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

J. BARRY LOMBARDINI: EDITOR

PENNISETIA MARGINATA (HARRIS, 1837) (LEPIDOPTERA: SESIIDAE)
IN LOUISIANA

BY
VERNON ANTOINE BROU JR.

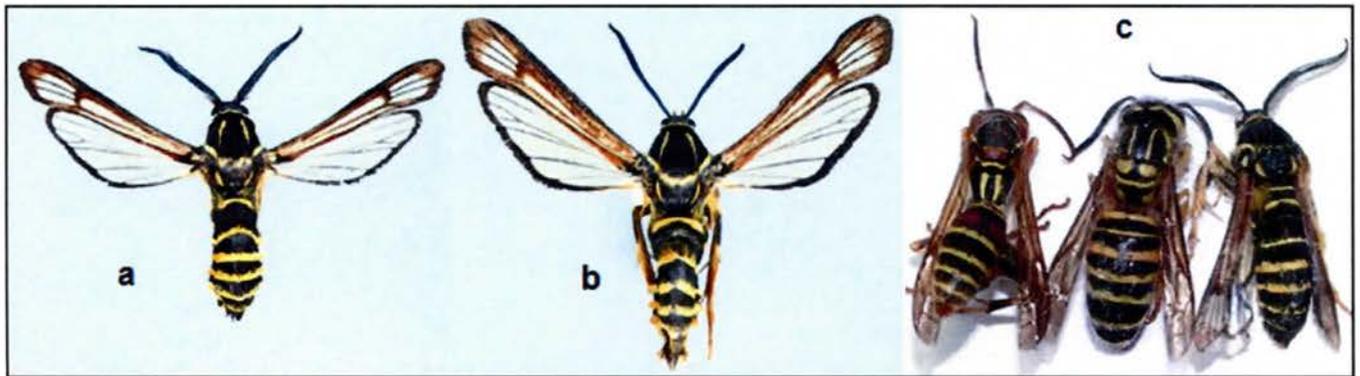


Fig. 1. *P. marginata* phenotypes: a. male, b. female, c. wasp species left and middle, *marginata* on right.



Fig. 2. Adult *P. marginata* captured at sec.24T6SR2E, 4.2 mi NE of Abita Springs, Louisiana. n = 23

I have captured adults of the clearwing moth *Pennisetia marginata* (Harris) (Fig.1) on 23 occasions at the *Abita entomological study site. Adult female specimens have been observed flying about blackberry (*Rubus*) brambles in mid day sun and two specimens listed here were captured by hand net. The remainder of the specimens of both sexes were taken in ultraviolet light traps. No specimens of *marginata* have been captured using pheromones despite three



Fig. 3. Parish record for *P. marginata*.

collection chambers. I have illustrated this specimen similarity in Fig. 1c.

Eichlin and Duckworth (1988) indicated *marginata* is widespread throughout the United States. Brown and Mizell (1993) stated that *marginata* occurs statewide in Florida. Taft *et al.* (1991) did not list a pheromone or lure for this species in their publication.

The single parish record is illustrated in Fig. 3.

*Abita entomological study site: sec. 24T6SR12E. 4.2 miles northeast of Abita Springs, St. Tammany Parish, Louisiana.

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JUST A REMINDER !!!

Dear members of the SLS this is just a reminder that the 2013 membership dues are due. Please check your mailing label. If "2013" is on it then you are O.K. Please send in your check to Jeff Sloten, Treasurer, at 5421 NW 69th Lane, Gainesville, Florida 32653. Many thanks - The Editor

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The Southern Lepidopterists' Society is open to anyone with an interest in the Lepidoptera of the southern region of the United States. Annual membership dues:

Regular	\$20.00
Student	\$15.00
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A newsletter, The News of the Southern Lepidopterists' Society is published four times annually.

Information about the Society may be obtained from the Membership Coordinator or the Society Website: www.southernlepsoc.org/

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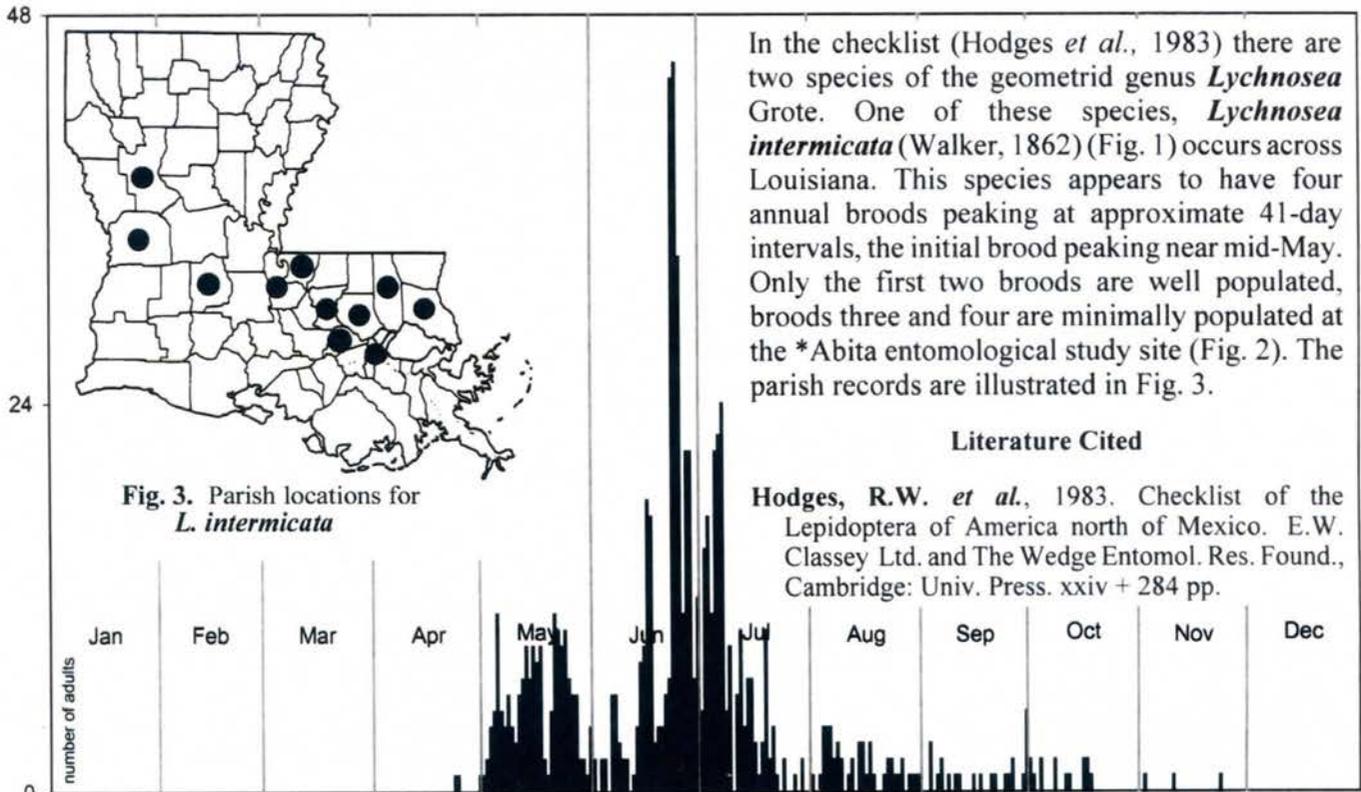
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**LYCHNOSEA INTERMICATA (WALKER, 1862)
(LEPIDOPTERA: GEOMETRIDAE) IN LOUISIANA**

BY
VERNON ANTOINE BROU JR.



Fig. 1. *Lychnosea intermicata* phenotypes: males, a. b. c, females, d. e. f.



In the checklist (Hodges *et al.*, 1983) there are two species of the geometrid genus *Lychnosea* Grote. One of these species, *Lychnosea intermicata* (Walker, 1862) (Fig. 1) occurs across Louisiana. This species appears to have four annual broods peaking at approximate 41-day intervals, the initial brood peaking near mid-May. Only the first two broods are well populated, broods three and four are minimally populated at the *Abita entomological study site (Fig. 2). The parish records are illustrated in Fig. 3.

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Hodges, R.W. *et al.*, 1983. Checklist of the Lepidoptera of America north of Mexico. E.W. Classey Ltd. and The Wedge Entomol. Res. Found., Cambridge: Univ. Press. xxiv + 284 pp.

Fig. 2. Adult *L. intermicata* captured at *sec.24T6SR12E, 4.2 mi. NE of Abita Springs, Louisiana. n = 759

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SPORADIC DESTRUCTIVE OCCURRENCE OF CONVICT CATERPILLARS (*XANTHOPASTIS TIMAIS*) ON CAHABA LILIES (*HYMENOCALLIS CORONARIA*)

BY

PETER A. VAN ZANDT¹, PAUL L. FREEMAN², AND L. J. DAVENPORT³

Since 1988, the junior author (LJD) has studied the Cahaba lily or rocky shoals spiderlily, *Hymenocallis coronaria* (LeConte) Kunth, an iconic member of the amaryllis family native to central Alabama, Georgia and South Carolina. There it grows in the rocky shoal habitats of rivers and streams above the Fall Line, which is the geologic boundary between the shallower streams of the uplands and the more navigable rivers of the coastal plain. Its largest, most studied, and most revered populations are in Bibb County of central Alabama, where a Cahaba Lily Festival has been held by the town of West Blocton since May 1990 (Davenport, 1996).

In the spring of 1996, Larry received photographs from a Festival participant that documented the occurrence of a very conspicuous caterpillar (Fig. 1) on the Caffee Creek population of Cahaba lilies, a large population on the main Cahaba River in the Cahaba River National Wildlife Refuge. (The Refuge, dedicated in 2004, protects over 3500 acres of a very biodiverse corridor along the Cahaba River just above its junction with the Little Cahaba River.) The caterpillars' occurrence appeared to be a passing phenomenon, however, as these herbivores were not seen in subsequent years. But during a canoe trip on the Little Cahaba River in 2006, a freshwater ecologist for the Nature Conservancy (PLF) observed extensive damage on the developing seeds, stems, and flowers of lily plants inflicted by a large population of the same black-and-white caterpillars.

Given the level of damage on such a well-loved plant, we began a closer investigation of the phenomenon. From 2008 through 2011, we made a series of observations and conducted several experiments to determine whether these caterpillars constituted a substantial threat to Cahaba lilies. Because they didn't occur every year and weren't common in over 20 years of observations, we also wanted to see whether this species was a yearly resident in central Alabama or just a sporadic visitor. Furthermore, since noctuid moths typically pupate in the soil, we wanted to determine how this species could complete its life cycle given that its host plants' roots are fully submerged by at least 20 cm of river water year-round. Finally, we wanted to see if river fluctuations might influence the presence or abundance of these herbivores.

Study species

In 2008, Paul successfully reared the black-and-white "convict caterpillars" (Fig. 1) to adulthood. The adult of this larva is known as the Spanish moth (*Xanthopastis timais*; Cramer, 1792), and is a New World tropical species that



Fig. 1. Six late instar convicts feeding on recently opened Cahaba lily flowers at the Lily Heaven stand on the Little Cahaba River, Bibb County, Alabama. Photo taken by PVZ in May, 2008.

is common in the Gulf States, and is occasionally found as far north as Indiana and New York (Forbes, 1954; Covell, 2005; Heppner, 2009; Heppner *et al.*, 2009; Wagner *et al.*, 2011). However, these northern records may represent importation on cultivated lilies (Heppner, 2009). Its range extends throughout the lowland tropics of Central and South America to Argentina, as well as the Caribbean (Heppner, 2009; Heppner *et al.*, 2009). There is some debate about the nomenclature for this species. The names *X. timais* and *X. regnatrix* are often considered to be the same species, although there was (and is) some debate in this regard (Godfrey, 1972). For example, the two species are listed in Florida (Kimball, 1965), and Wagner *et al.* (2011) state that *X. regnatrix* is the correct species in North America. Heppner (2009) reviewed the literature on nomenclature for this species, and suggests that the confusion arises because of the considerable variability in the larva. He also suggests that six varieties may be considered as subspecies. The recent checklist of North American

noctuids lists only *X. timais* (Lafontaine and Schmidt, 2010), and this name is used throughout the current paper.

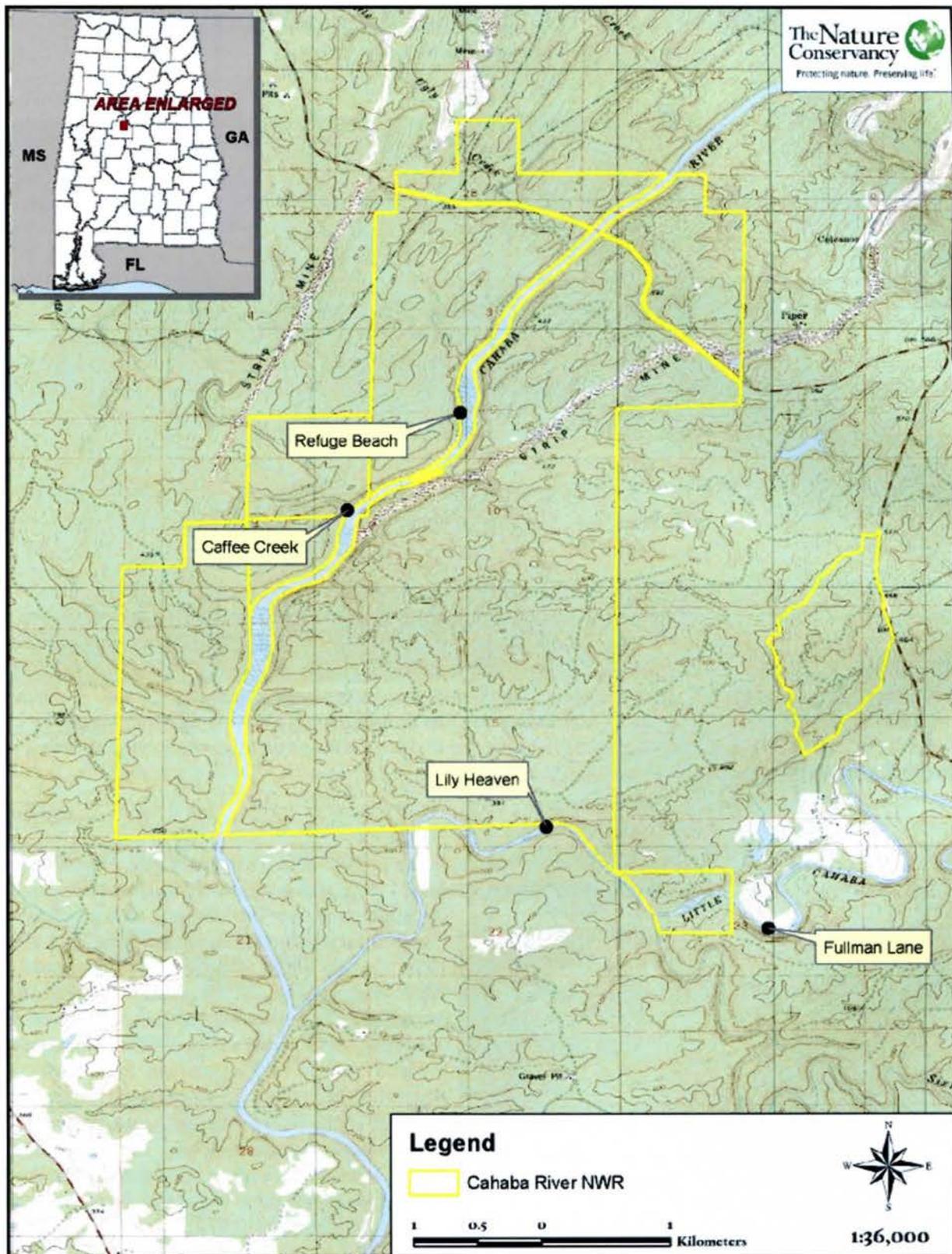


Fig. 2. Map of sampling location in Bibb Co., Alabama.

Convict caterpillars feed mostly on members of the Amaryllidaceae (Tietz, 1972; Heppner, 2009), although they have been reported on *Ficus* (see Covell, 2005) and can be reared on lettuce Wagner *et al.*, 2011). Reports of feeding on *Ficus* are likely to be in error (Heppner *et al.*, 2009; Wagner *et al.*, 2011). Convicts can be pests in greenhouses that cultivate lilies, where they consume all plant parts except mature seeds (Heppner, 2009; Heppner *et al.*, 2009, and references therein).

In Florida and Louisiana, adults may be found from January to June and again from September to December (Brou, 2001; Heppner *et al.*, 2009). Adults are attracted to light but are collected only intermittently even in Florida, where they occur year-round (Frost, 1964; Heppner, 2009). Heppner *et al.* (2009) reported that "several hundred" yellowish to white eggs may be laid by a single female in multiple clusters. Like most noctuids, the larvae pupate in loose soil (Heppner, 2009; Heppner *et al.*, 2009). The total generation time is approximately seven to eight weeks where conditions allow, such as in Florida and the tropics (Heppner *et al.*, 2009).

The larvae are strikingly colored - black ground coloration with white bands, an orange head and terminal segment, and orange prolegs (Heppner *et al.*, 2009; Wagner *et al.*, 2011). The posterior has two dark spots that make the hind end resemble a head (Fig. 1). The coloration and patterning suggests aposemetism, but that hypothesis has not yet been evaluated for this species (Wagner *et al.*, 2011). The maximum size is approximately 5 cm for 6th instar larvae (Heppner *et al.*, 2009; Wagner *et al.*, 2011). For a more detailed physical description of life stages, see Covell (2005), Heppner (2009), Heppner *et al.* (2009), and Wagner *et al.* (2011).

Field studies

To learn more about the role of convict caterpillars as herbivores on Cahaba lilies in central Alabama, we conducted surveys for their presence from 2008 to 2011. We also performed a series of small experiments to better understand their natural history and behavior in this riverine system.

Our surveys were performed on three populations located in the Cahaba and Little Cahaba Rivers in Bibb County, Alabama (Fig. 2). The three populations are referred to hereafter as Lily Heaven, Fullman Lane, and Caffee Creek. Each of these populations was either located in or near the Cahaba River National Wildlife Refuge, which contains

12 different natural plant associations within several different plant community types including river habitats, dry upland forests, and bottomland hardwood forests (Schotz, 2007). The Caffee Creek population occurs within the boundaries of the Refuge in the main Cahaba River, near its junction with Caffee Creek. This stand of plants is by far the largest and most expansive (approximately 140 x 120 m, or 16,800 m²) of our study. Due to characteristics of the Cahaba River watershed, the hydrology of this main river site is of much higher water volume and is far more variable than that of the other two populations. The Lily Heaven population (Fig. 3) occurs on the Little Cahaba River and contains roughly one-half the number of lilies as the Caffee Creek stand. (Video footage of this location and of late instar convict caterpillars can be seen at <http://tinyurl.com/cjpaxrw>). The plants at this site are in one large stand which extends approximately 120 m along the river's shore. The Fullman Lane population is also on the Little Cahaba River, and it contains about one-fourth as many plants as the Lily Heaven population along a 50 m stretch of river.

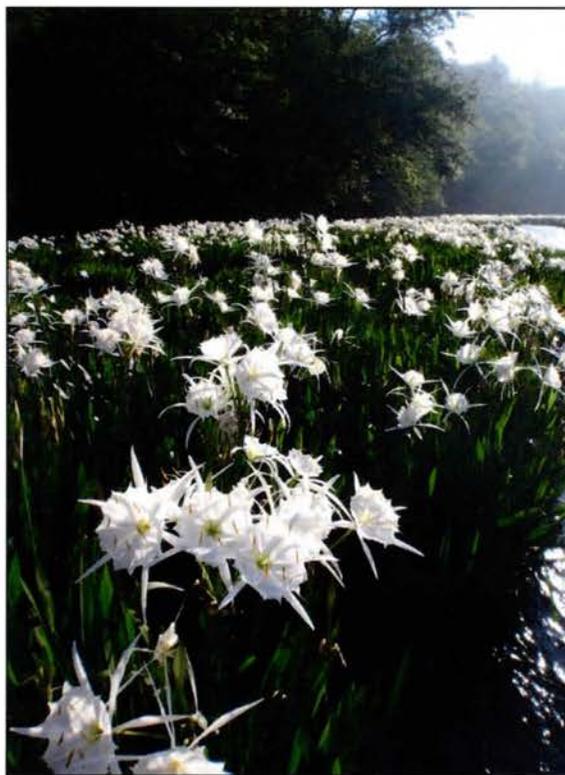


Fig. 3. Population of Cahaba lilies (*Hymenocallis coronaria*) at Lily Heaven on the Little Cahaba River, Bibb County, Alabama. Photo taken by PLF in May, 2010.

Our first visit to sample for caterpillars was in April of 2008, when we were alerted by a local landowner that there was an abundance of the pink and black moths (Fig. 4) at his porch light earlier in the week. We surveyed both the Lily Heaven and Caffee Creek populations for the presence of eggs, larvae, and adults. On the Little Cahaba at Lily Heaven, we found numerous eggs on Cahaba lilies. While the leaves of these plants were mostly under water, many leaves projected 15 – 20 cm above the water's surface, and it was on the tallest plants that we observed the most eggs. We

randomly selected 10 tall leaves and found egg masses on six of them. We also found eggs throughout the stand of plants. Eggs were laid in clusters containing 80 – 200 per cluster (Fig. 4).

We also surveyed the shore for other potential host plants. We were only able to locate one other member of the amaryllis family – a large population of Atamasco lily (*Zephyranthes atamasco*, Fig. 5). After a thorough search of this stand, we were unable to find any caterpillars or damage.



Fig. 4. Spanish moth adult next to typical egg mass on Cahaba lily. Photo taken at Lily Heaven by PVZ in April, 2008.



Fig. 5. Larry Davenport surveying Atamasco lilies for convict caterpillars near Lily Heaven stand along the Little Cahaba River, Bibb County, Alabama. Photo taken in April, 2008 by PLF.

caterpillars fed at all heights. While there were many feeding caterpillars, damage wasn't quite as high as we had expected – possibly because cold nights on the river had slowed the development of the caterpillars compared to those we kept in the laboratory.

