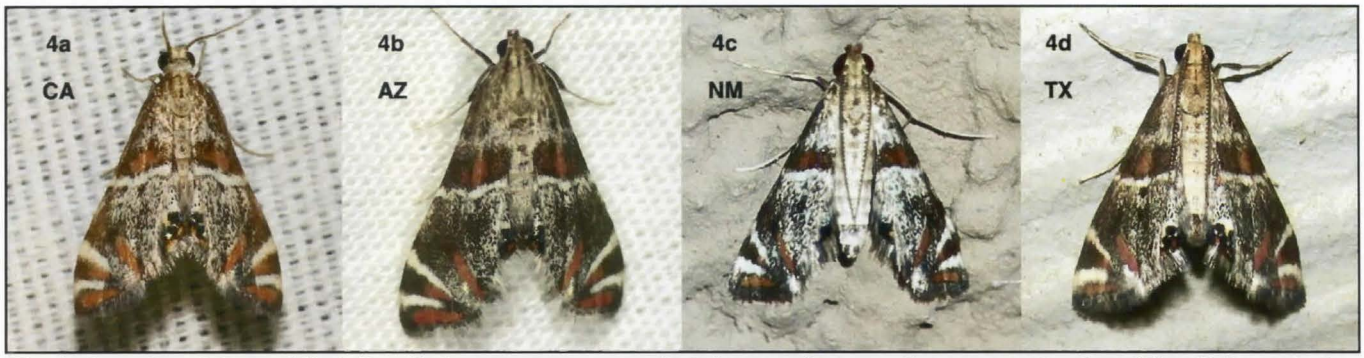

Fig. 4. Samples of *Petrophila jaliscalis* from across range, showing consistency of pattern and color. The slight variation in color seen here represents individual variation and not a geographical cline. Photo credits (all from iNaturalist; used by permission): 4a, J. Bailey; 4b, C. Mallory; 4c, J. DuBois; 4d, C. Sexton.

Hindwing: Basal area is speckled brown but less densely so than the corresponding area of the FW. Wide AM band is dark brown with a conspicuous reddish spot in middle, commonly visible when the adult moth perches with wings slightly spread. This AM color spot on the HW is typically red-orange to chestnut and often a darker shade than the nearby AM color spot on the FW. Distad to the AM band is a narrow but well-defined white or silvered line, the equivalent of the FW medial white line, similarly set off distally at times by a thin dark line. Distad to the medial white/silver line the PM white ground color is extensively speckled with black; in fresh examples, this black speckling is recognizably darker than the dark brown speckling on the equivalent portion of the FW. There is a dark discal spot or dash in the center of the speckled area, but this is not often visible on perched adults. A series of five or six black subterminal "eye" spots are separated from the speckled area by a clear white band; the latter band is widest adjacent to the middle black spots and narrowed by the black speckling close to the innermost spot (nearest the anal angle). Spread specimens of *P. jaliscalis* usually reveal a thin dark line over the uppermost black spot (Fig. 8) but this spot is hidden on most perched adults; there is no equivalent black line over the remainder of the black spots. The spots are separated by a light yellow shade that blends into the adjacent white band. Distally the black spots are bordered by alternating black and yellow terminal dashes separated from the larger black spots by small iridescent patches. *Variation*: The hue of the reddish color patch on the AM band varies in sync with those on the FW but usually retains its richer or darker shade (Fig. 3). The yellow shade between the subterminal black spots is sometimes minimally present; conversely, on more richly colored individuals this light yellow blends into the adjacent white band, but the latter area is never bright yellow; the yellow invariably fades to white before reaching the speckled area.

Fig. 5. *Petrophila santafealis*, Florida, data unknown. This may be the allotype female of Heppner (1976). Photo credit: McGuire Center (on MPG), used by permission.

Fig. 6. Specimen from BOLD:ABZ7807, coll. on Santa Fe River, Columbia Co., Florida, by D. H. Habeck, 16 January 1974 (specimen CNCLEP00087748 in CNC), from the paratype series of *P. santafealis*. Photo credit: CNC/BIO Photography Group, Centre for Biodiversity Genomics, Used under Creative Commons license.

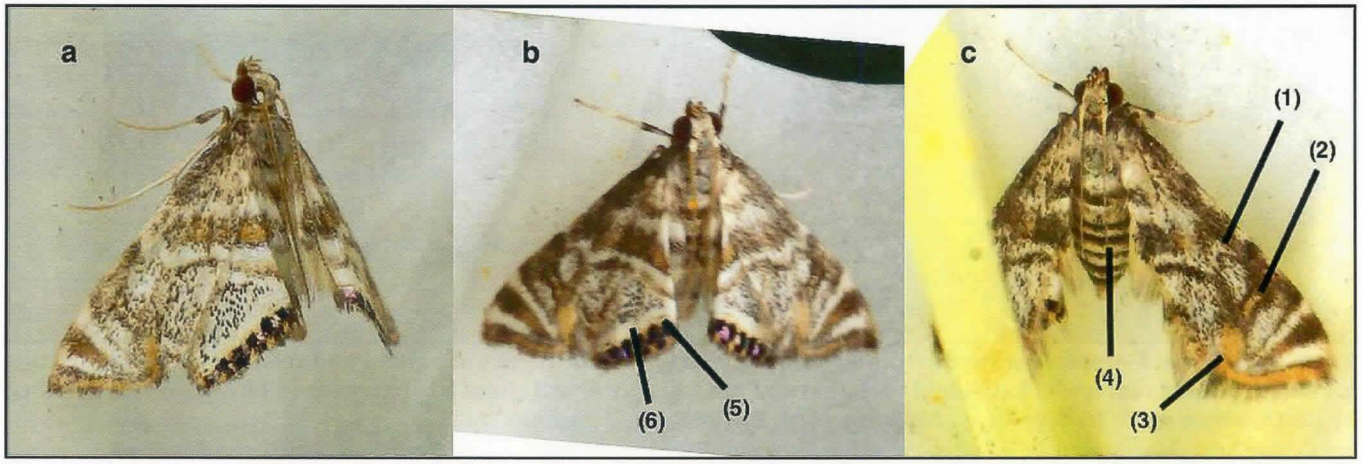

Fig. 7. Three examples of *P. santafealis*, Ichetucknee Springs State Park, Suwanee Co., Florida, 29 Dec 2016. Note: (1) zigzag medial line; (2) orange-filled dark brown loop in pale PM area; (3) orange tornal wedge connected to terminal band; (4) banded abdomen; (5) thin dark line over inner black spots; (6) even width of white band preceding black spots. Photo credit: B. Schwartz (iNaturalist).

***Petrophila santafealis* (Heppner)(Figs. 5-7, 9)**

The following is adapted from Heppner's (1976) original description, extracting those portions relevant to the present comparison.

Thorax and abdomen: Thorax dull white to buff, mixed with brown laterally. Abdomen dorsally with each segment anteriorly buff, posteriorly white, creating a banded pattern.

Forewing: Ground color white. Basal area covered with dark brown scales over costal half, less so over inner half. AM band dark brown, merging towards the costa with the basal brown area and separated from the basal area by a white wedge that extends from the inner margin about two-thirds towards the costa. Beyond the AM band is a narrow white band (= medial white line) which is noticeably jagged (zigzag) towards the costa. It is bordered distally by a distinct narrow dark brown line. PM region white, speckled with brown. There is a vertically elongate, dark brown elliptic loop in the middle of the PM area which has a narrow yellow-orange center. Dark brown scaling connects the inner end of the loop with the medial dark brown line and extends towards the tornal wedge. The resulting pattern thus shows two or three more or less distinct white patches in the PM area of the FW, not unlike the analogous areas of *P. fulicalis* and *P. canadensis*. Costal margin of the PM area dark brown outward to the subapical wedges. Two white wedges in the subapical area are separated by a triangular dark brown wedge; the latter merging to yellow-orange in the lower third. The subterminal white wedge is silvered adjacent to the orange point of the dark wedge. Terminal band yellow-orange, with dark brown scales near the FW apex, the orange color bending at right angles basally at the tornus, then angling diagonally back towards the middle of the FW as a "tornal wedge". *Variation*: Images of three living individuals from Suwanee Co., Florida (Fig. 7), show a small diffuse orange patch in the middle of the brown AM band, not mentioned by Heppner (1976). The medial white line adjacent to the brown AM band is notably zigzag in most illustrations, forming a shallow "W" in the upper half closer to the costa. In two illustrations of spread specimens from the McGuire Collection on MPG (e.g., Fig. 5), the white PM area of the FW is mostly filled with dark brown scaling, somewhat obscuring the dark brown PM loop and other features described by Heppner. The sliver of yellow-orange in the dark brown PM loop on the FW may be very narrow and only evident in close examination of specimens or images.

Hindwing: Ground color white. Basal area white to AM band. AM band dark brown with a yellow-orange spot centrally, bordered distally by a silver band that is bounded outwardly by a partly yellow, partly brown line. PM area speckled with dark brown. A white band separates the speckled area from subterminal row of five or six black spots; this white band is even width in front of all the black spots. Some yellow scaling surrounds the black spots. Heppner (1976) indicated that *P. santafealis* is distinguished from the closely related *P. canadensis* by the "usual absence of any distinguishable bordering line basad of the subterminal black spots" on the HW, but then goes on to describe a thin ("vestigial") dark line on the basal side of the innermost and outermost black spots (Figs. 7, 9). Black spots are separated by metallic purple (Fig. 7b). Terminal row of black and yellow bars.

GENITALIC COMPARISON

Illustrations in Lange (1956b, Fig. 11.5f) of the male genitalia of *P. jaliscalis* show a more triangular

uncus than that of *P. santafealis* on which the uncus narrows abruptly to a parallel-sided distal portion (Heppner 1976, Fig. 10a). The valvae of *P. jaliscalis* are wide at the base and parallel sided, rather than being narrowed basally as in *P. santafealis*. Though not described in the text, Lange illustrates the juxta of *jaliscalis* as broadly rectangular with a concave distal margin. The juxta of *P. santafealis* as illustrated by Heppner is nearly oval with somewhat angular margins, appearing heptagonal. The aedeagus of *P. santafealis* has cornuti consisting of two elongate stylets (barbs) basally that are absent on *jaliscalis*. The male genitalia of *P. santafealis* are much more similar to those of *P. fulicalis* (Heppner, 1976, Figs. 9-10).

In the female genitalia (Lange 1956b, fig. 116c; Heppner 1976, Fig. 14), the opening of the ostium to the ductus bursae is located asymmetrically on *P. santafealis*, but apparently symmetrical (centrally) on *P. jaliscalis*. The bursa copulatrix of *P. santafealis* has a short basal spiral of 8-14 short spines, absent on *P. jaliscalis*.

GEOGRAPHICAL DISTRIBUTION

From my literature review and online databases and images (as of August 2019), it is clear that the known ranges of *P. jaliscalis* and *P. santafealis* are disjunct and separated by at least 800 km (500 mi). *Petrophila jaliscalis* ranges from central Mexico (states of Puebla, Hidalgo and Jalisco), Oklahoma and central Texas westward across southern New Mexico, much of Arizona, southwestern Utah, southern Nevada, and California, thence north to Oregon. Munroe (1972) extended the known range of *P. jaliscalis* north to southern Alberta, Canada, but I can find no online reports of the species that far north.

Heppner's (1976) original description of *P. santafealis* included specimens from Columbia and Marion counties, Florida, along the Santa Fe River (from which the specific epithet was derived). The first available images of living adults that came to my attention are from 29 December 2016 at Ichetucknee Springs State Park on the Columbia/Suwanee county line in Florida (Fig. 7, B. Schwartz, iNaturalist). I found two additional images from Wakulla Co., Florida, that appear referable to *P. santafealis* (J. Hollenbeck, BugGuide):

30 March 2010, Wakulla Springs SP: https://bugguide.net/node/view/445406
17 February 2019, no specific locale: https://bugguide.net/ node/view/1638264 (faded example).

Additionally, MPG maps the species from the panhandle and peninsular Florida (Clay, Glades, Highland, Okaloosa, and Polk counties); I have not examined specimens or images of those records. In my review of online images of *Petrophila*, I found no unambiguous records of *Petrophila* (sensu lato) in south Florida. All previous reports in that region on iNaturalist and BugGuide have proven to be *Argyractis* (formerly "*Petrophila*") *drumalis* (Dyar) or various species of *Eoparargyractis* Lange.

Examination of images of barcoded specimens (Fig. 9) suggests that a population in Bibb Co., Alabama, may be referable to *P. santafealis*. Images from that set do not differ recognizably from those from the type locality and Florida range (above). However, the barcode results suggest that there may be some genetic separation from the Florida material (see below). An additional record from Bibb Co., Alabama, posted by S. Noble on iNaturalist, may also be referable to *P. santafealis*:

27 April 2019, Bibb Co., Alabama: https://www.inaturalist.org/observations/23854893

Other observations from central and northeast Alabama that may be referable to *P. santafealis* include:

18 May 2018, Cherokee Co., Alabama: https://www.inaturalist.org/observations/12658697
28 July 2018, Jefferson Co., Alabama: https://www.inaturalist.org/observations/14878542

along with additional images from Jefferson Co., Alabama, on iNaturalist. Collection, examination of genitalia, and barcoding of specimens from this region would help clarify the status of *P. santafealis* outside of Florida.

There are few to no specimens or online observations of *Petrophila* from Louisiana, Mississippi, Georgia, South Carolina, and North Carolina (MPG, iNaturalist, BugGuide), indicating either gaps in the ranges of *Petrophila* species in the region or, more likely, a lack of detailed observations or both. The nearest documented records of *Petrophila* to the range of *P. santafealis* include a report of *P. fulicalis* in southwest Virginia (Patrick Co., C. Sexton, iNaturalist) and likely *P. fulicalis* in north-central North Carolina (Orange Co., K. Kittelberger, BugGuide) and middle Tennessee (two observers, iNaturalist). Clarification of the ranges of the various members of the *fulicalis*-species group will be presented in a future contribution.

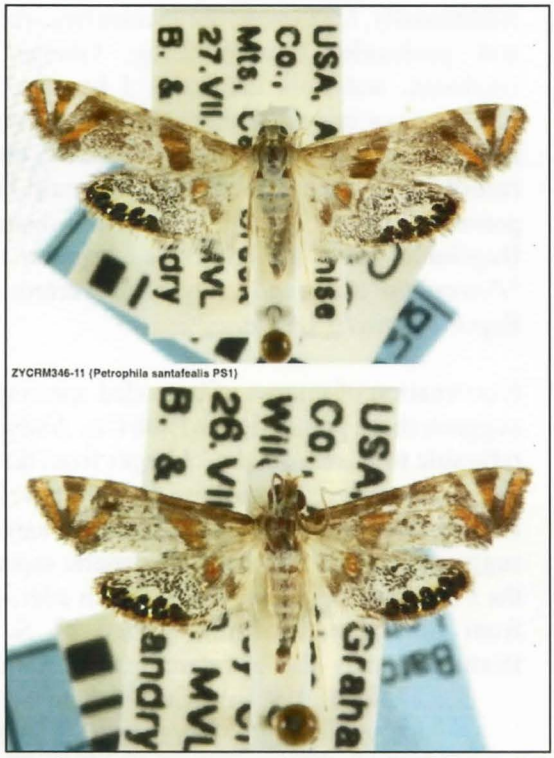

Fig. 8. Examples from BOLD:AAF9925, labeled "*Petrophila santafealis* PS1", but here reidentified as *P. jaliscalis*; specimens CNCLEP00087746 (upper, Cochise Co., Arizona) and CNCLEP00087747 (lower, Graham Co., Arizona), both in CNC. Photo credit: CNC/BIO Photography Group, Centre for Biodiversity Genomics, Used under Creative Commons license.

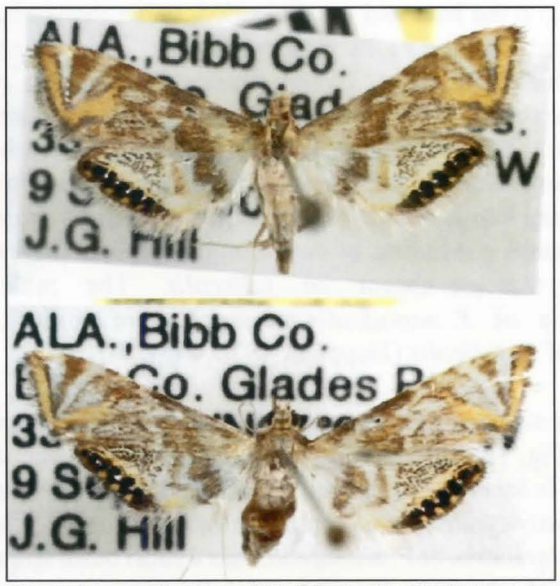

Fig. 9. Examples from BOLD:AAI2495, Bibb Co., Alabama, that may represent *Petrophila santafealis*. Specimens RBMIS-0821 (upper) and RBMIS-0822 (lower), collected 9 September 2005 by J. G. Hill, both located at MEM. The BIN includes 9 very similar specimens. Photo credit: CBG Photography Group, Centre for Biodiversity Genomics, Used under Creative Commons license.

BARCODE ANALYSES

Specimens in the BIN BOLD:AAF9925 were originally labeled as "*Petrophila santafealis* PS1," indicating they were identified provisionally ("PS1") as *P. santafealis*. The BIN is well-resolved. However, all images of specimens in this BIN are readily identifiable as *P. jaliscalis* (Fig. 8). Specimens range from Oklahoma and Texas to California, coinciding with the known range of *P. jaliscalis*. Correspondence has suggested that at some point, the name *P. santafealis* was incorrectly attached to specimens collected in this BIN and thus applied to specimens from Oklahoma, Arizona, and California (M. Dreiling, J.-F. Landry, pers. comm.). The error was perpetuated online by subsequent comparison of specimens and images to those erroneously labeled examples.

The BIN BOLD:ABZ7807 is assigned to a single specimen of *Petrophila* collected on the Santa Fe River, Columbia Co., Florida, by D. H. Habeck on 16 January 1974. This specimen is part of the paratype series from which Heppner (1976) named *P. santafealis*, although on the BOLD website this BIN bears the name "*Petrophila* nr. *canadensis*" (Fig. 6). It is the only *Petrophila* specimen from Florida barcoded to date.

The BIN BOLD:AAI2495 encompasses nine specimens from Bibb Co., Alabama, identified provisionally as "*Petrophila* nr. *jaliscalis*". The images are basically indistinguishable from *P. santafealis* (Fig. 9) but dissection of one or more of these to examine genitalia would be necessary to confirm if they represent a range extension into Alabama. The barcodes of this set differ from the single barcoded example of *P. santafealis* (above) by over 4% (J.-F. Landry, pers. comm.), but the sample sizes here are so small that no firm conclusion can be reached. To date, in the critical area of the Carolinas and Georgia, no specimens of *Petrophila* have been barcoded (P. Hebert, unpubl. data).

The BIN BOLD:AAG9560 includes 14 specimens from Arizona, Texas, Oklahoma, Virginia, and Maryland, variously labeled *P. jaliscalis, P. fulicalis*, and *P. confusalis*. It cannot be completely resolved at this time, but appears to include 10 specimens from Maryland and Virginia representing typical *P. fulicalis* (Clemens), two examples from northeast Oklahoma which might be referable to *P. hodgesi* Munroe, one Texas example which might be referable to *P. heppneri*

Blanchard & Knudson, and one very typical *P. avernalis* (Grote) from Arizona. Based on the broad geography of the first 13 specimens listed here, this suggests that some members of the *P. fulicalis*-species group are extremely close genetically and species limits in that group may have to be revisited by means of careful examination of high quality genitalic dissections (J.-F. Landry, pers. comm.). It is not the purpose of the present contribution to delve into this complexity. The inclusion of one specimen of the distinctive *P. avernalis* (CNCLEP00087766) in this BIN is inexplicable; this may have been a typographical error either in the specimen number, or some other curatorial error related to the specimen (S. Nanz, J.-F. Landry, pers. comm.).

Discussion

Detailed comparisons of original descriptions, illustrations of genitalia, and examination of images indicates that *Petrophila jaliscalis* (Walker) and *P. santafealis* Heppner are distinct taxa, occur in widely disjunct regions, and are relatively straightforward to distinguish as specimens or in good images. The color terminology in previous literature to describe *P. jaliscalis* and *P. santafealis* differs recognizably among authors and this may have contributed to the confusion of the two species. The characteristic reddish hue of various color patches on *P. jaliscalis* is emphasized by most authors, distinguishing the species from all others in the genus. Munroe (1972, p. 122-123) uses the term "yellow" to describe the various color areas on the FWs of *P. jaliscalis*, an inaccurate term by any standard except perhaps on worn or faded specimens. Munroe thereafter describes the "brick-red patch" in the fuscous AM band on the HW of *P. jaliscalis*.

An examination of images of barcoded individuals on the BOLD System website helps to clarify the identity of certain BINs, revealing a proper identification for BIN BOLD:AAF9925 as *P. jaliscalis*, pointing to one barcoded Florida specimen of *santafealis* (BOLD:ABZ7807), and pointing to another set of specimens from Alabama (BOLD:AAI2495) indistinguishable visually from *P. santafealis* which may or may not represent a range extension of the species. Nonetheless, other BINs within this genus offer collections of various putative species (e.g. BOLD:AAG9560), suggesting either (a) close genetic relations among nominal species, (b) varying, subjective, or conflicting concepts of species limits based on patterns, genitalia, and DNA, or (c) curatorial issues in specimen handling. Of course, these issues are not mutually exclusive. They point to the need to be vigilant about the process of linking barcoded collections of specimens to specific taxon names, especially when specimens have not been vetted by taxonomists familiar with the taxa in question (P. Hebert, J.-F. Landry, S. Nanz, D. Soliman, pers. comm.). This also highlights the need to continue the process of re-examining taxonomic placements, taxon ID trees, and phylogenetic relationships as new information arises.

Acknowledgements

I thank Paul Hebert and Dina Soliman (BOLD Systems) and Jean-François Landry (Canadian National Collection) for providing access and data related to Petrophila barcoding. A huge thanks goes to Steve Nanz and Monica Krancevic for being very responsive to my many inquiries regarding MPG images, maps, and data. I am grateful to the following people who provided additional details and discussion: John Abbott, Dave Barker, Mark Dreiling, Ann Hendrickson, Monica Krancevic, Barbara Ribble, and Benjamin Schwartz. I thank Jason Dombroskie, Paul Hebert, Jean-François Landry, Hugh McGuinness, and Steve Nanz for many useful suggestions in their reviews of drafts of this paper, but of course any errors are my own. I thank James Bailey, Joel DuBois, Chris Mallory, Benjamin Schwartz, and the McGuire Center for Lepidoptera for use of their photos.

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(Chuck Sexton, 6007 Salton Dr., Austin, 78759
E-mail: gcwarbler@austin.rr.com)

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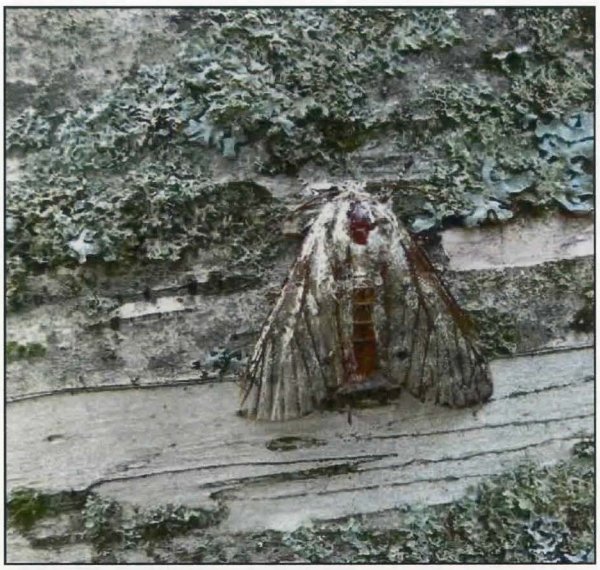

Candy Sarikonda states the following: "I can't ID this moth. I found it crawling in the grass under a birch tree near Long Lake in Alpena, MI. The moth allowed me to pick it up, and I placed it on the trunk of the tree. It let me take several photos. The lower portions of the wings were translucent and I could see the birch bark through them. It had a burgundy red thorax. I had never seen this moth before, a lifer for me. It was beautifully camouflaged against the birch bark."