On the nearby Atamasco lily population, we found many 5th and 6th instar larvae eating leaves, flowers, and seeds. The Atamasco lilies had begun to senesce, but it is unclear whether this was due to excessive herbivory or because they do not persist beyond late spring.

That day we also surveyed an additional population of Cahaba lilies on the main Cahaba River. During a search of over an hour, we failed to observe any eggs, larvae, or evidence of damage. However, we did find some early instar larvae that had died on a dried leaf. It is worth noting that this river carries much higher volume and has water levels that fluctuate considerably more than does the Little Cahaba.

We collected two egg masses, each with approximately 100 eggs, and brought them back to campus to rear out the larvae. The eggs hatched 2 d and 5 d later, and were initially fed *H. coronaria*. However, they completed their development on daffodil (*Narcissus pseudonarcissus*), a horticultural variety of amaryllis, and Atamasco lily. Caterpillars reached the 6th instar 15–17 d after hatching and pupated 21–24 d after eclosion.

About one month after our first survey, we returned to the same stand of Cahaba lilies. After observing how much the caterpillars ate in the laboratory, we expected to see considerable damage on the plants in nature. On this visit, we estimated the densities of egg masses to be 1.83 per 500 leaves, based on six random samples. (If each egg mass contained 100 viable eggs, this would amount to roughly one larva for every three leaves – far less than they are capable of eating.) During this survey, we also counted five adults on the undersides of leaves and many caterpillars from recently hatched to 3rd or 4th instar, which suggested that there were broad, if not overlapping generations of moths using this stand of lilies. We saw several early instar caterpillars, all feeding in large groups of approximately 30 1st and 2nd instars. We also saw many larger convicts, but these later instar larvae had dispersed more evenly among the plants. However, they were more concentrated on smaller, more isolated patches of Cahaba lilies than they were on larger, more contiguous patches. All larvae fed at various levels above the water, but it appeared that younger caterpillars tended to feed toward the tops of leaves while larger



Fig. 6. Paul Freeman standing next to partially submerged lilies during a high water event that impacted the Lily Heaven stand. Photo taken by PVZ on May 9, 2008.

instar caterpillars. We found no adults, and there were far fewer egg masses than the previous week. Apparently, we had arrived just past the peak of this generation's oviposition and hatching time.

The Cahaba lilies here were still flowering and many had begun to set seed, and for the first time we observed some large caterpillars consuming flowers, flower stalks, and seeds (Figs. 1 and 7). This suggested to us that not only were the vegetative parts of the plants being impacted, but also their ability to reproduce. There was also concern that these beautiful, showy flowers wouldn't be available for people to see during the annual Cahaba Lily Festival, which was coming up in just three weeks. As one of our study team (LJD) has delivered the Festival's keynote address since its inception in 1990, this presented quite an emotional trauma.

This survey was after the peak of the river flow; while most plants were now completely above water, they might have been briefly submerged overnight. To determine how these caterpillars may have fared if the water was much higher, we conducted some simple manipulations. First, we plucked two 6th instar larvae off plants and dropped them into the water. They not only floated, but they did so for a considerable distance downstream. We held our next victim under water by bending the leaf it was feeding on until it was submerged. The caterpillar held on to the plant for 35



Fig. 7. Late instar caterpillars may often be found near the apex of leaves and stalks that have bent over to touch the water. In this case, a caterpillar is consuming a developing Cahaba lily seed. Credit: PVZ, June 2010.

We planned another trip for the next week (May 9, 2008), expecting to see major evidence of herbivory on the plants. However, the day before this survey, a rainstorm caused river levels on the Cahaba River to rise substantially, and the Caffee Creek population on the main Cahaba River was completely submerged. One stand (the Fullman Lane population) on the Little Cahaba River was also submerged, but at nearby Lily Heaven only about 15% of the plants were bent over and inundated by the high water (Fig. 6) or held under by woody debris. Despite the high water at this last population, there were many 3rd – 6th instar caterpillars feeding toward the tops of plants and doing considerable damage. In a survey of one patch of about 350 leaves which were still above the water's surface, we counted 165 3rd – 6th instars and one group of 75 1st

seconds before letting go, at which time it floated to the surface and was carried downstream. We then detached several other caterpillars; some of them were carried by eddies back into the stand of lilies where they reattached, climbed up the plant, and resumed feeding. Apparently, high water isn't too much of a challenge for these typically terrestrial caterpillars.

A substantial rain event kept us from returning to the stream until May 24, 2008. Our first visit was to the Atamasco lily stand, which contained three late instar larvae scrounging the last remaining leaves that hadn't either senesced or been eaten. At Lily Heaven, there were no remaining eggs, larvae, or adults – possibly because of the excessive rain during the previous week. However, we did find two late instar larvae on the upstream side of an island that is just downstream from the main stand. These caterpillars were at the high water

mark from a recent flooding event, which we estimated at about 1 m above the current water level. This height would have been enough to inundate all of the Cahaba lilies in the river, but not enough to cover the other species of plants on this island, so it is likely that some caterpillars found refuge in the island's vegetation. Now that the water levels had subsided, we could survey the lilies that had so many caterpillars on them in previous weeks. It was clear which plants had been heavily attacked, because these patches were substantially more chlorotic (yellowed) due to herbivore stress.

After this first year of research, it was clear that these caterpillars were impacted by high water events in these streams, that they had some means at their disposal for handling these events, and that they could severely impact their host plants. Our plan was to continue monitoring in the spring and early summer for several years to see if river flow patterns helped explain the sporadic occurrence of the convicts.

In 2009, we were able to survey the plants four times throughout the season. Late in March, a local landowner reported adult Spanish moths around his house, which is within 500 m of the Lily Heaven stand. We surveyed Cahaba and Atamasco lily populations twice in early April, but saw no evidence of any damage on the plants. In mid-May, we returned to survey the Cahaba river, but high water prevented us from accessing the plants. Binocular surveys of the stands from the river bank didn't show any yellowing of the plants characteristic of the convict infestations of 2008. We were finally able to survey the plants up-close in August, but we found no plant damage on either the Little or main Cahaba River populations. The spring and early summer of 2009 was a very wet period, with several strong storms and high river flows. Perhaps this was responsible for the lack of convicts.

In 2010, we continued our spring sampling for damage. On our first visit on May 4, we found no eggs, caterpillars, or damage on the plants, but this could be because a high water event had kept the plants underwater for 2-3 days before our visit. A landowner again reported adults near his house lights on the 8th, and we returned again two weeks later on May 19 to find early instar caterpillars consuming leaves and buds of the Cahaba lilies. While canoeing down the Little Cahaba River, Paul observed 2nd through 4th instars feeding on four other small populations.

During this season, we began running a mercury vapor light and a sheet near the Caffee Creek population on the main Cahaba River to try to collect adults. We reasoned that adults might be flying and ovipositing, but if the eggs and early larvae get washed off in high water flows then we might not see caterpillars or their damage on the lilies. (This could possibly explain why we didn't see any convicts in 2009.) Despite sampling one week before and one week after May 8th, we saw no Spanish moths at our sheet. In fact, in 11 moth collecting trips totaling 44 hours of MV collecting from April 2 to July 12, 2010, we didn't see a single Spanish moth. (However, we did identify 192 species of other moths from 22 families.)

On May 24 we returned for another trip – this time by canoe, since the water was still fairly high. We saw convict caterpillars spread throughout the Lily Heaven stand on the Little Cahaba River, from near the upstream end of the stand all the way to the most downstream end (a distance of over 100 m). Many late instar caterpillars were observed crawling about, seemingly trying to disperse. Three of them were observed dropping into the water and drifting downstream to another plant, where they took hold. Very early instars were found on one or two leaves and several concentrations of medium-sized instars were seen clumped on stalks and flowers and actively feeding. Some of the larger caterpillars were observed on water willow (*Justicia americana*), but we saw no evidence of their consumption of this plant.

We returned two days later to get a closer look at the damage (once the water had subsided). At the Lily Heaven stand on the Little Cahaba River, we estimated about 5% of all leaf area in the stand had been removed. While some of this could be from lubber grasshoppers (*Romalea microptera*), most of it was from convicts, judging from the patterns of damage.

Experiments

About this time, we started wondering how these caterpillars could become so abundant and feed so conspicuously in large groups during the daytime. It has been conjectured, but apparently never tested (Wagner *et al.*, 2011), that their aposematic coloration was a true sign that they are chemically defended. Plus, many of their behaviors, such as conspicuous group feeding and daytime activity, are classic traits of chemically defended caterpillars (Bernays and Montllor, 1989). Terry Lawley, who owns land along the Little Cahaba River, and whose stand of lilies we occasionally surveyed, agreed to help us with a simple experiment. Anglers in the Southeast, including Mr. Lawley,

frequently use catalpa worms (*Ceratomia catalpa*; Sphingidae) as bait. He tried the similarly colored convict caterpillars, but noticed that not a single fish would touch them. We decided to see whether other predators besides fish would also avoid convicts, and convinced Mr. Lawley to feed several 5th instar convicts to two of his roosters, who regularly eat any insect they encounter. They weren't interested. Each rooster pecked the caterpillars one or two times, but did not consume or even break its cuticle. After attack, each rooster shook its head and wiped its beak on the ground in a fashion that suggested cleaning distasteful substances from its mouth. Apparently, the black, white, and orange coloring of the convicts is a true aposematic signal – at least to fish and chickens. It is possible that they could be sequestering distasteful chemicals from their host plants, since several alkaloid compounds (which are very bitter and can be toxic in low doses) have been extracted from members of the genus *Hymenocallis* (Jin, 2003).

An extensive chemical analysis of the convicts will have to wait for another project. As a side note, convicts superficially resemble the black and yellow striped sphingid *Pseudosphinx tetrio*, which occurs throughout the neotropics in similar habitats (Janzen, 1983; Dunford and Barbara, 2005). As both of these species appear to be warningly colored, they may represent a case of Müllerian mimicry – either as toxic caterpillars or, as suggested by Janzen (1983) for *P. tetrio*, as coral snake mimics.

About a month after our last survey (2010), we returned to Lily Heaven to check on the activity of the caterpillars. Just like in May, we found thousands of convicts devouring Cahaba lilies, stimulating a couple of related questions. First, what happens to caterpillars that get washed off in high water events? Do they just drown? And second, how can they complete their life cycle if they require soil or some other substrate in which to pupate? If they can't pupate, then this population is a genetic sink, in that moths oviposit and their offspring eat, but subsequent generations are never produced.

To explore these questions, we performed a simple experiment. We situated four people 10-15 m apart in a line going from upstream to downstream in the middle of an 8 m wide section of stream. On one side was a continuous patch of Cahaba lilies, and on the other was the river bank. We released one 6th instar caterpillar at a time from the upstream end of our line and monitored the fate of each individual. Each person watched to see whether the caterpillar drowned, got washed ashore, reattached onto plants, or drifted further downstream. Of the 28 caterpillars that we released, 14 reattached to lilies, the fate of eight could not be determined, six were still floating downstream after 50 m, and none of them made it to shore. To our surprise, being washed off a plant is not necessarily lethal to these caterpillars. While it appears from our simple experiment that reaching shore (and thus, a suitable pupation site) is rare, we have occasionally seen late instar larvae on the bank of the river. Furthermore, it is likely that larvae could accumulate on the plants and soil of the downstream island and eventually pupate. Such an occurrence, however, has not yet been observed.

Table 1. Estimates of convict caterpillar abundance during an outbreak in June, 2010. A total of 60 samples of 130 x 130 cm each were taken at three different locations in a stand of lilies that covers approximately 1,200 m². Caterpillars were unevenly distributed among the three locations ($X^2 = 50.2$, 4 df, $P < 0.001$). The extrapolated abundance is an estimate of the total number of individuals on that stand of lilies, based on estimates of caterpillar density.

Location	1 st & 2 nd instars	3 rd & 4 th instars	5 th & 6 th instars
up shoal	0	1	22
mid shoal	1	31	6
down shoal	0	23	3
estimated density (number per m ²)	0.0099	0.5424	0.3057
extrapolated abundance	11.8	650.9	366.9

If caterpillars are continually drifting downstream and reattaching to plants, then we might expect an uneven distribution of later age classes along the 120 m long patch of plants. Specifically, we would expect that early instars should be evenly distributed among all the plants (assuming that female moths don't exhibit any preference), and that later instars should be more abundant downstream due to drifting. To see whether this was the case, we intensively sampled upstream, downstream, and in the middle of the patch of lilies, and counted the number of different instars in 20 sample quadrats of 130 x 130 cm each. Caterpillars of different sizes were not found equally among the three

locations (Table 1), but the pattern of their distribution was not consistent with the hypothesis that larger caterpillars are more likely to be washed downstream. In fact, it appeared that older caterpillars were more likely to be found upstream – the exact opposite of what we expected. Our sampling also indicated that caterpillar densities can be quite high, with estimates of over 1,000 individuals of different sizes (Table 1). We have only conducted this sample once, so we can't say how typical it is, of either the numbers or dispersion of caterpillars. For example, finding only one 1st instar caterpillar in over 100 m², but hundreds of larger larvae, suggests that our sample was taken at least 1 – 2 weeks after a large oviposition event. However, the patterns of damage that we have observed throughout the years suggest that this density is not uncommon.

In 2011, we reduced the number of visits to the river, but we still observed caterpillars on the lilies at Lily Heaven in mid July. During this trip, we collected several egg masses for an experiment to see if eggs were still viable if held under water, such as when high water events overtop the plants in the stream. We selected five egg masses each with over 60 eggs, and cut them in half. One half of each egg mass was briefly submerged in tap water, then set out to dry. The remaining eggs were submerged for 30 min, 1 hr, or 2 hrs, then allowed to dry. We monitored each of these masses daily and counted the numbers of caterpillars that hatched. To our surprise, equivalent numbers of larvae hatched from the eggs, indicating that 2 hour immersion isn't enough to impede hatching of this species. While eggs of Trichoptera and many aquatic lepidopterans are laid under water (e.g., McGaha, 1954), we are unaware of other literature concerning the tolerance of terrestrial moths to submergence of eggs.

In order to repeat this experiment with longer submergence times, we returned to Bibb County a couple of weeks later in search of more eggs. Such eggs weren't available, so we instead collected about 50 late instar caterpillars, as well as lots of Cahaba lily leaves, to rear them to adulthood and collect their eggs. Unfortunately, the caterpillars weren't interested in eating the lily leaves, although they did eat cultivated amaryllis leaves. Because of a shortage of food, we were unable to rear adults for another round of the egg immersion experiment. However, this observation raises yet another question: Why is it that these caterpillars collected from Cahaba lily leaves would no longer accept this plant? During the course of our surveys, we had observed thousands of caterpillars eating these plants and had reared hundreds of caterpillars to pupation and had never experienced this problem. One possible explanation is that Cahaba lilies frequently display signs of rust in the late summer and fall, and that the rust infection causes leaves to be unpalatable to these caterpillars. It isn't known which species of rust infects these plants, but a non-native species of rust (*Puccinia hemerocallidis*) has been introduced to the U.S. on cultivated daylilies (Williams-Woodward *et al.*, 2001), and it might also be infecting Cahaba lilies. Future studies will have to be conducted to determine the impact that this rust has on both caterpillars and their host plants.

Despite the presence of convict caterpillars on lilies in 2011, we never collected any adults during an intensive survey over 20 trap nights (ca. 11 hours per event), with traps set adjacent to both the Little and main Cahaba Rivers throughout the summer. While it is apparent that at least one generation of moths had oviposited in 2011, they were never particularly abundant. It is noteworthy that in 35 years of collecting in Florida, where Spanish moths are abundant, Heppner (2009) has only taken adults once. While it may be occasionally abundant and able to recolonize over long distances, it is also very sporadic.

Conclusions

Although we aren't able to definitively address the four questions that motivated this study, we have gained insight into the relationship between Cahaba lilies and convict caterpillars. First, it is unlikely that convicts alone could threaten the abundance and distribution of these plants, as there are other factors that impact them such as river sedimentation, disruptions in normal river flows, and the introduction of a rust pathogen. However, it is clear that these caterpillars aren't doing the plants any favors either, as they consume flowers, stalks, and developing seeds, plus reduce leaf area and diminish the amount of stored resources the plants can acquire. Long-term monitoring would be needed to determine whether the caterpillars or other threats are affecting these populations of lilies.

Second, *X. timais* is reported to have multiple generations per year in southern Florida (Heppner *et al.*, 2009) and other tropical areas, so it is unlikely to be a year-round resident in central Alabama. It also recolonizes northern areas yearly, often as far as New York (Forbes, 1954; Covell, 2005; Heppner *et al.*, 2009; Wagner *et al.*, 2011). In Alabama, it is frequently seen on swamp lilies (*Hymenocallis occidentalis*) in the northernmost counties in mid-summer (Jim Lacefield, pers. comm.), and we have observed caterpillars in four out of five years (2008 – 2012) of casual to intensive surveying. In the one year where we didn't observe any herbivory (2009), adults were still spotted near the river, indicating that Spanish moths are likely to be yearly immigrants.

Third, we wanted to see how this species could complete its life cycle given that its host plants' roots are fully submerged by at least 20 cm of river water year-round. Given the results of our experiments, it is likely that Cahaba lilies are a net sink to Spanish moth populations in this area, rather than a source on which the population can increase. Because these hosts are rooted in the river, the larvae can only pupate successfully if they float over to shore or land on islands after drifting downstream. As our floatation experiment indicates, both of these outcomes are unlikely, although several larvae have accomplished these feats. Since individuals of this species are long-distance recolonizers from tropical and sub-tropical zones, there probably isn't a measurable impact of this genetic sink habitat on the persistence of the species. Furthermore, other local host plants, such as Atamasco and swamp lilies, may support sizeable numbers of caterpillars through to adulthood. Large-scale studies on the colonization and possible migration of this species would be necessary to assess the regional status of this species.

Finally, it appears that river fluctuations influence the presence or abundance of these herbivores. On the main Cahaba River, water levels exhibit higher and more frequent fluctuations, and convicts have only rarely been seen on lilies in this river (Davenport, 2009). In contrast, larvae were regularly found on the Little Cahaba River, which drains a smaller watershed that is less urbanized and therefore is less hydrologically "flashy." For example, on May 22, 2010, heavy rains caused the main Cahaba River to experience abnormally high discharge rates, resulting in a nearly complete inundation of the Caffee Creek population. In comparison, this same rain event only caused water levels on the Little Cahaba to rise less than 30 cm, which wasn't enough to inundate plants in this smaller river. In addition, the one year in which we failed to observe caterpillars (2009) was also the year in which spring time water levels were the highest during the study period, further suggesting that the timing and magnitude of water fluctuations can influence whether Spanish moths can become established on Cahaba lilies.

Acknowledgments

We would like to thank Roy Scholl, Terry Lawley, James Day, and the land managers of the CRNWR for access to populations of lilies. Stephen A. Miller of the CRNWR helped us collect moths for this and other research, and Anna Bianchi, John-Paul Tortorich, and Grace Balinda helped with the "drowning poor caterpillars" experiment. Mary Kate Stubljar of Alabama TNC prepared the map for Figure 2. The friendly employees of the Tiger Hut in West Blocton, AL, always served up the burgers that provided motivation for our visits.

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BUTTERFLIES WORTH KNOWING ⁽¹⁾

BY

CLARENCE M. WEED, D. Sc.

The Regal Fritillary

“The Regal Fritillary, fresh from the chrysalis, still showing the marvelous sheen of its iridescence, furnishes one of the most beautiful exhibitions of color in the world of nature...

Like the other Argynnid, the Regal Fritillary is single-brooded during the year and it has a rather remarkable longevity in each stage of its life. The newly hatched caterpillars go into hibernation and live through the winter without feeding, finding shelter at the surface of the ground, especially beneath the leaves of violets which form their chosen food plants. When the snow has disappeared and the warmth of the spring sun brings them out of their winter lethargy these tiny caterpillars feed upon the violet leaves and grow slowly for several weeks...The length of time spent in the chrysalis varies also but in general it seems to be less for those which develop into male butterflies than for the females. It is a curious fact that the former may be found for nearly two weeks before any of the latter appear.

The first butterflies of this species are usually disclosed from the chrysalis late in June or early in July...They lead a leisurely life, visiting freely the flowers of goldenrod, ironweed, boneset, Joe Pye weed, and especially swamp milkweed.” (Page 120-121)

1) Weed, Clarence M., 1925. *Butterflies Worth Knowing*, Little Nature Library, Doubleday, Page & Company for Nelson Doubleday, Inc., The Country Life Press, Garden City, N.Y.



From a drawing by S. Shimotori

See page 120

THE REGAL FRITILLARY, FEMALE

ARTHROPOD BIODIVERSITY STUDY AT THE CENTRAL FLORIDA ZOO

BY
BOB BELMONT



Fig. 1. Central Florida Zoo and Botanical Gardens in Sanford, Florida.

Winter Springs, Florida, for this event. Massey Services, Inc., a pest management company headquartered in Orlando, Florida, purchased and donated the trap and other insect collections and preparation equipment to begin a long-term collection and study of the arthropods on the 32-acre Zoo. The trap should work for at least another 10 years. The Zoo has plans to expand into dozens of undeveloped acres on its west side in future years.

2010 was declared the “Year of Biodiversity.” It was during the summer of 2010 when the Central Florida Zoo in Sanford, Florida (Fig. 1), hosted its first “Bio-Blitz” where schools brought dozens of children to camp at night to see first-hand the diversity of insects that are attracted to light in the tropical cypress swamp habitat. A walk-in ultraviolet light trap cage (Fig. 2) was built in aluminum by screen expert and lepidopterist, Rick Gillmore, of



Fig. 2. Walk-in UV trap permanently installed by the cypress swamp.



Fig. 3. Bob Belmont, Training & Technical Director and Board Certified Entomologist with Massey Services, Inc. and Sandi Linn, Education Development Representative at the Sanford Zoo with a drawer of the larger specimens collected on the Zoo grounds.

One of the best ways to interest the public about science is through collection (Fig. 3) and observation of insects. The Zoo Team is extremely interested in maintaining an ongoing program that will inspire children and their parents to learn more about nature. The Zoo environment is being carefully manicured with more to see every week over its 32 acres. The walk-in cage is the first step in Massey’s liaison with the Zoo’s biodiversity project. A wide variety of collecting methods are being planned, and not just for Lepidoptera. A malaise trap (Fig. 4) is also in operation with weekly collections being taken and prepared for research. Public and private trapping sites will be set up throughout the Zoo, which will allow children to work on science projects, visitors to listen and learn about the arthropods, and where entomologists can privately collect specimens. The collections from these sites are being housed in Cornell drawers and cabinets that are on display upon special request.

Zoo personnel and other selected parties are preparing to learn how to carefully collect and prepare different arthropods so the Zoo can accumulate an increasingly important collection over time to share with the public and other scientific institutions. Meanwhile, attempts to find new species to add to the collections will continue. Massey Services plans to continue their partnership on this project as it progresses.



Fig. 4. Malaise trap north of the Zoo's snack bar.

Data from these collections will be linked to an ongoing weather station at the Zoo that records weather data on a daily basis. Eventually, "indicator species" will be selected for a more serious long-term phenology study that will help elementary through high school students learn more about how climatic conditions affect the abundance of different arthropods. Anyone interested in this study, whether scientists, students, retired entomologists or volunteers are encouraged to please contact Bob Belmont at 407-645-2500 to arrange a time to meet and learn how you can help. We need collectors, preparators, and people to help identify specimens. Students can learn to pin and prepare insects while conducting special projects and reports for their biology and science classes. Entomologists and lepidopterists, especially those who live near or plan to travel on collecting trips through Seminole County, are encouraged

to stop by the traps, collect, and participate with this project.

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DEFINITIONS:

Sequential hermaphroditism ⁽¹⁾ - is the terminology used to describe an organism (usually fish, gastropods, and plants) that changes from one sex to the other. In botany this process is usually referred to as **dichogamy** ⁽²⁾. If the change is from male to female the term describing this phenomenon is **protandry**. In the other situation, *i.e.*, the change from female to male the term is **protogyny**.

Dichogamy - an organism that has both male and female reproductive elements at different times.

Hermaphrodite ⁽³⁾ - the presence in an individual organism that has both ovarian and testicular tissue. Having reproductive organs of both male and female sexes in one individual. [**Hermaphroditus** ⁽⁴⁾, the son of Hermes (Mercury) and Aphrodite (Venus), a minor deity portrayed in Greco-Roman art as a female with male genitals. Hermaphroditus was born male but transformed into an androgynous youth symbolizing both bisexuality and effeminacy.]

Sources:

- 1) http://en.wikipedia.org/wiki/Sequential_hermaphroditism
- 2) <http://www.merriam-webster.com/dictionary/dichogamy>
- 3) <http://en.wikipedia.org/wiki/Hermaphrodite>
- 4) <http://en.wikipedia.org/wiki/Hermaphroditus>

**SYNANTHEDON RILEYANA (HY. EDW.) (LEPIDOPTERA: SESIIDAE)
IN LOUISIANA**

BY
VERNON ANTOINE BROU JR.

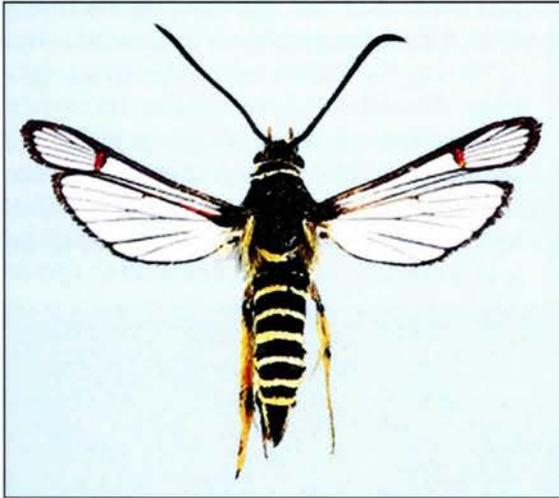


Fig. 1. *Synanthedon rileyana*, male.

In Louisiana, I first captured the clearwing moth *Synanthedon rileyana* (Hy. Edw.) nectaring on flowers in 1969. Since then, I have captured males of *rileyana* (Fig. 1) by hand netting, in ultraviolet light traps, and using the semiochemicals E3Z13-18OH, Z3Z13-18Ac, also (1:1) combinations of these same two semiochemicals, and using the commercial lures: Scentry L103, *Synanthedon bibionipennis* (Boisduval), *Paranthrene tabaniformis* (Rottemburg), *Paranthrene robiniae* (Hy. Edwards), and for the European Raspberry Clearwing Moth *Pennisetia hylaeiformis* (Laspeyres).

Brown and Mizell (1993) also list the same two aforementioned semiochemicals for *rileyana* in their study of the clearwing borers in Florida. These authors state *rileyana* occurs in the northern part of the state of Florida.

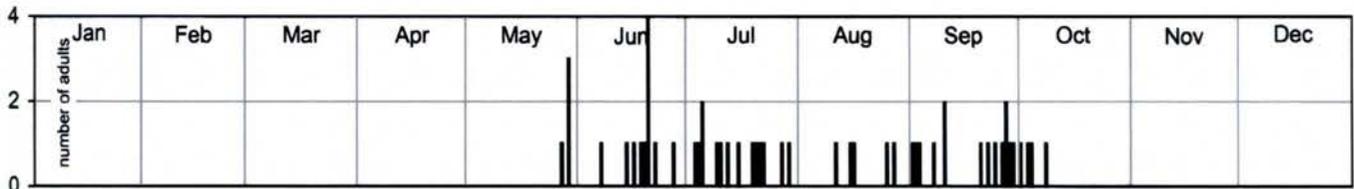


Fig. 2. Adult *Synanthedon rileyana* captured in Louisiana. n = 54



Fig. 3. Parish records for *S. rileyana*.

Knudson and Bordelon (2010) stated *rileyana* occurs June through October in Texas. Similarly *rileyana* occurs from the end of May into early October in Louisiana (Fig. 2). These same authors (2010) stated *rileyana* is known from only a few localities in Texas, and so it seems a similar situation exists for Louisiana where I have recorded it in only five parishes (Fig. 3).

Eichlin and Duckworth (1988) stated the distribution of *rileyana* includes "New York to Florida, west to Wisconsin, Kansas, Texas and Arizona".

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WINTERING OF THE GULF FRITILLARY IN SOUTH LOUISIANA

BY

GARY NOEL ROSS

Lepidopterans that characterize temperate climates have evolved specific strategies for coping with the cold months of winter. Many species, for example, pass through this adverse period in a relatively dormant state (hibernation) as an egg, caterpillar, or chrysalis concealed in protective vegetation. Since no food is required, individuals usually survive well, that is, if the site is not disturbed. Adults usually either hibernate within cover or else migrate out of the area.

First hibernation. Many adult eastern butterflies of North America find security in dried vegetation, cracks and crevices in tree bark and rocks, clumps of debris on the ground or on tree limbs and trunks, and even in epiphytes such as Spanish moss or ball moss. Not surprisingly, man-made structures such as eaves of houses, secondary buildings, carports, porches, and attics are occasionally utilized, too. On mild winter days, individuals may emerge to bask and secure moisture.



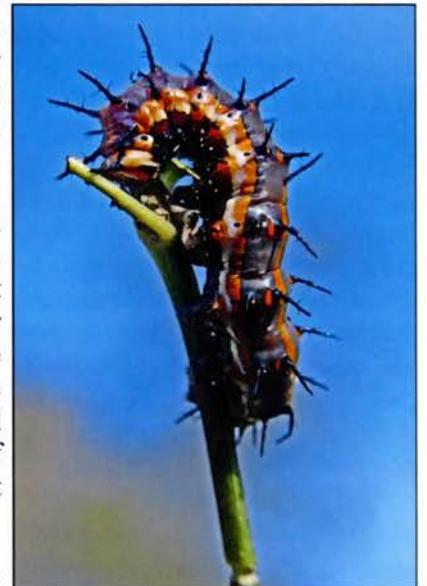
Gulf Fritillary drinking (*Agraulis vanillae*, female)

host plants (milkweeds) on which they lay eggs that eventually develop into the year's first generation of monarchs. In time, successive generations repopulate the species' entire former temperate, more continental venues.

By contrast, butterfly species in the tropics do not experience prolonged periods of cold. There, an alteration between wet and dry season is the rule. Although many species show a predilection for either rain or no rain, most seem to breed throughout the year, albeit perhaps at reduced levels during their "off season." And regardless of month, adults can usually locate an adequate supply of fresh flowers and miscellaneous food resources such as tree sap as well as feces, excretions and secretions of larger animals. As such, tropical species typically have an easy time securing nutrients during all months. If these species occasionally wander into temperate zones as vagrants, they are at a decided disadvantage when cold weather ensues.

The Gulf Fritillary (*Agraulis vanillae*) is a common butterfly throughout south Louisiana during all warm months. This bright orange species is a favorite of butterfly gardeners. Consider: Adults are avid feeders on a great variety of flowers, especially lantanas; the butterfly's singular host plants—species of passionflower (*Passiflora*, particularly *P. incarnata* and *P. caerulea*)—are easy to cultivate; adults are relatively "smart," that is, the butterflies easily learn and remember visual cues, enabling an individual to return frequently to its favorite nectar or host plant; and finally, adults are relatively long lived (4 to 6 weeks), allowing an extended view of the same individuals in a given garden setting.

Migration. Those species that do not hibernate, usually disperse to warmer climates where they continue their reproductive activities. When warmer temperatures return, some individuals begin repopulating areas from which earlier generations had dispersed. The icon of butterfly migration is the monarch (*Danaus plexippus*), of course. Each fall and spring the eastern populations of this species fly to and from the montane fir forests in central Mexico. West of the Rocky Mountains, monarchs move to and from the Pacific coast of California. In both winter locations, environmental conditions are relatively mild, allowing extended survival but not reproduction. With the onset of springtime warmth, the butterflies become more active, mate, and begin returning to former areas to search out their



Larva of Gulf Fritillary
(*Agraulis vanillae*)



Larva of Gulf Fritillary
(*Agraulis vanillae*)

But *A. vanillae* has a tropical/semi-tropical heritage. Therefore the species does not routinely occupy geographic regions where winter temperatures frequently dip below freezing, and so the species has no genetically programmed behavior for enduring extended cold periods. Now, consider Baton Rouge. At 30.23 degrees North Latitude, this capital city is classified in USDA Plant Hardiness Zone 8B on the cusp of 9A. On average, the city experiences 20-23 days with subfreezing temperatures. (Incidentally, January is usually the coldest month throughout Louisiana.) On the other hand, the greater New Orleans area (29.58 degrees North Latitude), which is only about 30 miles farther south and bordered to the north by the winter warming effects of Lake Pontchartrain, is classified in USDA Zone 9B. Because of this difference, New Orleans records an average of just 12 sub-freezing days. Knowing that *A. vanillae* has tropical ancestry, I assumed that throughout southern Louisiana, the first or second frosts of November or December simply killed both adults and larvae of the species by interfering with metabolic processes. Common sense, right?

Well, not really. Since I have been an active butterfly gardener, I have known that fellow butterfly enthusiasts in New Orleans routinely report Gulf fritillaries on the wing throughout all winter months. Furthermore, for the past several years I have noticed that after the proverbial "Jack Frost" visits my garden in Baton Rouge in mid-November or so, I

continue to see both adults and caterpillars of *A. vanillae*. However, many common nectar plants as well as the butterfly's passionflower host show significant damage and curtail new growth. Then as November progresses into December, an occasional sub-freezing temperature will hit. These low temps wipe out almost all appropriate sources of nectar. Even those flowers that are visually unharmed, seem to be deficient in scents and more importantly, life-sustaining nectar. [After all, nectar production with its cocktail of sugars, amino acids, and phytochemicals is a huge energy-consumer for a plant. Biological efficiency would dictate that late season flowers decrease (or shut down) their production of nectar.] I conclude this because butterflies show little or no interest in most winter flowers. A butterfly, for example, may simply flit over a flower without stopping to investigate (apparently, color acts as an initial attractant). If an individual does pause, it is only for a nanosecond. Additionally, some butterflies will bask on leaves adjacent to flowers without demonstrating any interest in the actual flowers. All observations are indicative of the flowers' lack of nectar (and scents).



Larva of Gulf Fritillary
(*Agraulis vanillae*)

Meanwhile, caterpillars continue to try to feed on whatever passionflower foliage is at hand: yellow and withered leaves, nubs of petioles and stems, and even dried stems, for instance. But these vegetative parts are tough and therefore not ideal sources of nourishment. Amazingly, in spite of reduced metabolic processes within plants and adult/larval butterflies, a goodly number of the insects manage to starve off desiccation into the latter days of December. Their presence is a delight for butterfly gardeners. But the joy is tempered by panic. As stated earlier, by late fall all host plants are virtually spent. It is at this time that I often receive phone calls from several fellow gardeners inquiring as to the status of my passionflower in the hope that I will have fresh leaves to share. Unfortunately, more often than not, my plants are equally devastated. So, with virtually no food source available, the Baton Rouge caterpillars eventually dehydrate and are no longer observable. I suppose that in this weakened condition they become easy targets for predators and/or microbes.

But life is tenacious. Even during cooler months, adult fritillaries—albeit less common and exhibiting signs of wear—continue to fly. Individuals often search out moisture from extra-plant sources such as dew and damp ground. Although I do not set out wet sand or gravel with the express purpose of providing moisture for butterflies, I do have gravel driveways and walkways that retain moisture. I have on occasion observed both male

and female fritillaries using the gravel as “watering holes,” an activity that I have never noted during summer months. (I have, however, witnessed this activity on particularly dry and cool days after the passage of a cold front during October in several years.) Nonetheless, usually by January all adults vanish from my garden. I say “usually” because during both 2011 and 2012 I observed at least one worn fritillary during warm/sunny days throughout the entire winter. Additionally, a friend of mine who maintains a garden rich in passionflowers reports that during these same years she has observed adult butterflies and caterpillars throughout the entire winter because several of her *Passiflora* vines did not completely die back.



Gulf Fritillary drinking (*Agraulis vanillae*, female)

So, what do I make of my data, limited and empirical as it may be? Here is my take: *Agraulis vanillae* is not systematically wiped out by a freeze or even multiple freezes provide the temperatures are not severe. The species does not expand into more northern environs not because of intolerance to cold per se but because of the unavailability of fresh food for both larval and adult stages during late autumn and early winter. Simply put, both caterpillars and butterflies become so severely weakened by starvation and dehydration that they die of metabolic failure or else become easy targets for predators. Of course some individuals may disperse to more southern locations such as the New Orleans-Lake Charles

transect (basically south of the Interstate 10 east-west corridor) where food sources are subject to fewer and less severe freezes than in Baton Rouge. Indeed, if winters are generally less severe, that is, fewer freezes and/or milder freezes such as in 2011 and 2012, a few individuals even in the Baton Rouge area can beat the odds by surviving in sheltered places until warmer days return. These butterflies then produce the next year’s first generation. (For example, in the early spring of both 2011 and 2012, I noticed several adults still in my garden. At least one individual each year must have been a gravid female because I began noticing eggs on newly emergent passionflower plants in late February. The adults of these early caterpillars became my garden’s first new generation of *Agraulis* the following spring.)

And the future? The world’s climates are warming. For the first time in recorded history, the month of January in 2013 Baton Rouge experienced NO temperatures 32 degrees or below. Rationally thinking, the ranges of virtually all species of animals and plants are slowly being impacted. In response, some tropical lepidopterans and their favorite nectar and host plants most likely will gradually extend their ranges northward. If this happens, then Louisiana and other Gulf Coast venues will most likely become more ideal as a permanent home to what formerly were occasional tropical visitors. Good candidates include: Zebra Heliconian (*Heliconius charithonia*), Large Orange Sulphur (*Phoebis agarithe*), Orange-banded Sulphur (*Phoebis philea*), and Dorantes Longtail (*Urbanus dorantes*). Because my garden includes appropriate hosts for several tropical species, my “welcome mat” is already poised.

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(Adapted from “What Kills Tropical Butterflies in Marginal Temperate Zones?” in *Butterfly Gardener*, Fall 2008 (Vol. 13, Issue 3, pages 4-5, 7. Published with the permission of the editors of *Butterfly Gardener*.)

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**SIMPLICIA CORNICALIS (FABRICIUS, 1794)
(LEPIDOPTERA: EREBIDAE) IN LOUISIANA**

BY
VERNON ANTOINE BROU JR.



Fig. 1. *Simplicia cornicalis* phenotypes: a. male, b. female

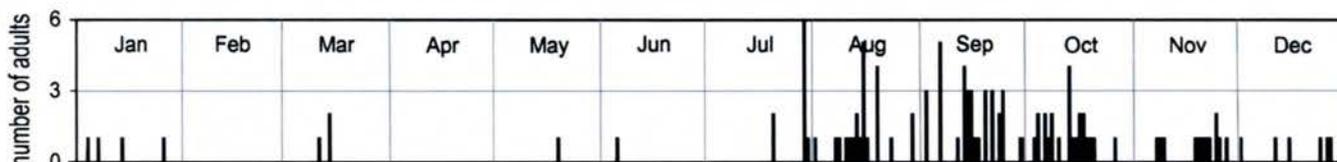


Fig 2. Adult *Simplicia cornicalis* captured at sec. 24,T6,SR12E, 4.2 mi. NE of Abita Springs, La. n = 115

The small tan-colored moth, *Simplicia cornicalis* (Fabricius, 1794), (Fig. 1) is a somewhat recent invasive species to the United States, September of 2007 in central Florida, not 2006 as reported erroneously by Dickel *et al.* (2010)(B. Patterson per. comm.). The range of this species includes India to Australia, New Guinea, eastern and southern Asia, southern Japan, as well as Hawaii and other South Pacific islands. This species is reported to feed on dead leaves. *Simplicia cornicalis* (Fabricius, 1794) is considered a senior subjective synonym of *Simplicia caeneusalis* Walker, [1859] (Holloway, 2008).

The first specimens captured in Louisiana were taken on November 27 and December 1, 2008, and 14 specimens during 2009 at the *Abita entomological study site, in ultraviolet light traps in the months August 29 to December 1. Since that initial publication in which 29 adult specimens were reported from Florida and Louisiana (Dickel *et al.*, 2010), 92 additional specimens were captured in Louisiana during 2011 and 2012 using mercury vapor/fluorescent blacklight light traps and fermenting fruit bait traps (Fig. 2).



Fig. 3. Parish records for *S. cornicalis*.

Based on these new records, the phenology of this species within Louisiana has expanded to multiple generations, perhaps as many as five or more annual broods based upon these limited number of captures. Parish records are illustrated in Fig. 3. I thank Ted Edwards, John Heppner, J. Donald Lafontaine, Bob Patterson, and Ricky Patterson for assistance and comments.

*Abita entomological study site: sec. 24,T6,SR12E. 4.2 miles northeast of Abita Springs, St. Tammany Parish, Louisiana, USA.

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Dickel, T. S., V. A. Brou, Jr., and J. B. Heppner, 2010. New North American Records of the Asian species, *Simplicia cornicalis*, in Florida and Louisiana (Lepidoptera: Noctuidae: Herminiinae). *Lepid. Novae* 3(1):53-56.
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BUCK FEVER
BY
PARKER BACKSTROM

I am a "collector" by nature. A majority of people interested in lepidopterans are at some level, I suppose, whether it be keeping a list of all the species they've seen or maintaining carefully arranged trays of specimens. My interest lies largely in collecting photographic images of butterflies and moths. I've gotten most of my moth images through the use of fixed light traps, both at my home in Chatham County, North Carolina (NC), and at a string of businesses with large exterior lights that are located along a route I drive to work each morning. This arrangement has suited me well. It's enabled me to steadily grow my photographic library while at the same time helped me become familiar very quickly with the regularly occurring species of the area. By reporting some of the less common species encountered I've also helped expand the knowledge about a number of taxa of interest to the state's scientific community. Over time I've recorded out-of-range species such as *Lytrosis permagnaria* [Southern Lepidopterists' News (SLN) Vol. 34, pg. 119] as well as a number of species not previously documented for the state such as *Sphingicampa bisecta*, *Paectes nubifera* (SLN Vol. 34, pg. 173), and *Anomis editrix* (SLN Vol. 34, pg. 243).

While my interest in butterflies has been in place for many years, I'm a relative neophyte when it comes to moths. As my familiarity with North Carolina's lepifauna has grown I guess it was inevitable that I would gravitate toward certain species that for one reason or another captured my imagination. While a number of the species that I hoped to see are local in distribution, none are particularly rare in this region. *Thaumatozephyra jonesi*, *Habrosyne scripta*, *Phyllodesma americana*, *Citheronia regalis*, *Enyo lugubris*, *Plusiodonta compressipalpis*, *Scoliopteryx libatrix*, and *Eutelia pulcherrimus* were just a few of those about which I thought, "Man, I can't wait to see one of those!" While I've seen most of them many times now, my first encounter with each was exciting.

Moths, of course, are many things to many people. The sheer number and diversity of species permits a broad appreciation of the myriad shapes, sizes, colors, and patterns. At the same time the complexities of many groups provide one the opportunity to delve as deeply into the nuances as desired. Certainly beginner and expert alike derive satisfaction from sorting out tricky identifications. For beginner level enthusiasts the challenge might lie in the interpretation of maculations on similar-looking tortricids or figuring out how to separate *Phigalia denticulata* from *P. strigataria*. But as rewarding as it can be to try to sort out *Agonopteryx*s, *Macarias*, *Catocala*s, and *Lithophanes*, this level of examination can be taxing. That's why I'm all for going simple from time to time. For me, sphinxes and silk moths fit the bill. Big, colorful, and docile, they are about as nuanced as double fudge brownies. One cool moth that quickly rose to the top of my "most wanted" list was *Hemileuca maia*, the Eastern Buck Moth. I decided that 2012 would be the year I would find this creature.