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ALLEN ACRES' BUGGUIDE BIO-BLITZ

BY

LINDA BARBER AULD, "BUGLADY"

Pitkin, Louisiana is located in Vernon Parish approximately 40 miles Southeast of the parish seat of Leesville and 45 miles Southwest of Alexandria. As of 2010 the City of Pitkin had a population of 576 with a total of 1,965 residents in the whole Pitkin area. What puts Pitkin on the map for Lepidopterists is Allen Acres. Positioned adjacent to the Kitsatchie National Forest, Allen Acres' 26 acres, residence plus Bed & Breakfast retreat is enriched with a wide spectrum of diversity which includes trees, plants, bugs, frogs, toads, snakes, dragonflies, butterflies, moths and so much more. This situation is the perfect opportunity for a Bio-Blitz inventory. Sponsored by BugGuide, the July 27 event was attended by many types of nature lovers to experience this "Avatar" playground/classroom. Folks from Florida, Illinois, Louisiana, New York, Texas, Virginia, and West Virginia all gathered to share their knowledge and record the species which happened to be the focus of their various studies. It was an interesting mix of people and very enjoyable to discuss different topics of the natural world.

Since 2001 Charles and Susan Allen have been building an oasis for butterflies and moths by creating "garden rooms" filled with specific host and nectar plants. Year round Charles teaches classes and sells his books– "Edible Plants of the Gulf South", "Trees, Shrubs, and Wood Vines of Louisiana", "Grasses of Louisiana" and (my favorite) "Louisiana Wildflower Guide". As you first enter the driveway, you get excited to see the front section is a wildflower garden with meandering trails for easy adventure access and class study. Directly behind the house is the Passion flower vine experimental trellis with a combination of native and non-native species. Gulf Fritillary caterpillars of all sizes are usually busily chomping away. However, oddly enough, none were present today. The next area has established six-foot circles that are cleverly spaced according to the width of the lawn mower for easy maintenance. Each circle contains a single mass planting of Cassia, Lippia, Pea vine, Pipevine, or Lead Plant plus nectar plants such as Abelia, Coral Vine, Porterweed, Fountain Buddleia, or Mexican Sunflower just to name a few. During daylight hours dozens of butterflies are busily tasting the smorgasbord buffet to the delight of folks, cameras in hand, as they feverishly snap photos as fast as possible. Visualize the scene when the early morning sun is heating up the activity of female butterflies tasting leaves and laying eggs while males are patrolling their territory and running off other competing males trying to find a mate. Butterfly flirting, courting and mating behaviors are being observed by folks attempting to spot, identify and shout out the names of the ones to be counted. Combined butterfly and human chaos – challenging, yet – *what fun*!

Surrounding the old red barn, the next football sized plot contains predominately Goldenrod, Partridge Pea, Agalinis, Horsemint plus assorted wild flowers. As his zinnia experiment, Charles planted several different types to determine which variety attracted nectar gathering butterflies the most. He has tried short ones, tall ones, single plus double blossomed. This area is also adequately blessed with eclectic whimsical garden art that serves as landmarks when giving directions on where to find a particular bug or plant. "Meet me at Santa Claus with the plow", "turn left at the bicycle", or "look at Mothing sheet # 5" are typical statements one hears at Allen Acres.

As dusk approaches, the vining circles are the perfect spot to witness the assorted Sphinx moths visiting the Datura and Moonflower cocktail hour. Using their long tongues to collect nectar, these moths hover and resemble hummingbirds. The eleven mothing sheet stations began to get "busy" as soon as the moon appears on the horizon and the 250 watt mercury vapor lights power up. Charles reported that folks were checking out the stations all through the night before so they wouldn't miss anything special. In 2013 Charles began what he calls "his addiction to mothing". With help by Louisiana moth expert, Vernon Brou of Abita Springs, together they have identified an astounding number of 800 different moths on his property (as of 8-6-19).

Craig Marks, author of "Butterflies of Louisiana" published last year by LSU Press, was there with clipboard in hand to conduct and to lead the Allen Acres 6th annual North American Butterfly Association butterfly count. Upon my arrival on Saturday, the group had already made their first round of walking through the trails and was looking at the coral snake someone had captured and had placed safely in an aquarium for viewing. Now time to cool off, eat lunch and have a book signing! A dozen more "BugLady's Butterfly Summer" and two "Butterflies of Louisiana" were sold! Both books as well as Charles' four books are all available for purchase while visiting Allen Acres.

The afternoon schedule was to finish the butterfly count by checking out the nearby Cooter's Bog and Dove Field, both inside the 7.5 mile count circle radius. Craig asked me to stay at Allen Acres and look for caterpillars to add to the count list. During my

walk-about the "6-foot circles area", I discovered several Silver Spotted Skippers rolled up inside the sewn leaves of Lead Plant (*Amorpha fruticosa*) then Long-tailed Skippers hiding in their leaf shelters of the "Beggar's Ticks" (*Desmodium*). Cloudless Sulphur and Sleepy Orange caterpillars were sitting atop the "Candelabra" (*Cassia alata*) and "Sicklepod" (*Cassia obtusafolia*) leaves, trying to hide by attempting to mimic the leaf rib. The newly-sprouted tender Cassia leaves were heavily dotted with freshly-laid Sulphur eggs.

The hardy water canna (*Thalia dealbata*) growing around the little pond was showing signs of major Brazilian Skipper infestation (lots of chewed and folded over leaves). Upon further inspection, I discovered 15 already emerged chrysalises! We must have totally missed their life cycle because no adult Brazilian skippers were seen during the count day.

Over by the red barn, the turned leaves of the Johnson grass caught my attention. One housed an empty Clouded Skipper chrysalis and another had a very active caterpillar that had loosely stitched the edges of the blade as its abode. In the patch of *Sida rhombifolia* several leaves were sewn together. Some were found empty or housed by spiders but finally one contained a Tropical Checkered Skipper caterpillar. It was curled up, trying to avoid a pack of Guinea hens that were running around loose, squawking and gobbling up any bug they could find.

While exploring the front wildflower area, I saw all sizes of Buckeye caterpillars devouring the Agalinis. Next to the winding path I spied a turned "pup tent" folded-over leaf on a small oak tree where I was pleased to find a very tiny Horace Duskywing caterpillar in residence. Next to one of the mothing sheets was a colony of young Sassafras trees with curled leaves. Upon closer inspection I smiled when two adorable Spicebush Swallowtails came into view. On a separate leaf, each one had spit silk to curl it, forming their protective shelter house. It's always an exciting adventure in Pitkin!

Photographs: The Clouded Skipper and Long-tailed Skipper caterpillar pictures were taken and given permission to use by Diane Lafferty. All other photos taken by Linda Barber Auld.

"BugLady's Butterfly Summer" is now available for $25.00 each (plus $5 shipping) by calling 504-739-5715. Contact Linda by email: nolabuglady@gmail.com

The Allen Acres' sixth annual butterfly count final tally submitted to NABA is itemized below:

47 species, 463 individuals,
and 11 species of caterpillars.

Very exciting discoveries:

First time recorded on count: Juniper Hairstreak, Georgia Satyr, and Sachem.

New Parish and count record: Little Glassywing and Delaware Skipper.

Region 10
Southeast (AL, AR, LA, MS)
Marty Floyd, Regional Editor

1. Allen Acres Natural Area, LA. Yr 6, 30.8661°, -93.0846°, center at jct. of LA112 and LA399. See 2012 report for habitats. Imminent threats to habitat: No imminent threats. Habitat changes since last year: No changes noted from previous years. **27 July 2019**; 0930-1430 hrs; sun AM 76-100%, PM 76-100%; 84-90°F; wind 4-9 mi/hr. 14 observers in 3 parties. **Total party-hours** 10.5; **total party-miles on foot** 5. **Observers:** C. Allen, L. Auld, S. Cresswell, M. Frey, J. Lampkin, V. LeFevers, H. Lopes, Craig Marks (PO Box 1410, Breaux Bridge, LA, 70517; cwmaplc@aol.com), B. Moon, D. Patton, K. Patton, J. Schneider, A. Schoenfeld, R. Seidler.

Pipevine Swallowtail 17, Black Sw. 2, Giant Sw. 7, E. Tiger Sw. 5, Spicebush Sw. 8, Palamedes Sw. 2, Cloudless Sulphur 45, Little Yellow 36, Sleepy Orange 3, Dainty Su. 3, [1]**Juniper Hairstreak 4**, Gray Ha. 6, Red-banded Ha. 3, Gulf Fritillary 3, Variegated Fr. 2, Pearl Crescent 9, Am. Lady 5, Red Admiral 1, Com. Buckeye 38, Red-spotted Purple 1, Goatweed Leafwing 1, S. Pearly-eye 1, Gemmed Satyr 2, Carolina Sa. 84, [2]**Georgia Sa. 1**, Silver-spotted Skipper 3, Long-tailed Sk. 11, Hoary Edge 2, S. Cloudywing 7, N. Cl. 4, Confused Cl. 4, Horace's Duskywing 22, Zarucco Du. 2, Com. Checkered-Sk. 9, Tropical Checkered-Sk. 35, Swarthy Sk. 7, Clouded Sk. 12, Least Sk. 10, S. Skipperling 1, Fiery Sk. 18, Whirlabout 3, N. Broken-Dash 1, [3]**Little Glassywing 7,** [4]**Sachem 1,** [5]**Delaware Sk. 1**, Dun Sk. 11, Brazilian Sk. 1. **Unidentified:** duskywing 1, cloudywing 1. **Total** 47 species, 463 individuals. **Immatures:** Pipevine Sw. 3 caterpillars; Spicebush Sw. 2 caterpillars; Cloudless Su. 17 eggs

4 caterpillars; Little Ye. 2 eggs; Sleepy Orange 3 caterpillars; Com. Bu.15 caterpillars; Horace's Du. 1 caterpillar; Long-tailed Sk. 1 caterpillar; Silver-spotted Sk. 4 caterpillars; Tropical Checkered-Sk. 2 caterpillars; Clouded Sk. 1 caterpillar. **Field Notes:** [1]first time recorded on count [2]first time recorded on count [3]new parish and count record [4]first time recorded on count [5]new parish and count record.

Baby Horace Duskywing

WELCOME to Allen Acres!

Cloudless Sulphur

Silver Spotted Skipper

Checkered Skipper

Sleepy Orange

Spicebush Swallowtail

Long-tailed Skipper

Common Buckeye

Clouded Skipper

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NEW GAINESVILLE, FL RECORDS FOR *TROTORHOMBIA METACHROMATA* (WLK)

(LEPIDOPTERA: URANIIDAE: EPIPLEMINAE)

BY

TOM NEAL

This moth from the New World tropics seems to keep popping up sparingly from Texas to Florida (Heppner, Bordelon, Knudson 2007) in relatively recent times. Brou (2016) recently reported it from Louisiana and summarized distributional information. In addition there are now 2 records from Gainesville, Alachua Co., Florida. They are as follows: one male, 6 January 2016, one female, 29 July 2019, both at 1705 NW 23rd Street and collected at mercury vapor lamp. Apparently nothing is known about the biology of this species.

References

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Heppner, J.B., Bordelon, C., and Knudson, E., 2007. *Trotorhombia metachromata*: a tropical crenulate moth new to Florida and Texas (Lepidoptera: Epiplemidae). *Tropical Lepidoptera*, 17(1-2): 34.

(Tom Neal: E-Mail: chouwah@aol.com)

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BALTIMORE CHECKERSPOTS IN ALABAMA

TEXT BY PAULETTE OGARD

AND

PHOTOS BY SARA BRIGHT

Baltimore Checkerspots (*Euphydryas phaeton*) reach the southern limit of their known range in central Alabama. The habitats that support them seem incongruous: low, wet meadows as well as dry, upland woods. As disparate as they seem, there is a common factor: they are both home to plants that contain the iridoid glycocides catapol and aucubin, which deter many plant browsers. In Alabama, we have documented the use of two primary host plants: White Turtlehead (*Chelone glabra*) and Yellow False Foxglove (*Aureolaria flava*). Comments regarding *E.p. phaeton* and *E.p. ozarkae* and their habitat/host plant use are included near the end of this article.

Morgan County, AL, Wet meadow habitat, Host plant: White Turtlehead

Shelby County, AL, Dry, upland habitat, Host Plant: Yellow False Foxglove

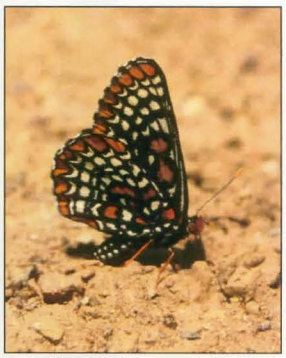
In May 1998, a surprise was in store for Sara Bright and her mother, Jeanne Cunningham, as they took their Sunday walk on the family's property in Shelby County. More than a dozen male Baltimore Checkerspots were puddling on the dirt road. The butterflies were only yards away from a stand of White Turtlehead that grew on the edge of the lake. It seemed obvious that the butterflies were there because of the turtlehead plants, but diligent searches turned up no eggs or caterpillars. Ironically, the puddling site was also in close proximity to Yellow False Foxglove, which at that time was only beginning to be associated with Baltimore Checkerspots. Caterpillars were found, and Yellow False Foxglove was verified as the host.

Two years after Sara and her mother discovered Baltimore Checkerspots in Shelby County, Vitaly Charny found them in Jefferson County, flying in mid-May at Moss Rock Preserve, a 350-acre natural area that sits in the middle of one of the fastest growing metro areas in Alabama. It is known for its boulder fields and sandstone glades. Not surprisingly, the Moss Rock checkerspots also used Yellow False Foxglove as their larval host.

Baltimore Checkerspot colonies are known to be ephemeral, and by 2007, both of these populations had disappeared. Whether they relocated or died out is not known. Then in 2016, Mary Jane and Steve Krotzer discovered Baltimore Checkerspots on private property near Cullman (Morgan County). Not only were these butterflies ovipositing on White Turtlehead, they were already on the wing in mid-April, an astonishingly early date. After obtaining permission from the property owner, Sara and I have followed this small population for 2 years, documenting its life cycle on White Turtlehead from egg to adulthood.

Whether Baltimore Checkerspots use false foxglove or turtlehead as their larval host, the basic life history elements are the same. Females deposit clusters of several hundred tiny yellow eggs on the undersides of host leaves. The eggs turn red as they age. Newly hatched larvae migrate to the tops of plants where they spin webs and feed communally. They gradually increase the size of the web to include more and more plant material, wandering away from the nest at times, but always returning to its safety. In mid-summer, they stop feeding and thicken the web, often first moving to include nearby structures. The longtime assumption was that this reinforced shelter became the winter nest,

Morgan County, AL,Wet meadow habitat, Host plant: White Turtlehead



Sipping minerals, May 1998, Shelby County, AL

but the structure actually functions as a pre-hibernation site. Most caterpillars move out of it in late fall and descend into the leaf litter at the base of the plants where they eventually overwinter, usually grouped in fallen leaves. Warmer temperatures and longer day lengths trigger a return to eating and activity.

In other areas of the country, it is reported that primary host plants often have insufficient spring foliage to

Ovipositing on White Turtlehead

Reddish egg mass (bottom left leaf) highly camouflaged on White Turtlehead

Close-up of egg mass in previous photo

Caterpillars are gregarious

Nest gets thicker as season progresses (White Turtlehead)

Nest gets thicker as season progresses (Yellow False Foxglove)

support the voracious appetites of the growing caterpillars, forcing larvae to finish their development on a wide variety of secondary hosts that also contain iridoid compounds. We were curious to see whether this would be an issue at the Morgan County site. In early spring (2018), dozens of caterpillars covered clumps of fresh, young turtlehead sprouts. However, there was plenty of foliage to feed each of the groups, so a secondary host was not required, and no caterpillars were found eating other plant species.

Caterpillars nests are easy to spot (White Turtlehead)

Late season nest (White Turtlehead)

Late season nest (Yellow False Foxglove)

Opened nest from previous photo

Caterpillars overwinter in dead leaves

Eating emergent turtlehead leaves in spring

The Morgan County colony seems to have a tenuous foothold at best. The site consists of a small wetland area along the edges of creek that flows through ungrazed pasture. The area where we have seen checkerspots and turtlehead plants is only approximately 5,700 square feet. Both years that we have followed the butterflies, the field has been bush-hogged late in the year. The area that supports the turtlehead has been spared, presumably because it is too wet to mow. To date, we have not been able to locate additional turtlehead sites on other property.

We find some aspects of Baltimore Checkerspot's Alabama populations puzzling. *Eupydryas phaeton phaeton* is typically associated with wet meadows and White Turtlehead. It is often described as small with extensive red markings on the wing border. Subspecies *ozarkae* inhabits dry, upland habitat and feeds on false foxglove: it is larger with little red on the borders. However, the wetland vs. upland butterflies that we have encountered here do not match these descriptions. (See first two photos). We can offer no explanation, only observation. Unfortunately, there is no known

population of false-foxglove eaters in the state, so further study of that group is not currently possible.

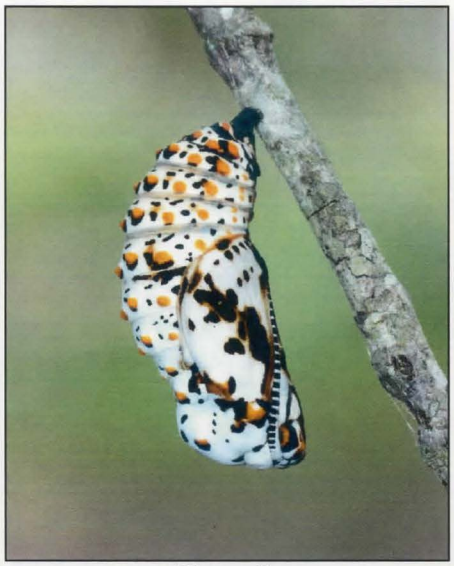
Why Baltimore Checkerspots are so rare is also puzzling. Neither White Turtlehead nor Yellow False Foxglove is uncommon in Alabama. The Alabama Plant Atlas contains vouchered specimens from 46 counties collectively. Perhaps even more rare than the checkerspots has been the number of people looking for them. As more people in Alabama join the search, we hope that additional colonies of this intriguing butterfly will be found and documented.

If you have records of Baltimore Checkerspots in Alabama, please share with the Alabama Butterfly Atlas: al.butterflyatlas@gmail.com

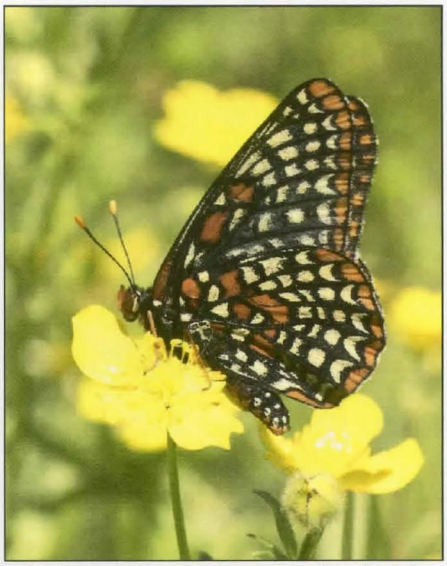
Final instar caterpillar (left)

In spring, caterpillars eat in small groups

Shelby County, AL,
Dry, upland habitat,
Host Plant: Yellow False Foxglove



Chrysalis



Male appears to be nectaring but is perching, looking for females

(Paulette Haywood Ogard, E-Mail: habitatdesigns@hotmail.com
Sara Bright, E-Mail: Sarabright@aol.com)

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THE HUNT FOR OUTIS

BY

BRYAN E. REYNOLDS

Since moving to central Oklahoma in the fall of 2005, I've had a desire to photograph all the butterfly species found within the state. Back then, the total count was around 190 and today, it's now 200. Because of geography, with Oklahoma located in the south-central U.S., there is an influx of species from all cardinal points. Western U.S. species show up in the panhandle, some of those hitting the far eastern limit of their range. The same thing is true along the eastern edge of Oklahoma, where some Atlantic species reach their western limits. The panhandle is made up of mesas and volcanic soils while down in the southeast corner of the state, there are cane-filled swamps where butterflies fly alongside native American alligators. In between, there are various prairie habitats, crosstimbers, even pine forest in the Ouachita Mountains. All of these distinctive habitats have their unique cadre of butterflies. Luckily, I live in central Oklahoma so I can fan out in all directions easily enough to work these places and hopefully, I'll someday fill my photographic species quota. One of those species, the Outis Skipper, *Cogia outis*, has been a real challenge to find.

The Outis Skipper is a scarce butterfly that lives in semi-open country and prairies. The range map shows it should be found right in my backyard, but after years of intently searching, I never saw one. This changed on 5 August 2010 when I was at the Lexington Wildlife Management Area, located in Cleveland County. I live only a mile from this preserve and have spent countless days photographing all that it has to offer. On this day, I was looking for mud-puddling butterflies along the edge of a lake. There were several species, and one looked similar to a cloudywing, *Thorybes* sp. but seemed different. I took a closer look and couldn't believe my eyes. Here was my lifer Outis Skipper! As I worked to get photos, I noticed it was a jumpy butterfly. Not only was it hard to get close for photos, but the little bugger would blast off every time my flash fired. Back in 2010, I was still shooting film and I was able to get a couple keepers, but I wanted more. So, I kept my eyes peeled every time I was near the edge of that lake, however no others appeared.

Fast forward to 19 June 2016. My friend and colleague, Harry Pavulaan, paid me a visit to hunt butterflies at the Lexington WMA. At first we saw all the usual species for that time of year. Little did we know, we were in for a treat. At a puddle in a gravel road, we spotted an Outis Skipper. Harry bagged it and we searched the immediate area for more. We walked the road intently searching all around. I was also trying to find the butterfly's larval food plant, acacia. There had to be some nearby, but I was unfamiliar with this plant, even though I had seen photos of it online. As we walked along the gravel road Harry hollered he spotted a mated pair. I nearly jumped for joy as I hurried over to him and got some nice photos of the pair. We high-fived and I was very happy to have added a mating pair to my photographic files.

The following year on 11 May 2017, I was again photographing at the Lexington WMA. This time I was near the entrance by the headquarters buildings. I had noticed a patch of blooming roughleaf dogwood, *Cornus drummondii*, and I wanted to check the blossoms for anything interesting. There wasn't much on the dogwood, but as I turned to go back to my vehicle, I saw a fast moving skipper land on a winecup, *Callirhoe involucrata*. I thought it was odd, since I didn't remember ever seeing a butterfly nectar from one of those flowers. I got low and slowly crept up to the butterfly. I was astonished to see it was an Outis Skipper. I got one shot, and like before, my flash caused it to flush. Thankfully, it landed on another nearby winecup, and I was able to get another shot. Again it flushed, but this time it disappeared. When I viewed the two images on my computer, I was very happy, both were sharp and I got both the dorsal and ventral sides.