Knowing little about *H. maia*, I began by reading as much as I could about it. I knew it flies during the day but I didn't know whether one time of the day is better than another to look for it. I knew it flies in the fall but didn't know whether there is an optimal month or period. I knew it utilizes oak trees but didn't know whether it requires particular species' of oaks or whether there is an optimal age or size of tree. Does *H. maia* require strictly oak woodlands or can it be found in mixed woods as well? How high above the ground does it fly? How fast?



Eastern Buck Moth (*Hemileuca maia*)

Paul Tuskes wrote that through the Atlantic Coast States into the Carolinas *H. maia* flies "from late October to early December ... in oak forests," with males becoming active in mid-morning on warm, sunny days, their flight ending by early afternoon. Douglas Ferguson wrote that the species is "exclusively associated with *Quercus ilicifolia* where this tree occurs, and with other oaks westward and southward beyond the range of *Q. ilicifolia*." The peak of the flight, which is "very swift and in bright sunshine," he continues, "occurs in October almost everywhere, although it may ... extend into November or even December southward".

Charles Covell wrote of *H. maia*, "Oct.-Nov. ... A rapid day-flier; best sought between noon and 2 P.M. on sunny days in oak forests". C. S. Brimley was more succinct: "*H. maia*. Raleigh, Southern Pines, Andrews, Lake Fairfield, November".



Eastern Buck Moth (*Hemileuca maia*)

As interesting as these accounts were they didn't provide quite the level of detail I sought so I turned to the few people I know who have had dealings with the species. Jeff Lepore, a photographer and naturalist who lives in Pennsylvania, has extensive experience with *H. maia*, having spent many years rearing it and having seen abundant numbers in the northeast. Jeff offered much in the way of anecdotal information and practical approaches for finding it. Scott Hartley, Park Superintendent at Weymouth Woods Sandhills Nature Preserve (WWSNP) in Moore County, NC, offered some local insights including the types of oaks found in and around the preserve. While *Quercus laevis*, *Q. marilandica*, *Q. stellata*, and *Q. velutina* all occur in the area, *Q. ilicifolia* is limited in the state to western Piedmont granitic monadnocks (Stephen Hall, J. Merrill Lynch, and J. Bolling Sullivan, pers. com.).

My search for *Hemileuca maia* actually began a couple of years ago. A few hours spent at WWSNP on November 11, 2010, was unsuccessful. In 2011 it was near Christmas when I entertained the idea of searching for it, but I would learn that late December is largely past its flight period and that my chances of finding it that late in the year were low.

In 2012 I began my planning a little further in advance. As fall approached I chose to focus my efforts on the Sandhills Game Land (SGL), some 62,000 acres spread out over four counties located about an hour's drive south of my home. In the Sandhills the NC Natural Heritage Program recognizes several different natural community types. Pine/Scrub Oak Sandhill is the prevalent type. It includes *Pinus palustris* as the dominant species but also possesses several species of dry oaks. Xeric Sandhill Scrub has *Q. laevis* as the dominant species (Stephen Hall, pers. com.).

On October 20, 2012, I spent from 10:15 A.M. to 2:00 P.M. crisscrossing the game land on its web-like tangle of sandy roads and tracks. Although I couldn't have imagined a more pleasant day to be outside, apart from a few pierids I saw nothing in the way of moths or butterflies.

I returned to the SGL on the morning of November 10. This visit was certainly more eventful than my previous one but for all the wrong reasons. Not five minutes after I arrived I steered my car off a main road and down a narrow sand track through rolling woods. I should have known better. A couple hundred yards in I managed to sink my car axle deep into loose sand. I would spend almost three hours of prime *H. maia* flight time on my hands and knees trying everything I could to extricate my car but without success. That an approaching deer hunter squeezed around me in his four-wheel drive pick-up truck and drove out of sight, tossing an invective at me on his way past, did little to improve my mood. I eventually managed to persuade another passing hunter to help me free my car. But with scraped knuckles, shoes and clothing full of sand, and a bad attitude, after a short, perfunctory search for moths I cut my losses and headed home.



Eastern Buck Moth (*Hemileuca maia*)

I figured that my opportunities for finding *H. maia* for the year were behind me but a warm spell that coincided with the Thanksgiving holiday afforded me another chance. Scott Hartley had reported a couple of fly-bys at two different sites in WWSNP around midday on November 20 so I returned there on November 23 with raised hopes.

Conditions were perfect, or so I guessed—mostly sunny skies with temperatures around 65 degrees. I walked the preserve from 10:45 A.M. to 12:15 P.M., my head on a swivel. In the end, a couple of miles worth of walking produced great looks at Red-cockaded Woodpecker but not so much as a sniff of my target.



Section known as Paint Hill in the Weymouth Woods Sandhills Nature Preserve in Moore County, NC

At 12:15, with my enthusiasm beginning to wane, I drove the short distance to a small section of the preserve known as Paint Hill for one last attempt. The prevalence of oak trees at this site has always struck me as just the type of place where *Hemileuca maia* might occur, or so I guessed. I wasn't fifty yards down the trail when I was surprised by a black and white bug rocketing straight at my head. Before I could think and out of pure reaction I swung my net wildly only to watch the thing disappear into the trees. That was it, wasn't it?! I'd just seen a buck moth, *hadn't I*?! Moments later another appeared suddenly but just as suddenly zoomed away leaving me again flailing at air. There was no mistaking it now. I'd seen a buck moth!

Despite my excitement at having finally found the object of my desire, disappointment quickly settled over me at having missed my opportunity to capture one. I needn't have worried; within ten minutes I'd seen—and missed—three or four more. But with each miss I was incrementally honing my net skills. It was like learning to hit a curve ball, or so I guessed. Eventually one moth made a tactical error. Rather than zigzag around me it flew directly away on a straight line down the trail. A brief sprint and one swing (OK, two swings) later and I was staring at a male *H. maia* in the bottom of my net.

After repeatedly coming up empty, finally seeing a buck moth up close was a sweet moment indeed. I quickly jarred it and placed it on ice for a photo session later. I would spend another hour at Paint Hill, catching two more. With the moth in the bag, so to speak, I delighted in leisurely wandering the sand trails watching male buck moths, red abdominal tips moving in and out of the dappled sunlight, dipping and diving around the curled brown leaves searching for calling females. At 2:00 P.M. I called it a day and returned to my car, driving slowly back toward Chatham County. With sunny skies, a mild spring-like breeze blowing, and buck moths just chillin' in the back seat, it was a most pleasant ride home.

As helpful as all the books and the advice I'd received had been, I learned the most during the ninety minutes or so I spent gleefully chasing buck moths through the woods. Addressed were many of the questions I had: *Is there an optimal period of the fall in which to search?* I can't say definitively but the time right around Thanksgiving sure seems good; *Is one time of the day better than another to look for it?* As stated in the references, the hours around midday certainly proved productive for me; *How high does it fly?* Most of those I saw flew from four to six feet above the ground; *How fast does it fly?* Fast enough to make catching one a challenge but not so fast that an aging "baby boomer" can't do so; *Does the species require predominantly oak woodlands? What species' of oaks does it use in this area? How big must the oaks be?* I'm not entirely clear on all these questions but I know it uses at least one of the oaks that grow here and finds trees that average about twenty feet in height to its liking.

At least these were the conclusions reached on this day at this site. It'll take many return visits to the area over the course of years to really get to know this undeniably charismatic saturniid, a prospect to which I look forward.

As winter melts into spring, the sheets will once again be hung and the lights will go back up, but whatever moths are attracted in that manner is largely the result of serendipity, as I see it. So much sweeter is the reward when knowledge and effort is applied to the attainment of a goal. I do delight in whatever shows up at the lights, but going out in search of a particular species and finding it is far more exhilarating, as I had guessed.

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BUTTERFLIES WORTH KNOWING ⁽¹⁾

BY

CLARENCE M. WEED, D. Sc.



From a drawing by W. I. Beecroft

See pages 268-282

SOME COMMON SKIPPERS

The Long Dash, male, at top; the Vitellius Skipper, female, next below; the Canadian Skipper resting on iris flower in the middle; the Least Skipper, next below; Leonard's Skipper at rest on leaf, next; and the Sachem Skipper, male, at bottom

THE COMMON SKIPPERS Family Hesperidae

"The Skippers are the least developed of the butterflies. They show their close relationship to the moths both by their structure and their habits. The larvae make slight cocoons before changing to chrysalids, and these chrysalids are so rounded that they suggest the pupae of moths rather than those of butterflies. The common name — Skippers — is due to the habit of the butterflies — a jerky, skipping flight as they wing their erratic way from flower to flower.

In North America the Skipper family includes nearly two hundred species grouped in about forty genera...

The Skippers are remarkable for the uniformity of structure in each stage of existence. The butterflies have small wings and large bodies. The broad head bears large eyes without hairs, but with a tuft of curving bristles overhanging each. The antennae are hooked at the end and widely separated at the base....There are six well-developed legs in both sexes. The colors are chiefly various tones of brown, dull rather than bright, and many of the forms resemble one another so closely that it is difficult to separate them.

The Skipper caterpillars have stout bodies and are easily known by the constricted neck. Most of these have the habit of making nests from the leaves of the food plants, weaving them together with silken threads. In a similar way each also makes a slight cocoon when it is ready to change to a chrysalis." (Page 268-269)

1) Weed, Clarence M., 1925. *Butterflies Worth Knowing*, Little Nature Library, Doubleday, Page & Company for Nelson Doubleday, Inc., The Country Life Press, Garden City, N.Y.

A NEW U.S. STATE RECORD FOR A TROPICAL FRUIT - PIERCING MOTH IN THE FAMILY EREBIDAE LEACH

BY

VERNON ANTOINE BROU JR., ALAN R. GIESE AND DONALD H. MILLER



Fig. 1. *Eudocima apta* (Walker) ♀ captured in Vermont.

A single female specimen of *Eudocima apta* (Walker) (Fig. 1) was captured using ultraviolet light by A.R. Giese on or about July-August 2008 in the state of Vermont at Barnet, Caledonia County, Elevation ~1000 ft, N 44 20.899' W 072 00.002. It appears this capture is a new state record for this species and genus in the state of Vermont. In searching the lepidoptera literature of the state of Vermont (Grehan, 1995), there are no prior records for this species within the state. It appears, this may be the only record of *apta* known for the northeastern U.S. Interestingly, Holland (1903) makes note that *Ophideres materna* (Linnaeus) "is now and then taken in Florida". It appears that the female specimen

illustrated in Holland, plate XXXVI, Fig 8, is indeed *materna* based on maculation, and doubtfully a specimen originating from the New World. This situation, no doubt has contributed to the confusion and skepticism involving these similar looking species, *apta* and *materna*. Readers are referred to Brou (2006) for an explanation concerning the mislabeling of both male and female *apta* in Seitz as *Eudocima serpentifera* (Walker). Based on maculation, these mislabeled male and female images of *apta* in Seitz, indeed represent *apta* and not *materna*.

A review of additional verified records and of past literature by the senior author (VAB) has yielded the following records for *Eudocima apta* in the United States and Canada. In the U.S. and Canada up until 2006 (Brou) it was assumed that *apta* was a synonym of *Eudocima materna* (Linnaeus, 1767), and all of these past New World records were incorrectly reported as the Old World species *materna*, including those throughout Latin America. Long ago European workers arrived at the same conclusions concerning the differences between these two species. Only two specimens of *apta* from the U.S. were found at the National Museum of Natural History (Smithsonian Institution). No *apta* from the U.S. were found at the Natural History Museum, London (per. comm. M. Honey). One specimen from the U.S. and one from Canada were found in the Canadian Natural History Collection (per. comm. J.D. Lafontaine). No *apta* from the U.S. were found at the Los Angeles County Museum (per. comm. J.P. Donahue).

Canada: (1) Quebec, St.-Gérard-des-Laurentides, 1985 Sept. 18, Coll. M. Pratt, (2) Quebec, Longueuil, 1986 Sept. 14, Coll. P. Legault, (3) Ontario, Round Lake Centre, Algonquin Park (near Renfrew), ♀ 1994 Sept. 8, J. Dombroskie.

USA: Florida: (1) Levy Co., Gulf Hammock, ♂ (at store lights), 1999 May 14, Coll. J. R. Slotten, (2) Palm Beach Co., Belle Glade, Coll. Seiler (DPI) in Kimball, (3) Alachua Co., Gainesville, (blacklight trap), 1971 May 18, Coll. J. S. Bacheler, (4) Gadsden Co., Quincy ♂ (in UV trap), 1972 June 24 Coll. E. C. Knudson, (5) Manatee Co., Sarasota ♀ (no date in USNM), (6) Alachua Co., Am. Ent. Inst. (banana bait), 2002 late March, Coll. H. Kons, (7) Alachua Co., Am. Ent. Inst. (plantain bait), 2003 late March, Coll. H. Kons, (8) Alachua Co., Am. Ent. Inst. (at mercury vapor light) 2002 early May, Coll. H. Kons, (9) Liberty Co., Apalachicola Nat. For., Revel Branch (at bait), 2007 April 7, Coll. R. Borth & H. Kons, (10) Highlands Co., Archbold Biol. Station ♀ (at UV light) 2006 June 23, Coll. J. R. Slotten, (11) Alachua Co., Gainesville (in light trap) ♂ 1996 March 24, Coll. T. Neal, (12) Alachua Co., Gainesville (at bait) ♀ 2002 May 24, Coll. T. Neal. **Missouri:** Clay Co., Liberty, ♀ 1978 June 26, Coll. J. Adams. **North Carolina:** Rocky Mount, ♀ 1983 Nov. 8, Coll. S. Mix. **Louisiana:** St. Tammany Par., near Abita Springs (1) ♀ (light trap) 1989 March 5, Coll. V.A. Brou Jr., (2) ♂ (light trap) 1991 May 9, Coll. V.A. Brou Jr., (3) ♂ (light trap) 1994 February 12, Coll. V.A. Brou Jr., (4) Natchitoches Par., Kisatchie Nat. For., ♂ (light trap) 2000 March 31, Coll. V.A. Brou Jr. **Oklahoma:** Grady Co., Chickasha, USAO campus (entrance light) 1988 Oct. 13, Coll. C.M. Mather. **Texas:** (1) LaSalle Co., Artesia Wells, 1971 Sept. 28, Coll. A & ME Blanchard, (2) Gregg Co., Longview ♂ (at fluorescent light) 1976 Sept. 29 Coll. C.W. Bordelon, (3) Aransas Co., Port Aransas, (at Mercury vapor light), 1995 Sept. 29, Coll. C.R. Sassine, (4) Starr Co., Falcon Heights, ♀ (at bait), 2011 Oct. 1, Coll. B. Nall, (5) Travis Co., Austin, Texas, ♀ 2012 August 25, photo. by T. Bayoud. **New Mexico:** (1) Bernalillo Co., Albuquerque, ♀ no date, (2) Lincoln Co., Pine Lodge, N slope of Capitan Mt., 1982 June, Coll. R.W. Holland. **Arizona:** Cochise Co., Copper Canyon (at Mercury vapor light), 2003 July 31, Coll. R. Borth. **Wisconsin:** Ashland Co., Outer Island Sandspit (Sec10,T52N,R1W), (at tent light), ♀ 1993 September 12, Coll. M. Van Stappen.

Two specimens in the Natural History Museum, London, from Tristan da Cunha and one from Gough Island are most intriguing. The genitalia of these specimens have been evaluated and are clearly *Eudocima apta* (pers. comm. M. Honey). Tristan da Cunha is a remote volcanic group of islands in the south Atlantic Ocean and the main island of that group. It is the most remote inhabited archipelago in the world, lying 2,816 kilometres (1,750 mi) from the nearest land, South Africa, and 3,360 kilometres (2,088 mi) from South America (Wikipedia). (Fig. 2).

It is not the purpose of this publication to provide evidence concerning the taxonomical status of the taxa, *apta* vs *materna*. In some areas of Mexico and Central America, *apta* can be somewhat common, and this species ranges south to Guatemala, Bolivia, Brazil (Type locality), Ecuador, etc.

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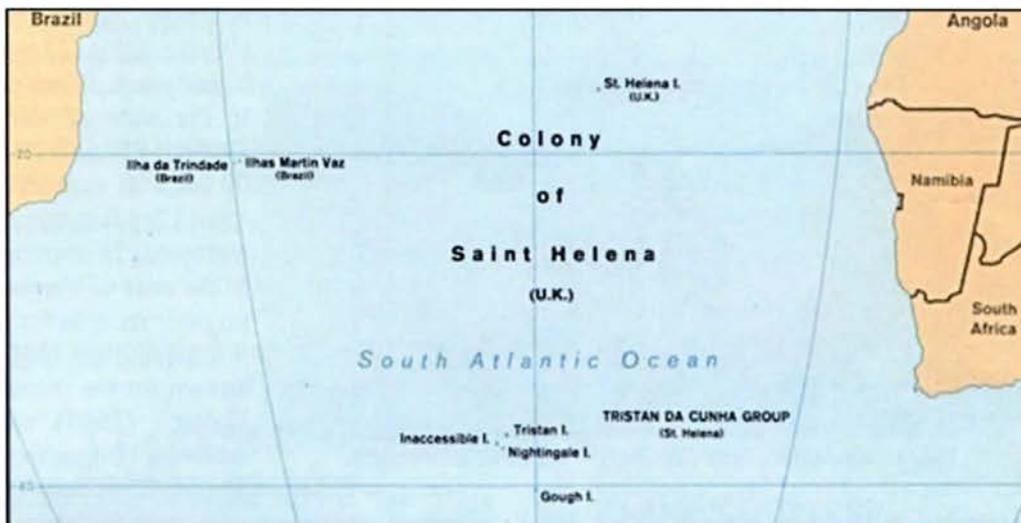


Fig. 2. Position of Tristan da Cunha and Gough Island in southern Atlantic Ocean.

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Donald H. Miller, P0 Box 578, Lyndonville, Vt. 05851; E-mail: entdon@gmail.com)

THE *ENODIA* HÜBNER (LEPIDOPTERA: NYMPHALIDAE)
OF LOUISIANA

BY
VERNON ANTOINE BROU JR.

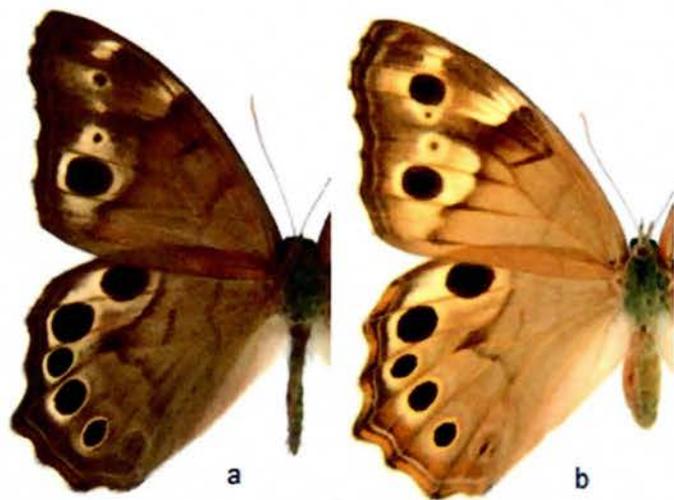


Fig. 1. *Enodia portlandia missarkae*: a. male, b. female.

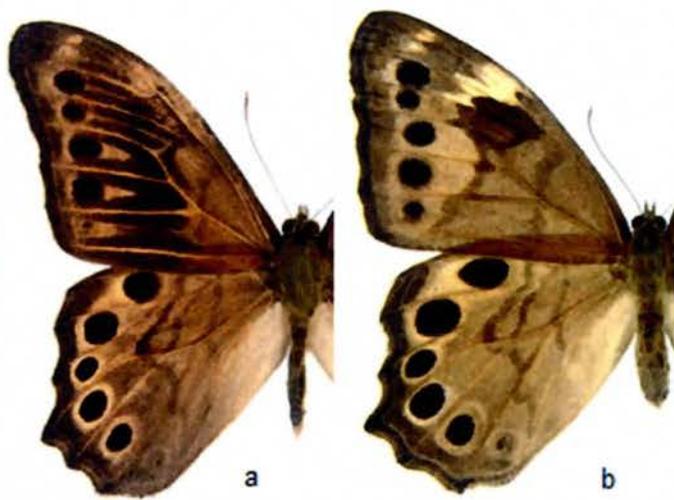


Fig. 2. *Enodia creola*: a. male, b. female.

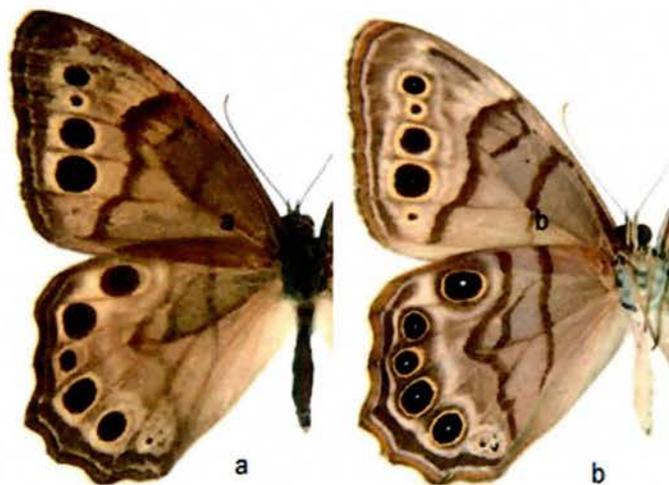


Fig. 3. *Enodia anthedon* male:
a. upperside, b. underside.