My next encounter with this species wouldn't happen until the spring of 2019. At the beginning of May, I was contacted by Jeffrey Glassberg. He was trying to complete his North American butterfly checklist and the Outis Skipper was one that he had never seen before. He asked if I could guide him through the Lexington WMA to see if we could find one. I told him I'd be happy to help. A few days before Jeff's arrival, I went out to scout the same road that Harry and I had seen them a few years prior. At nearly the exact spot as before, I spotted one mud-puddling. I got down to its eye level and started to photograph. Just like all the others, it was jumpy, but it never went far and eventually I had some nice shots. A week later, Jeff arrived and we visually saw a couple on 11 May. On 12 May, Jeff was able to record his first one on camera. We spent a couple more days exploring the refuge and ultimately saw six of them and I was able to get a few more photos. By this point, I was starting to get more familiar with their appearance and behavior. I think in the past, I was writing them off as being a cloudywing. Three *Thorybes* species are found in central Oklahoma and they can be extremely common. I learned I'd better check each one closely to rule out the Outis Skipper.


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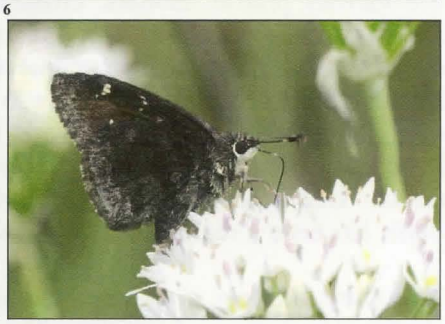
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1. Outis Skippers, *Cogia outis*, mating, Lexington Wildlife Management Area, Cleveland County, Oklahoma, 19 June 2016.
2. Outis Skipper, *Cogia outis*, nectaring from winecup, *Callirhoe involucrata*, Lexington Wildlife Management Area, Cleveland County, Oklahoma, 11 May 2017.
3. Outis Skipper, *Cogia outis*, nectaring from winecup, *Callirhoe involucrata*, Lexington Wildlife Management Area, Cleveland County, Oklahoma, 11 May 2017.
4. Outis Skipper, *Cogia outis*, mud-puddling, Lexington Wildlife Management Area, Cleveland County, Oklahoma, 5 May 2019.
5. Outis Skipper, *Cogia outis*, taking flight, Lexington Wildlife Management Area, Cleveland County, Oklahoma, 5 May 2019.
6. Outis Skipper, *Cogia outis*, Lexington Wildlife Management Area, Cleveland County, Oklahoma, 12 May 2019.
7. Outis Skipper, *Cogia outis*, mud-puddling, Lexington Wildlife Management Area, Cleveland County, Oklahoma, 13 May 2019.
8. Outis Skipper, *Cogia outis*, nectaring from meadow garlic, *Allium canadense*, Lexington Wildlife Management Area, Cleveland County, 23 May 2019.
9. Outis Skipper, *Cogia outis*, nectaring from meadow garlic, *Allium canadense*, Lexington Wildlife Management Area, Cleveland County, Oklahoma, 23 May 2019.
10. Outis Skipper, *Cogia outis*, nectaring from meadow garlic, *Allium canadense*, Lexington Wildlife Management Area, Cleveland County, Oklahoma, 23 May 2019.
11. Prairie acacia, *Acacia angustissima*, Lexington Wildlife Management Area, Cleveland County, Oklahoma, 26 June 2019.
12. Prairie acacia, *Acacia angustissima*, Lexington Wildlife Management Area, Cleveland County, Oklahoma, 26 June 2019.


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13. Outis Skippers, *Cogia outis*, mud-puddling, Cherokee Wildlife Management Area, Cherokee County, Oklahoma, 1 July 2019.
14. Outis Skipper, *Cogia outis*, female ovipositing on prairie acacia, *Acacia angustissima*, Cherokee Wildlife Management Area, Cherokee County, Oklahoma, 1 July 2019.
15. Outis Skipper, *Cogia outis*, female ovipositing on prairie acacia, *Acacia angustissima*, Cherokee Wildlife Management Area, Cherokee County, Oklahoma, 1 July 2019.
16. Outis Skipper, *Cogia outis*, Cherokee Wildlife Management Area, Cherokee County, Oklahoma, 2 July 2019.
17. Outis Skipper, *Cogia outis*, taking flight, Cherokee Wildlife Management Area, Cherokee County, Oklahoma, 2 July 2019.
18. Outis Skipper, *Cogia outis*, probing pants, Cherokee Wildlife Management Area, Cherokee County, Oklahoma, 2 July 2019.
19. Outis Skipper, *Cogia outis*, female ovipositing on prairie acacia, *Acacia angustissima*, with freshly deposited egg visible, Cherokee Wildlife Management Area, Cherokee County, Oklahoma, 2 July 2019.
20. Outis Skipper, *Cogia outis*, female ovipositing on prairie acacia, *Acacia angustissima*, Cherokee Wildlife Management Area, Cherokee County, Oklahoma, 2 July 2019.
21. Outis Skipper, *Cogia outis*, Cherokee Wildlife Management Area, Cherokee County, Oklahoma, 2 July 2019.
22. Outis Skipper, *Cogia outis*, nectaring on American germander, *Teucrium canadense*, Cherokee Wildlife Management Area, Cherokee County, Oklahoma, 2 July 2019.
23. Outis Skipper, *Cogia outis*, nectaring on American germander, *Teucrium canadense*, Cherokee Wildlife Management Area, Cherokee County, Oklahoma, 2 July 2019.
24. Outis Skipper, *Cogia outis*, in flight after nectaring from American germander, *Teucrium canadense*, Cherokee Wildlife Management Area, Cherokee County, Oklahoma, 2 July 2019.

A week after Jeff left, I again was out photographing at my regular spots. It was 23 May and along a gravel road on the preserve there was a nice patch of meadow garlic, *Allium canadense*. It was in full bloom and several species were nectaring from it. As I photographed, I noticed an Outis Skipper. This time, unlike all the others, this one didn't flush when my flash fired (probably because it was on nectar) and I was able to get a lot of photos of it. My photographic coverage of the species was increasing very nicely.

On 16 June, my friend and colleague, Professor Nick Grishin was passing through. He had been to a conference in Kansas and wanted to stop by to sample the area before continuing home to Dallas. I took him to some of my hotspots on the preserve and one of the species we saw were more Outis Skippers. As we worked, I asked him about the larval food plant, acacia. He gave me a baffled look and politely told me we had been tromping all over it. I embarrassing asked if he could show me and like many discoveries, I said to myself, "duh" as he pointed down at my feet. So there it was, prairie acacia, *Acacia angustissima*, a plant that I had seen all over the Lexington WMA. No wonder the Outis Skipper was 'common' here. Nick also explained how the larvae make tents out of leaves of the plant. These tents can be quite conspicuous when the larvae are mature. On 26 June, while doing some general photography on the refuge, I went to a large patch of acacia and searched for tents. I didn't find any, but I did get some coverage of the plant including some that were in bloom.

My next photographic adventure was to take place at the Cherokee Wildlife Management Area located in Cherokee County (still in Oklahoma) and about a three hour drive northeast of my home. My friend Jim Arterburn had done a lot of photography at Cherokee and I wanted to meet up with him so he could guide me to his hotspots. One of my targets would be the Diana Fritillary, *Speyeria diana*, but he had also gotten some very nice photos of Outis Skippers, so we'd be searching for those as well. I really wanted some more dorsal photos, since all that I had were only partially opened. Jim had some shots of them almost totally open and basking, which was what I wanted. I met Jim early on 1 July and we proceeded into the preserve. They had gotten some recent rain and there were several puddles on the gravel road and water in the ditches along the edge. Jim pointed to a nice looking puddle, so we got out to take a look. As we walked up, we noticed several Outis Skippers mud-puddling. There were at least six of them. This puddle had a steep and muddy edge, so we just observed them, confident that we'd find more for photos. So we drove on a short distance and came to a large puddle that was on the road and easy to access. As we walked up we saw a stunning sight, along the edge were dozens of Outis Skippers. We couldn't believe how many. As we photographed, some of them would land on us and imbibe sweat from our shirts. We even had several fly into our open vehicle windows and we had to shoo them out. After many photos, we decided to pass up the mud-puddlers and look for them in other situations, such as nectaring, basking, etc. It didn't take long before we found what we were looking for. At a side trail, we stopped to walk the path and I noticed a huge amount of acacia. I pointed the plants out to Jim and as we were talking, a female Outis Skipper popped down and laid an egg right before our eyes. We both jumped into action and followed her around with our cameras as she moved from plant to plant ovipositing. I was very happy with the resulting images and in one of them, you can clearly see the egg. Jim and I spent the rest of the day photographing several species (including Diana's) along with more Outis Skippers. After a hard, but very productive day of work, we said our goodbyes. I stayed in the area and worked the preserve alone for the next two days. I came home with many photos of Outis Skippers including more ovipositing and the dorsal shots I was after. I also got a couple lucky shots of them in flight. During these three days of intensive 12-hour per day photography, I saw hundreds of Outis Skippers.

It's been fun learning about and photographing the Outis Skipper. It's taken me almost 14 years, but I now have several hundred photos of this species including behaviors such as mud-puddling, nectaring, mating, ovipositing, and dorsal and ventral views. I now know exactly what its larval food is (at least for my area) and I'll be on the lookout for larvae and their tents. And, I'll always be double checking all the cloudywings I encounter, just in case one might be an Outis Skipper. After several successful 'hunts' I can now cross that one off my list.


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25. Outis Skipper, *Cogia outis*, Cherokee Wildlife Management Area, Cherokee County, Oklahoma, 2 July 2019.

26. Outis Skipper, *Cogia outis*, Cherokee Wildlife Management Area, Cherokee County, Oklahoma, 2 July 2019.

27. Outis Skipper, *Cogia outis*, perched on black-eyed Susan, *Rudbeckia hirta*, Cherokee Wildlife Management Area, Cherokee County, Oklahoma, 3 July 2019.

28. Outis Skipper, *Cogia outis*, nectaring on lemon beebalm, *Monarda citriodora*, Cherokee Wildlife Management Area, Cherokee County, Oklahoma, 3 July 2019.

29. Outis Skipper, *Cogia outis*, nectaring on lemon beebalm, *Monarda citriodora*, Cherokee Wildlife Management Area, Cherokee County, Oklahoma, 3 July 2019.

30. Outis Skipper, *Cogia outis*, perched on yarrow, *Achillea* sp., Cherokee Wildlife Management Area, Cherokee County, Oklahoma, 3 July 2019.

31. Outis Skipper, *Cogia outis*, perched on yarrow, *Achillea* sp., Cherokee Wildlife Management Area, Cherokee County, Oklahoma, 3 July 2019.

32. Outis Skipper, *Cogia outis*, nectaring on American star-thistle, *Plectocephalus americanus*, Cherokee Wildlife Management Area, Cherokee County, Oklahoma, 3 July 2019.

33. Outis Skipper, *Cogia outis*, Cherokee Wildlife Management Area, Cherokee County, Oklahoma, 3 July 2019.

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EXCAVATING A HIGH-RISE – *ACRONICTA ATRISTRIGATUS*

BY

DELMAR CAIN

This spring of 2019, I decided to construct an eight-foot fence on our property in Boerne, Kendall County, Texas to try and exclude the whitetail deer, the axis deer and feral hogs. The habitat is an oak/Ashe juniper savannah with frostweed (*Verbesina virginica* L. var. *laciniata*), Texas persimmon (*Diospyros texana*), pearl milkweed vine (*Matelea reticulata*) and greenbriar (*Smilax bona-nox*) in the understory.

While marking trees to be culled along the line, I noticed a gum bumelia (*Sideroxylon lanuginosum*) sapling, perhaps 12 feet tall, showing signs of herbivory. David Wagner (University of Connecticut) had notified me that he might stop by, as part of a swing through Texas to look for caterpillars. Knowing that he had an interest in *Lactura*, many of which use the gum bumelia as a host, I decided to leave it standing along with a couple of decaying shin oaks (*Quercus sinuata* var. *breviloba*) that had already lost their tops but were helping support the gum bumelia.

David did stop by along with Berry Nall, from Falcon Lake, Texas and they were successful in finding two species of *Lactura* larvae. A few days later on April 22, 2019, I decided to look at the gum bumelia again to see if any Lactura larvae were left. The lower leaves on the sapling were about eight feet above the ground so I got a ladder to give them a closer look.

When I climbed the ladder, I happened to glance a few inches from the top of one of the decaying shin oaks and saw a caterpillar that I immediately recognized. It was an *Acronicta atristrigatus* larva. The adults of the species are better documented than the larvae. This was not the first *A. atristrigatus* larva that I had found on our property, but it was the first I had seen on a shin oak or a tree without leaves. (Fig. 1. The shin oak is to the right and front of our dog, Scout, and marked with blue paint on the trunk.)

I first photographed an *A. atristrigatus* caterpillar on April 21, 2012, when I noticed frass on a rock under a live oak (*Quercus fusiformis*) by our driveway. I found the caterpillar on one of the low-hanging live oak branches. After I failed to identify it from two books of caterpillars by Wagner, I sent a photo of the caterpillar to friends. The photo got posted on BugGuide and eventually made its way to Dave, who by telephone, told me to immediately collect the caterpillar because there were few if any existing photographs of it. However, by that time, the caterpillar was nowhere to be found.

On another live oak the next year on April 16, 2013, I found an earlier instar of an *A. atristrigatus* larva, which Dave was glad to receive. I named it "Joe Acronicta" and it became a star on Brigette Zacharczenko's Caterpillarblog (Fig. 2.). I remember Dave said that to find that caterpillar a second time I must have been a warbler in an earlier life. He also volunteered some tough advice about my caterpillar photographs. In spite of that initial harsh but true assessment, through the years he has given unwavering support to my late-in-life, backyard, Lepidoptera education.

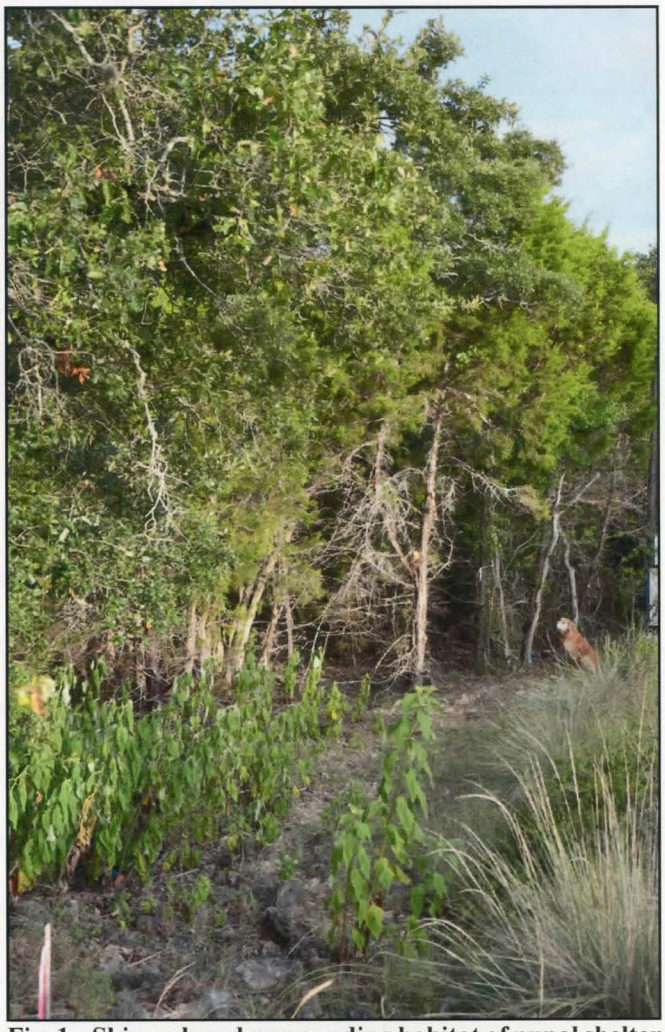

Fig. 1. Shin oak and surrounding habitat of pupal shelter of *A. aristrigatus*. Shin oak has blue paint at base, next to Scout.

In 2018, I found two *A. atristrigatus* larvae on the same live oak by our driveway. One was photographed on April 14, 2018 (Fig. 3) and a second earlier instar was photographed on April 16, 2018. I photographed an adult at our porch light on March 10, 2019.

Fig. 2. *"Joe Acronicta"* (Photo by David Wagner).

Fig. 4. *A. atristrigatus* larva excavating shelter 102 inches from the ground in decaying shin oak trunk.

Fig. 6. Head of caterpillar with shavings still visible inside shelter entrance.

Fig. 3. Late instar *A. atristrigatus* caterpillar on live oak leaf.

Fig. 5. *A. atristrigatus* larva removing shavings from shelter in shin oak.

Fig. 7. Arrow points to shelter entrance, now closed and disguised with wood shavings and bark, woven with silk.

So having a bit of history with the species, I went down the ladder and got my camera to photograph what the larva was doing on a decaying shin oak so high off the ground. By the time I got back up the ladder with my camera and took the first picture, the caterpillar had started to excavate a hole in the shin oak. It was 12:29PM (Fig. 4.).

I watched the caterpillar as it periodically backed out pulling with it wood shavings from the hole with its thoracic legs and mouth (Fig. 5.). It then returned to excavate, not to enlarge the entrance, but to fashion a deeper pupal chamber. Finally, it excavated enough to get its entire body inside and to turn around and push shavings out of the hole. It even exited the hole on occasion only to return. I never observed it back into its hole, rather it always entered headfirst.

Fig. 6 shows the excavation, taken almost two hours later at 2:24PM: with the head of the caterpillar still visible inside the hole. At 3:57 PM, my last photograph of April 22 showed the entrance, but the caterpillar was

inside the chamber. By April 26, when I photographed the completed construction, the caterpillar had disguised its crypt, by covering its entrance with silk and laboriously weaving dozens of wood shavings and bark to make its tunnel closure nearly undetectable (Fig. 7).

Fig. 8. *Lactura pupula* larva on gum bumelia leaf.

I have never found a feeding *A. atristrigatus* larva on any host other than a live oak. Evidently, this larva traveled at least 30 feet on cluttered ground from the closest live oak and climbed 102 inches high on a decaying shin oak to find an acceptable place to excavate a shelter. I don't know how this individual's journey compares with the larval ramblings of other species for a place to pupate, but this caterpillar's effort was impressive to me.

It occurs to me near the end of this article that there is still information to be learned. Is this a pupal shelter, how deep is it, will the adult emerge this year or hold over until next spring?

I should also add that while waiting on the ladder and watching the *A. atristrigatus* larva excavate its pupal chamber, I photographed a *Lactura pupula* larva on the gum bumelia (Fig. 8). This species appears to be newly establishing in the Boerne area. Prior to 2018, I had never seen an adult at light. Wagner had only found a single larva of *L. pupula*, over the course of his three previous April visits. By contrast, *L. pupula* larvae were abundant in my yard this April. Likewise Dave relayed to me that Valerie Bugh reported seeing *L. pupula* larvae abundantly to the north in the Austin area, for the first time this past spring. My yard, is the type locality, for a third recently described *Lactura, L. rubritegula*. It too feeds on gum bumelia.

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

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LOCALLY BREWED BEER NAMED AFTER BUTTERFLY THAT HELPED CREATE IT

BY

SARAH PICKETT/ CORRESPONDENT

The beer is brewed with yeast harvested from the frosted elfin butterfly instead of from plants and flowers.

Besides being helpful pollinators, you can now credit butterflies with inspiring — and flavoring — a new pale ale.

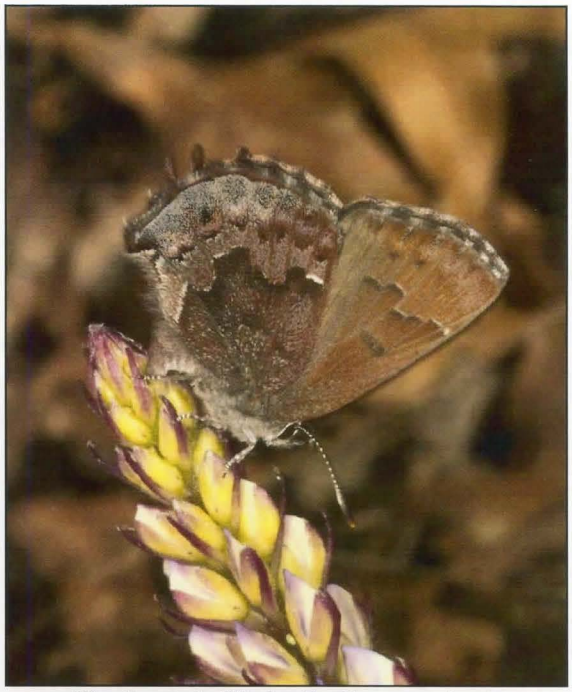
The new brew, the Frosted Elfin New England-Style Session Pale Ale, is named after the butterfly that helped create it.

First Magnitude Brewing Co. in Gainesville and the Florida Museum of Natural History held a launch party last week to celebrate the new beverage.

Jaret Daniels, associate curator and program director of the McGuire Center for Lepidoptera and Biodiversity, said the event's aim was to raise awareness and money to help the frosted elfin butterfly.

The frosted elfin, which can be found in small populations in northern Florida, is declining across much of the eastern United States and is undergoing a species status assessment with the U.S. Fish and Wildlife Service, Daniels said. It has vanished from Canada and is considered endangered, threatened or of "conservation concern" in 11 states.

"Most people don't know about these butterflies at all. They don't even know how rare these are within Florida," Daniels said.



The frosted elfin butterfly on a plant [Courtesy of Jaret Daniels, University of Florida]

This beer marks the seventh collaboration between the two organizations, though this collaboration is unique: The beer is brewed with yeast harvested from the butterfly instead of from plants and flowers.

To create the beer, the researchers and brewers took a trip, with partners in Tallahassee and the U.S. Forest Service, to the Apalachicola National Forest and spent a day in the field netting the butterflies and swabbing them for yeast.

Arthur Rudolph, the quality manager at First Magnitude, said the yeast from this butterfly adds a floral flavor to the beer. The beer is also unique because it contains yeast grown in-house at First Magnitude.

Last year, First Magnitude acquired its own lab to grow the yeast, which is combined with hops, barley and water to create the beer.

"This was the first chance we had to actually go out before the beer was made to see the butterflies and collect the yeast," he said.

Rudolph took the swabs back to First Magnitude to isolate the yeast and grow it in the brewery lab. Then, the brewers chose the strain they thought would taste best.

"As a company, First Magnitude has always had a conservation-oriented mindset. This is a pretty natural collaboration for us. It's a great way to contribute to a cause we feel strongly about," Rudolph said.

The team will host a second launch party at the Brass Tap in Tallahassee on May 25.

It's a Panhandle butterfly, so we really want to make that connection within the habitat. We're reaching a different group of people and exposing that information to people that may not directly come to the Florida Museum of Natural History," Daniels said.

Phil Harmon, 42, who attended the event and gave the beer a try, described the taste as "fruity, floral and hoppy."

[Posted in **The Gainesville Sun**: May 21, 2019 at 4:28 PM, Updated May 22, 2019 at 9:47 AM]

Comment by Tom Neal: "When I discovered *Incisalia iris* in Florida back in the 1980's I never thought it would lead to this."

[Many thanks to the Gainesville Sun for allowing the Southern Lepidopterists' Society to republish the interesting article on the relationship between the frosted elfin and beer.
Thanks also to Tom Neal who directed me to this interesting article - The Editor.]