Skinner (1897) described (*Debis* = *Enodia*) *creola* (Fig. 2) from specimens sent to him from Opelousas, St. Landry Parish, Louisiana, collected that same year. Clark (1936) discussed and compared all the many described *Enodia* synonyms, forms and subspecies in literature at that time, including describing *Enodia portlandia anthedon* (Fig. 3), new subspecies from Lava, Sullivan County, New York. In the same investigation, Clark also described *Enodia portlandia borealis*, new subspecies.

Hine (1904, 1906) listed no *Enodia* species in two surveys in Cameron Parish, Louisiana, while based at the Gulf Biologic Station. Hine's two visits to Louisiana involved studies of crop pests and he also made lists of many insect orders that he encountered including lepidoptera. Jung (1950) listed no species of *Enodia* during five years of surveying the area in and around the city of New Orleans. Ross & Lambremont (1963) listed two species of *Lethe* (= *Enodia*) as occurring in Louisiana: *Enodia portlandia* (Fabricius) and *Enodia creola* Skinner, though they did not encounter *creola* in their investigation. Brou (1974) listed no species of *Enodia* from St. John the Baptist Parish in a one year study (1973) in which 28 species of butterflies were captured in ultraviolet light traps.

In Louisiana, three currently recognized species of *Enodia* occur: *E. portlandia missarkae* (Heitz. & dos Passos) (Fig. 1), *E. creola* (Skinner) (Fig. 2), and *E. anthedon* Clark (Fig. 3). Fig. 4 depicts the annual flight period of *E. p. missarkae* at the *Abita Springs entomological study site; specimens captured primarily (97%) with fermenting fruit bait traps and the remainder in ultraviolet light traps and by hand netting. The parish records are illustrated in Fig 5. *E. p. missarkae* has six annual broods at about 45-day intervals. The first documented captured specimen of *anthedon* in Louisiana is a male specimen I collected in Evangeline Parish on July 15, 1979, and was reported in the Southern Lepidopterists' News back then.

*Abita entomological study site: sec. 24, T6, SR12E. 4.2 miles northeast of Abita Springs, St. Tammany Parish, Louisiana, USA.

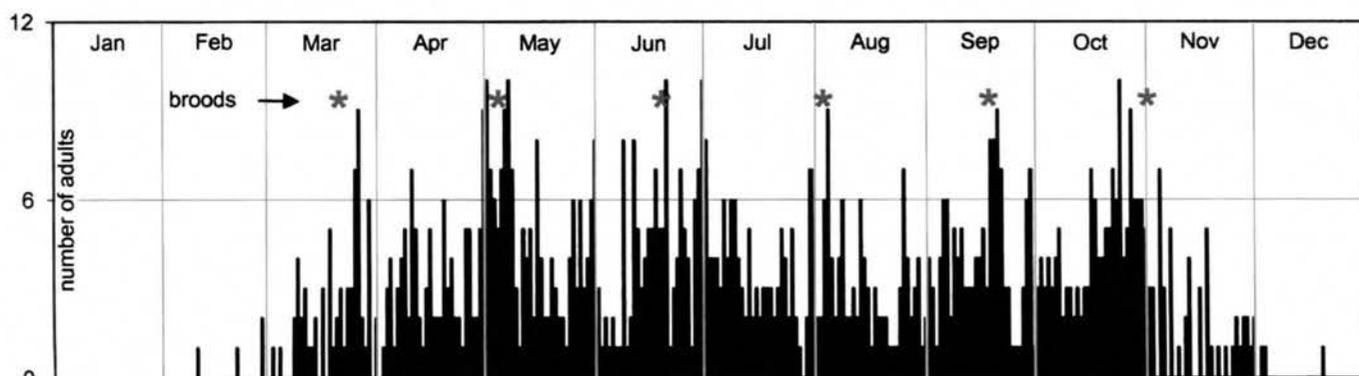


Fig. 4. *E. portlandia missarkae* adults, dates of capture at the Abita entomological study site. n = 972



Fig. 5. Parish records for *E. portlandia missarkae* ●, *E. creola* ▼, and *E. anthedon* ▲.

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DEFINITIONS:

Eruciform - "caterpillar-shaped"; caterpillarlike. [*eruca* = caterpillar in Latin]

Leptiform - an adjective that refers to the form of an insect (usually a larva) that has 3 pairs of legs.

<http://en.wikipedia.org/wiki/Eruciform>
<http://www.thefreedictionary.com/Leptiform>

WINTER COLLECTING IN CENTRAL CALIFORNIA INLAND

BY

KELLY RICHERS

The rain poured down as I peered through the foggy, dimly lit streets, trying to avoid the many wrecks that strewed the streets. Three lights in a row were out, backing up traffic as drivers hoped the others stopped where they should, the water backing up across several intersections in the driving rain. Such is the life of a huge rainfall of ¼ inch in the Central Valley of California in the winter. Yes, it rains in California, but the rarity of it causes the driving to be horrible and the entire landscape is not set up for rain runoff. Pure pandemonium breaks out in the Central Valley with a quarter inch of rain, and people stare perplexedly at the sky wondering what hath God wrought.

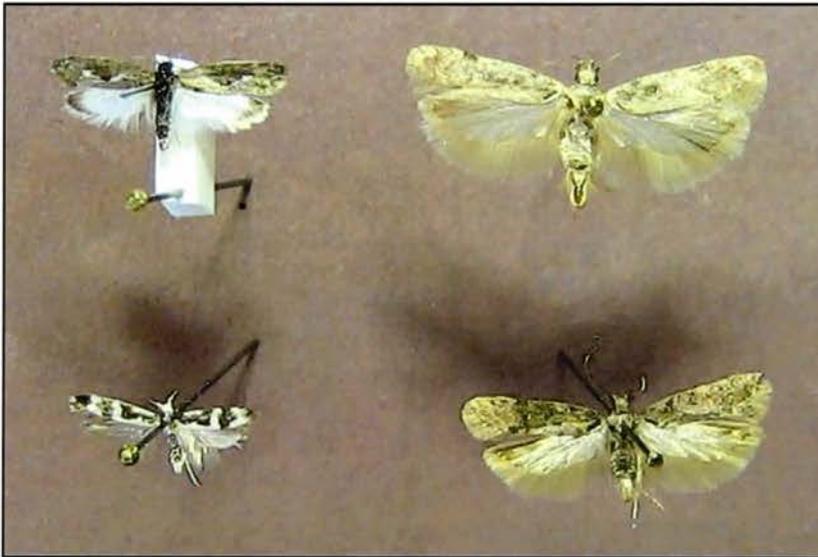


Fig. 1. Micromoths found in Kern and Tulare Counties from November through February: *Ethmia plagiobothrae*, *Chionodes acrina*, *Chionoeds sistrella*, *Chionodes trocholstola*.

California in this article will include areas south of Tulare County and Kern County, the areas sometimes not included in northern or southern California.

Those not knowing the landscape could be fooled easily. Central California is a land of contrasts. There is the Central Valley (San Joaquin Valley to some) which stretches from Arvin some 230 miles north to the Sacramento Delta. In this distance the land falls one inch per mile. The elevation in Bakersfield where I live is 228 feet. That is only a 23 storey building in San Jose away, except that the smog and fog won't let you see more than 4 miles or so usually. Between the Central Valley and Los Angeles is the Transverse Range of the San Gabriel and San Bernardino Mountains, over 8000 feet elevation, and guarding the coast is the Coast Range, also several thousand feet elevation. Much of this area can be collectable in the winter remembering a few principles of California collecting.

So, winter is relative out here to the rest of the country. While most people in the rest of the world worry about snow and temperatures below 10 degrees Fahrenheit, we in California worry about the occasional appearance of frost as if it were a visit from hell. The flip side? There is winter collecting of moths in much of central California, even inland from coastal influences.

No one knows where Northern California ends and Southern California starts. Ask the gangs, and it is the Tulare-Kern County line. Assuming that it is somewhere around the lost city of El Dorado (Fresno) or Bakersfield (never mistaken as El Dorado) is a pretty good bet. Thus, central



Fig. 2. Micromoths found in Kern and Tulare Counties from November through February: *Suleima lagopana*, *Platynota stultana*, *Lineodes intergra*, *Sarata pullatella*.

Virtually all collecting in Central California in the winter is done below 2500' elevation, for reasons of temperature

and sunlight. From sea level to this elevation, many micro-climates exist where there is a little more warmth than other areas, or a little more moisture, or a little less wind, where moths can be active day and night.

This article is not attempting to describe the specific localities where moths can be caught, but is an attempt to describe areas and species that fly when other areas of the country may be more dormant. Since I visit Virginia every

October, and the first killing frost there occurs about the second week of October, we will limit those moths depicted here to some that fly from November through February, which seems to be winter to most people. Spring hits early here, certainly by March. (Art Shapiro was out looking for the first *Pieris rapae* at Davis in the northern part of the Central Valley on January 19th this year.) Almond trees bloom in February. Rarely is frost seen after February 21st.



Fig. 3. Geometrid moths found in Kern and Tulare Counties from November through February: *Eupithecia gilvipennata*, *Eupithecia subapicata*, *Eupithecia implorata*.



Geometrid moths found in Kern and Tulare Counties from November through February: *Perizoma custodiata*, *Xanthorhoe spaldingaria*, *Epirrhoe plebeculata*, *Enchoria hercololata*.

winter moth, flying in the low foothills all winter. In February *Euproserpinus phaeton* appears, and is another gem of the drier desert fringes of these two counties. So, if you are ever in the area, do not despair for moth collecting - it continues throughout the year in this area!

So, moths fly all months of the year in some spots. If you include the desert areas of Kern County, behind the Sierra Nevada mountain range, the list is extensive. The California County list of moths shows 64 species from Tulare and Kern Counties in the previously defined winter months. Sometimes the inversion layers that bring so much smog in the summer bring "Tule fog", a deep, penetrating fog that can cover hundreds of square miles and keeps the temperature above freezing.

Such temperatures allow several genuses of moths, *Egira*, *Eupithecia*, and *Annaphila* (day flyers) to propagate and mature into adults while the first greenery appears. Microclimates in the canyons where sunlight reflects off rock and warms the canyon into the night can be very productive in the winter, with a couple of dozen moths in an overnight trap. However, what I have found is if the temperature drops below 39° Fahrenheit, the moths stop flying.

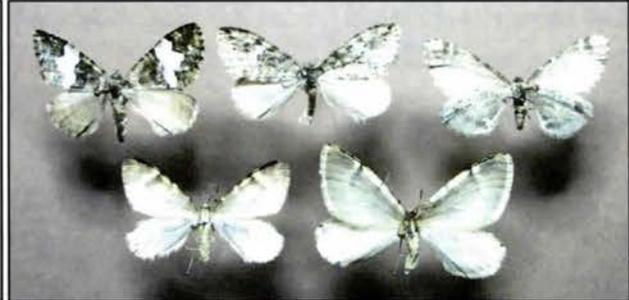
Accompanying this article is a list of moths recorded from the Central California area in the winter. The ultimate gem is *Proserpinus lucidus*, a green sphinx moth that is truly a

List of moths recorded from Central California in the winter:

7276	<i>Hydriomena</i>	<i>nubilofasciata</i>		Caliente Cr 2 mi E Caliente	1600'	Kern	CA	Feb 22 91
7328	<i>Perizoma</i>	<i>custodiata</i>		Richbar, Kern Cyn	1600'	Kern	CA	Feb 23, Nov 23 85
7335	<i>Stamnodes</i>	<i>albiapicata</i>		Caliente Cr 6 mi E Caliente N Fork Tule R, 6 mi N	1600'	Kern	CA	2002
7341	<i>Stamnodes</i>	<i>coenonymphata</i>	F	Springville	1800'	Tulare	CA	Jan 5, Nov 23 87
7360	<i>Stannoctenis</i>	<i>costimacula costimacula</i>		Caliente Cr 6 mi E Caliente	1600'	Kern	CA	2002
7383	<i>Xantherhoe</i>	<i>spaldingaria</i>		Red Rock Cyn	2400'	Kern	CA	Nov 26 93
7395	<i>Epirrhoe</i>	<i>plebeculata</i>		Richbar, Kern Cyn	1600'	Kern	CA	Feb 10 91
7404	<i>Enchoria</i>	<i>herbicolata</i>		Richbar, Kern Cyn	1600'	Kern	CA	Feb 10 91
7438	<i>Operophtera</i>	<i>occidentalis</i>		N Fork Tule R N Fork Tule R, 6 mi N	1800'	Tulare	CA	Dec 12 81
7439	<i>Operophtera</i>	<i>danybi</i>		Springville	1800'	Tulare	CA	Dec 16 87
7581	<i>Eupithecia</i>	<i>gilvipennata</i>		9417 Carvalho Ct, Bakersfield Richbar Cmpgrnd, Kern R	360'	Kern	CA	Dec 8 2000
7587	<i>Eupithecia</i>	<i>subapicata</i>		Cyn	1600'	Kern	CA	Feb 6 2000
7602	<i>Eupithecia</i>	<i>implorata</i>		Caliente Cr 2 mi E Caliente	1600'	Kern	CA	Feb 22 91
7633	<i>Lithostege</i>	<i>deserticola</i>		Edwards AFB		Kern	CA	in Nov 96
7872	<i>Proserpinus</i>	<i>lucidus</i>		2 mi E Caliente	1600'	Kern	CA	Feb 22 91
7880	<i>Euproserpinus</i>	<i>phaeton</i>		Dove Springs	4000'	Kern	CA	Feb 13 88
8614	<i>Bulia</i>	<i>deducta</i>	F	Taft		Kern	CA	Nov 28 42
8985	<i>Meganola</i>	<i>fuscula</i>		Caliente Cr 2 mi E Caliente	1600'	Kern	CA	Feb 22 91
8993	<i>Nola</i>	<i>minna</i>		Caliente Cr 2 mi E Caliente	1600'	Kern	CA	Feb 22 91
9599	<i>Pseudobryomima</i>	<i>muscosa</i>		2 mi N Hammond		Tulare	CA	Feb 21, Nov 12 67
9854	<i>Annaphila</i>	<i>arvalis</i>		Kern R N of Fairview CG		Tulare	CA	2002
9855	<i>Annaphila</i>	<i>abdita</i> (ssp?)		Richbar Cmp, Kern Cyn	1600'	Kern	CA	Feb 23 85
9856	<i>Annaphila</i>	<i>baueri</i>		2.5 mi SW Badger		Tulare	CA	Feb 11 67
9858	<i>Annaphila</i>	<i>vivianae</i>		Richbar Cmp, Kern Cyn	1600'	Kern	CA	Feb 23 85
9880	<i>Homoglaea</i>	<i>californica</i>		Pixley NWR	235'	Tulare	CA	Nov 19 93
9882	<i>Homoglaea</i>	<i>dives</i>		2 mi N Hammond		Tulare	CA	Feb 12 67
9883	<i>Homoglaea</i>	<i>carbonaria</i>		Richbar, Kern River Cyn	1600'	Kern	CA	Feb 6 2000
10009	<i>Feralia</i>	<i>februalis</i>	M	Caliente Cr 2 mi E Caliente	1600'	Kern	CA	Feb 22 91
10015	<i>Psaphida</i>	<i>damalis</i>		2 mi N Hammond		Tulare	CA	Feb 12 67
10096	<i>Sympistis</i>	<i>augustus</i>		Edwards AFB		Kern	CA	in Nov 96
10155	<i>Sympistis</i>	<i>behrensi</i>		Richbar, Kern Riv Cyn	1600'	Kern	CA	Feb 13 99
10185	<i>Cucullia</i>	<i>comstocki</i>	M	Red Rock Cyn Bear Valley, 12 mi W		Kern	CA	Feb 13, 21-22 88
10188	<i>Dolocucullia</i>	<i>dentilinea</i>		Tehachapi	4500'	Kern	CA	88
10253	<i>Tridepia</i>	<i>nova</i>		9417 Carvalho Ct, Bakersfield	360'	Kern	CA	Feb 27 93
10469	<i>Perigonica</i>	<i>pectinata</i>		2 mi N Hammond		Tulare	CA	Feb 12 67
10474	<i>Stretchia</i>	<i>pacifica</i>		Richbar, Kern Riv Cyn	1600'	Kern	CA	Feb 13 99
10481	<i>Orthosia</i>	<i>mys mys</i>		2 mi N Hammond		Tulare	CA	Nov 12 67
10495.c	<i>Orthosia</i>	<i>hibisci quinquefasciata</i>		Caliente Cr 2 mi E Caliente	1600'	Kern	CA	Feb 22 91
10505	<i>Egira</i>	<i>hiemalis</i>	M	Caliente Cr 2 mi E Caliente	1600'	Kern	CA	Feb 22 91
10663	<i>Agrotis</i>	<i>ippsilon</i>	M	Pixley NWR	235'	Tulare	CA	Nov 19 93
10697	<i>Eucloptocnemis</i>	<i>elingua</i>		Edwards AFB		Kern	CA	in Nov 96
10741	<i>Euxoa</i>	<i>olivia</i>	M	Pixley NWR	235'	Tulare	CA	Nov 19, 23 93
10824	<i>Euxoa</i>	<i>brevipennis</i>		Caliente Cr 6 mi E Caliente	1600'	Kern	CA	2002



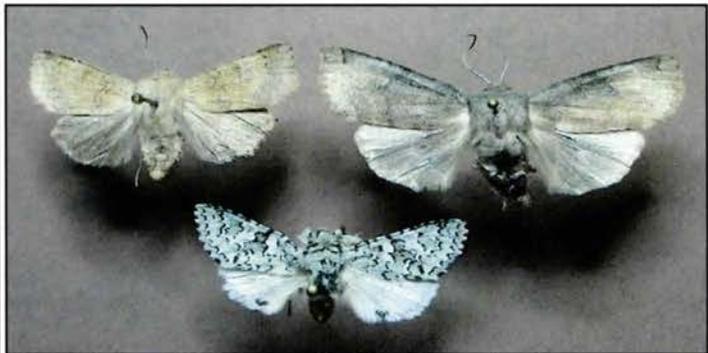
Geometrid moths found in Kern and Tulare Counties from November through February: *Philagia plumogeraria*, *Tescalia quilianata*.



Geometrid moths found in Kern and Tulare Counties from November through February: *Hydriomena albifasciata*, *Hydriomena nubilofasciata*, *Stamnodes albiapicata*, *Stamnodes coenonymphata*, *Stamnodes costimacula*.



Noctuids found in Kern and Tulare Counties from November through February: *Meganola fuscata*, *Nola minna*, *Annaphila arvalis*, *Annaphila abdita*, *Bulia deducta*.



Noctuids found in Kern and Tulare Counties from November through February: *Homoglaea californica*, *Homoglaea carbonaria*, *Feralia februalis*.



Noctuids found in Kern and Tulare Counties from November through February: *Sympistis augustus*, *Lepipolys behrensi*, *Tridepia nova*.



Noctuids found in Kern and Tulare Counties from November through February: *Perigonica pectinata*, *Stretchia pacifica*, *Orthosia mys*, *Orthosia hibisci quinquefasciata*.



Noctuids found in Kern and Tulare Counties from November through February: *Cucullia comstocki*, *Cucullia dentilinea*.



Noctuids found in Kern and Tulare Counties from November through February: *Egira hiemalis*, *Agrotis ipsilon*, *Euxoa olivia*, *Euxoa brevipennis*.



Noctuids found in Kern and Tulare Counties from November through February: *Euproserpinus phaeton*, *Arctonotus lucidus*.

A JOURNEY INTO THE MOUNTAINS OF HIGHLAND COUNTY, VIRGINIA

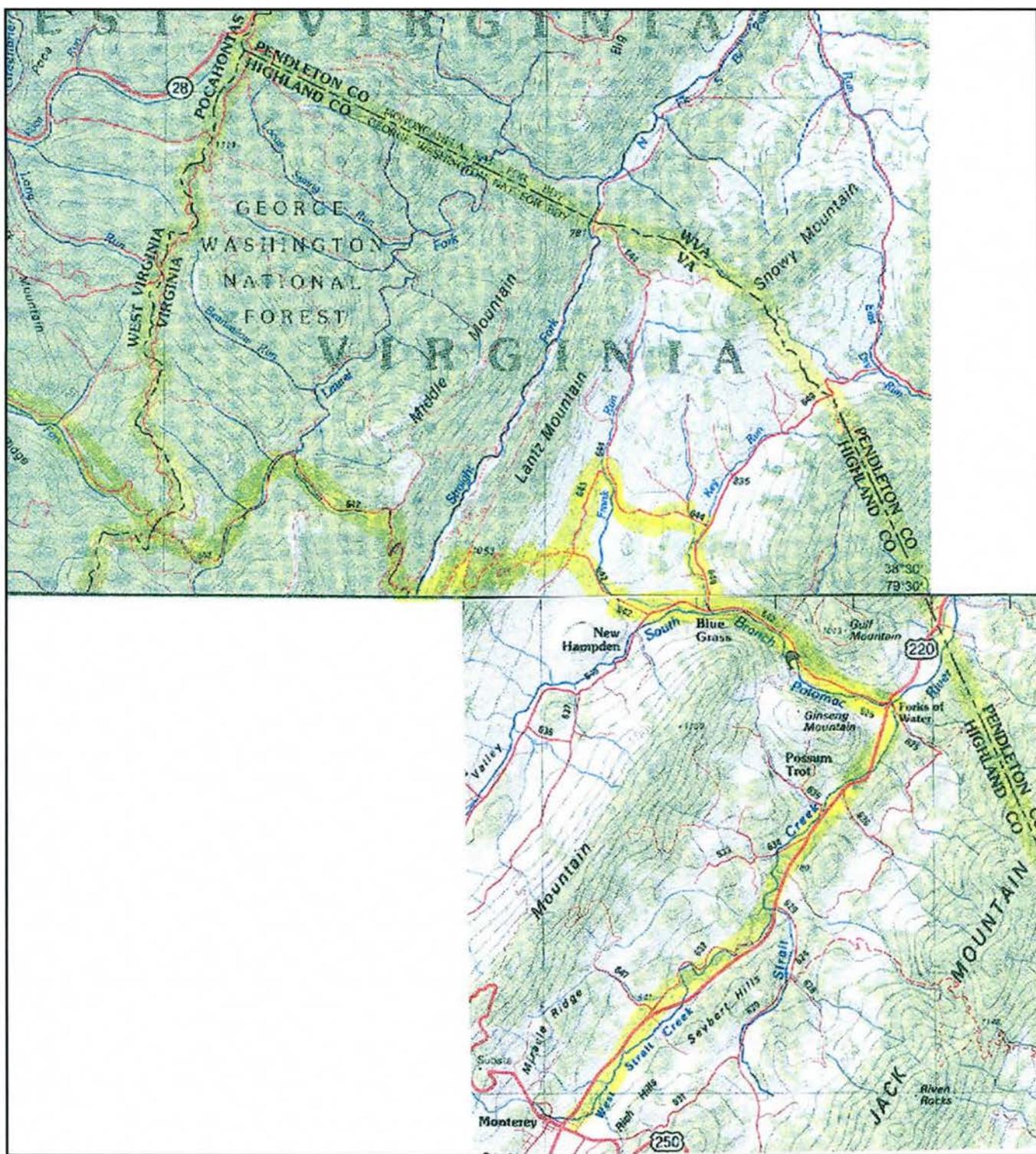
Thursday through Sunday, May 9, 10, 11 & 12, I will be traveling to Highland County, Virginia, on a collecting trip. I have not visited this area since 1982 when I was a resident of Barren Ridge (Staunton), Virginia. I will travel northwest from Staunton on US 250 to Monterey, then northeast on US 220 through the bustling communities of Possum Trot and Forks of Water before turning north on back roads through the community of Blue Grass before turning north on two track roads to cross over Lantz Mountain and down into Laurel Creek Bottoms. This approximately a 1.5 hour journey from Staunton.