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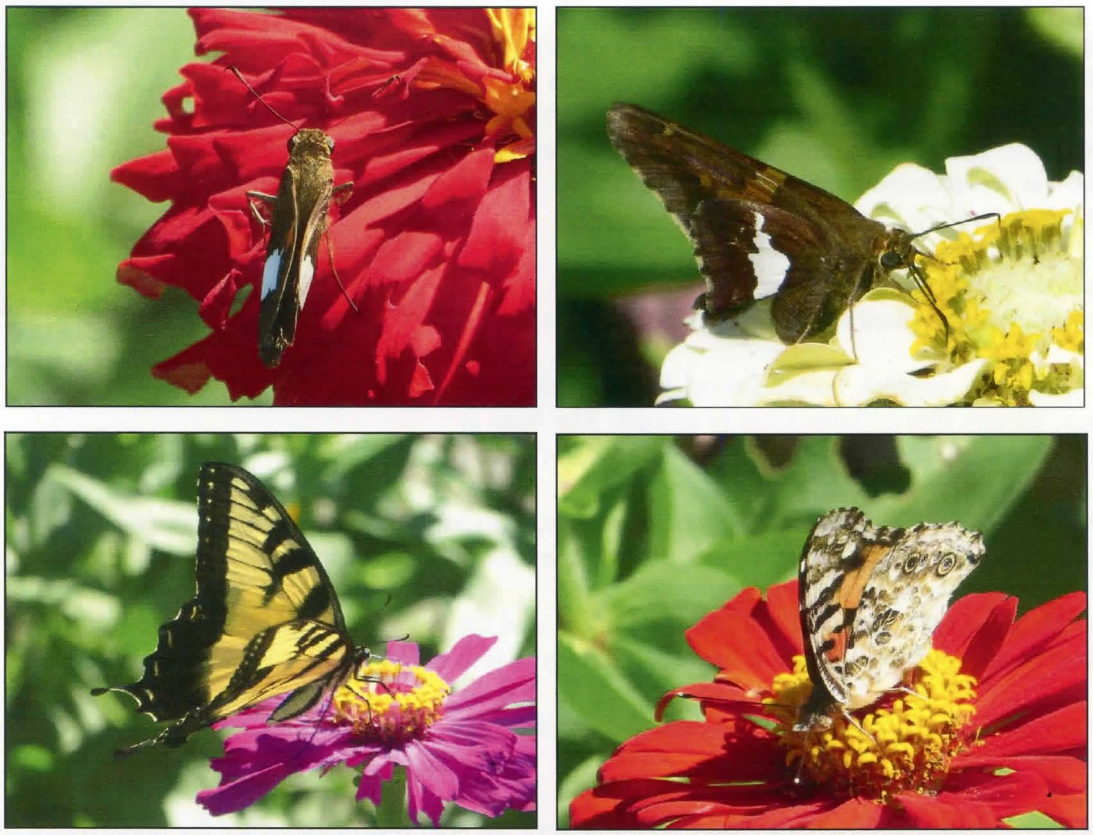
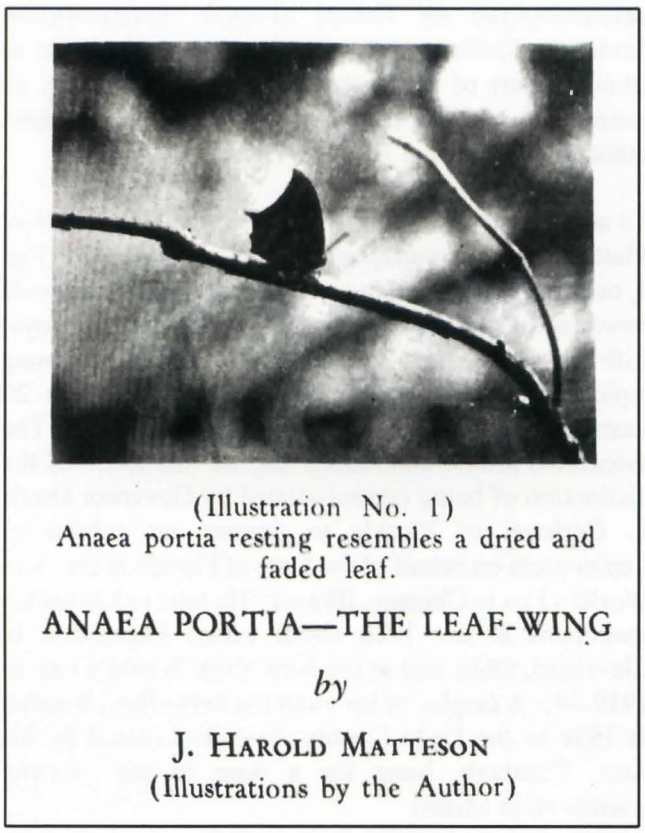


Matt Blaine's Garden – Laurel, Delaware (July 2019)

J. HAROLD MATTESON: LITTLE-KNOWN MIAMI LEPIDOPTERIST

BY
JOHN V. CALHOUN

In 1930, J. Harold Matteson privately published a 16-page pamphlet entitled *Anaea Portia – the Leaf-Wing and A List of the Rhopalocera of Miami, Florida* (Fig. 1). He partly dedicated the work to Elizabeth C. Runyon, remarking that she was a "companion of my many collecting trips." This publication is very rare, but I was fortunate to acquire a signed copy some years ago. More recently, I purchased an old press photo of Matteson, which was used for distribution to newspapers and magazines. This image renewed my interest in Matteson, but I realized that very little is known about him. He was mentioned by Osborn (1946), who misspelled his name as "Mattheson." A few authors (e.g. Calhoun et al. 2000, Heppner 2003, Salvato & Salvato 2008) cited his 1930 pamphlet, and Kimball (1965) listed Florida records that were gleaned from Matteson's correspondence. In an attempt to learn more about Matteson's life and contributions, I consulted historical records, city directories, entomological publications, and other relevant sources. I was surprised to discover that many of his activities and accomplishments were documented in newspaper articles. An obituary (Martin 1992) was also published in a local newspaper.



(Illustration No. 1)
Anaea portia resting resembles a dried and faded leaf.

ANAEA PORTIA—THE LEAF-WING

by

J. HAROLD MATTESON
(Illustrations by the Author)

Fig. 1. Detail from Matteson (1930).

Matteson was born on 31 July 1909 in Swissvale, Pennsylvania (near Pittsburgh), to parents Arze D. Matteson (1879-1957) and Eleanor S. Matteson (née Runyon) (1882-1962). I found no evidence of a full first name; even his birth certificate reads "J. Harold Matteson." I suspect his first initial was intended as an abbreviated form of the name Jay. He had one sibling, a younger sister, Eleanor E. Matteson (1918-2000).

Matteson was especially close to his mother's older sister, Elizabeth C. (Lizzie) Runyon (1876-?). Beginning in 1919, the pair traveled together to Florida, Cuba, and the Bahamas. The southern climate was thought to be beneficial to Matteson's health, and it was during seasonal visits to Miami that he became interested in butterflies at the age of ten. Elizabeth encouraged the boy to pursue butterflies as a way to get him out into the fresh air. They even visited St. Petersburg, Florida, where the young Matteson received helpful advice from the entomologist George Franck (1839-1923). Although Matteson was only ten years old and Franck was 80, they connected through their mutual interest.

Elizabeth permanently moved to Miami around 1920, ultimately settling at 27 NW 7th Avenue, where she worked as a music teacher and vocalist. Matteson moved in with her in October 1921 and started collecting butterflies for the Carnegie Museum of Natural History in Pittsburgh, located only about three miles from his former boyhood home in Pennsylvania. He sold 176 Lepidoptera specimens to the museum in 1922 (Gill 1923), and struck up a friendship with P. Hugo Kahl (1859-1941), then curator of entomology at the Carnegie. Matteson's material is of great historical value. For example, his specimens of *Nathalis iole* from 1921 are among the earliest known from Florida (Clench 1976). As a Boy Scout in 1922, he exhibited his butterflies at the Dade County Fair and won an award for his display.

In 1927, a photo of Matteson with some of his butterflies was published in a local Miami newspaper (Fig. 2, next page). At 17 years old he was already recognized as a local authority on Lepidoptera. In August 1928, he traveled to Cornell University in Ithaca, New York, to attend the Fourth International Congress of Entomology as a delegate from the Carnegie Museum with Hugo Kahl and the celebrated lepidopterist William J. Holland (1848-1932) (Anonymous 1929). The

following year, Matteson exhibited a portion of his Lepidoptera collection in the elegant lounge of the former Pancoast Hotel in Miami Beach. In 1930, he attended summer school at the University of Virginia and published his pamphlet on Miami butterflies (Matteson 1930), which he copyrighted on 21 March. An edited version of the portion about "*Anaea portia*" appeared in *Nature Magazine* the following year (Matteson 1931).

Fig. 2. J. Harold Matteson, age 17 (Anonymous 1927).

In 1932, Matteson became president of the short-lived Florida Society of Lepidopterists, a branch of the Florida Society of Natural History, for which he also served as the chairman of its committee on Lepidoptera. He was a co-editor of its mimeographed newsletter, *Lepidopterists' News*, of which only two numbers appeared, in 1932 and 1933 (vol. 1, nos. 1-2) (see dos Passos 1982). For the newsletter, Matteson contributed information about butterflies around Miami (Matteson 1932a), observations on nectar sources of *Stymon acis* (Matteson 1933a), and details about the life history of *Cocytius antaeus* (Matteson 1933b). Matteson's Aunt Elizabeth served as the publicity director of the organization and she penned an eloquent poem for the first issue. Meetings were held at the homes of members, including Florence M. Grimshawe (1896-1983), who is best known for her controversial article about the supposed demise of Schaus' Swallowtail in the Florida Keys (Grimshawe 1940). Probably because of Matteson's connection to the Carnegie Museum, W. J. Holland agreed to serve as honorary president of the Florida Society of Lepidopterists' in 1932. Around this time, Matteson and his aunt relocated to 3160 SW 2nd St. in Miami. His sister, Eleanor, moved in with them, attending the local schools and later becoming a teacher.

By 1932, Matteson's Lepidoptera collection reportedly contained 10,000 butterflies and moths. He exchanged specimens with domestic and foreign correspondents, and his collection was described as the largest south of Washington, D.C., valued at $100,000 (Lasky 1931). It seems unlikely that his collection was worth such a staggering amount, which is equivalent to over 1.7 million dollars in today's economy. Matteson admitted that "the price varies according to what the buyer will pay for it, and according to the specimens in the collection." Matteson probably estimated the value based on inflated prices in insect sales catalogs, such as those distributed by the scandalous California dealer James Sinclair (e.g. Sinclair 1917). Matteson's collection contained early stages as well as adults, which were mostly preserved in Riker mounts. Dressed in "traditional butterfly-catching clothes," Matteson hunted Lepidoptera "morning and afternoon, and he only kept perfect specimens, the others being "sent winging on their way again" (Lasky 1931).

In 1932, Matteson traveled to Paris, France, to participate in the Fifth International Congress of Entomologists. He was honored to serve as the official representative of the University of Miami, the Florida Society of Natural History, the State of Florida, and the Florida Entomological Society. While attending the Congress in July 1932, he wrote a letter to the Florida Entomological Society about his experiences (Matteson 1932b) and was elected a member of the Société entomologique de France (French Entomological Society). Unfortunately, the film he had planned to show as part of his presentation failed to arrive, so instead he gave out copies of his pamphlet on Miami butterflies (Matteson 1933b).

To accompany a newspaper article about his collection, Matteson was photographed on 11 November 1932 (Fig. 3, next page). This image was published in nationwide newspapers, as well as the February 1933 issue of Boys' Life magazine – surely a thrilling event for the young lepidopterist. Its caption identified Matteson as 20 years old, though he was actually three years older. The associated article announced that he had received the distinction of being commissioned by Governor Doyle E. Carleton of Florida to prepare an exhibit of Lepidoptera on behalf of the State of Florida at the 1933 World's Fair in Chicago, Illinois. He later exhibited his specimens at the 1936 Great Lakes Exposition in Cleveland, Ohio, and at the New York World's Fair in 1939-40. A display of his mounted butterflies, donated in 1936 to the Dade County Juvenile Council by his Aunt Elizabeth, hung for a time in the juvenile courtroom in Miami.

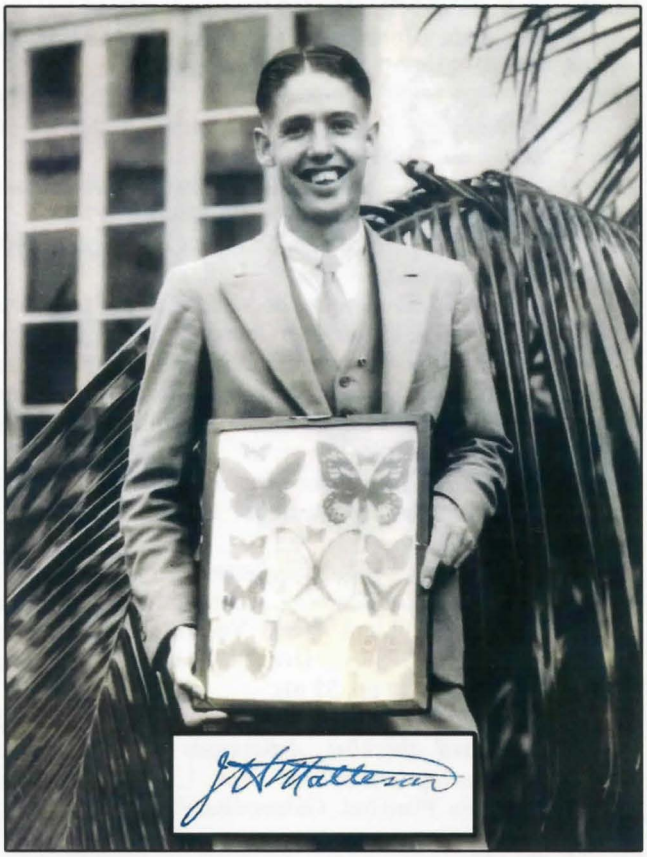


Fig. 3. J. Harold Matteson, age 23; signature from presentation copy of Matteson (1930) (both library of J. Calhoun).

After graduating from Miami Senior High School with honors, Matteson entered the University of Miami in the fall of 1927. He received an L.I. degree in teaching in 1930 and a B.S. degree in law in 1931. In 1933, he graduated magna cum laude with a Doctor of Jurisprudence degree. While attending college, Matteson reportedly earned up to $40 per week collecting and selling butterflies (Sullivan 1948). He was a very active student, enjoying membership in the Phi Beta Gamma fraternity, Society for Study of Insurance Problems, student senate, glee club, and the college band. He was admitted to the Florida Bar in June 1933 and became a practicing lawyer in 1934, but soon took up teaching and working as an assistant principal at Ada Merritt Junior High School in Miami.

In 1935, Matteson completed a map of Florida that was composed entirely from 5,000 butterfly wings. Measuring 36 inches long and 29 inches wide, each of the 67 counties was represented by a different color and species. Taking five years to construct, it was sent to New York City for a Florida exhibit at Rockefeller Center (Anonymous 1935). The map was also displayed in 1944 at the former Miami Beach Serviceman's Pier as part of an exhibition on Florida wildlife. It was certainly a different time, as such ornamental exploitation of wildlife would now be considered environmentally irresponsible.

Elizabeth, who had been Matteson's closest companion for over twenty years, died at age 60 in 1940. This traumatic event was offset in 1943 by Matteson's marriage to Mary Marjorie (Mollie) Fitzell (1907-1988) of Seattle, Washington. Sharing her husband's interest in education, she ultimately spent 25 years teaching second grade at Auburndale Elementary School in Miami. Together they had three children: J. Harold II, Elizabeth, and Mary Marjorie. The younger J. Harold is sometimes listed in public records as Jay Matteson, supporting the idea that his father's first initial was a shortened form of Jay.

Matteson continued his interest in Lepidoptera, and again made national news when he identified three specimens of the rare Bahama Swallowtail *(Papilio andraemon bonhotei)* that were collected in Miami on 3 May 1940 by one of his students, 15 year old William Sawyer (Anonymous 1940). These specimens were the first known Florida specimens of the species since 1902. Matteson sent a male and female to J. F. Gates Clarke of the National Museum of Natural History (Smithsonian Institution, Washington, D.C.), who published details about their capture (Clarke 1940). During the Second World War, Matteson collected around Miami with the California zoologist and lepidopterist John S. Garth (1909-1993), who was stationed at the Boca Raton Army Base while serving in the Army Air Corps (Emmel 1987).

According to his 1940 draft card, Matteson was 6 feet, one inch tall, 154 pounds, with a light complexion, brown eyes, and brown hair. He was described as an "earnest, hard worker, and a fine fellow as well" (Silver 1944). Deeply religious, he began teaching Sunday school to children when he was just ten years old, and he continued to teach at his local church in Miami for many years. As a young adult, he served as the local director of the National Conference of Christians and Jews. He was involved in many civic activities and was an officer of the Student Pan American Clubs and served on the Dade County Juvenile Council. Although Matteson was interested in Lepidoptera for most of his life, he was never a member of the Lepidopterists' Society, which was established in 1947.

During June 1952, the Matteson family embarked on a 10,000 mile automobile trip to Seattle, Washington, returning home by way of New York. This predated the construction of the interstate system, but they made the long trip more tolerable by stopping at Carlsbad Caverns, Yosemite National Park, Glacier National Park,

and Grand Coulee Dam (Anonymous 1952). At least one butterfly net surely journeyed with them.

In 1953, Matteson became an assistant director of site planning for the Dade County school system. He selected over 100 locations for schools, most notably Dade County Junior College (now Miami-Dade College). He also helped with visual education at Kinloch Park Junior High School in Miami, where his sister taught. His site planning skills were nationally recognized (Kjos 1971) and he was awarded the Lambda Alpha Key for outstanding contributions in his field. He remained in that position (Fig. 4) until his retirement in 1973, when he moved to Tampa. Living in Temple Terrace later in life, he died at the age of 82 on 12 June 1992, four years after his wife, and was interred next to her at Sunset Memorial Gardens in Thonotosassa. What became of his Lepidoptera collection is unknown.

Fig. 4. J. Harold Matteson, age 59, pinpointing school construction sites (Leyden 1968).

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(John V. Calhoun: E-mail: bretcal1@verizon.net)

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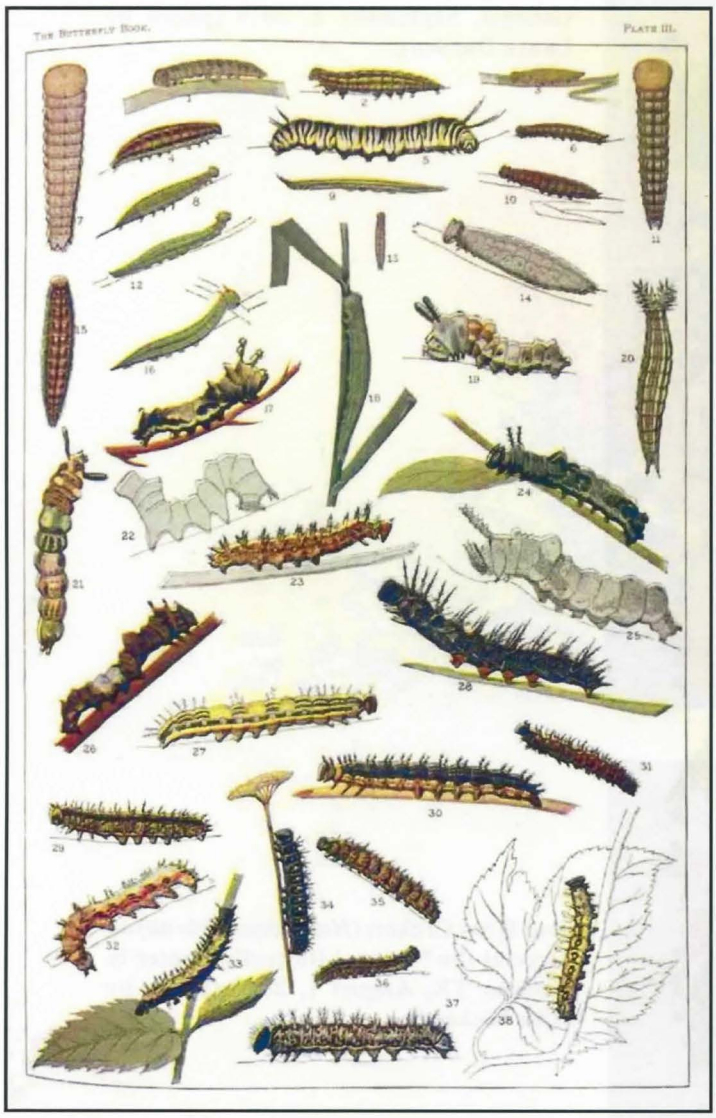

EXPLANATION OF PLATE III

Reproduced, with the kind permission of Dr. S. H. Scudder, from "The Butterflies of New England," vol. iii, Plate 74.

CATERPILLARS OF NYMPHALIDÆ

1. *Œneis semidea.* Penultimate stage.
2. *Œneis semidea.*
3. *Neonympha eurytus.*
4. *Œneis semidea.*
5. *Anosia plexippus.*
6. *Neonympha eurytus.*
7. *Œneis semidea.* Just hatched.
8. *Neonympha phocion.*
9. *Satyrodes canthus.*
10. *Neonympha eurytus.*
11. *Œneis jutta.* Just hatched.
12. *Neonympha phocion.*
13. *Neonympha eurytus.* Penultimate stage.
14. *Neonympha eurytus.* Plain and enlarged.
15. *Œneis semidea.*
16. *Debis portlandia.*
17. *Basilarchia astyanax.*
18. *Satyrus alope.*
19. *Basilarchia disippus.*
20. *Chlorippe clyton.*
21. *Basilarchia astyanax.*
22. *Basilarchia disippus.* Plain outline to show the attitude sometimes assumed.
23. *Grapta interrogationis.*
24. *Basilarchia disippus.*
25. *Basilarchia astyanax.* **Plain.**
26. *Basilarchia arthemis.*
27. *Grapta interrogationis.*
28. *Vanessa antiopa.*
29. *Junonia cœnia.*
30. *Junonia cœnia.*
31. *Grapta progne.*
32. *Grapta faunus.*
33. *Grapta satyrus.*
34. *Pyrameis huntera.*
35. *Pyrameis atalanta.*
36. *Vanessa milberti.*
37. *Pyrameis cardui.*
38. *Grapta comma.*

THE BUTTERFLY BOOK, A Popular Guide To A Knowledge of The Butterflies of North America, W. J Holland (1914)

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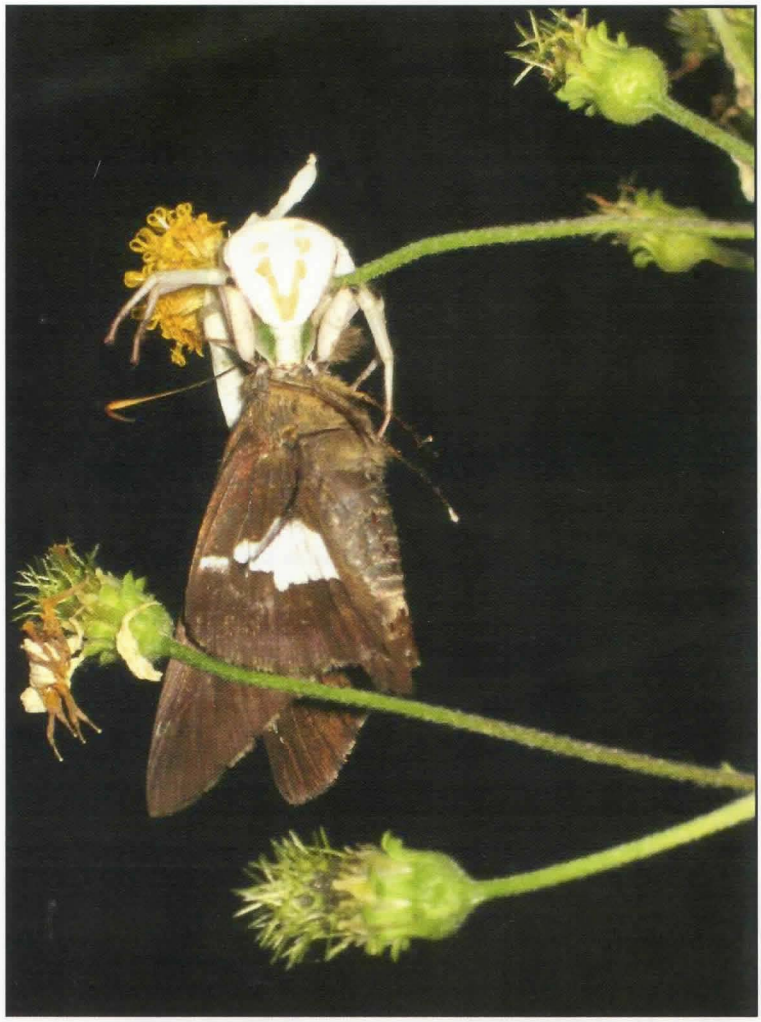
MANY THANKS TO THE FOLLOWING MEMBER WHO DONATED TO THE SL SOCIETY THIS QUARTER

Sustaining

Jerry Walls



Silver-spotted skipper (*Epargyreus clarus*) captured and being eaten by a female whitebanded crab spider (*Misumenoides formosipes*) on *Bidens* flower, Statesboro, Georgia, September 8, 2019 (photo by Lance Durden).

Four Gray Crckers (*Hamadryas februa*) on a tree at the National Butterfly Center in Mission, TX, August 1, 2019 (photo by Mike Rickard).

DYNASTES TITYUS (LINNAEUS, 1763) (COLEOPTERA: SCARABAEIDAE: DYNASTINAE) IN LOUISIANA

BY

JUNSUK KIM AND VERNON ANTOINE BROU JR.

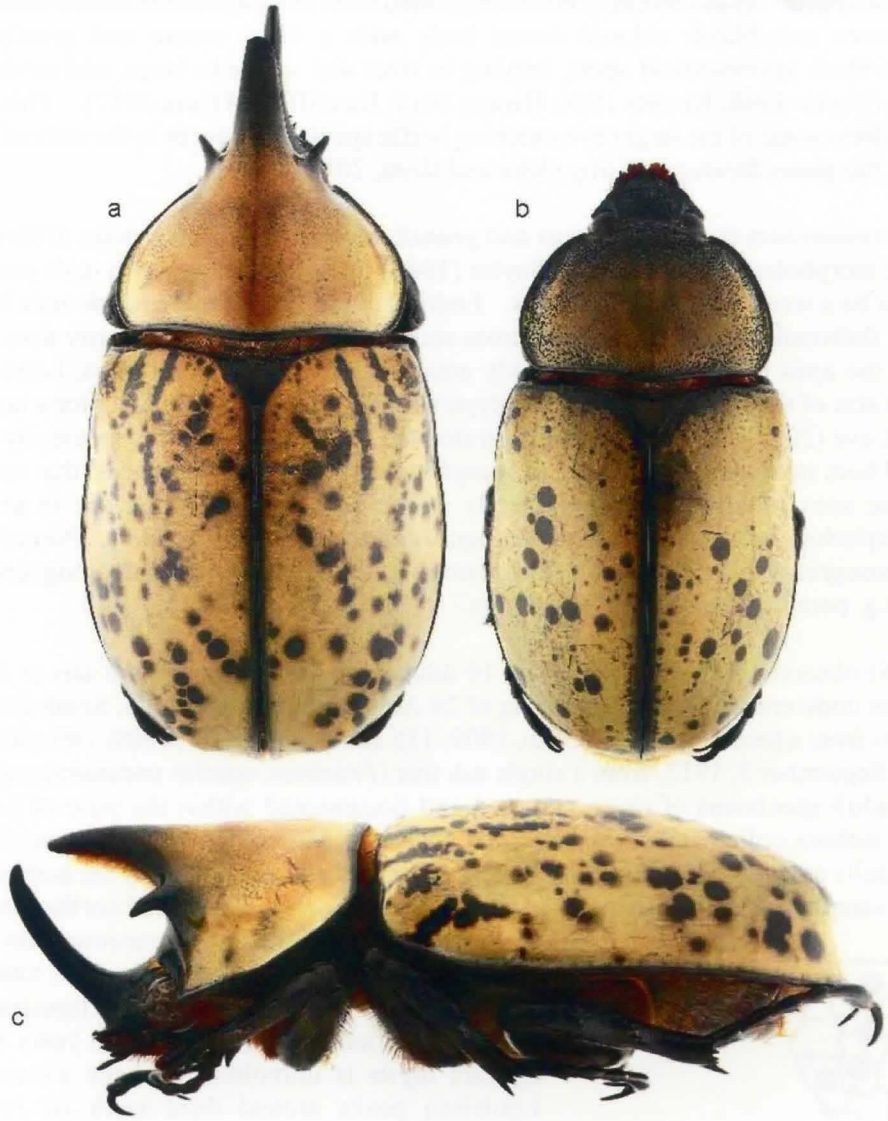


Fig. 1. ***Dynastes tityus***, dorsal views: a. male (Shreveport, Caddo Parish), b. female (Provencal, Natchitoches Parish), c. lateral view male (Shreveport, Caddo Parish).

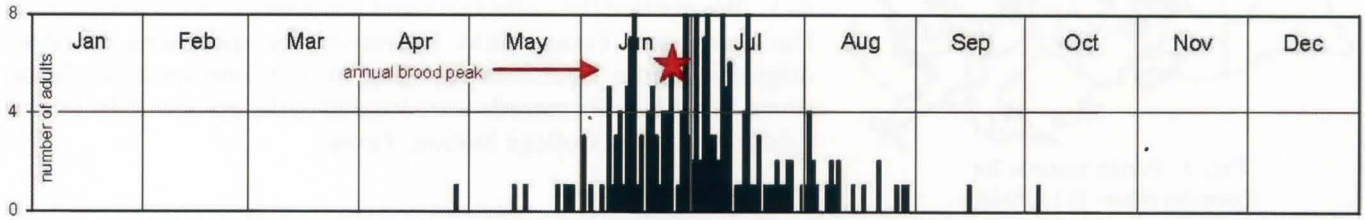


Fig. 2. Phenology of adult ***Dynastes tityus*** captured in Louisiana. n = 229

The dynastine scarab beetle genus ***Dynastes*** MacLeay, 1819 currently contains eight species with 12 subspecies found in the New World. Huang (2017) revised genus and elevated 10 taxa originally designated as subspecies to full species status, however, Ratcliffe and Cave (2017) totally disagree with that. Species of ***Dynastes*** are recognized as having large to very large bodies with long, forward projecting pronotal horns. Two species of the genus ***Dynastes*** are found in the United States: ***Dynastes grantii*** Horn, 1870 occurring in southwestern United States, and ***Dynastes tityus*** (Linnaeus, 1763) (Fig. 1) occurring in the southeastern United States without overlapping distributions. The species ***tityus*** can easily be distinguished from other dynastine scarab beetles by its yellow-brown to olive-green, even pale-bluish colored dorsal body with a black suture and greatly varying amounts of reddish-brown to black asymmetrical spots, varying in sizes and sparse to large, and moderately dense to nearly mottled on elytra (Saylor 1948; Ritcher 1966; Hwang 2011; Ratcliffe and Cave 2017). This study is a continuation of our work to address some of the larger eye-catching beetle species that occur in the state of Louisiana, as similarly done concerning the genus ***Strategus*** Kirby (Kim and Brou, 2018).

Several previous researchers stated both ***tityus*** and ***grantii*** are closely related species difficult to distinguish based upon describable morphological characters. Saylor (1948) found no difference in male parameres, and suggested that ***grantii*** might be a weak subspecies of ***tityus***. Endrödi (1976) stated that ***grantii*** male has a pronotal horn that is dorsoventrally flattened, slender, is round in cross section, broad in its base, shorter than the prothorax in major males, and with the apex entirely or only weakly emarginated. These differences, however, tend to disappear depending on the size of the specimens and phenotype variations, and are unreliable for a taxonomic key according to Ratcliffe and Cave (2017). Morón (2009) separated the two visually similar species by an absence of a dorsal tooth on the head horn in ***tityus*** while present in ***grantii*** and by the prosternal process that on its posterior surface is setose only at the apex of ***tityus*** while completely setose on the posterior surface in ***grantii.*** Ritcher (1966) described the morphology of larval stage with distinguishable taxonomic characters. Pinned and stored dead adults of ***tityus*** can become greasy and turn unnaturally brown in color over time, especially long term exposure to chemical pest fumigants, e.g. paradichlorobenzene and others.

Cartwright (1976) observed 44 adult males and 10 adult females feeding on the sap or inner bark of ash trees (*Fraxinus*, species undetermined) on the morning of 24 August 1928 at Meredith, South Carolina. Manee (1915) acquired 31 adults from a local boy on July 30th, 1909; 115 adults on July 31, 1909; 189 adults on August 22, 1909; and 27 adults on September 3, 1912, from a single ash tree (*Fraxinus*, species undetermined). This study compiles records for 229 adult specimens of ***tityus*** captured and documented within the state of Louisiana in the private collections of the authors, colleagues, Louisiana State Arthropod Museum (LSAM), and previously published reports in Louisiana. Adults of ***tityus*** housed at LSAM were examined and confirmed by the authors. The majority of the specimens in our sample were captured at the **Abita entomological study site*, and are the result of bycatch targeting lepidoptera using light traps year-round for 50 consecutive years (1969-2019). About 70 specimens of our total sample population (n = 229) are males, the remainder are females. Date range for our study population sample includes the years 1892-2019 (Fig. 2). It appears ***tityus*** is univoltine, and the annual brood population in Louisiana peaks around third week of June. A few Louisiana specimens were not included in the phenogram (Fig. 2) because they lacked specific dates of capture. The Louisiana parish records for ***tityus*** listed in this study are illustrated in Figure 3, and are listed alphabetically in Table 1. Examples of phenotype variations of elytra maculation found upon ***tityus*** in this study are illustrated in Figures 4–5. We queried the collections and databases of Mississippi State University and Texas A&M University for specimens of ***tityus*** originating from Louisiana resulting in only one specimen being found in MSU. Six records were located in the private collection of Edward G. Riley, College Station, Texas.

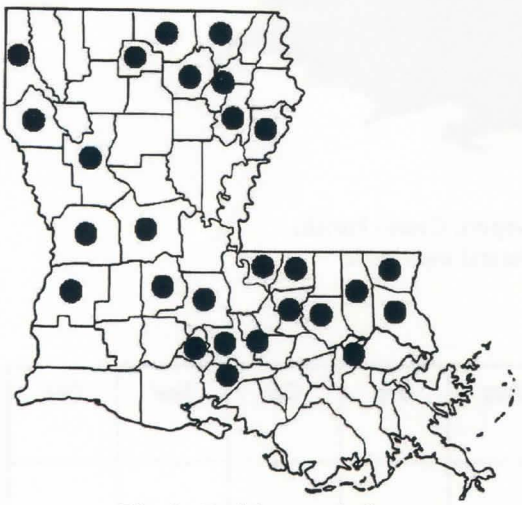


Fig. 3. Parish records for ***Dynastes tityus*** in Louisiana.

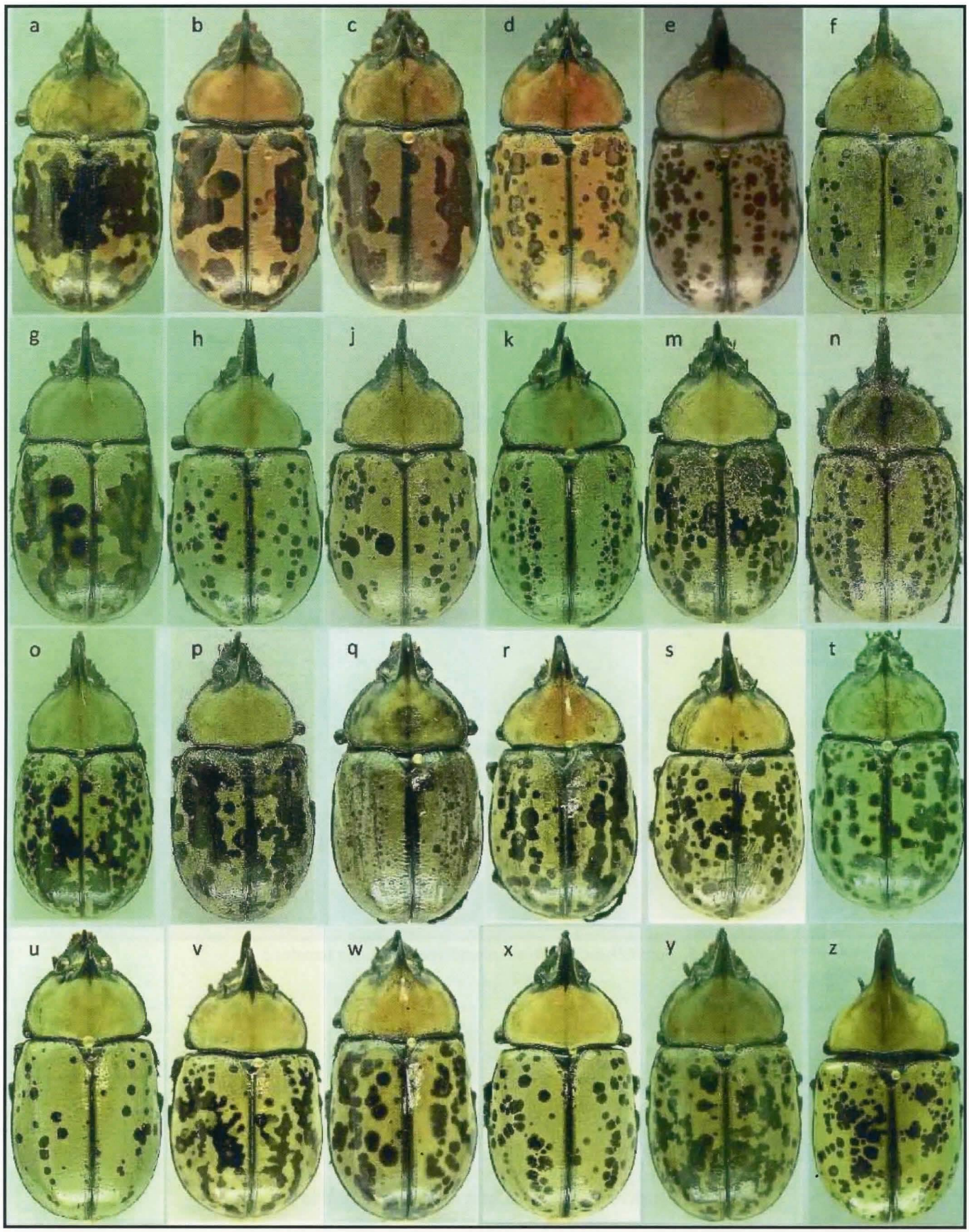


Fig. 4. Adult ***Dynastes tityus***: phenotype variations males a - z.

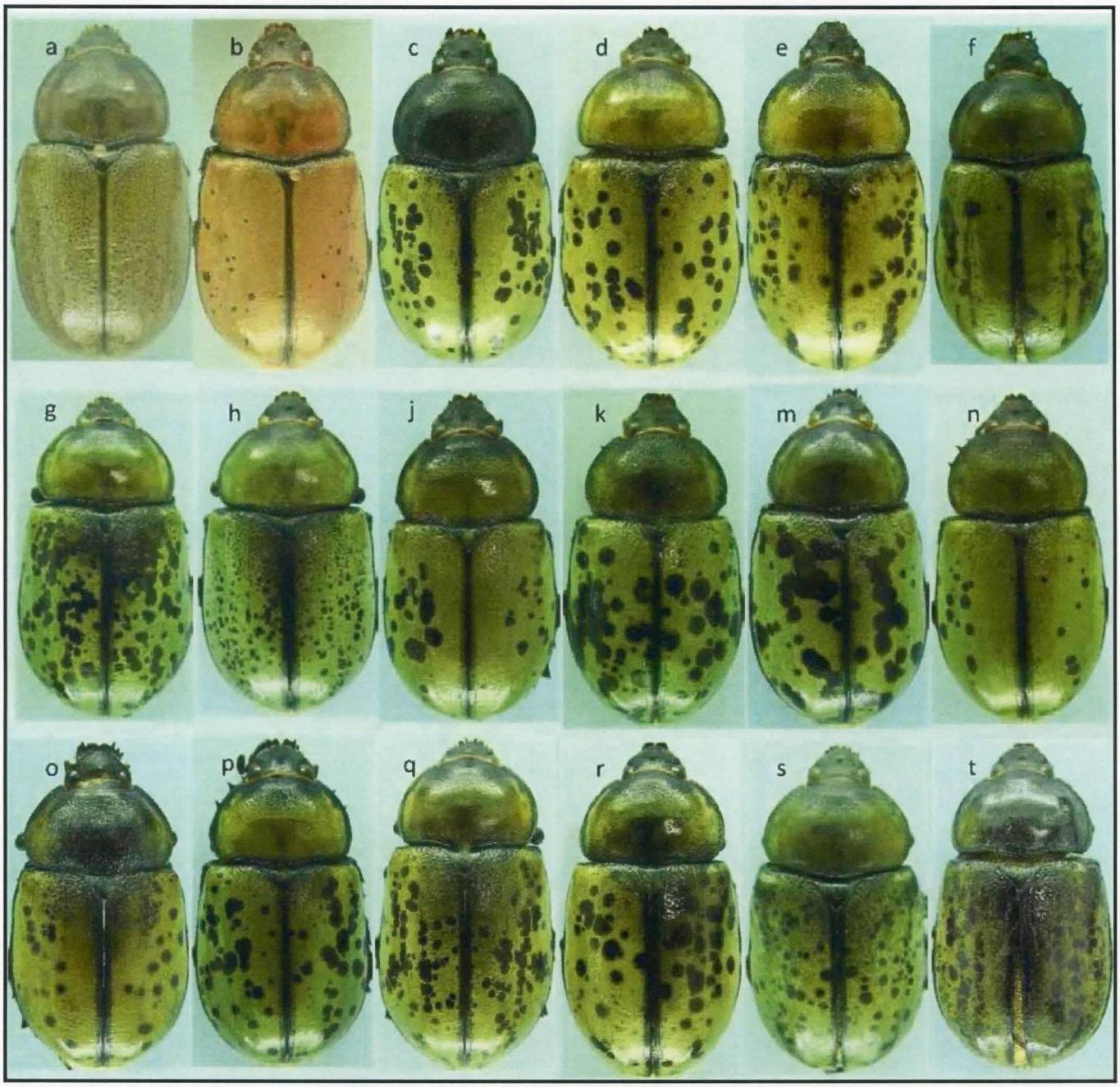


Fig. 5. Adult ***Dynastes tityus***: phenotype variations females a - t.

Beauregard	Iberia	Ouachita	Tangipahoa
Caddo	Iberville	Rapides	Tensas
DeSoto	Lafayette	Richland	Union
East Baton Rouge	Lincoln	St. John the Baptist	Vernon
East Feliciana	Livingston	St. Landry	Washington
Evangeline	Morehouse	St. Martin	West Feliciana
Franklin	Natchitoches	St. Tammany	

Table 1. Parish records for ***Dynastes tityus*** documented in this study.

**Abita entomological study* site: sec.24, T6S, Range 12 East, 4.2 miles northeast of Abita Springs, St. Tammany Parish, Louisiana, USA.

Acknowledgements

The authors acknowledge and thank the following individuals and colleagues for specimen records, access to research collections, verifiable records and beneficial information, peer-review and comments included in this report: Charles M. Allen (Pitkin, LA), Victoria Moseley Bayless (LSAM, Baton Rouge, LA), Mary Beth Broussard (Lafayette, LA), Christopher E. Carlton, (LSAM, Baton Rouge, LA), and Nathan Lord (LSAM, Baton Rouge, LA), Chun Chong (Shreveport, LA), Richard Lee Brown (Mississippi State Univ., Starkville), James W. Beck (Marrero, LA), Jason Horton (New Iberia, LA), Seul-Ma-Ro Hwang (Seoul, South Korea), Brennan Landry (Lobdell, LA), Jennifer Myers (DeRidder, LA), Brett C. Ratcliffe (Univ. of Nebraska State Museum, Lincoln), Edward G. Riley (Texas A&M Univ., College Station), and Justin Seo (Houston, TX.)

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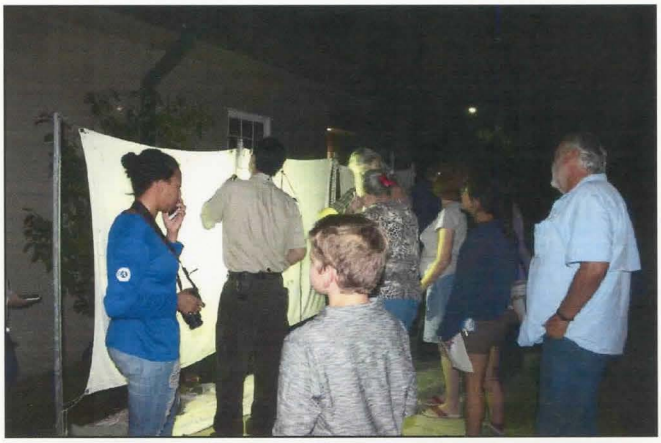
TO ALL MOTH-ERS

BY

STUART MARCUS

Don't know what was more exiting - all the moths we saw or all the people who showed up to see them. More than 50 of you spent part of an evening at the Trinity River National Wildlife Refuge (Texas) to learn about these beautiful creatures. Most number of folks we have ever had. Best part of that was nearly all of you that came were "newbees" so my Power Point Presentation wasn't a repeat! I recorded 64 species (some unknowns) but I know some of you more "hard core moth-ers" photographed a few that I missed. If you have some that are not included in the list below, please send me a photo and I will add them to the nightly list. Hope you had as much fun as I did. Thanks!!