I will be stopping at numerous locations to collect along the way. Some of the species that I found back in the 1980's were: *Hesperia saasacus*, *Erora laeta*, *Polites mystic*, *Colias interior*, *Clossiana selene*, *Polygonia progne* and *Polygonia faunus*. I will be looking for the overwintered females of both *Polygonia progne* and *Polygonia faunus smithi* which I would like to rear from ova. I will be setting out both Bait Traps and Light Traps in the Laurel Creek area and on both Lantz and Middle Mountains.

I have no idea what to expect. In the 1980's this was "Back in the boon docks" as the expression goes. I know of no one who has journeyed into this area. There is very little in the way of eateries or lodging and I intend to learn as I go. I originally explored this area in 1980, 1981 and 1982. I have many specimens in my collection from this area and for the past several years have thought about returning.

If you would like to join me for all or part of this journey, email me at: Leptraps.aol.com, or call at: 502-542-7091. It should be an interesting weekend.

Leroy Koehn [Please Note: Map of the area locations in Virginia is shown on the next page.]



Map of the area of Leroy's collecting trip in Virginia on May 9-12, 2013.

2012 DIARY OF AN OBSESSIVE BUTTERFLIER – PART THREE

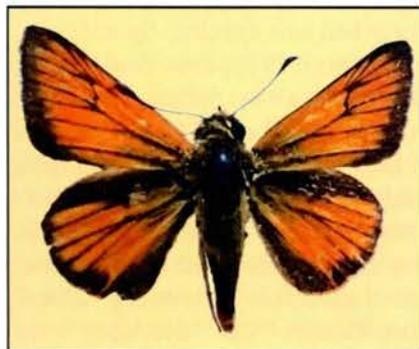
SEE YOU IN SEPTEMBER

BY

CRAIG W. MARKS

Hurricane Isaac made landfall on August 29. With all the rain and high water to the east, I decided to go west and visited the Eunice and Duralde Prairies on Monday, September 3. Both had a lot of liatris in bloom along with brazilian vervain and other flowers. I had 17 species at Eunice from around 10:00 to 11:45. I had never visited the Duralde Prairie before but the directions on the Cajun Prairie website were very precise, and I found it without difficulty. I was only able to walk it for about one hour before I had to get back to pick up my daughter, but I saw 10 species. I ended the day with a total of 20 species.

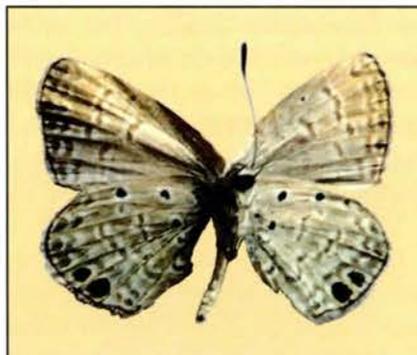
Ocola Skippers were in large numbers at both locations. Gulf Fritillaries were also abundant, Little Yellows and Pearl Crescents were common. I was surprised to see only two swallowtails all day (one Giant and one Spicebush). There were fewer Cloudless Sulphurs than expected, but I was beginning to see Sleepy Oranges each time in the field. The only hairstreaks seen were Grays, a total of seven. The Duralde Prairie included a section that reminded me of a wetlands/marsh. I found a Twin-spot Skipper and a male Delaware Skipper in that area. The Delaware Skipper was not dorsally



Delaware Skipper
(September 3).

dark like those found at Thistlethwaite and Indian Bayou WMA, but was minimally marked. Also, it was not found in the trees, but was out in the open, taking nectar on a liatris bloom. I learned there was a count set for September 16 at both places, and I decided to attend so I could revisit the Duralde Prairie as it seems a good location for other marine skippers.

I was unable to get into the field during the September 8-9 weekend as my daughter was in a soccer tournament that stretched out over the entire weekend (although I did see a Spicebush Swallowtail, numerous Cloudless Sulphurs, some Sleepy Oranges, Buckeyes and Fiery Skippers at the soccer fields), but I did return to the two Cajun Prairies on September 16 and participated in the NABA Seasonal Count held there, under the supervision of Dr. Charles Allen. I met some wonderful people and had a great time. In the end, the group saw 19 species and hundreds of butterflies (mostly Ocola Skippers). I saw another male Delaware Skipper and my first Louisiana



Ceranus Blue (September 16).

Ceranus Blue, both at Duralde. There were several Long-tailed Skippers seen as well as multiple Painted Ladies, my first of the year, number 114. Noticeable absent were swallowtails and Sleepy

Oranges. In fact, the number of Cloudless Sulphurs and Little Yellows were also down. I also saw either a Palatka or Aaron's Skipper, again, at Duralde in the marshy area. It didn't hang around long enough for me to make a definitive identification.



Aaron's Skipper (October 20).

Soccer again dominated my weekend during September 22 and 23, as we traveled to Orange Beach Alabama. I had high hopes of sneaking away to visit a few sites in the area, but the game schedule of 10:00 and 3:00 on Saturday and then 8:00 and 2:00 on Sunday much complicated that effort. It turned out the soccer fields on which my daughter played on Saturday were less than five minutes from Tarkin Bayou State Park, so before each game I managed to walk a portion of the marsh trail there for about 30 minutes. I saw a total of 13 species there and at the fields, including several Palamedes Swallowtails, Long-tailed skippers and two Twin-spot Skippers.

Actually, the entire area was swarming with butterflies. Hundreds of Gulf Fritillaries, Buckeyes, Cloudless Sulphurs, Little Yellows, Long-tailed Skippers and Ocola Skippers could be seen flying along the roadsides, at the various restaurants visited, at the soccer fields and even at the team motel. The large numbers were so

2012 DIARY OF AN OBSESSIVE BUTTERFLIER – PART THREE

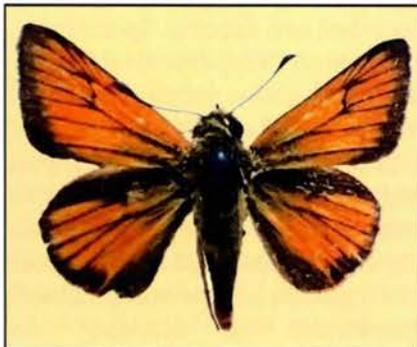
SEE YOU IN SEPTEMBER

BY

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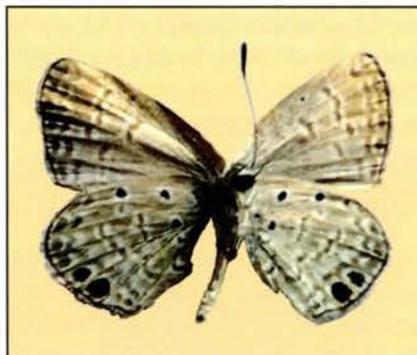
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(September 3).

dark like those found at Thistlethwaite and Indian Bayou WMA, but was minimally marked. Also, it was not found in the trees, but was out in the open, taking nectar on a liatris bloom. I learned there was a count set for September 16 at both places, and I decided to attend so I could revisit the Duralde Prairie as it seems a good location for other marine skippers.

I was unable to get into the field during the September 8-9 weekend as my daughter was in a soccer tournament that stretched out over the entire weekend (although I did see a Spicebush Swallowtail, numerous Cloudless Sulphurs, some Sleepy Oranges, Buckeyes and Fiery Skippers at the soccer fields), but I did return to the two Cajun Prairies on September 16 and participated in the NABA Seasonal Count held there, under the supervision of Dr. Charles Allen. I met some wonderful people and had a great time. In the end, the group saw 19 species and hundreds of butterflies (mostly Ocola Skippers). I saw another male Delaware Skipper and my first Louisiana



Ceranus Blue (September 16).

Ceranus Blue, both at Duralde. There were several Long-tailed Skippers seen as well as multiple Painted Ladies, my first of the year, number 114. Noticeable absent were swallowtails and Sleepy

Oranges. In fact, the number of Cloudless Sulphurs and Little Yellows were also down. I also saw either a Palatka or Aaron's Skipper, again, at Duralde in the marshy area. It didn't hang around long enough for me to make a definitive identification.



Aaron's Skipper (October 20).

Soccer again dominated my weekend during September 22 and 23, as we traveled to Orange Beach Alabama. I had high hopes of sneaking away to visit a few sites in the area, but the game schedule of 10:00 and 3:00 on Saturday and then 8:00 and 2:00 on Sunday much complicated that effort. It turned out the soccer fields on which my daughter played on Saturday were less than five minutes from Tarkin Bayou State Park, so before each game I managed to walk a portion of the marsh trail there for about 30 minutes. I saw a total of 13 species there and at the fields, including several Palamedes Swallowtails, Long-tailed skippers and two Twin-spot Skippers.

Actually, the entire area was swarming with butterflies. Hundreds of Gulf Fritillaries, Buckeyes, Cloudless Sulphurs, Little Yellows, Long-tailed Skippers and Ocola Skippers could be seen flying along the roadsides, at the various restaurants visited, at the soccer fields and even at the team motel. The large numbers were so

noticeable that both parents and team members were discussing all of the different butterflies that seemed to be everywhere. During the second game on Saturday, two Palamedes Swallowtails engaged in their mating ritual right along the sidelines where the parents were watching the game, drawing as much attention as the game itself.

On Sunday, after the early game, I drove to Bon Secor NWR, east of Gulf Shores and walked a powerline there for about one hour. I had hoped to see either Palmetto and/or Palatka Skippers, both of which had been reported as flying there in the past at this time of the year. Unfortunately, I saw neither. I did see 11 species, including more fresh Long-tailed Skippers that I have ever witnessed at one place and time. The Little Yellows, Buckeyes and Ocola skippers were just as thick. I ended up seeing 18 species over the weekend, but no new species for my year's list. Despite that, it was a memorable weekend, what with the sheer numbers of butterflies flying and my daughter's team victory in the tournament finals. Frankly, I so enjoyed spending the time with her and watching her games that I didn't even stress over my lack of ability to get into the field for more time.

Now, the following weekend was another story. With no soccer on the agenda I was looking forward to seeing what butterflies were flying as fall hit the Gulf Coast. Specifically, I was heading to Dr. Charles Allen's farm in Pitkin, LA, for his fall "Bug Bash" on September 29, but, again Mother Nature stepped in and cancelled my plans with an entire weekend filled with intermittent but hard rain. Despite the rain, I continued to see Cloudless Sulphurs, Long-tailed Skippers and Ocola Skippers, as well as a large, fresh female Giant Swallowtail at blooming lantana.

Weather again thwarted my best laid plans for getting afield during the October 3-4 weekend. I did a sprint triathlon in Lake Charles early that Saturday morning, then drove east, stopping to clean up and feed my daughter's pets along the way, before arriving in Baton Rouge for my daughter's second soccer game of the day at 2:00 (they had won the early game as part of another tournament). The weather was great, warm and sunny. I saw Cloudless Sulphurs, Little Yellows, Gulf Fritillaries, Buckeyes, and a lone Viceroy while at the soccer fields, and my plan was to visit the Bluebonnet Swamp the next day after the early game. That swamp was less than a mile from the soccer fields and I would have several hours to look for Texas "Seminole" Crescents as well as whatever else was there.

Unfortunately, an unusually early cold front moved in Saturday night, and Sunday broke very overcast, extremely windy and downright cold (well, cold for Louisiana in October). The 10:00 game, agreed between the two teams to count as the championship game rather than play each other again at 2:00, was close, but lost, 3-2 on a late second half goal. Even though the sun had started shining by 11:30, the wind was still stiff and the temps were in the low 60's. I stopped briefly at the Bluebonnet Swamp, but only saw a lone Gulf Fritillary, Pearl Crescent and Clouded Skipper. All three were sunning in the garden, but hunkered down in the vegetation, out of the wind.

I finally had a weekend without prohibitive weather or soccer conflicts so on Saturday, October 13, I loaded up and drove to eastern Cameron Parish, visiting the Cameron Prairie NWR north of Creole and then Rockefeller Refuge east of Grand Chenier. The day was mostly sunny and breezy with temps in the mid-80's. There were a lot of butterflies on the wing with

numerous nectar sources to attract them, but I would comment that both locations had more high grass than normally found. This diminished the amount of frogfruit available, thereby making it harder to find many of the grass skippers typically seen at this time of the year.

I finished with a total of 24 species. Phaon Crescents, Common Buckeyes and Ocola Skippers were all very abundant. Long-tailed Skippers continue to appear in good numbers this fall. Both Southern Skipperlings and Least Skippers were present at multiple locations. The highlights were two Ceranus Blues and a female Bay Skipper, all three seen in the ditch north of Hwy 82, just before the Vermilion Parish line. I also saw a couple of Great

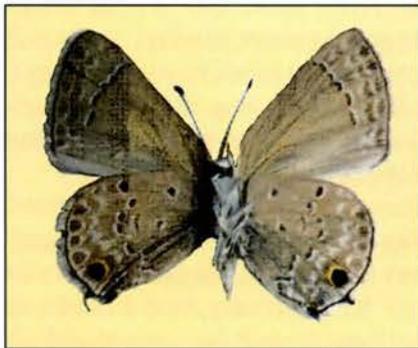


Bay Skipper (October 13).

Southern Whites, flying along the road between Creole and Grand Chenier. I was surprised at the low numbers of sulphurs and Monarchs, typically plentiful in October. The Bay Skipper was new for the year, number 115.

Euphyes bayensis, with the common name of Bay Skipper, is a recently described new species. Specifically, J.A. Shuey (1989) described the Bay Skipper as a new species "based on morphological and limited biological evidence." While acknowledging his designation was "open to alternative interpretations," he differentiated the Bay Skipper from the Dion Skipper based on color, pattern and habitat. Specifically, he described the former as having an expanded orange pattern, particularly on the

male dorsally. As with my experience, he noted that southern Dion Skippers were "consistently dark." He further noted that Bay Skippers had been caught in brackish marsh where it flew with Palatka Skippers (*e.g.*, Cameron Parish along the coast) while Dion Skippers normally occurred in fresh water wetlands where it flew with Duke's Skippers (for example, at Thistlethwaite WMA in St. Landry Parish).



**Mallow Scrub-hairstreak
(October 20).**

Shuey's specimens were from Bay St. Louis, Mississippi. Subsequent records indicated the Bay Skipper had also been found in Sabine Pass, Jefferson County, Texas (directly across the state-line from Cameron Parish), as well as Chambers, Galveston and Harris Counties, but there were no records from Louisiana. Ultimately, I found it in both eastern and western Cameron Parish in 2010 and 2011. Efforts to list this skipper on the Federally protected list, initiated by the Xerces Society, were recently rejected, at least in part because the skipper has turned up so regularly in southwest Louisiana.

I had a wonderful day in western Cameron Parish on Saturday, October 20, 2012. I worked the sides of the road (where parking is allowed) from south of Hackberry to Holly Beach and then west on Hwy 82 to Johnson Bayou where I visited Peveto Woods. The weather was about as good as it gets in south LA, warm with a nice breeze, but never uncomfortably hot. The butterflies

at Peveto Woods were thick with literally hundreds of Gulf Fritillaries, Phaon Crescents and Ocola Skippers present. There were so many butterflies flying that it was impossible to keep track of everything around me. At one point a huge Black Witch Moth flushed. I saw it twice, and I had no doubt what it was. It was a fun day!

The highlight was a fresh Mallow Scurb-hairstreak. I initially thought it was a small Gray Hairstreak (which were common), but when I saw a flash of blue, I knew what it was from seeing it in the Valley and Caribbean. My research indicates this constitutes the third sighting for the State. The Monarchs were gathering along the coast, taking nectar at both Goldenrod and Brazilian Vervain. I also saw four Queens, three at Peveto Woods, and all were fresh.

Ceranus Blues continued to make a steady appearance, with three in separate locations. Great Southern Whites were about, appearing for the second weekend in a row. Numerous marine skippers were flying, Neamathla, Salt Marsh, Obscure and Aaron's. Of the first three, there were more flying than I actually counted, but they would not stop long enough to determine which they actually were. The Aarons were flying along with those three, with all preferring to visit a low growing white aster that was blooming out in the open marsh. Long-tailed Skippers continued to



Dorantus Skipper (October 20).

be common, and I also saw two Dorantes Long-tailed Skippers.

I saw a total of 33 species, with five new species added to my year's list, a Mallow Scrub-hairstreak, two Dorantes Long-tailed Skippers, thirteen Salt Marsh Skippers, nine Obscure Skippers and two Aaron's Skippers. That brought my total for the year to 120. It had been several months since I had that many new species in one day, but with only a few weeks left in the season. I



Salt Marsh Skipper (October 20).

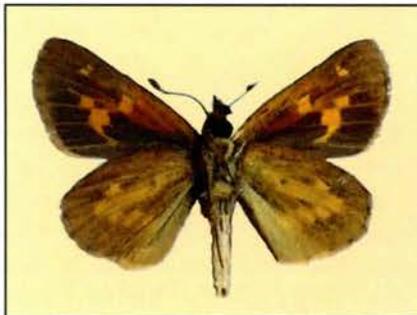


Obscure Skipper (October 20).

realized a final total of 150 species was not only unattainable, but more of a wishful dream than a realistic goal.

Both weather and soccer conspired to limit my time in the field the next weekend. On Friday, October 26, a cold front moved into south Louisiana, bringing with it high winds and cooler temperatures. Over the weekend, the temperatures dipped into the mid-40's at night, with highs only in the mid 60's during mid-day. While it was sunny, the wind made it feel much colder. My daughter had her next-to-last soccer game of the fall season on Saturday in Baton Rouge at 1:00, right in the middle of the day with no chance to get afield.

On Sunday, the 28th, her game was at 11:00, so right afterwards I drove to southern Vermilion Parish on Hwy 82 between Forked Island and Pecan Island. The wind was howling, but I was still able to find 20 species, primarily down in the roadside ditches, out of the wind. They were almost exclusively found on blooming asters. The Gulf Fritillaries and Ocola Skippers were still common. Also present were Southern Skipperlings, Least Skippers, Broad-winged Skippers and Phaon Crescents.



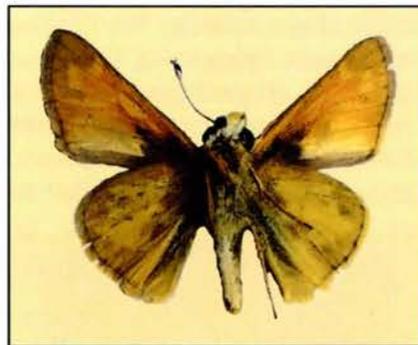
Broad-winged Skipper
(October 28).

The sulphurs and Common Buckeyes were much reduced in numbers. Two more Painted Ladies were seen along with three Viceroy's (one very dark). Each year I have consistently seen Funereal Duskywings and Sachems in October along the extreme southern Gulf Coast. They had been conspicuously absent this fall until this day when I saw five very fresh Funereals and three Sachems. The highlight was a Mourning Cloak that I only saw briefly before it disappeared into a thicket of willows. Despite the short duration of my sighting, the size, color and distinctive gold edging made my diagnosis instantaneous. I had spoken with Kevin Cunningham earlier in the week, and he reported seeing one in Terrebonne Parish earlier in October so the 2012 continues as the Year of the Mourning Cloak.

While I was in southern Vermilion Parish, Kil Roever was in western Cameron Parish and reported several Texas strays (like a White-

striped Long-tailed Skipper), so I returned to that portion of the parish on Saturday, November 3. I stopped at the Blue Goose trail and West Cove trail in the Sabine NWR, Peveto Woods and the public beach at Holly Beach on Hwy 82. The weather was great, warm with less of a breeze than the last two weeks. The mosquitoes were bad at times.

I saw a total of 27 species. The highlight was several Dusky-blue Groundstreaks. While in this area on October 20, I had seen, briefly, what I identified as a Red-banded Hairstreak. Kil Roever was in the same area the following week and felt what he saw may not have been Red-banded Hairstreaks, but Dusky-blue Groundstreaks instead. After reviewing pictures of those specimens I took and consulting with several people, I felt that while not perfect matches to those typically seen in the Rio Grande Valley, what I had found in Cameron Parish were still Dusky-blue Groundstreaks. This Groundstreak has been seen in Cameron before (as well as just across the state-line in Jefferson County, Texas) so it was not unrealistic to find them there again. As such, they were a new species for my year's list, number 121.



Sachem (October 28).