Achyra rantalis - Garden Webworm Moth - Hodges#4975
Acrobasis texana - Hodges#5666.1
Acronicta lepetita-paupercula-vinnula complex
Apoda y-inversum - Inverted Y Slug Moth - Hodges#4667
Argyria lacteella - Milky Urola - Hodges#5463
Argyrogramma verruca - Golden Looper - Hodges#8885
Artace cribrarius - Dot-lined White - Hodges#7683
Baileya acadiana - Hodges#8971.1
Caloptilia stigmatella - Hodges#0639
Caloptilia triadicae - Hodges#0644.1
Clepsis peritana - Garden Tortrix - Hodges#3688
Cochylis hospes - Banded Sunflower Moth - Hodges#3777
Condylorrhiza vestigialis - The Alamo Moth - Hodges#5215
Cutina aluticolor - Hodges#8729.1
Cydia caryana - Hickory Shuckworm Moth - Hodges#3471
Darapsa myron - Virginia Creeper Sphinx - Hodges#7885
Dasychira meridionalis - Southern Tussock Moth - Hodges#8298
Datana integerrima - Walnut Caterpillar Moth - Hodges#7907
Desmia sp
Dioryctria pygmaeella - Bald Cypress Coneworm Moth - Hodges#5849
Elophila tinealis - Hodges#4754
Eudryas unio - Pearly Wood-Nymph - Hodges#9299
Galgula partita - The Wedgeling - Hodges#9688
Heteropacha rileyana - Riley's Lappet Moth - Hodges#7685
Homophoberia apicosa - Black Wedge-Spot - Hodges#9057
Homostinea curviliniella - Hodges#0301
Hymenia perspectalis - Spotted Beet Webworm Moth - Hodges#5169
Hyphantria cunea - Fall Webworm Moth - Hodges#8140
Idia americalis - American Idia - Hodges#8322
Lacosoma chiridota - Scalloped Sack-bearer - Hodges#7659
Ledaea perditalis - Lost Owlet - Hodges#8491
Leptostales pannaria - Pannaria Wave Moth - Hodges#7173
Macrorrhinia endonephele - Hodges#5913
Marimatha nigrofimbria - Black-bordered Lemon Moth - Hodges#9044
Mellilla xanthometata - Orange Wing - Hodges#6271.1
Mompha eloisella - Red-streaked Mompha - Hodges#1443
Neohelvibotys neohelvialis - Hodges#4977
Ozarba nebula - Hodges#9033
Palthis asopialis - Faint-spotted Palthis - Hodges#8398
Panopoda carneicosta - Brown Panopoda - Hodges#8588
Panopoda rufimargo - Red-lined Panopoda - Hodges#8587
Parapediasia teterrella - Bluegrass Webworm Moth - Hodges#5451
Parapoynx allionealis - Watermilfoil Leafcutter - Hodges#4764
Pero zalissaria - Hodges#6752
Platynota flavedana - Black-shaded Platynota Moth - Hodges#3732
Pleuroprucha insulsaria - Common Tan Wave - Hodges#7132
Prochoerodes lineola - Large Maple Spanworm - Hodges#6982
Prolimacodes badia - Skiff Moth - Hodges#4671
Psamatodes abydata - Dot-lined Angle - Hodges#6332
Pselnophorus belfragei - Belfrage's Plume Moth - Hodges#6154
Pyrausta tyralis - Coffee-loving Pyrausta Moth - Hodges#5069
Pyrrharctia isabella - Isabella Tiger Moth - Hodges#8129
Samea baccatalis - *Samea baccatalis* - Hodges#5152
Samea multiplicalis - *Salvinia* Stem-borer - Hodges#5151
Sparganothis sulfureana - Sparganothis Fruitworm Moth - Hodges#3695
Spodoptera frugiperda - Fall Armyworm Moth - Hodges#9666
Stigmella sp

Synchlora frondaria - Southern Emerald Moth - Hodges#7059
Tarache aprica - Exposed Bird Dropping Moth - Hodges#9136
Triclonella bicoloripennis - Hodges#1528
UNK *Crambinae*
UNK GELECHIIDAE
Urola nivalis - Snowy Urola - Hodges#5464
Virbia laeta - Joyful Virbia - Hodges#8114

***Mompha eloisella* - Red-streaked Mompha**

Triclonella bicoloripennis

Caloptilia stigatella

***Eudryas unio* - Pearly Wood-Nymph**

Pero zalissaria

Facebook Page: https://www.facebook.com/pages/Trinity-River-National-Wildlife-Refuge/178339332279191
Our Website: http://www.fws.gov/refuge/trinity_river/

(Stuart Marcus, Refuge Manager, Trinity River National Wildlife Refuge; E-Mail: stuart marcus@fws.gov; phone: (936) 336-9786)

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A RARE AND BRIEF GLIMPSE INTO THE AFTERMATH OF NOTED TEXAS LEPIDOPTERISTS EDWARD C. KNUDSON AND CHARLES BORDELON

BY

VERNON ANTOINE BROU JR.

In early 2019 under arrangements with the legal court appointed executors of both the estates of Ed Knudson and Charles Bordelon, I was hired to remove all of the toxic and deadly chemicals from the estate and private residence in Houston, Texas. I was given carte blanche access to the estate, every room, every drawer, and every cabinet, etc. While in the residence over nine hours, I also picked up and removed a considerable portion of the entomological library and entomological equipment from Ed Knudson's home (also residence of C. Bordelon) in Houston. There were nearly 100 cyanide killing jars, and scores of jars and bulk containers of reagent grade cyanide, cyano-gas, and three to four dozens of other entomologically useful different chemicals: xylene, ethyl acetate, methanol, acetone, etc., etc. There were probably 1000+ journals, newsletters, and numerous dozens of nearly impossible to find great reference books on lepidoptera, especially moths, and other insects of US, Canada, Mexico, a few fascicles of Moths of North America series, and some self-authored and self-printed volumes of Atlas of Texas Moths, etc. etc. There was some photographic chemicals and photographic equipment including a Nikon camera, decades of personal and entomological related photographic slides, many thousands of insect pins, and other useful entomological laboratory/dissection equipment, dozens of pheromone traps, several light traps, several bait traps, lots of MV lamps of various identities, and fluorescent BL and BLB tubes of various identities, on and on. I have much (probably all) of the working paper records and digital files on 97 or so DVD/CDs for Texas and other areas in NA that were compiled by Knudson and Bordelon on their lifetime of lepidoptera research centered upon the state of Texas. Apparently I obtained all the digital files masters (texts and color plates) used to create the many volumes of 'Atlas of Texas Moth' series. I also recovered numerous thousands of papered butterflies collected/purchased over many decades by Knudson & Bordelon. Some of these papered specimens include, e.g., numerous hundreds of Lycaenidae (blues and coppers) collected over decades in Texas and southwestern states, some interesting exotics, including, e.g., containers of Papilios captured in India over a century ago still in original paper triangle envelopes made from century old dated print newspapers at the times they were collected.

I returned with much of both Knudson's and Bordelon's entomological traps, and other collecting equipment including nearly 50 Schmidt boxes, some with pinned and spread butterflies and moths. These traps were not really needed by me, though this increased my personal insect trap inventory to a total of 450-500 units. Of course I obtained all of these things legally in an 11 hour rain-filled round trip drive getting the load of reference books, journals, newsletters, reprints, and equipment. Based on my initial tally, Knudson and Bordelon possessed only about 2 dozen pheromone bucket traps used for sesiids, some of which were still operating at the residence in Houston and still containing semiochemical sesiid lures and captured specimens. Not only valuable entomological items originating from Knudson and Bordelon, but I also recovered numerous filled boxes and five metal file cabinets containing Andre Blanchard's lifetime of hand prepared paper records (predating pc age) of Texas lepidoptera, esp. moths that were in Knudson's possession from decades in the past. Andre Blanchard (1896-1986) was a member of the Lepidopterists Society and the Southern Lepidopterists Society among others. Blanchard died at 90 years of age on 7 October 1986 after several months of post-operative complications involving a non-healing hip fracture and subsequent infection. I am lucky enough to have fond memories of visiting Andre at his home in Houston in the early 1980s, as I often did with other noted lepidopterists of the past, e.g., Charles P. Kimball whom I visited at his home in West Barnstable, Massachusetts, and William E. Seiker whom I visited at his home in Madison Wisconsin, and others.

I visited with Ed many times back from the late 70s through mid-80s, while on numerous week-long and continuous business trips to Houston and Baytown as a Senior Quality Assurance Engineering consultant monitoring and overseeing the first ever fabrication of 48" diameter line pipe in the US, at U.S. Steel's Baytown facility and later as a regional technical representative (mill rep.) for Algoma Steel, Slt. St. Marie, Ontario, Canada. And both Knudson and Bordelon were constant correspondents of mine via mail, and more recent decades by E-mail involving matters of lepidoptera. Ed was a Medical Radiologist who worked at a Houston Area Hospital and Charles was a Social Worker. My most interesting and noteworthy observation is that Ed only labeled the contents of a single jar/container of all the deadly chemicals found in his home. That was a single

5 lb glass jar of KCN discovered on a ceiling high shelf in a washroom. One hudred or so other glass jars containing toxic liquids, NaCN and KCN some in large glass bulk containers were lying in or on just about any bookshelves, cabinets, drawers and closets in any room of his two-story home.

Ed died on the first night of a field trip to west Texas (heart attack) after setting up his traps and returning to his hotel room. He was alone, apparently. I also obtained numerous reprints, literature and records of several other Texas lepidopterists of the past, and some still present. Ed was adopted as a child: he had no known existing relatives. Fellow lepidopterist Charles Bordelon shared the residence at 8517 Burkart Road, along with a housekeeper. Ed never straightened up his life or belongings. He had varied interest in other things besides lepidoptera. He spent a lot of money purchasing many expensive sports cars.

If something broke, he bought more and more, and more. Ed and Charles apparently never repaired anything, e.g., I returned with perhaps 50+ alternating current and battery operated fluorescent (Bioquip) lamps. All of these fluorescent lamps have easily broken flimsy wires due to low cost design criteria and lackluster care during field use and transportation.

This 2019 season is keeping me busy with the material I have at home. I have 20-30 traps operating here at home near Abita Springs, Louisiana, but I also have 88 sesiid traps operating on a tree farm in NW Louisiana. Always too many projects and tasks. My wife says I keep doing too many new things that I don't actually have time for. No doubt she is right.

Ed Knudson (L) Charles Bordelon (R) visiting Vernon and Charlotte Brou at Abita Springs, Louisiana, June 23, 2013.

(Vernon Antoine Brou Jr., 74320 Jack Loyd Road, Abita Springs, Louisiana 70420 USA)

REPORTS OF STATE COORDINATORS

Alabama: C. Howard Grisham, 573 Ohatchee Road, Huntsville, AL 35811, E-Mail: chgrisham@Comcast.net

Arkansas: Mack Shotts, 514 W. Main Street, Paragould, AR 72450, E-Mail: cshotts@grnco.net

Bob Hardin and Craig Marks walked Nacatoch Ravines Natural Area today (June 28, 2019). "It was really hot but we saw a lot of butterflies. There were large amounts of purple cone flowers in bloom, along with Queen Anne's Lace, Bee Balm and some butterfly weed. Thirty-one species!"

6 Pipevine Swallowtail
1 Zebra Swallowtail
5 Black Swallowtail
15+ Eastern Tiger Swallowtail
7 Giant Swallowtail
3 Spicebush Swallowtail
2 Cloudless Sulfur
25+ Southern Dogface
1 Little Yellow
6 Sleepy Orange
8 Red-banded Hairstreak
1 Summer Azure
1 Eastern Tailed-blue
1 American Snout
4 Monarch
1 Variegated Fritillary
15+ Pearl Crescent
3 Buckeye
1 Red Admiral
4 Red-spotted Purple
1 Hackberry Empress
10+ Carolina Satyr
1 Creole Pearly-eye
(a male which I caught to confirm identification)
5 Common Wood Nymph
4 Hoary Edge
4 Northern Cloudywing
1 Swarthy Skipper
2 Clouded Skipper
3 Least Skipper
1 Southern Broken-dash
2 Dun Skipper

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

Florida report by Charles V. Covell Jr.

Gainesville, Alachua Co., April 1 – July 31, 2019.

Parhassius m-album April 3
Libytheana carinenta April 3, May 6
Danaus plexippus, April 10, 15, 16, 18, 22, 23, May 13, 14, 15, 17, 20, 24, June 1, 11, 17, 18, 20, July 14, 16, 17, 20, 23, 25, 30, 31
Heliconius charithonia, April 11, 18, 24, May 14, 15, June 14, 18, 21, 24, July 4. 14, 15, 27 , 28, 30
Phoebis sennae, April 14, 16, June 18, July 20, 23, 27, 30
Phoebis philea, April 16
Agraulis vanillae, April 16, 18, 27, May 6, 14, 21, 23, June 20, 25, July 2, 20, 23, 25, 30
Erynnis horatius, April 19, 29, May 15, 18, 21, June 25, 29, July 27
Hylephila phyleus, May 14, 23, June 1, 11, 15, 29, July 2, 20, 23, 27
Junonia coenia, May 14, 21,
Papilio palamedes, May 21, June 1, 15
Papillio glaucus, May 23, July 2, 30
Papilio polyxenes asterius, May 23, June 1, July 27, 30
Heraclides cresphontes, May 24, June 25, July 2, 4, 20, 29
Papilio troilus, May 31, July 27
Panoquina ocola, June 18
Vanessa atalanta, June 29
Abaeis nicippe, July 20, 30
Leptotes cassius, July 20
Danaus gilippus, July 23
Urbanus proteus, July 25
Pyrgus oileus, July 31

As if this writing (Aug. 21) the butterfly numbers are much greater than I observed in the late spring and early summer around Gainesville, FL. Workers on the Schaus Swallowtail project in South Florida told me that numbers of *Papilio aristodemus ponceanus* were higher this spring than in recent years. The Bahamian Swallowtail, *Papilio bonhotei*, was also recorded in the Key Largo - Biscayne National Park study area.

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

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 2019 unless otherwise specified.

Cherry Log, Gilmer Co., 2000ish feet, May 30-31:
HEPIALIDAE: *Sthenopis pretiosa* (third and fourth records from state, all from this county). **GEOMETRIDAE**: *Lytrosis permagnaria* (COUNTY), *Cepphis decoloraria*. **NOCTUIDAE:** *Pseudeva purpurigera* (COUNTY, third record for the state), Neoligia crytora (COUNTY; very uncommon in state), *Phologophora iris* (COUNTY, second location in state [Brasstown Bald is the other]).

Rocky Face ridgeline, just W of Dalton at crest of Dug Gap Battle Rd., Whitfield Co:
June 2-3:
LIMACODIDAE: *Euclea semifascia*. **GEOMETRIDAE:** *Erastria cruentaria*. **SPHINGIDAE:** *Sphinx franckii*. **EREBIDAE:** *Dinumma deponens*. **NOCTUIDAE:** *Apamea vulgaris, Abagrotis magnicupida*.
July 27-28:
CRAMBIDAE: *Diaphania costata* (COUNTY). **SPHINGIDAE:** *Manduca rustica*. **EREBIDAE:** *C. vidua* (EARLY), *Catocala ulalume* (8 specimens!), C. *sappho, C. epione* (LATE). **NOCTUIDAE**: *Spragueia dama, Acronicta rubricoma, A. dactylina, A. morula, A. funeralis, A. noctivaga, Harrisimemna trisignata, Schinia granidmedia, Tricholita signata* (EARLY).
August 7-8:
SPHINGIDAE: *Smerinthus jamaicensis* (surprisingly uncommon in northern GA). **NOCTUIDAE:** *Acronicta fallax, Properigea* near *costa*.

Carbondale, Whitfield Co., I-75 exit 326, at gas station lights:
June 4:
LASIOCAMPIDAE: *Heteropacha rileyana* (quite uncommon in Georgia).
August 13:
GEOMETRIDAE: *Idaea tacturata*. This is the third record of this moth in NW Georgia in the last two years (see below under "Calhoun"). Prior to that, I had NEVER seen this typically coastal plain moth in northern GA. Climate change anyone??

Calhoun (at the Walmart lights), Gordon Co., July 29:
GEOMETRIDAE: *Idaea tacturata* (COUNTY), second location in NW GA.

Taylor's Ridge, 5 mi. W of Villanow, Walker Co., May 18-19:
GEOMETRIDAE: *Lytrosis permagnaria*. **EREBIDAE:** *Apantesis anna* (including two black HW females).

Crockford-Pigeon Mountain WMA, 9 mi. WSW of LaFayette, Walker Co.:
May 19:
LYCAENIDAE: *Feniseca tarquinius*.

Fall Line Sandhills WMA, western section, Taylor Co.:
May 25-27, JA:
PYRALIDAE: *Omphalocera munroei*. **GEOMETRIDAE:** *Scopula lautaria, Macaria varadaria* (COUNTY),

Exelis pyrolaria, Metarranthis, new species (previously reported last June). **NOTODONTIDAE:** New genus, new species (previously reported and pictured); *Hyparpax aurora* (including an almost completely pink individual, see photo); *Schizura*, new species (STATE; see photo). **EREBIDAE:** *Euerythra phasma; Pygarctia abdominalis; Hypena eductalis; Catocala* (19 species) including *alabamae, praeclara charlottae, grisatra, louiseae* (see photo of *louiseae* and *grisatra*), *pretiosa* (COUNTY); *Gondysia smithii/telma*. **NOLIDAE:** *Baileya doubledayi*. **EUTELIIDAE:** *Eutelia pulcherrimus* (COUNTY). **NOCTUIDAE:** *Harrisimemna trisignata, Schinia meskeana, Acrapex relicta* (COUNTY, second location in STATE).

June 14-16, JA and Jeff Slotten:

TORTRICIDAE: *Sparganothis mcguinnessi* (STATE; significant southward range extension; see photo). **LIMACODIDAE:** *Euclea semifascia*. **GEOMETRIDAE:** *Lobocleta peralbata*. **EREBIDAE:** *Euerythra phasma, Lesmone hinna, Catocala consors, C. grisatra, C. louiseae, C. mira* (COUNTY). **NOLIDAE:** *Nola*, new species, near *cilicoides* (COUNTY). **NOCTUIDAE:** *Dypterygia patina*.

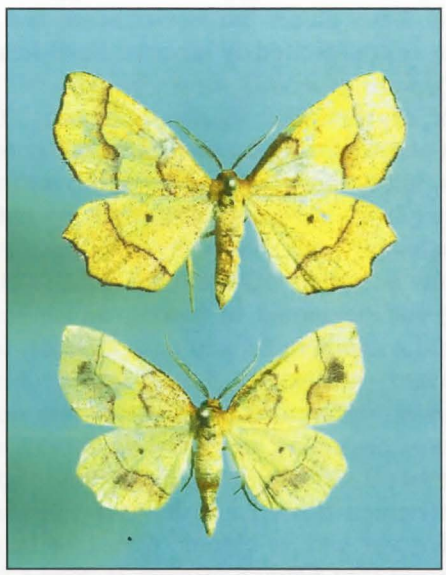
August 1-4:

LIMACODIDAE: *Phobetron pithecium, Euclea semifascia*. **TORTRICIDAE:** *Sparganothis mcguinnessi* (second brood; first record for state in June, above). **CRAMBIDAE:** *Loxostege cereralis* (COUNTY, far south), *Lineodes integra* (COUNTY). **SATURNIIDAE**: *Anisota consularis* (COUNTY, significant northward extension, first adults recorded in STATE; larvae previously found at two other locations), *Citheronia regalis, Eacles imperialis, Callosamia securifera* (COUNTY). **DREPANIDAE:** *Drepana arcuata* (COUNTY; far south). **GEOMETRIDAE:** *Lobocleta peralbata* (REALLY common here), *Macaria varadaria, Hypomecis buchholzaria, Metarranthis mollicularia* (STATE; see photo). **SPHINGIDAE:** *Manduca rustica, Paonias astylus*. **NOTODONTIDAE**: *Hyparpax aurora*. **EREBIDAE:** *Idia gopheri, Apantesis placentia, Euerythra phasma, Pygarctia abdominalis, Catocala ulalume, Catocala consors* (LATE). **NOCTUIDAE:** *Argyrogramma verruca, Acronicta betulae* (COUNTY).

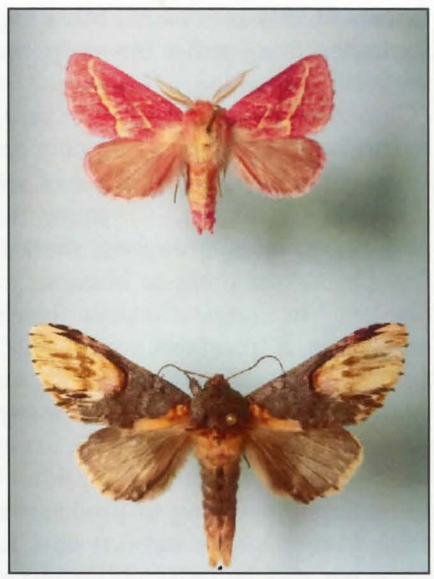
Sapelo Island, McIntosh Co., June 26-29, 2019, JKA:

Five species new to the island: **PRODOXIDAE:** *Tegeticula yuccasella* (expected). **SESIIDAE:** *Synanthedon geliformis,* collected in light trap (see photo); second location known in state (the other is Jekyll Island, with several records between late April and July). **EREBIDAE:** *Idia scobialis, Melipotis indomita*. **NOCTUIDAE:** *Peridroma saucia* (also expected). Other species of note: **LACTURIDAE:** *Lactura subfervens sapeloensis*, first specimens since the storms of the past two years. **LIMACODIDAE:** *Adoneta spinuloides*. **CRAMBIDAE:** *Palpita kimballi*. **GEOMETRIDAE:** *Idaea hiliata, Eubaphe meridiana, Scopula compensata, Macaria varadaria*. **SATURNIIDAE:** *Citheronia sepulcralis* (several). **EREBIDAE:** *Litoprosopus futilis*, unusual in that it was numerous, *Palpidia pallidior* (apparently nearly every month now). **NOCTUIDAE**: *Capsula oblonga, Leucania pilipalpis* (second for island and state).

Catocala louiseae **(top) and** ***Catocala grisatra*** **(bottom), Fall Line Sandhills, Taylor Co., May 25-27, 2019.**

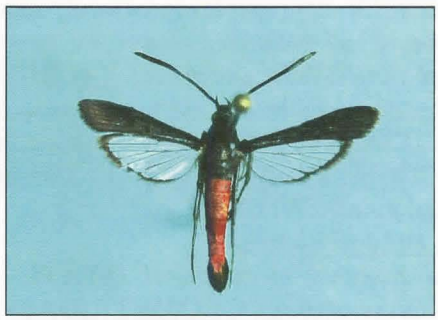


Metarranthis mollicularia **(state record), Fall Line Sandhills, Taylor Co., Aug. 1-3, 2019.**



Hyparpax aurora **(top) and** ***Schizura*****, new species (bottom; state record), Fall Line Sandhills, Taylor Co., May 25-27, 2019.**

Sparganothis mcguinnessi **(state record), Fall Line Sandhills, Taylor Co., June 14-16 and August 1-3, 2019 (two broods).**



***Synanthedon geliformis*,** **Sapelo Island, McIntosh Co., June 26-28, 2019.**

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

REPORT (15) 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

Between Wednesday May 15 and Sunday May 19, 2019 I revisited Avery Island. Weather: Strong thunderstorms moved in the previous Thursday and Friday (May 9-10) so landscapes were still wet but roads were becoming dusty. During my five day visit temperatures ranged between lows of 61-70 F and highs of 84-88 F with relative humidity increasing toward end of stay; skies were mainly partly cloudy with heavy rain on the morning of Sunday, May 19 when I departed. Wind was mild from the E, but later, SE.

GENERAL CONDITIONS: Sugarcane in fields on mainland about 2-3 feet in height. Water levels in surrounding marsh, canals, and bayou very high the entire four days. On the island, 95 percent of the prairie nymphs *(Herbertia lahoe caerulea*) in seed or else mowed down; a few late bloomers still evident in the same field as the green antelopehorn milkweed (see below). Mexican evening primrose (*Oeonthera speciosa*) continuing in full bloom, scattered throughout many open areas, and attracting bees. Japanese honeysuckle (*Lonicera japonica*) about spent. White clover (*Trifolium repens*) still blossoming throughout many mowed areas, but still not attracting orange sulphurs (*Colias eurytheme*). Both "Ham n' Eggs' and "Spanish Flag" varieties of bushy lantana (*Lantana camara*) blooming in many places but flower heads not as abundant as last month due to seed formation from earlier bloom; pollinators conspicuously absent. Seed heads on wild onions (*Allium canadense*) withering/browning. Butterweed (*Packera glabella*) now brown and withering. Chinese privet blooms (*Ligustrum sinense*) past; 95 percent of wax leaf ligustrum blooms (*Ligustrum japonicum*) spent; the few remaining flowers attracting only bees and wasps, and only one butterfly (see below). Pawpaw (*Asimina triloba*) trees with a good compliment of leafs, but no new leaf buds evident; no fruit evident, either, although there were many flowers earlier. Christmas berry (*Ardesia crenata*) still retaining red berries but also beginning to produce new flower buds throughout shaded habitats. Vitex *(Vitex agnus-castus*) shrubs in *Jungle Gardens* in bud with a few plants beginning to blossom. New plantings of vitex and dwarf yellow and purple lantanas in "Venetian Gardens" in *Jungle Gardens* thriving and beginning to bloom; mulch recently added; several plants attracting honeybees, a spicebush swallowtail, and a southern broken dash skipper; in addition, red-eared slider turtles (see below) were using the heavily mulched peninsula for egg laying. The weedy Brazilian vervain (*Verbena braziliensis*) in full bloom in many unmowed venues and much more noticeable than last year; no pollinators present. Maypop (*Passiflora incarnata*) beginning to bloom in various sites, particularly near CARGILL salt loading dock, but no sign of adult or larval Gulf fritillary butterflies. Spanish moss *(Tillandsia usneoides*) on some trees beginning to produce small green flowers. Elderberry (*Sambucus canadensis*) beginning to bloom. Frog fruit (*Phyla nodifolia*) now leafed out and in bloom; abundant in many regularly mowed, grassy areas; some bee and butterfly pollinators present (see below). Egrets in *Bird City* now tending chicks in all stages of development; one family of anhinga evident. Most adult birds still in their nuptial plumage. Margins around *Bird City* now becoming congested: buttonbush (*Cephalanthus occidentalis*) acquiring size but still not in bud; alligator weed (*Alternanthera philoxeroides*) and lizard's tail (*Saururus cernuus*) in full bloom but attracting no butterflies. All nesting wading birds in Saline Lake caring for small chicks. Tabasco plants in pepper fields now showing good growth. Mosquitoes noticeable, but still manageable; on the other hand, deer flies

(*Chrysops*) and horse flies (*Tabanus*) more numerous and more pesky than during previous May; greenhead horsefly (*Tabanus nigrovittatus*) was the most common. Dragon flies abundant throughout the island; many individuals would chase anything that moved within their field of vision; on more than one occasion, an odonate successfully captured a small skipper butterfly.

Green antelopehorn milkweed (*Asclepias viridis*) atop Prospect Hill had been mowed about two weeks prior; a few plants had been missed, and those bore mature seed pods. Still no evidence of monarch caterpillars. The large number of plants in the field on private property near CARGILL had not been mowed. At least 100 individual plants evident, some with seed pods. Additionally, several of the milkweeds that had been fenced in for protection by the property owner were in seed.

Several cup-shaped receptacles created by amputated bamboo canes in the Moso bamboo this past February were still collecting rain water and fermenting plant sap—as discovered during my March and April visits. Flies and wasps along with small ground arthropods were attracted, but I observed no adults of either pearly eye butterflies (*Enodia portlandia, E. creola*). Practically no new shoots of the bamboo were emerging—all from last month had now matured. An interesting point is that a few shoots of various heights had died and were in various stages of decay. Both Garrie Landry (resident botanist) and I hypothesize that death was due to lack of sufficient nutrients available because of competition from nearby vigorous canes; in addition, some shoots may have died due to foraging by deer (Garrie L. had noticed some browsing damage earlier in the month). The decaying sprouts are most likely suitable sources of food for pearly eyes, but no butterfly was observed.

On Sat. May 18, the Acadiana Master Naturalists organization conducted a field trip to JUNGLE GARDENS on A.I. Under the direction of Dr. Brandon Ballengée, I along with Dr. Garrie Landry (resident botanist) and Brad 'Bones" Glorioso (founder of Louisiana Amphibian and Reptile Enthusiasts—L.A.R.E) served as resource scientists to the 15 participants. The group sampled waterways for aquatic animals as well as several terrestrial venues for butterflies, reptiles, and unusual plants. To my surprise, four snakes were located (see below)–three more than I had seen during my past 15 months of surveying for butterflies. Unfortunately, only two species of butterflies (spicebush swallowtail and Juvenal's duskywing skipper) were obvious. In addition, a mature larva of the black swallowtail was found as it fed on threadleaf mock Bishop's weed (*Ptilimnium capillaceum*), an abundant native wild carrot (family Apiaceae) near the entrance to Marsh Trail. Highlights of reptiles encountered (thanks to Brad Glorioso): American alligator (*Alligator mississippiensis*), water moccasin=cottonmouth (*Agkistrodon piscivorus*), plain-bellied water snake (*Nerodia erythrogaster*), black-masked racer (*Coluber constricta latrunculus*), western ribbon snake (*Thamnophis proximus*), common five-lined skink (*Plestiodon fasciatus*), red-eared slider (*Trachemys scripta elegans*) turtle, and Blanchard's cricket frog (*Acris blanchardi*).

To summarize, ALL butterfly populations were extremely low. Possible explanations: bull thistle was spent, and the naturalized blossoming lantana and Brazilian vervain were not producing appropriate attractants, and butterfly populations may have been in between their early spring and early summer adult generations. In addition to the lack of adult butterflies, I observed NO larval butterflies except the single black swallowtail as described above.

Below is the list of species I encountered. [NOTE: Asterisk (*) indicates unique to site. Bold type indicates first time for surveys.]

Jungle Gardens

Spicebush Swallowtail (*Papilio troilus*)—3 males, 2 females (flying throughout the gardens)
Cloudless Sulphur (*Phoebis sennae*)—1 male (flying near Bird City)
Common Buckeye (*Junonia coenia*)—1 (resting in mowed grass near pond in Bird City)
*American Lady (*Vanessa virginiensis*)—1 male (flying near Venetian Gardens)
Carolina Satyr (*Hermeuptychia sosybius*)—5 (flying along edge of wooded/bamboo venues near Bird City)
***Southern Oak Hairstreak (*Satyrium f. favonius*)**—1 worn (nectaring on one of the few remaining flower heads of ligustrum along road through Venetian Gardens; Craig Marks noted three weeks earlier a mass emergence that I included in my previous April report)
*Juvenal's Duskwing (*Erynnis juvenalis*)—1 male (nectaring on white clover in field near Buddha)
Least Skipper (*Ancyloxpha numitor*)—3 (flying in grassy border of pond at Bird City)
***Southern Broken Dash (Wallengrenia otho)**—1 (on white clover and then on yellow lantana recently planted on peninsula between lagoons in Venetian Gardens)

(SUBTOTAL SPECIES FOR SITE: 9; 4 unique to site, including 2 new for all surveys)

Sites on private property

*Zebra Swallowtail (*Eurytides marcellus*)—1 fresh small female (searching for an oviposition site in grove of pawpaw trees near "Virginia's Bridge," but because of the absence of new growth, no eggs were deposited; no possible nectar plants were observed in the area and so adult food source remains unknown)
Spicebush Swallowtail (*Papilio troilus*)—2 (flying along edge of moso bamboo grove and atop Prospect Hill)
Cloudless Sulphur (*Phoebis sennae*)—1 worn male (flying along Pepper Field Road)
*Phaon Crescent (*Phyciodes phaon*)—4 fresh males (flying in patch of frog fruit near Bear Corridor Road)
*Pearl Crescent (*Phyciodes tharos*)—5 fresh males (flying in patch of frog fruit near Skeet Range and Bear Corridor Road)
*Question Mark (*Polygonia interrogationis*)—2 fresh individuals (flying along road to Skeet Range)
Common Buckeye (*Junonia coenia*)—1 faded (flying low to ground along Bear Crossing Road)
*Viceroy (*Limenitis arthemis*)—2 fresh males (flying near willow trees on Bear Corridor Road)
* Tawny Emperor (*Asterocampa clyton*) 1 worn female (along road to community garbage dump)
Carolina Satyr (*Hermeuptychia sosybius*)—2 fresh (flying along shaded road near dump site)
Least Skipper (*Ancyloxypha numitor*)—2 (flying in grassy area along road near community dump and nearby bordering ditch)
*Dukes' Skipper (*Euphyes dukesi*)—1 (nectaring on frog fruit along road to Skeet Range)
*Dun Skipper (*Euphyes vestris*)—1 worn individual basking on "Ham 'n Eggs" lantana near Cargill docking facility)

(SUBTOTAL SPECIES FOR SITE: 13; only 8 unique to site)

TOTAL SPECIES FOR TWO SITES: 17

TOTAL INDIVIDUALS FOR TWO SITES: 43

NEW SPECIES FOR CURRENT SURVEY: 2

CUMULATIVE SPECIES FROM FIFTEEN SURVEYS: 54 (+1 vagrant) = 55

CUMULATIVE INDIVIDUALS FROM FIFTEEN SURVEYS: 2,021

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REPORT (16) 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

Between Wednesday June 12 and Saturday June 15, 2019 I revisited Avery Island for my final survey (surveys began in March 2018). Weather: Cloudy to clear to partly cloudy. Wind light from the NNE switching to S. During my four days, temperatures ranged between lows of 65-70 F and highs of 84-90 F; relative humidity was unseasonably low but increased toward end of stay. (The comfortable conditions were due to the passage of two weak, dry cold fronts several days prior.) Roads were dry and very dusty.

GENERAL CONDITIONS: White clover (Trifolium repens) about spent. Both naturalized "Ham n' Eggs' and "Spanish Flag" varieties of the bushy lantana (*Lantana camara*) experiencing massive infestations of lantana lace bug (*Teleconemia scrupulosa*) to the point that virtually no flowers were being produced. Most Christmas berry (*Ardesia crenata*) retaining some red berries although new flowers evident. Vitex (*Vitex agnus-castus*) shrubs in *Jungle Gardens* past peak bloom. New plantings of vitex and dwarf yellow and purple lantanas in "Venetian Gardens" in *Jungle Gardens* thriving and blooming; several plants attracting honey bees, one spicebush swallowtail, one southern broken dash skipper, one least skipper, and one Dukes' skipper (see all below). The weedy Brazilian vervain (*Verbena braziliensis*) in full bloom in many unmowed venues and much more noticeable than last year, but attracting very few pollinators. Maypop (*Passiflora incarnata*) in full bloom in various sites, particularly near CARGILL salt loading dock, but no adult or larval Gulf fritillary (*Agraulis vanillae*) butterflies. Elderberry (*Sambucus canadensis*) in full bloom. Trumpet vine (*Campsis radicans*) in full bloom. Flowers on Spanish moss (*Tillandsia usneoides*) past their prime with very few seed pods evident. Chinese lotus (*Nelumbo nucifera*) in *Bird*

City beginning to produce gigantic lavender blooms. Frog fruit (*Phyla nodifolia*) in full bloom, abundant in many regularly mowed, grassy areas; some bee and butterfly pollinators present (see below). Snout bean (*Rhynchosia minima*), common in September 2018 in an unmowed area in the old miner's village and the host for the gray hairstreak (*Strymon melinus*), was beginning to proliferate, but no butterflies apparent. Egrets in *Bird City* now with full-grown young. Margins around *Bird City* congested with vegetation: buttonbush (*Cephalanthus occidentalis*) acquiring size but only a few plants in bloom, attracting a few bumblebees and one or two swallowtail butterflies; alligator weed (*Alternanthera philoxeroides*) and lizard's tail (*Saururus cernuus*) in full bloom but attracting no butterflies. Water hyacinth (*Eichhornia crassipes*) beginning to set flowers. All nesting wading birds in Saline Lake caring for sizable chicks; drone photos taken by Bernard Patout (Director of Grounds) caused no alarm and produced photographs from a unique vista. Tabasco plants in pepper fields now sturdy with small green peppers. Mosquitoes and deer flies noticeable, but still manageable. Dragonflies abundant throughout the island and probably responsible for the low showing of small butterflies.

Pawpaw grove still thriving although few plants exhibited new leaf buds. Only one *Eurytides marcellus* observed as it flew along a deep ravine. Around the nearby pond with a boat dock, buttonbushes had not been cut the previous winter. As a result, the plants were beginning to flower and attract swallowtail butterflies (see below).

Green antelopehorn milkweed (*Asclepias viridis*) in the grassy areas atop Prospect Hill had not been mowed since previous report; most plants blooming/seeding. The large number of plants in the field on private property near CARGILL had been spared even though the surrounding field had been mowed. At least 50 individual plants were present with most in bloom or seed. Additionally, several of the milkweeds that had been fenced in for protection by the property owner were in seed. Because of reduced mowing, many seeds should germinate, increasing the number of plants—important for presenting egg sites for monarch butterflies (*Danaus plexippus*) during their spring return from Mexico as documented during my visit in April 2018.

Approximately 50 percent of the cup-shaped catch basins created last February by amputated moso bamboo canes were still filled with a liquid and attracting small flies and assorted arthropods such as pill bugs/roly pollies, miscellaneous ground beetles, and harvestmen/daddy longlegs (Opilones). I detected no odor of fermentation. No individuals of *Enodia portlandia* were seen during afternoon hours, but between 9:45 and 10:15 AM on June 14, I flushed three males from the sunny bushy canes in and near the ravine spanned by the bamboo bridge. I presume that the butterflies were warming in their presumed breeding area.

A new nature trail was under construction in *Jungle Gardens* near the grove of golden bamboo. The trail runs through what was part of E.A. McIlhenny's "old nursery." The trail is shadowed by ancient Japanese camellias, sasanquas, Japanese yews (*Podacarpus*), and has a heavy understory of the invasive Christmas berry (*Ardesia crenata*). Because of the darkness and lack of pollinator-friendly plants, I don't expect the trail to be productive for butterflies. The new trail will open to the public in late summer.

To summarize, ALL butterfly populations were extremely low. Possible explanations: bull thistle was spent, and the naturalized blossoming lantana and Brazilian vervain were not producing appropriate attractants.

Below is the list of species I encountered. [NOTE: Asterisk (*) indicates unique to site.]

Jungle Gardens

Spicebush Swallowtail (*Papilio troilus*)—4 males, 5 females (flying throughout the gardens and feeding on buttonbush; 1 third instar larva feeding on new leaf of camphor tree, *Cinnamomum camphora*, a naturalized host abundant on the island)
Southern Pearly Eye (*Enodia portlandia*)—1 male near grove of bamboo in Sunken Gardens)
American Lady (*Vanessa virginiensis*)—1 male (in grip of a dragonfly near Bird City)
Common Buckeye (*Junonia coenia*)—1 (resting in mowed grass near pond in Bird City)
Carolina Satyr (*Hermeuptychia sosybius*)—3 (flying along edge of wooded/bamboo venues near Bird City)
Least Skipper (*Ancyloxpha numitor*)—2 (1 flying in grassy border of pond at Bird City and 1 near Venetian Gardens)
*Southern Broken Dash (*Wallengrenia otho*)—1 (on newly planted yellow lantana on peninsula in Venetian Gardens)
*Dukes' Skipper (*Euphyes dukesi*)—1 (feeding on newly planted yellow lantana on peninsula in Venetian Gardens)

(SUBTOTAL SPECIES FOR SITE: 8; 2 unique to site)

Sites on private property

*Zebra Swallowtail (*Eurytides marcellus*)—1 fresh small male (flying along edge of ravine crossed by "Virginia's Bridge"; still no nectar plants observed although the nearby buttonbush is probably a potential source)
*Giant Swallowtail (*Papilio cresphontes*)—2 worn individuals (1 feeding on buttonbush, one flying within pawpaw grove)
*Eastern Tiger Swallowtail (*Papilio glaucus*)—2 worn males (feeding on buttonbush on edge of pond near pawpaw grove)
Spicebush Swallowtail (*Papilio troilus*)—8 (flying along edge of moso bamboo grove, various roads throughout island, and feeding on buttonbush adjacent to pond with boat dock)
*Phaon Crescent (*Phyciodes phaon*)—4 fresh males (flying in patch of frog fruit near Bear Corridor Road)
American Lady (*Vanessa virginiensis*)—1 male—(resting on vegetation along Bear Crossing Road and old oil well)
Common Buckeye (*Junonia coenia*)—1 fresh (flying low to ground along Bear Crossing Road)
*Viceroy (*Limenitis arthemis*)—2 fresh males (flying near willow trees on Bear Corridor Road near row of black willow trees)
Southern Pearly Eye (*Enodia portlandia*)—3 fresh males (in bushy canes in morning sun near bamboo bridge in moso bamboo grove; when flushed, individuals flew only a few feet before perching again on bamboo leaves)
Carolina Satyr (*Hermeuptychia sosybius*)—2 fresh (flying along shaded road near dump site)
Least Skipper (*Ancyloxypha numitor*)—50 + (flying in grassy area near Skeet Range and feeding on the abundant frog fruit)

(SUBTOTAL SPECIES FOR SITE: 11; only 5 unique to site)

TOTAL SPECIES FOR TWO SITES: 13

TOTAL INDIVIDUALS FOR TWO SITES: 95

NEW SPECIES FOR CURRENT SURVEY: 0

CUMULATIVE SPECIES FROM SIXTEEN SURVEYS: 54 (+1 vagrant) = 55. In addition, 2 other species have been reported in previous publications by Craig Marks, a butterfly devotee living in Lafayette. TOTAL SPECIES RECORDED FOR THE ISLAND: 57.

CUMULATIVE INDIVIDUALS FROM SIXTEEN SURVEYS: 2,116

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

All records by Ricky Patterson unless otherwise indicated:

5 June 2019, Vicksburg, Warren county, *Philtraea monillata*

8 June 2019, reported by Craig Marks, Beechnut Nature Area near Tylertown in Walthall County, *Satyrium kingi*

11 July 2019, Vicksburg, Warren county, *Calpodes ethlius* larva on canna, adult eclosed 27 July 2019

29 July 2019, I-55 northbound rest area, mile marker 163, Carroll county, *Manduca jasminarum*

9-11 August 2019, Vicksburg, Warren county, *Calephelis virginiensis*, abundant in overgrown field

11 August 2019, Vicksburg, Warren county, *Burnsius* (*Pyrgus*) *oileus*

North Carolina: Steve Hall, Moths_ofNC_Website@outlook.com, E-Mail: stephen.phall@outlook.com

SUMMER BUTTERFLY RECORDS FOR NORTH CAROLINA – 2019

Harry LeGrand

Records are from late May through August 2019. Names in parentheses are counties.

Summer 2019 was quite warmer/hotter than usual, with July being the hottest month ever for many places. Rainfall in the Piedmont and mountains was normal to above normal, but the Coastal Plain was relatively dry later in the season. Butterfly conditions were thus good, with a large number of reports for the season. *Vanessa cardui* had a moderate season, frequently reported, though mostly in single digits. *Pyrisitia lisa* also seemed to be in better numbers than usual, though outside of the Sandhills region, where common, it was mostly seen in small numbers. The major highlight of the season was the remarkable number of reports for *Papilio cresphontes*, normally seen only coastally and rarely in the mountains. It was reported from *five* mountain counties, three in the Piedmont, and several from the coast.

PAPILIONIDAE:

Papilio cresphontes, there were a truly remarkable number of records this season, more than at any other season on record. From the mountains, where a rare resident (mainly near the New River in the northern counties), an excellent tally of three was noted in Ashe County by Will Stuart on August 20; and singles were seen in that county by Richard Stickney on June 2, in Alleghany County by Cecelia Mathis on August 11, and by Guy McGrane on August 13 at Deep Gap (Watauga) **(COUNTY)**. An adult was seen ovipositing on *Ptelea trifoliata*, and three larvae were also seen, by David Campbell on August 3 at Tryon Peak (Polk), along the eastern edge of the mountains. Lastly, Pete Dixon and others saw one near Hot Springs (Madison) on August 29. In the Piedmont, where essentially a migrant or casual breeder, David Campbell saw a female ovipositing on *Ptelea* in a yard in Hickory (Catawba) **(COUNTY)** on June 14; Dan Meyer saw one at McDowell Prairie Preserve (Mecklenburg) on August 7; Jules Fraytet saw one in his Charlotte (Mecklenburg) yard on August 21; and Parker Backstrom photographed one in his yard near Bear Creek (Chatham) **(COUNTY)** on August 25. The best coastal record was an excellent count of six, at Ocean Isle Beach (Brunswick) on June 26 by Harry Pavulaan; the species has only rarely been reported from that part of the county. At a known coastal site, Tom Stock had his usual numbers in the Duck (Dare) area in early August, with a peak of 10 on August 6.

Papilio palamedes, this species is very rare along the eastern edge of the Piedmont but is possibly resident at Pee Dee National Wildlife Refuge (Anson), where Will Stuart saw two on June 28. John Taggart noted local absences or scarcities of this species at several sites in coastal New Hanover County where it was common only a year or two ago, and he suggested that the laurel wilt was probably impacting the population there.

PIERIDAE:

Pontia protodice, sadly, the only record for the state through late summer was one seen by Pete Dixon and others on August 29 near Hot Springs (Madison). This species is in dire trouble in the state owing to continued loss of its vacant field and pasture habitats.

Pyrisitia lisa, the species was much more common than normal in the Sandhills Game Land (Richmond) in midsummer, often the most numerous butterfly seen. Will Stuart and others had 40 on July 28, and 50 on August 6.

LYCAENIDAE:

Lycaena phlaeas, one of the better counts in recent years was 20, as seen by Beth Brinson at Doughton Park (Alleghany) on July 14.

Satyrium edwardsii, not often reported outside of Weymouth Woods preserve (Moore), three were seen in Sandhills Game Land (Scotland) on June 6 by Brian Bockhahn.

Satyrium kingi, rare in the northern part of the Coastal Plain was one seen by Salman Abdulali in Boyd Lee Park (Pitt) on June 14.

Satyrium liparops, the two reports of the summer season were one found in Bladen **(COUNTY)** on June 14 by Larry Lynch, and another seen at Butler Mountain (Buncombe) on June 21 by Sparrel Wood.

Satyrium favonius, most records are for the coast, and thus notable was one seen by Derb Carter in his yard near Chapel Hill (Orange) on June 14.

Callophrys gryneus, the uncommon coastal taxon was reported a few times: Harry Pavulaan saw one at Ocean Isle Beach (Brunswick) on June 26, and John Taggart saw two at Fort Fisher (New Hanover) on July 30.

Callophrys hesseli, the hot July weather apparently sped up the second brood of this species, as Richard Stickney had an excellent count of eight, on the quite early date of July 15, at Aberdeen Lake (Moore). Normally, this brood occurs from mid-July to mid-August.

Parrhasius m-album, surprisingly a first for Onslow **(COUNTY)** was one photographed by Mark Shields at night at his lighted moth sheet (!) on June 8 at Holly Ridge. Another photographed by Will Stuart was also notable at Pee Dee refuge (Anson) **(COUNTY)** on July 6.

Erora laeta, always an excellent, as well as serendipitous, discovery, one was photographed by Lee Weber on June 17 along the Blue Ridge Parkway in McDowell **(COUNTY)**.

NYMPHALIDAE:

Speyeria diana, a very good count for so early in the season was eight (males) on June 8, as seen by Pete Dixon near Hot Springs (Madison). Three days later, he had an excellent tally of 14 (also all males) in that same area.

Euphydryas phaeton, the only state report for the year was one photographed in a boggy area in Yancey County on May 31 by Ken Kneidel. This and nearly all sites for the species are on private lands, partly explaining the scarcity of reports in recent years.

Neonympha mitchellii francisci, Dave Pavlik, working with permission at Fort Bragg (Hoke), photographed one from the first brood on May 26. This subspecies is found nowhere but on the military base, and though monitored annually by a few other researchers, it is not faring well on the base (fide Nick Haddad) owing mainly to vegetative succession of its marshy habitat.