With each trip down into this region, I was seeing more Monarchs, gearing up for their journey across the Gulf into Mexico. Ceranus Blues continued to show up, with one at Peveto Woods and 6 at Holly Beach. Great Southern Whites and Queens were still flying,

showing up for the third weekend out of the last four. And the marine skippers were still flying, Neamathla, Salt Marsh, Obscure and, this week, three female Bay Skippers. I continued to see saw numerous Long-tailed Skippers.

I'm not sure which species were the most numerous. The contestants were Phaon Crescents, Gulf Fritillaries and Ocola Skippers. There were three fresh Red Admirals at Peveto Woods. The three sulphurs (Cloudless, Little and Sleepy) remained present everywhere, as did Common Buckeyes. Not bad for the first Saturday of November.

The forecast for the next weekend had temperatures in the high 70's to low 80's each day, and I hoped to get back to mid-Cameron Parish to survey the Cameron Prairie and Lacassine areas. My youngest daughter had try-outs for Parish Concert Band Saturday morning at 8:00 but would be done before 9:00. The forecast for that Saturday was mostly sunny with light winds and a high temperature of 77 degrees, perfect fall weather.

If I might digress for a moment, in addition to playing soccer, Mattie has played trombone in her school band for the last two years. Last year she was the only girl trombone player chosen for the parish-wide concert band. She repeatedly reminds me that she is NOT a tomboy, but is simply a "dudette." Her older sister was also much the tomboy at the same age (her favorite "ensemble" was a pair of baggie sports shorts and a t-shirt). Now, just one of her outfits costs more than all of the clothes in my closet. I have no doubts but that Mattie will be the same.

But, back to the point, my plan was to head for Cameron Parish about 9:00 on Saturday. That was my plan until Thursday when I was offered two tickets to the LSU-Mississippi

State football game in Baton Rouge Saturday night. For those of you who have never been in Death Valley on a Saturday night, well, simply stated, there is NO PLACE like it. So, now I was on the horns of a dilemma. LSU games are a family affair (no one left behind), and given that two tickets were not enough, I had decided that I was going to pass on the tickets. Then on Friday, my generous benefactor offered a third ticket, and butterflies would have to wait. At 6:00 Saturday night we were sitting in Tiger Stadium with 92,000 others, cheering the Tigers to a 37-17 victory.

Sunday was still warm, but much grayer with more wind and threats of thunderstorms. Despite my obsession with butterflies, the decision to pass on Saturday and go to the game was a "no brainer," with no regrets. And so, I headed off to Lacassine NWR in Cameron and Evangeline Parishes. I started at the Streeter Road and Canal area near the headquarters. It was raining when I moved over to the Lacassine Pool area so I returned to Streeter Road and ended up spending the day there.

When I arrived at about 9:30 it was misting but there were still dozens of Ocola Skippers taking nectar from numerous yellow flowers in the roadside ditches. Over the course of the day I must have seen 500 Ocola Skippers. Gulf Fritillaries and Tropical Skippers were common. I ended the day with only 14 species which was probably not a bad number given the very gray skies, high wind and intermittent rain. The highlights were six Broad-winged Skippers. I also saw eight Least Skippers, all fresh. Everything else was the usual suspects for this time of the year.

After a week of cooler temps (down into the high 30's a couple of nights), the weather warmed up for

the next weekend, and I traveled to central Cameron Parish Sunday, November 18, to see what might still be flying. I started at about 9:45 at the Cameron Prairie NWR. A little after noon I moved to Lacassine Pool in Jeff Davis Parish which is only 20-25 miles due east as a crow flies. I saw 22 species, but nothing unexpected. Ceranus Blues continue to be seen, but all seen were worn. I had not seen any Orange Sulphurs since the spring, but as this butterfly is one that I commonly see during our milder winters I was not surprised to see a couple, both showing a lot of yellow as is reflective of the cooler weather form.

I estimate I easily saw between 250 and 300 individual butterflies, primarily Ocola Skippers, Phaon Crescents and Buckeyes. Gulf Fritillaries, Fiery Skippers and Tropical Checkered-skippers remained common. Sulphurs and Brush-foots predominated, including a fresh Goatweed, a Red Admiral, two very dark Viceroy's and three fresh fall/winter form Question Marks.



Dusky-blue Groundstreak
(November 3).

The next day, Monday, I headed off to Tennessee for the Thanksgiving Holiday to visit my parents. I was concerned that since I would not be around to take advantage of the projected mild weather in Louisiana for the coming weekend that my season might be at an end. To my pleasant surprise, my daughter, Mattie, and I were able to spend

several hours at Shelby Farms, in Shelby County, on Wednesday, the 21st, and saw eight species. The weather was absolutely wonderful for the day before Thanksgiving with lots of sun, little wind and warm temps. We saw four kinds of sulphurs, including several Dainty Sulphurs, my first since back in April. There were two very fresh and ventrally dark Goatweed Leafwings. The only skipper seen was a lonely Clouded Skipper.



Common Buckeye (rosa form)
(November 18).

There were several Orange Sulphurs flying as well as three sulphurs that were either Clouded Sulphurs or very yellow Orange Sulphurs. I returned the next day (with even warmer temperatures) to see if I could figure out what the yellow sulphurs were, but all I saw were Orange Sulphurs so I was not comfortable identifying those seen the day before as Clouded Sulphurs, which would have been a new species for my year's list.

The weather during the last week of November went from warm to quite cold and back to warm with temperatures hovering near 80 degrees by Sunday, December 2. On the afternoon of November 29, while in route to Gulfport MS for mediations on November 30, I stopped at Crosby Arboretum in Picayune MS to see if any Clouded Sulphurs might be flying. Before leaving New Iberia that morning, I found a fresh but deceased Long-tailed Skipper in our warehouse. At Crosby, the area where Clouded

Sulphurs had been reported as common was in the process of being burned. While the other side of the unit was as of yet untouched, all I saw was a single American Lady basking in the late afternoon sun.

On my return trip the next day, I visited the Abita Springs Flatwood Preserve in St. Tammany Parish. This location includes a pitcher plant bog, and I plan to visit there next year in June and August to see if there is a population of Arogos Skippers present. Having never been there before, I decided to locate and scout the unit, owned by the Nature Conservancy. The weather was clear and warm with temperatures in the upper 70's. I only saw 6 species, Cloudless Sulphurs, Little Yellows, Pearl Crescents, Gulf Fritillaries, Buckeyes and a single Fiery Skipper, but the location looks very promising with a much larger pitcher plant bog than is located at Crosby and expansive open pine flatwoods that will hopefully yield not only Arogos, but also Cobweb and Dotted Skippers.

Over the first two days of December, Cloudless Sulphurs, Gulf Fritillaries, Common Buckeyes and Ocola Skippers were seen around Lafayette. By the next weekend,

only Buckeyes and Cloudless Sulphurs were still flying, and on the following weekend (December 15) I only saw one lonely Buckeye.

Candidly, I was disappointed with the final number of 121 species. I thought I would easily exceed that number, but the dog days of late summer generated so few species, that I fell far off pace despite a better October. The butterfly seen the most was the Common Buckeye at 37 sightings, followed closely by Cloudless Sulphurs (35) and Pearl Crescents (34). The most common swallowtail was E. Tigers (28), the most common hairstreak was Red-banded Hairstreaks (also 28) and the most common skipper was Fiery Skippers (30). I saw a total of 24 butterflies or skippers only one time.

I saw a total of seven different swallowtails, three whites, seven sulphurs, one harvester, one copper, 13 hairstreaks, five blues, and 29 brushfoots (including seven satyrs/nymphs). There were also 17 spread-winged skippers (seven duskywings and three cloudywings) and 38 grass-skipppers (including four roadside skippers). Buckeyes had the longest season, flying from March 4 to December 15. Cloudless Sulphurs had the next longest flight season, from March 17 until

December 8. Red-banded Hairstreaks flew from March 4 to November 18, and Pearl Crescents flew from March 17 until November 30.

The highlight of the year was a tie between seeing both Brown Elfins and a Hessel's Hairstreak on the same day back in March and finally finding a colony of Arogos Skippers in August, after looking for two years. In addition to those Arogos Skippers, I was able to see three other skippers for the first time, Dreamy Duskywings, Indian Skippers and Hobomok Skippers.

I will probably keep track in the future of how many different butterflies and skippers I see each year so as to better track how the numbers seen last year compare to subsequent years. I enjoyed the challenge of trying to identify locations and time frames that would allow me to maximize the number of species seen over the course of the season. As a result of that planning effort I identified several new locations that I look forward to visiting again this year. It is late February as I write these concluding comments. I have already seen five species without actually making any effort. The field beckons, the "itch" is back.

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

JAMES CONTINUES HIS CHALLENGE INTO 2013

James contributed \$20.00 for the articles dealing with the "Dangers of Lepping" in the December 2012 issue of the SLS NEWS. He is graciously continuing his challenge "Dangers of Lepping" and "First Encounters" into the new year with the possibility of a grand total of \$100. So members please put your experiences to paper and contribute to your newsletter. Many thanks to James and to all the members who have taken up the challenge - The Editor.

LEILA (LEE) M. LOMBARDINI



August 30, 1942 - February 2, 2013

After a six and a half year battle with renal cell carcinoma, Leila passed away on February 2, 2013. While not an official member of the Southern Lepidopterists' Society she was my constant companion on most of my butterfly/moth field trips. While definitely preferring to browse the antique and boutique shops and the flea markets in many of the small towns in Texas, New Mexico and Colorado, she did accompany me while placing my moth blacklight traps in the field at dusk and then collecting them in the early morning. She had many suggestions for me concerning the formatting of the Southern Lepidopterists' NEWS.

Lee was born in Queens, New York. She was a travel agent for 18 years and we traveled the world. Having lived in Germany for two years before we married she was proficient in German, and had a working knowledge of French and Russian which made our travels to these countries both more informative and enjoyable. However, Lee was not a collector and never quite understood why I always wanted more than two of each species of butterflies and moths.

ANNABEL LEE
BY
EDGAR ALLAN POE

It was many and many a year ago,
In a kingdom by the sea,
That a maiden there lived whom you may know
By the name of Annabel Lee;
And this maiden she lived with no other thought
Than to love and be loved by me.

I was a child and *she* was a child,
In this kingdom by the sea,
But we loved with a love that was more than love—
I and my Annabel Lee—
With a love that the winged seraphs of Heaven
Coveted her and me.

And this was the reason that, long ago,
In this kingdom by the sea,
A wind blew out of a cloud, chilling
My beautiful Annabel Lee;
So that her highborn kinsmen came
And bore her away from me,
To shut her up in a sepulchre
In this kingdom by the sea.

The angels, not half so happy in Heaven,
Went envying her and me—
Yes!—that was the reason (as all men know,
In this kingdom by the sea)
That the wind came out of the cloud by night,
Chilling and killing my Annabel Lee.

But our love it was stronger by far than the love
Of those who were older than we—
Of many far wiser than we—
And neither the angels in Heaven above
Nor the demons down under the sea
Can ever dissever my soul from the soul
Of the beautiful Annabel Lee;

For the moon never beams, without bringing me dreams
Of the beautiful Annabel Lee;
And the stars never rise, but I feel the bright eyes
Of the beautiful Annabel Lee;
And so, all the night-tide, I lie down by the side
Of my darling—my darling—my life and my bride,
In her sepulchre there by the sea—
In her tomb by the sounding sea.

Bruce Dixon of Braddock, PA, died on February 21, 2013. An obituary will be published in the June issue of the SLS NEWS. The members of the SL Society send their sincerest condolences to the family of Bruce.

REMARKS ABOUT THE LIFE AND DEATH OF JOHN ABBOT (1751 - c.1840) BY JOHN V. CALHOUN

Durden & Mullen (2012) recently provided photographs of the burial site of the pioneer naturalist John Abbot (1751-c.1840). Their article is a fitting addendum to the biographical review of Abbot by Leibee (2003), published in this newsletter a decade ago. I was reminded that some aspects of Abbot's life deserve more attention. Published biographies include little information about his final home and burial. More important, evidence reveals discrepancies in our interpretation of Abbot's final years. I offer comments on these and related topics while challenging some long-held notions.

Background. Bassett (1938) determined that Abbot's last home was in southern Bulloch County, Georgia, on the property of William E. McElveen III (1812-1880), whose 1,400 ac (566 ha) plantation was located a short distance south of the community of Arcola. Bassett based her conclusions on information from two of McElveen's elderly sons, who claimed that Abbot resided on a portion of the family plantation called "Hudler's Field" in the fork of two streams, Stone Branch and Iric Branch. Abbot's home was allegedly a small two-room cabin (Allen 1954). "Hudler's Field" may have taken its name from the Hudler family. Timothy Hudler was listed on the 1820 federal census of Bulloch County. Land lottery records from 1827 cite a John Hudler from Bulloch County.

Abbot's letters provide insight into his arrival on the McElveen property. In August of 1817, Abbot wrote from Savannah, Georgia, "I have an Intention shortly to move into the Country."¹ This was probably shortly after the devastating loss of his wife, when he longed to "leave of housekeeping" and relocate to some other portion of Georgia to focus on drawing and collecting specimens.² Relieving himself of the domestic vestiges of married life, Abbot gave nearly all his belongings, including his "household & Kitchen furniture of every Kind," to his daughter-in-law, Eliza G. Abbot. Abbot officially indentured this property to Eliza in early 1820 (Bassett 1938). Abbot's son, John Abbot, Jr., was troubled and often indebted. Public records show that Abbot provided relief to Eliza a couple of times during her 14-year marriage to his son.

Abbot moved to Bulloch County between May and September of 1818, when the population of the county was little more than 2,500 (it now exceeds 70,000). He was captivated by the beauty of Bulloch County,

observing that the open pine woods afforded "space for uninterrupted growth of a vast abundance of beautiful flowers all the Summer & fall." He remarked that in late September and early October the pine woods looked "like a beautiful garden, consisting of a great variety of beautiful flowers, as if [the] Flora, conscious of approaching winter, puts on her most gorgeous suit, before she retires til the return of Spring."³ He referred to this new home as his "residence in the Country."⁴

Within months of arriving in Bulloch County, Abbot was already looking to relocate. In November of 1818 he remarked that he wanted to "remove to some new part."⁵ Around this time, Abbot supposedly became acquainted with Aaron Cone Jr. (1810-1881), who helped him collect specimens (Bassett 1938). Cone was described as being "a boy" at that time, but he was at least 18 or 19 years old when Abbot arrived in Bulloch County. Abbot possibly lived in a "log hut" on land owned by the Slater family, who lived about 3 mi (4.8 km) from the Cone property (Bassett 1938). This is supported by an 1823 sale of some property that was previously owned by the Slater family, for which Abbot served as a witness (Kelly 1985). The Cones lived near the community of Ivanhoe, just west of the Ogeechee River in extreme southeastern Bulloch County (Brightwell 2009; Tocci 2012). According to deed records, the Slaters lived near Black Creek, to the west of the Cones and about 5 mi (8 km) south of the McElveen plantation.

Arriving from his previous home in Savannah, Abbot's choice to settle in this part of Bulloch County was logical. Historical maps show that an old road passed through that area from Savannah, only 30 mi (48 km) to the southeast. Portions of modern-day State Route 119 and US Hwy 80 follow this old road grade. Abbot's access to Savannah was important for mailing packages, visiting his friends, and keeping in touch with his son and daughter-in-law. He occasionally spent extended periods in Savannah to conduct "particular business."⁶

Many years later Abbot still desired to relocate. In early December of 1832, he stated that he intended to move early the next spring to "a very healthy neighborhood," admitting that he did not exactly know where he would settle.⁷ He apparently had not yet moved by 30 November 1833 when he wrote, "I shall shortly move from where I now reside tho' it be to a place in the same County, as the hunting grounds will be entirely new."⁸

Three years later, Abbot announced, "I shall remove in a few weeks to a situation near [the] Ogeechee River, in a new neighborhood."⁹ Although it is impossible to know if Abbot relocated more than once within Bullock County, this last statement possibly referred to his move to the McElveen plantation, situated about 7 mi (11 km) west of the Ogeechee River.

Additional evidence suggests that Abbot arrived on the plantation before it was owned by the McElveens. The 1820 federal census places the McElveen family, including 8-year-old William III, in adjacent Bryan County, Georgia. William's father, William E. McElveen, Jr., died in 1826 and was buried in Bryan County (Garland 1978; Austin 1986). Young William's mother, Susannah ("Susan") (1788-1861), subsequently remarried and moved to Bulloch County. This took place when William was a teenager. In 1835, about a year after the death of her second husband, Susannah married William Bragg (c.1773-1838) (Garland 1978; Beasley 2001; Stowell 2011). Around this time, young William McElveen moved to Savannah, possibly to study at Savannah Medical College (Garland 1978; Brannen 1987). On 15 December 1837, when the 25-year-old McElveen was still a resident of Savannah, he purchased from Bragg (his stepfather) a 1,490 ac (603 ha) plantation for \$1,200 (Kelly 1985). The size of this parcel is consistent with the McElveen plantation as reported by Bassett (1938). Assuming that Abbot moved to the plantation during late 1836 or early 1837, he arrived when Bragg still owned the property. McElveen perhaps arranged with his mother (Bragg's wife) to allow Abbot to reside there in anticipation of this sale.

Contrary to popular belief, Abbot evidently resided with the McElveens only about three years, though he possibly knew the family for a longer period. He may have become acquainted with the McElveens through the Cone family, who were prominent land owners of southern Bulloch County. Aaron Cone's niece, America A. Cone, later married William McElveen's son, John, in 1858. After John's untimely death around 1860, America married William, with whom she had seven children (Garland 1978; Brightwell 2009). The Cones, Slaters and McElveens owned land within several miles of one another. From his former residence in the county, Abbot probably relocated less than 7 mi (11 km) to the Bragg/McElveen plantation. His advanced age undoubtedly limited his ability to travel in the field. Moving just a few miles would have afforded him tempting new "hunting grounds."

Abbot seems to have done little (if any) work with natural history after his final move, possibly due to declining health. The American naturalist John E. Le

Conte claimed that by 1839 Abbot was "blind & deaf."¹⁰ However, Abbot's friend Augustus G. Oemler maintained that Abbot wore glasses since at least 1805 and was hearing impaired since the mid-1820s when Oemler had to "use a slate to converse with him."¹¹ Nonetheless, Abbot had become "very corpulent" by the early 1830s, forcing him to employ local boys to "run after butterflies."¹² His last recorded shipment of insects (for Escher-Zollikofer) was in November of 1836, just prior to his move to the Bragg/McElveen plantation.

On 4 June 1839, Abbot deeded his few possessions to his "beloved friend," W. E. McElveen (Kelly 1985). This included his "negro woman named Betsey," whom he had purchased in Savannah in 1813 from Thomas Gribbon for \$325 (Kelly 1985; Register 1985). Betsey was probably in her 20s at the time and Abbot's payment was equivalent to about \$4,700 today. Despite our reverence for Abbot, we must not forget that he was a man of his time and he owned several slaves while living in Georgia.

Abbot's death and burial. Unfortunately, what we know about Abbot's final days is anecdotal at best. The exact date of Abbot's passing is unknown, but it was likely sometime after the census of 27 October 1840, which recorded a white male resident of the McElveen property between the ages of 80 and 90—presumably Abbot. It is thought that he died in late 1840 or early 1841. After Abbot's death, A. G. Oemler visited McElveen and attempted to purchase "the old man's" remaining "papers, paintings, colours, etc.," but was told that "nothing was in existence . . . the children had used up all."¹³ However, I question if this included any of Abbot's finished watercolors. In January of 1835, Abbot sent all the insect drawings in his possession to the English naturalist William Swainson (Calhoun 2007). He possibly rendered some additional small drawings for J. E. Le Conte, but there is no record of him sending any illustrations to correspondents after 1835. It is reasonable to assume that McElveen was referring only to Abbot's painting supplies, which the children "used up" for their own drawings. I struggle with the notion that the 28-year-old McElveen would permit his children to wantonly destroy his respected friend's artwork. Abbot did not live in the McElveen home and it seems unlikely that the very young McElveen children were allowed to rummage unsupervised through Abbot's cabin. McElveen would probably have removed any drawings from Abbot's belongings before he gave anything to the children.

Bassett (1938) reported that Paul R. McElveen (1863-1945), who was W. E. McElveen's youngest son by his second marriage, recalled "distinctly hearing" his father say that Abbot was buried in the family cemetery. Paul

also alleged that his father once witnessed some of his other children (those of his first marriage) standing around Abbot's grave calling, "Grandfather, get up." This remains the only evidence of Abbot's interment in the McElveen cemetery. There is, however, a slight discrepancy with this oral history. Bassett (1938) claimed that McElveen's oldest children knew Abbot as "Grandfather", but only one of them, John D. McElveen (1835-c.1860), was old enough to remember Abbot. Three other children, James (1838-c.1860), Rebecca (1840-1908), and Susannah (1841-1926), were less than three years old when Abbot died. Even if Abbot lived until early 1841, Rebecca would have been less than one year old while Susannah was only an infant. Paul McElveen was born two decades after Abbot's death and his recollections were conveyed at least 60 years after the fact. Nonetheless, Abbot's close friendship with the McElveens reinforces the likelihood that he was buried on their property. If a grave marker was originally present, it possibly was wooden and did not survive many humid summers in Georgia.