Danaus gilippus, a remarkable far inland record, the first for the mountains, was the photographing and capture of a larva in the Averys Creek area of Buncombe **(COUNTY)** in early summer, by Stephanie Clarke. Also confirming this outlandish record were photos of the pupa that it formed a week or two later. The larva was found in an area remote for human habitation, in natural habitat on a milkweed. Along the coast, one photographed by Peter Vankevich on August 7 at his porch at Ocracoke (Hyde) **(COUNTY)** was a first record for that county. John Taggart encountered this species on most visits to its primary site in the state – Fort Fisher (New Hanover). He had tallies of one on June 11, eight on June 25, six on July 30, and an excellent 12 on August 28. Harry Pavulaan saw one (same individual?) at Ocean Isle Beach (Brunswick) on June 26 and 28, for a rare report from that coastal county.

HESPERIIDAE:

Staphylus hayhurstii, in the mountains, where still only known from two counties, Pete Dixon had two at Hot Springs (Madison) on July 21, and an outstanding count of 10 was made on the Buncombe County butterfly count on August 4 (fide Doug Johnston and Gail Lankford). Parker Backstrom saw one in Chatham County on August 25, and Brian Bockhahn and party saw one at Pilot Mountain State Park (Surry) on August 29, for rare Piedmont sightings.

Erynnis icelus, very late was one photographed by Pete Dixon on July 5 at Hot Springs (Madison).

Copaeodes minima, one seen at Marvin (Union), as noted by Carolyn Seaton on July 22, was perhaps at a breeding site, in the southern Piedmont.

Hesperia attalus, few people search for the uncommon Sandhills species anymore (as most butterfly "chasers" have already seen it in the state), but Will Stuart photographed one in the Sandhills Game Land (Richmond) on August 29.

Hesperia meskei, rarely reported during the first brood, quite welcome was one found by Will Stuart on June 11 in the Sandhills Game Land (Richmond). CORRIGENDUM: The reported sighting of this species in the previous issue of this newsletter, from Pender County in fall 2003, was apparently a female of a more common species, as discussed between the reporter and LeGrand. Thus, there is no known record yet for this coastal county.

Polites vibex, Taylor Piephoff again found the species at Ezzell Farm (Mecklenburg), one of its few colony sites in the Piedmont, with one noted on July 13.

Problema byssus, one photographed at San Lee Park in Lee **(COUNTY)**, by Jimmy Randolph on June 16, was near the northern edge of the range. Right at the edge of the range were individuals seen by Jeff Pippen on July 4 at Duke Forest (Durham), and by Tom Howard on August 16 at Umstead State Park (Wake).

Euphyes dion, Mike Turner had a slight range extension to the west (inland), spotting one on June 18 in Randolph **(COUNTY)**.

Euphyes dukesi, Tom Stock observed singles at a known site at Duck (Dare) on August 3 and 6. Hurricane Florence in September 2018 probably had some negative impact on this species and other lower Coastal Plain wetland skippers, though seemingly no one else checked other known colony sites of this rare species.

Atrytonopsis quinteri, though there were no reports for the second brood (summer), park ranger Randy Newman made a one-hour walk through dune habitat at Fort Macon State Park (Carteret) this spring and tallied 404 individuals, strongly indicating that Hurricane Florence last fall had little or no effect on this species, which has most of its population at this park. He noted that the dune habitat of the species did not get flooded by the heavy rainfall from the hurricane.

Amblyscirtes carolina, Nick Flanders had a good count for the northern part of the state, where he tallied five on June 18 in Great Dismal Swamp National Wildlife Refuge (Gates).

Amblyscirtes vialis, one of the few records for the year was of two seen by Jesse Anderson near the summit of Pilot Mountain (Surry) on August 20, and he found one there on August 29. This is the Piedmont's most reliable site for the species.

Lerodea eufala, Madison **(COUNTY)** became just the fourth of 17 mountain counties with a record of this assumed migrant, when Pete Dixon observed one near Hot Springs on June 20. Brian Bockhahn and party found two at Hanging Rock State Park (Stokes) on August 20, and three more to the west at Pilot Mountain State Park (Surry), perhaps indicating local colonies at these "northern" sites.

Oligoria maculata, though not scarce toward the southeastern coast, it is very rare and nearly of historical occurrence in the Sandhills. An excellent discovery for this region was one photographed at Fort Bragg (Hoke) **(COUNTY)** by Dave Pavlik on June 13.

Calpodes ethlius, this was a rather poor summer for the species, after the "boom" year in 2018. The only reports of adults were one photographed at Cedar Island National Wildlife Refuge (Carteret) on June 23 by John Fussell, one seen at Raleigh (Wake) on July 19 by Richard Stickney, and three noted at Duck (Dare) on August 6 by Tom Stock.

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

SC records for SLS News:

Charleston Co., SC; James Island, Holy Cross Cemetery; 24 Aug 2019; Donna Forsythe
Hesperiidae: *Calpodes ethlius*
Charleston Co., SC; Edisto Island, Point of Pines Rd.; 21 Aug 2019; Tom Austin
Pieridae: *Ascia monuste*

Charleston Co., SC; Edisto Island, Point of Pines Rd.; 21 Aug 2019; Tom Austin, Dennis & Donna Forsythe
Papilionidae: *Papilio palamedes*
Pieridae: *Ascia monuste*
Phoebis sennae
Pyrisitia lisa
Abaeis nicippe
Lycaenidae: *Strymon melinus*
Nymphalidae: *Agraulis vanilla*
Euptoieta claudia
Junonia coenia
Limenitis archippus
Danaus gilippus
Hesperiidae: *Urbanus proteus*
Erynnis zarucco
Hylephila phyleus
Burnsius sp.(formerly *Pyrgus*)
Orangeburg Co., SC; Super Sod Farm; 21 Aug 2019; Dennis Forsythe, Donna Forsythe
Papilionidae: *Papilio palamedes*
Pieridae: *Phoebis sennae*
Pyrisitia lisa
Abaeis nicippe
Lycaenidae: *Strymon melinus*
Nymphalidae: *Agraulis vanilla*
Euptoieta claudia
Vanessa virginiensis
Vanessa cardui
Junonia coenia
Hesperiidae: *Epargyreus clarus*
Erynnis horatius
Burnsius albescens (formerly *Pyrgus*)
Hylephila phyleus
Copaeodes minima
Polites vibex
Atalopedes campestris
Lerodea eufala
Panoquina ocola
Lancaster Co., SC; Indian Land; 19 Aug 2019; Carolyn Seaton
Papilionidae: *Papilio polyxenes*
Papilio glaucus
Papilio troilus
Pieridae: *Phoebis sennae*
Abaeis nicippe
Nymphalidae: *Agraulis vanilla*
Euptoieta claudia
Vanessa virginiensis
Vanessa cardui
Junonia coenia
Limenitis arthemis Astyanax
Phyciodes tharos
Asterocampa celtis
Libytheana carinenta
Hesperiidae: *Epargyreus clarus*
Erynnis horatius
Hylephila phyleus
Atalopedes campestris
Poanes zabulon
Panoquina ocola

Charleston Co., SC; James Island, Lowes parking lot; 29 Jul 2019; Dennis & Donna Forsythe
Nymphalidae: *Agraulis vanilla*
Hesperiidae: *Hylephila phyleus*
Atalopedes campestris
Panoquina panoquin
Charleston Co., SC; Folly Beach; 29 Jul 2019; Dennis Forsythe, Donna Forsythe
Lycaenidae: *Strymon melinus*
Leptotes cassius
Nymphalidae: *Agraulis vanilla*
Hesperiidae: *Erynnis horatius*
Charleston Co., SC; Clark Sound @ Folly Rd.; 29 Jul 2019; Dennis Forsythe, Donna Forsythe
Nymphalidae: *Danaus gillipus*
Newberry Co., SC; Lynch's Woods Park; 27 Jul 2019; Dave & Marty Kastner
Papilionidae: *Papilio glaucus*
Papilio troilus
Battus philenor
Pieridae: *Phoebis sennae*
Pyrisitia lisa
Abaeis nicippe
Lycaenidae: *Strymon melinus*
Cupido comyntas
Nymphalidae: *Agraulis vanilla*
Euptoieta claudia
Phyciodes tharos
Polygonia sp.
Vanessa virginiensis
Vanessa atalanta
Libytheana carinenta
Junonia coenia
Limenitis arthemis astyanax
Asterocampa celtis
Hermeuptychia sosybius
Hesperiidae: *Epargyreus clarus*
Cecropterus lyciades (formerly *Achalarus*)
Erynnis horatius
Erynnis sp.
Burnsius albescens (formerly *Pyrgus*)
Hylephila phyleus
Lerema accius
Poanes zabulon
Lexington Co., SC; Cayce, Timmerman Trail; 25 Jul 2019; Dave & Marty Kastner
Papilionidae: *Papilio glaucus*
Papilio polyxenes
Eurytides marcellus
Pieridae: *Phoebis sennae*
Abaeis nicippe
Pieris rapae
Lycaenidae: *Strymon melinus*
Nymphalidae: *Chlosyne nycteis*
Phyciodes tharos
Vanessa virginiensis
Vanessa atalanta
Libytheana carinenta
Junonia coenia
Limenitis arthemis Astyanax
Limenitis archippus
Hermeuptychia sosybius

Hesperiidae: *Epargyreus clarus*
Erynnis horatius
Erynnis sp.
Burnsius albescens (*formerly Pyrgus*)
Ancyloxypha numitor
Euphyes vestris
Lerema accius

Jasper Co., SC; Tilman Sand Ridge HP; 25 Jul 2019; Dennis Forsythe, Donna Forsythe
Papilionidae: *Eurytides marcellus*
Pieridae: *Pyrisitia lisa*
Abaeis nicippe
Lycaenidae: *Strymon melinus*
Hemiargus ceraunus
Nymphalidae: *Agraulis vanilla*
Euptoieta claudia
Phyciodes tharos
Junonia coenia
Hesperiidae: *Burnsius albescens* (formerly *Pyrgus*)
Erynnis horatius
Erynnis zarucco

Jasper Co., SC; Beck's Ferry Rd.; 25 Jul 2019; Dennis Forsythe, Donna Forsythe
Papilionidae: *Papilio glaucus*
Pieridae: *Pyrisitia lisa*
Abaeis nicippe
Phoebis sennae
Nymphalidae: *Agraulis vanilla*
Junonia coenia
Neonympha areolata
Hesperiidae: *Hylephila phyleus*
Wallengrenia egeremet
Polites vibex

Aiken Co., SC; Gum Swamp Rd.; 14 Jul 2019; John Demko, Dale Endres, Wade Gassman, Dave & Marty Kastner
Papilionidae: *Eurytides marcellus*
Papilio troilus
Papilio palamedes
Papilio glaucus
Pieridae: *Phoebis sennae*
Abaeis nicippe
Lycaenidae: *Strymon melinus*
Cupido comyntas
Nymphalidae: *Agraulis vanilla*
Euptoieta claudia
Phyciodes tharos
Polygonia interrogationis
Polygonia comma
Vanessa atalanta
Libytheana carinenta
Limenitis arthemis astyanax
Limenitis archippus
Asterocampa celtis
Asterocampa clyton
Hermeuptychia sp.
Hesperiidae: *Epargyreus clarus*
Erynnis horatius
Burnsius albescens (formerly *Pyrgus*)

Burnsius oileus (formerly *Pyrgus*)
Lerodea eufala
Ancyloxypha numitor
Hylephila phyleus
Polites origenes
Pompeius verna
Euphyes vestris
Lerema accius
Poanes zabulon
Amblyscirtes aesculapius
Panoquina ocola

Lexington Co., SC; 16 Jun 2019; Michael Davis
Hesperiidae: *Erynnis funeralis* (3rd record for state)

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

Report from Eric Smith (ES), Bill Garthe (BG), and John Hyatt (JH):

Tennessee: Unicoi Co., Unaka Mountain, ca. 4900', July 5 (ES and BG) and 6 (ES, BG, and JH), 2019: *Sthenopis pretiosus, Sphinx franckii, Zale aruginosa*, and *Catocala serena* were the better catches.

This site on the same date in 2018 yielded several *Catocala marmorata*, but none were seen this year. *Noctua pronuba*, seen by the hundreds in 2018, appeared to be completely absent in 2019!

Texas:

Mike Rickard sends in the following report for Texas:

Lower Rio Grande Valley (Hidalgo Co.) update: the first 6 months of 2019 saw normal temperatures and very decent rains but butterfly numbers and diversity were noticeably below recent years for the same period. However, with above normal temperatures and near-zero rainfall, July to mid-August has had a pleasant upturn in butterfly species.

Notable:
Hamadryas februa (Gray Cracker) - widespread in the county since early July, as many as a dozen some days.
Eunica monima (Dingy Purplewing) - likewise present since early July, in low numbers.
Historis acheronta (Tailed Cecropian) - one on 7/14, remained for several days.
Marpesia chiron (Many-banded Daggerwing) and *Marpesia petreus* (Ruddy Daggerwing) - both species began showing up in late June and sightings continue.
Strymon albata (White Scrub-Hairstreak) - two sightings in late July.
Rekoa marius (Marius Hairstreak) - after being mostly absent the previous 18 months, several sightings in late July.
Papilio astyalus (Broad-banded Swallowtail) - several sightings in August. Normally very scarce.
Aphrissa statira (Statira Sulphur) - a good number seen the first week of July.

Reported butterfly species for the year-to-date are circa 150, less than half of the total species recorded for the area.

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

Harry sends in the following report:

The first "normal" winter (no arctic blasts) and spring (gradual warmup with no wild swings or hot/cold waves) led to an interesting late spring and summer with huge irruptions of several species not experienced here in many decades.

Butterflies [all reports H. Pavulaan except where noted]. County records indicated in all-caps.

Eurytides marcellus – Loudoun Co.: Leesburg. Strong flight along Potomac River with adults present all season April-August.

Pterourus glaucus – Fauquier Co.: George Thompson WMA, 7/26/2019, irruption of well over 1000 in all habitats. Virtually absent in northern Virginia in spring but irrupting throughout region in late July and early August, being ever present in all habitats including suburban areas.

Pterourus troilus – Fauquier Co.: George Thompson WMA, 7/26/2019, irruption of well over 100 in forest habitat.

Pterourus appalachiensis – SMYTH county record: Jefferson National Forest, 5/7/2019 (two males photographed – Cade Campbell via iNaturalist).

Colias philodice – Loudoun Co.: Leesburg, Ida Lee Park Community Gardens, 8/14/2019, conservative count of 200+.

Phoebis sennae – Loudoun Co.: Leesburg, 8/24/2019. Unusually large pre-pupal larva found attached to deck railing, about 20' from nearest *Senna marilandica* planting. Larva must have made a considerable effort to cross 20' of lawn.

Abaeis nicippe – Largest irruption personally witnessed by HP in northern Virginia. Fauquier Co.: George Thompson WMA, 7/26/2019, irruption of 20-30 around shore of Lake Thompson, associated with *Senna marilandica*. Loudoun Co.: Leesburg, adults first appeared around 7/4/2019 and increased in number through July and August in several places in Leesburg where *Senna* thrives, and established a seasonal colony on HP's *Senna marilandica* plantings with 20-30 adults observed coursing throughout the garden daily throughout July and August. Females oviposited daily through entire period; eggs and larvae of all instars present. One male displayed territorial behavior for a period of two weeks, selecting a strategic perch beneath a *Buddleia* shrub, and flying an established route around property, chasing off other males and a *Phoebis sennae*.

Lycaena phlaeas – Loudoun Co.: Leesburg, Ida Lee Park, nectaring on white clover, 6/12/2019 (1 observed, one collected).

Parhassius m-album – Loudoun Co.: Leesburg, Ida Lee Park, 6/12/2019, nectaring on white clover on large park lawn far from woodland habitat (2 observed, eluded capture).

Celastrina neglecta – Bath Co.: Warm Springs Mountain summit, el. 3720', 5/24/2019 (100+ observed, mostly females, larva found on *Cornus alternifolia*, eclosed 6/12/2019). Loudoun Co.: Leesburg, 5/21/2019, generation 2 emerged precisely on this day with 52 counted in Potomac River woodlands, large irruption increasing by 5/23/2019 with 100-150 adults seen continuously throughout Potomac River woodlands, and flying throughout suburban neighborhood. By 5/31/2019, hundreds could be counted daily throughout Leesburg, including in shopping center parking lots.

Celastrina lucia – HIGHLAND county record: marsh west of Hightown, 5/24/2019 (1 male collected).

Libytheana bachmanni – Fauquier Co., George Thompson WMA, 7/3/2019, hundreds observed in all habitat types. Largest irruption ever witnessed by HP.

Phyciodes cocyta-group (orange-antenna club male taxon) - Fauquier Co.: George Thompson WMA, 7/26/2019. Three confirmed by net, freshly emerged. This colony has been going strong for many years now, though in low numbers. This is the second brood. Remaining in woodland habitat, they clearly stay segregated from *P. tharos* out around Lake Thompson.

Chlosyne nycteis – Loudoun Co.: Leesburg, 7/1/2019 (first observation of 2nd brood: 1 male in woodlands, 1 female in HP's flowerbed); this date followed by largest irruption ever observed by HP with approx. 102 counted in Veteran's Memorial Park commencing on 7/15/2019 and peaking to well over a conservative 3000 (mostly males) by July 19 & 21. Countless swarms of over 100 males along the park access road made walking difficult, trying to avoid stepping on them; while females were found by the hundreds in a nearby open field filled with *Trifolium repens*. Many adults were observed daily during this period throughout the adjacent

suburban neighborhood, even appearing in a shopping center parking lot. Thirty-four females were observed in my flower and veggie beds on 7/19/2019 (no males), preferring only orange *Zinnia* (single flower type, not showy double) and *Foeniculum vulgare*! Very surprisingly, the entire brood was gone by August 9, but leaving tens of thousands of larvae in sizeable larval masses on host *Verbesina alternifolia* resulting in mass host defoliation by late August. A considerable number of larval masses were found on HP's *Helianthus annuus* (several hundred first instars were relocated to the forest). Third brood emerged 8/20/2019 with 20-30 adults in HP's garden on 8/24/2019; 19 males first observed in nearby Veterans Memorial Park on 8/24/2019.

Polygonia interrogationis – Fauquier Co.: George Thompson WMA, 7/3/2019, irruption of well over 100 in all habitats.

Vanessa atalanta – Fauquier Co.: George Thompson WMA, 7/3/2019, irruption of well over 50 in all habitats.

Junonia coenia – Loudoun Co.: Leesburg, Ida Lee Park Community Gardens, 8/14/2019 (conservative count of 100+).

Limenitis arthemis astyana near-form *proserpina* - Loudoun Co.: Leesburg, 8/24/2019. Male specimen with shadow white band on ventral FW (vouchered).

Asterocampa celtis – Loudoun Co., Leesburg, Veteran's Memorial Park, irruption peaked at 65 on 6/8/2019 and 56 on 6/12/2019.

Megisto eurytris and *Megisto cymela* – The flight of *eurytris* finished around 6/12/2019 with one worn female in Veteran's Memorial Park, Leesburg. *M. eurytris* is the only *Megisto* widespread and common throughout the Washington D.C. region. *M. cymela*, the summer flight, rarely occurs in this region. Former populations of *cymela* in Sterling and Herndon have disappeared, leaving only one active colony at Huntley Meadows Park, in eastern Fairfax Co.

Epargyreus clarus – Bath Co.: Warm Springs Mountain summit, 5/24/2019 (1 observed). Fauquier Co.: George Thompson WMA, 7/26/2019, irruption of well over 100 in all habitats.

Telegonus cellus – Rockbridge Co.: near Natural Bridge Station, 5/10/2019 (photo on iNaturalist – Garrett Rhyne).

Erynnis baptisiae – Loudoun Co.: Leesburg, 7/4/2019, female ovipositing extensively on *Baptisia australis*.

Hylephila phyleus – Loudoun Co.: Leesburg, Ida Lee Park Community Gardens, 8/14/2019 (conservative count of 200+).

Polites peckius – Loudoun Co.: Leesburg, Veterans Memorial Park, 5/18/2019, irruption of 35 fresh adults in one small area. Roughly 50+ in HP's garden on 8/11/2019.

Poanes zabulon – Loudoun Co.: Leesburg, strong second brood flight with peak of 35 in HP garden on 8/7/2019.

Lerodea eufala – LOUDOUN county record: Leesburg, Veterans Memorial Park, 8/9/2019 (vouchered).

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Butterfly transect, Leesburg, VA.
Location: Veterans Memorial Park, access road and trail (1 mile total)
Habitat: dirt road and trail through forest near Potomac River
Observer: Harry Pavulaan

Dates: May 18 – August 24, 2019

This is a continuation of the transect initiated in early 2019 (*Southern Lep. Soc. News* 41(2): 188. Observations were repeated on several dates throughout the study period, but only when time allowed, and weather was satisfactory

for observations (rainy days were omitted for obvious reasons, though the location was rain-free for most of the period). Spreadsheet shows sunny dates in yellow, partly cloudy dates in pale yellow, cloudy dates as gray. Temperature during transect is indicated.

Notes: *Everes comyntas* utilized dense *Trifolium repens* in a small field, which was mowed to stubble and dirt just prior to August 19, after which no *comyntas* were found. Single individuals were found along the forest trail, obviously looking for new habitat. *Celastrina neglecta* showed a strong 2nd generation flight in May, with a small 3rd generation peak in late June; singletons throughout summer likely represented partial emergences (no noticeable brood); late summer brood emerged in late August with females ovipositing on *Verbesina alternifolia* flower buds. *Chlosyne nycteis* showed strong 1st generation flight in May; 2nd generation irrupted to historic levels throughout July (see Virginia State Report for details); mass defoliation of *Verbesina alternifolia* by early August; 3rd brood emerged August 24. *Junonia coenia* females ovipositing on *Plantago lanceolata* in middle of dirt roadway. *Enodia anthedon* flew in three distinct broods: May, early-July (additional records outside transect area), August.

SPECIES	May 18	May 21	May 23	May 27	May 31	June 8	June 12	June 20	June 30	July 10	July 15	July 19	July 21	August 9	August 12	August 24
weather	84°	68°	73°	79°	84°	82°	79°	88°	88°	88°	89°	97°	101°	90°	91°	77°
Neographium marcellus	5	1		1	1	15	2	7	4	3		6	7		4	
Pterourus glaucus				1		1	1		1		1	3	3		2	2
Papilio troilus	3	1		1		1				1	2	2	3	2	8	1
Pieris rapae		1	1	3	11	3	1			20		1	1	2	1	1
Colias eurytheme												1				
Abaeis nicippe													1			
Parhassius m-album						1	1									
Everes comyntas	5			3			1	1	2	1	3	5	4	1	1	1
Celastrina neglecta	1	52	75	50	45	1	1	6	1	1	2	1	1		3	5
Libytheana bachmanni								4	2	1	1	1	1		1	
Chlosyne nycteis	6	65	32	52	42	4				1	102	2500+	3000+			19
Phyciodes tharos	2							1								1
Polygonia comma	1	1			1					2	4	1	1			
Polygonia interrogationis	1	8	1	5	4	4	1		1	3	2	2	4		1	
Vanessa atalanta	1	1	1	4	4	3	2	3	6	45	9	3	2		2	2
Vanessa virginiensis											1					
Junonia coenia												2	8	1	5	3
Limenitis arthemis astyanax	3	4	1						5	9	3	2	4	3	3	9
Asterocampa celtis				1	9	65	56	3	2	1	2	2	3		4	1
Asterocampa clyton											1		8			
Enodia anthedon	2	2	1							1	2			2	10	4
Megisto eurytris	1	2		3												
Epargyreus clarus	1									1	1	1	1		1	
Ancyloxypha numitor	1	1	1	1	1	2	2			1	4	1	1			1
Polites themistocles			1													
Polites peckius	35		1								1	2	1		1	2
Poanes zabulon	1	4	6	7	1	1	1								4	2
Atalopedes campestris												1	1			1
Lerodea eufala														1		

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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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