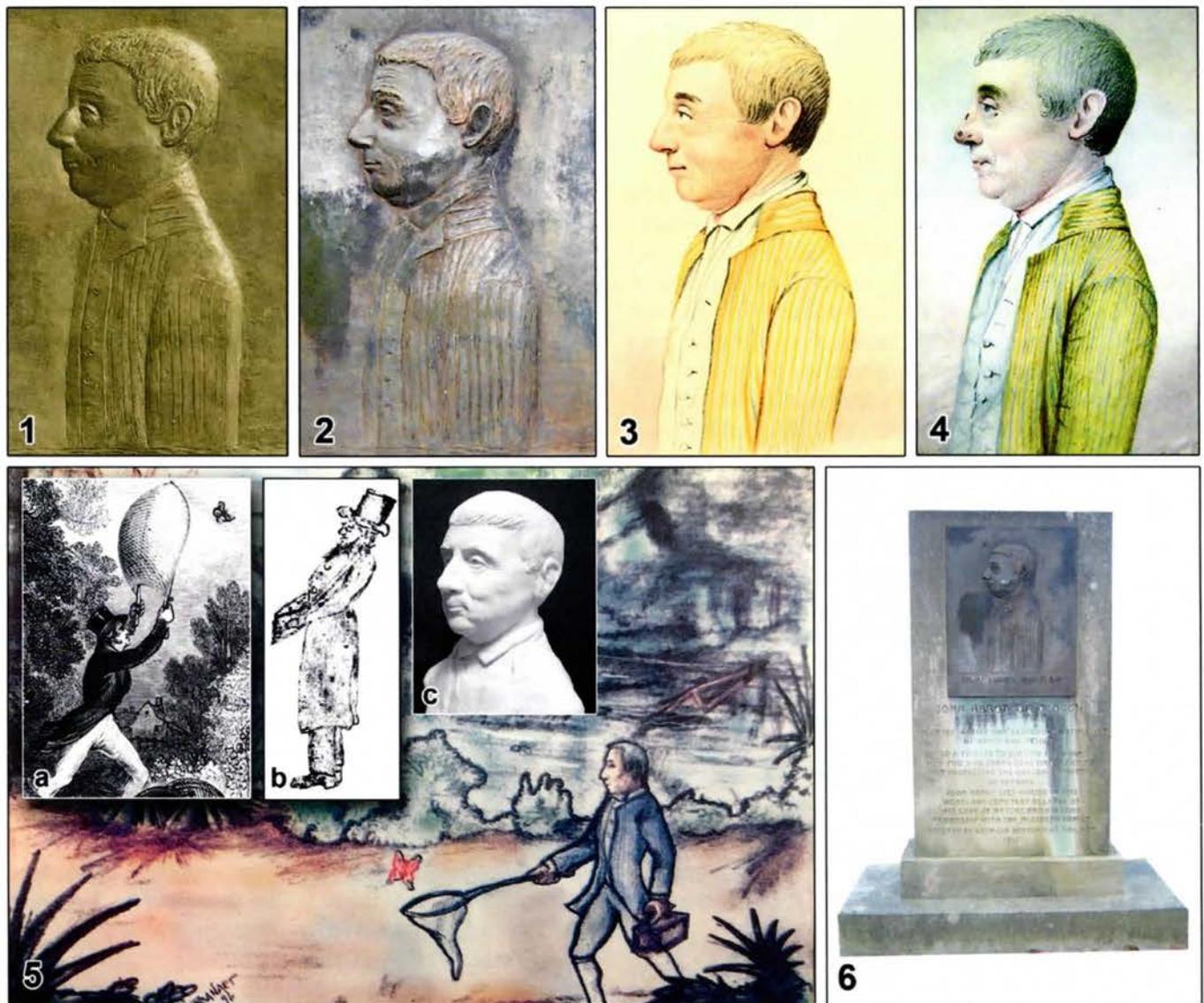
Another facet of this history was not previously examined. Authors have routinely implied that Abbot was buried in a well-established family cemetery, yet W. E. McElveen did not own the plantation until late 1837. No McElveen family members are known to have died between 1837 and 1857, which is the next oldest date in the cemetery after Abbot. This evidence suggests that Abbot's grave served as the very foundation of the McElveen cemetery. It was McElveen's first wife, Sophronia Elizabeth (Betsy), who was buried near Abbot in 1857. This chronology reveals an overlooked aspect of Abbot's relationship with the McElveen family.

Abbot's monument. In 1956, the Georgia Historical Society commissioned the artist Mary D. Stuart (1890-c.1967) to create a bronze bas-relief sculpture of Abbot. The finished piece was presented to the Historical Society by Stuart's husband, Charles J. B. Stuart (Hunter 1957). It was mounted onto a stone monument, which was unveiled at the McElveen cemetery on the afternoon of 25 May 1957 during the annual meeting of the Georgia Historical Society (Anonymous 1957; Banks 1996). This meeting included presentations about Abbot by Elsa G. Allen (1888-1969) and Robert J. H. DeLoach (1873-1964). Allen was an ornithological research associate at Cornell University who studied Abbot for many years. DeLoach was a former professor at South Georgia Teachers College (later Georgia Southern University) who was also interested in Abbot. DeLoach introduced Allen to local Bulloch County residents, including descendants of the Cones and McElveens. Also attending the meeting was William L. McElveen (1919-1994), who reviewed the history of the McElveen family.

Abbot's monument measures about 1.2 m (4 ft.) in height and incorporates the bronze bas-relief on a limestone headpiece (Fig. 6). Hunter (1957) described the original bas-relief (Fig. 1) as "a striking piece of sculpture" which "skillfully catches the spirit of the subject." Elsa Allen wrote the epitaph for the monument's inscription and presided over the unveiling. Because Abbot's actual gravesite in the cemetery is unknown, the monument can be defined as a cenotaph (Hunter 1957; Leibe 2003), as it commemorates someone who is buried elsewhere—though Abbot likely rests mere feet away.

In 1956, the Georgia Historical Commission created a state historical marker (GHM 016-2A), which was erected sometime after the unveiling of Abbot's monument (Hunter 1957). Although it was placed at the intersection of Arcola and McElveen Cemetery Roads, its inscription suggests that it was meant for another location. It states that the McElveen family cemetery is located "one-third of a mile northeast of this marker," yet the cemetery is situated nearly 0.5 mi (0.8 km) to the southeast. It is possible that the marker was intended for the intersection of McElveen Cemetery Road and the trail now known as McElveen Kendrick Pond Road. Yet even from that location the distance and direction to the cemetery are inaccurate. Curiously, there is no obvious roadside location that would precisely conform to the inscription.

Abbot's portraits. The bronze bas-relief on Abbot's memorial was derived from his self-portrait, but this is only part of the story. In reality, it is based on a popular chromolithographic reproduction of the portrait, which was published some eighty years after the original was rendered. Ten years ago, I wrote a brief account of Abbot's self-portrait and the later reproduction (Calhoun 2003). I subsequently examined the self-portrait in person at the Natural History Museum in London and incorporated some of my observations in Calhoun (2006). The original watercolor is quite small, measuring approximately 4.0 x 3.5 in (10.0 x 9.0 cm) (Fig. 4). It is bound into a volume of Abbot's drawings that were once owned by John Francillon, a London jeweler who served as Abbot's agent in selling his natural history specimens and drawings to European patrons. Allen (1954) described Francillon's activities as "buying Abbot's insects, birds, descriptions, and paintings for a pittance and selling them at a good profit for himself." Like other authors, I previously assumed that the inscriptions associated with these drawings were written by Abbot (Calhoun 2003). Upon closer inspection, however, I determined that they are in the hand of Francillon, who transcribed and edited Abbot's accompanying notes (Calhoun 2005). This allowed Francillon to maintain a standard format for these bound



Figs. 1-6. John Abbot's portrait and monument. 1. Original bronze bas-relief (courtesy Georgia Historical Society). 2. Tarnished bas-relief in 2006. 3. Chromolithograph portrait from Scudder (1888-1889). 4. Original watercolor self-portrait, ca. 1806-1810 (© Natural History Museum, London). 5. Illustration by W. H. Boan (Banks 1996). 5a. Clap-net in use (Anonymous 1839). 5b. Pencil sketch dubiously depicting Abbot (enhanced contrast). 5c. Bust of Abbot based on his self-portrait (J. Calhoun coll.). 6. Monument in 2006.

sets of drawings, which he exhibited to perspective customers.

The portrait is mounted behind a removable cover page with an oval cutout. An inscription by Francillon on the cover page reads, "John Abbot of Savannah. Georgia. America." Although Rogers-Price (1983, 1997) and Gilbert (1998, 2000) figured a portion of the self-portrait, these publications remain in limited circulation. Because few people are familiar with Abbot's visage as portrayed by the artist himself, I present the entire image in color for the first time (Fig. 4). A few years ago I commissioned a bust sculpture of Abbot based on this portrait (Calhoun 2006) (Fig. 5c).

In 1806, Abbot moved from Burke County, Georgia (where he had resided since 1776) to the vicinity of

Savannah, Chatham County, where he lived until 1813, when he moved to Jonesboro (Jonesborough) in Screven County. By late 1816 he had returned to Savannah and lived there for about two years before moving to Bullock County, where he spent the remainder of his life (Rogers-Price 1983). Based on this and other evidence, Abbot's self-portrait was probably rendered between 1806 and 1810, when he was 55-59 years old. The small dark spots on his painted face are due to discolored pigments. The slightly cartoonish character of the figure, described by Scudder (1888, 1889) as a "peculiar physiognomy," has raised doubts about it being a self-portrait. However, the general artistic style is consistent with that of Abbot and it is well known that many artists who are adept at natural history illustration cannot equally interpret a human likeness. The portrait was possibly sketched by an acquaintance and completed by

Abbot, but I have found no evidence of this.

In 1871, the American entomologist Samuel H. Scudder visited London where he examined Abbot's self-portrait. Because of Abbot's significance in America, Scudder employed the English natural history artist George Willis (1823-c.1885) to create a reproduction. Willis is best known for his Lepidoptera illustrations in Newman (1869, 1871). Scudder exhibited Willis' portrait of Abbot on 23 May 1873 at a meeting of the Boston Society of Natural History (Anonymous 1874). He later engaged the New York lithographic firm of Julius Bien & Co. to strike chromolithograph prints of this reproduction (Fig. 3). Abbot's image is the same small size as the original self-portrait. In 1887, Scudder sent one of these prints to Augustus Oemler, the son of Abbot's friend, Augustus G. Oemler.¹⁴ Scudder later issued prints to subscribers of his book, *The Butterflies of the Eastern United States and Canada* (Scudder 1888-1889), with the intention that the portrait would serve as the frontispiece of the first volume. The portrait was included in the fifth installment of Scudder's book, issued on 1 March 1888. Evidence suggests that the print given to Oemler is a copy now preserved at the Georgia Historical Society in Savannah. In addition to Abbot's portrait, George Willis also reproduced figures of butterfly early stages from the same set of Abbot's illustrations in London, many of which were figured on color plates in Scudder (1888-1889). Unfortunately, I have been unable to locate any of Willis' original drawings or letters among Scudder's manuscripts at MCZ or the Museum of Science, Boston.

A comparison of the original self-portrait with the reproduction reveals that the latter is not a "faithful copy" as Scudder (1889) claimed. Willis slightly altered the shape of the nose, mouth, chin, and other features. The color of Abbot's hair has gone from the graying black of an older gentleman to a more youthful sandy-blond. The original self-portrait is rarely seen, while the reproduction has been published numerous times. The latter has, by sheer repetition, come to personify Abbot. Some authors (e.g. Sparks 1985) have even figured the reproduction and erroneously claimed that it was painted by Abbot. Various details confirm that the bronze sculpture on Abbot's monument was derived from Willis' reproduction (Figs. 1-3).

In 1996, William H. (Billy) Boan rendered a fanciful portrayal of Abbot pursuing a large butterfly along the banks of a stream somewhere in eastern Georgia. Extrapolated from the chromolithograph portrait, the illustration was produced to accompany an article about Abbot's life in Bulloch County by the late historian Smith C. Banks (Banks 1996). Although the attire is outdated for his life in Bulloch County and the net is too

modern, this is the only known representation of Abbot that imagines him in the field doing what he loved. It is reproduced here with permission from the publisher (Fig. 5).

An Englishman who was born during the mid-18th century, Abbot surely collected Lepidoptera with a clap-net, which had come into general usage in Britain during the mid-1740s (Wilkinson 1978). It was based on "bat-fowling" or "batfolder" nets, which were used to trap birds at night. Unwieldy in appearance, the clap-net was 4-5 ft. (1.2-1.5 m) in length and constructed of a wide strip of gauze or muslin fastened between two curved or jointed poles. It was designed to be swept toward an insect while clapping the two poles together, thereby ensnaring the specimen (Fig. 5a). This type of net was described as "especially useful in a 'stern chase' with a strong-pinioned insect" (Anonymous 1873) and was also effective in trapping insects on the ground. Fellow Englishman Edward Newman (1835) considered the clap-net to be the "grand weapon of the entomologist." Wilkinson (1978) asserted that field collectors who were raised entirely in the use of the clap-net would consider it indispensable. Bag-nets, or ring-nets (butterfly nets as we know them today), are a continental European invention that didn't become common in England until the mid-19th century (Wilkinson 1966). In 1841, the Boston entomologist Thaddeus W. Harris alluded only to the bag-net in his book on the *Insects Injurious to Vegetation*, suggesting that it was preferred by pioneer American entomologists. This is supported by Peale (1833), who figured a bag-net in his *Lepidoptera Americana*. The overwhelming success of Harris' book, published in several editions over many years, undoubtedly contributed to this net's popularity in the New World. Because of Abbot's age and relative isolation, his collecting paraphernalia was probably old-fashioned.

A dubious sketch of Abbot. One other illustration is regarded as a self-portrait of Abbot, but I doubt this inference. Within a bound set of Abbot's drawings preserved at Emory University (Atlanta, Georgia) is a cartoonish sketch of a bearded gentleman with a frock coat, top hat, and shoulder bag (Fig. 5b). The figure is small and oriented horizontally on the front flyleaf of the volume. Abbot rendered these watercolors in 1827 and presented them to the Savannah cotton merchant Godfrey Barnsley (1805-1873). After comparing it against the chromolithograph portrait of Abbot, Baker (1959) proposed that the sketch is a self-portrait of Abbot with a "field collecting kit slung from his neck." Rogers (1978) agreed with this conclusion. This would represent the only known likeness of Abbot during his residence in Bulloch County. There is, however, no evidence to support this assumption. In fact, available

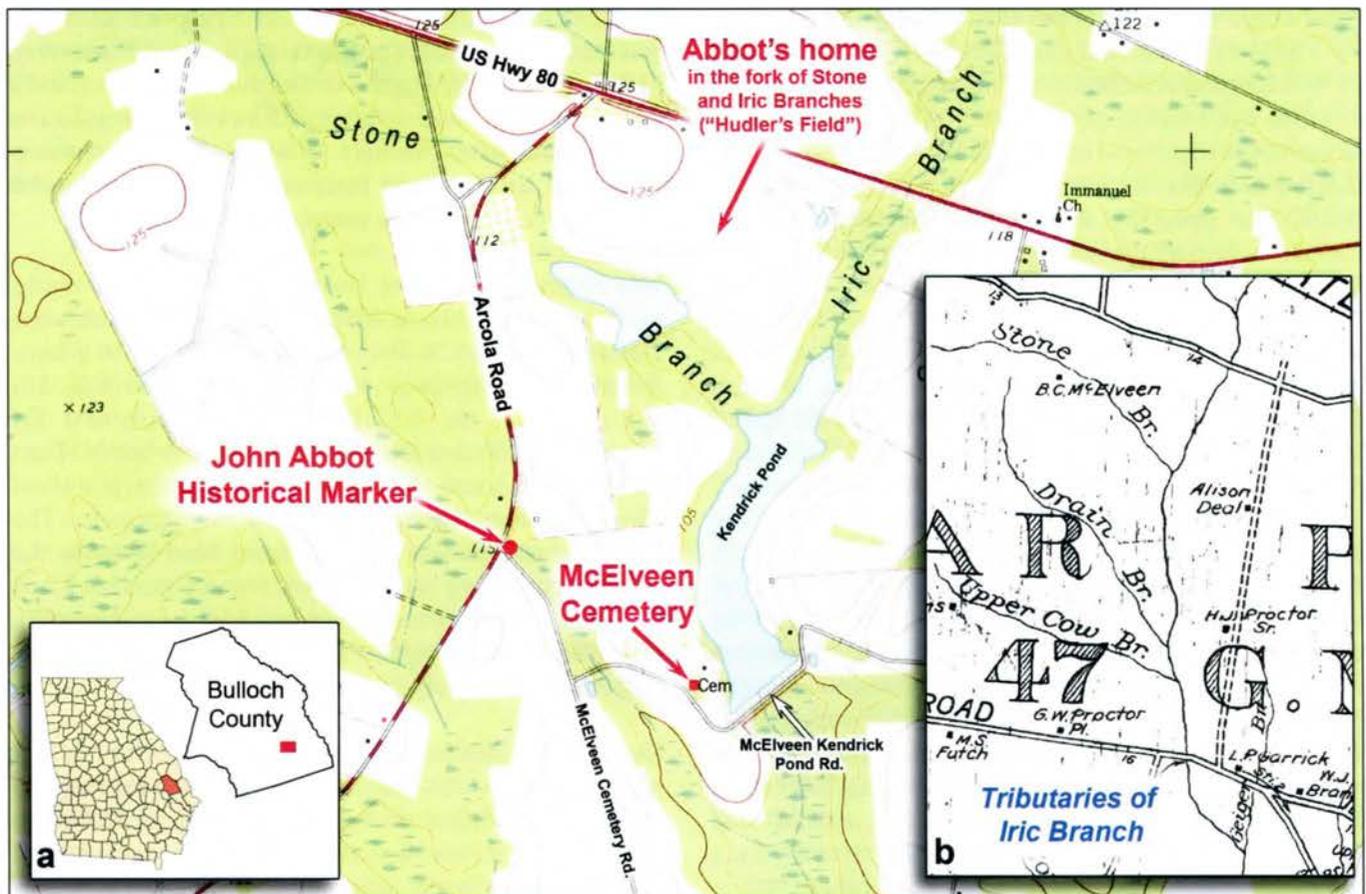


Fig. 7. Sites in Bulloch County associated with John Abbot. 7a. Location of Bulloch County within Georgia (red square is area covered on large map). 7b. Detail from Hudgins Co. (1909) showing tributaries of Iric Branch (courtesy Statesboro Regional Library).

evidence suggests otherwise.

In 1828, Abbot sold a very similar set of drawings to Barnsley's business partner, Samuel Wright (1793-1841) (Rogers 1978). This set (Atlanta History Center, Atlanta, Georgia) is bound in precisely the same manner as Barnsley's set: 19th century calf over olive green paper-covered boards, flat spine divided by four double gilt rules. Blank front and rear flyleaves are bound into both volumes (the Wright volume has one additional rear flyleaf). Abbot is not known to have offered bound sets of his drawings. The identical bindings and the close association of Barnsley and Wright imply that the volumes were bound at the same time after Wright purchased his set. If so, Abbot did not have possession of the bound volume in which to sketch the figure. In addition, the elderly Abbot was reportedly "very corpulent" by the early 1830s (see above), which does not agree with the slender figure in the sketch. It is an appealing notion to believe that Abbot would incorporate a self-portrait for his friend, but the crude nature of the sketch, as well as its small size and unorthodox placement on a flyleaf, suggest little more than a doodle by Barnsley or one of his children. Although it could be a parody of Abbot by another's hand, we will probably

never know the true identity of the bearded man or who sketched him.

Abbot's homestead. The site of Abbot's former home in "the fork of Stone and Iric Branches" has never before been mapped for publication. Even the late Estelle McElveen, who recently owned the property, did not know where Abbot resided (G. Fishman pers. comm.). This section of the McElveen property was mentioned in the will of America C. McElveen (1839-1905), the second wife of William McElveen. She described it as "the body of land lying to the south of the road, crossing Iric creek . . . and between Iric creek and Stoney branch" (Garland 1978). Stone Branch is not identified by name on any topographic map, but it is shown on an early 20th century map of Bulloch County (Hudgins Co. 1909) (Fig. 7b). It parallels the south side of present-day US Hwy 80, about 1 mi (1.6 km) south of Arcola. The southern portion of the stream was dammed during the 1950s to create a small reservoir. Stone Branch is a tributary of Iric Branch, which was named in honor of pioneer Adam Erick (Krakow 1975), thus explaining the alternate spellings of "Erick" or "Eyrick" in some old documents. The precise whereabouts of Abbot's cabin is lost to the ages, but it was reportedly nestled

somewhere within the broad fork of these streams (Fig. 7). The home of Barbour C. McElveen (1872-1949), son of William and America, was located on the south side of Stone Branch (Hudgins Co. 1909) (Fig. 7b). He lived closer to the main road than his father, whose home was located near the cemetery (Bassett 1938). William's house was gone by the 1930s (Bassett 1938) and Barbour's burned around the time of his death (Sparks [1983]).

The McElveen cemetery. After fathering 18 children with two wives over a period of three decades, William E. McElveen died in 1880 of liver disease at the age of 67 (1880 federal census mortality schedule). His large plantation was fragmented over the coming years, leaving only 167 ac (68 ha) today. Ownership of the plantation and family cemetery was handed down to the descendants of William McElveen's marriage with his second wife. During the early 20th century, the cemetery was owned by Barbour McElveen. It was most recently owned by Barbour's son, J. Talmage McElveen (1920-1996) and his wife, Estelle L. McElveen (1928-2013), who lived adjacent to the cemetery in a house that was constructed in 1950. Three years after Talmage's death, author Gail Fishman visited Estelle, who worried that vines and shrubs would soon take over the graves (Fishman 2000). For several years beginning in 2001, the cemetery was maintained by Janice D. Hendrix and her husband, George, who live in northern Georgia. Janice is a great-great granddaughter of W. E. McElveen and his first wife, S. E. ("Betsy") Wise (1812-1857).

My wife and I attempted to visit the McElveen cemetery on a very rainy spring day in 2003, but our directions were imprecise and the cemetery is not visible from the adjacent road. The erroneous directions on the Georgia state historical marker added to our confusion. With better directions from Janice Hendrix we had no trouble finding the cemetery in 2006. It is very small (about 0.05ac/0.02 ha in size) and contains only about a dozen graves, two of which are unmarked and lay outside the fence (Hendrix 2001). Two stones were recently added to recognize previous Bulloch County residents. No burials have taken place in the cemetery for over a century.

As we approached Abbot's monument in 2006, I was not surprised to see that the bronze bas-relief of Abbot no longer resembled its original splendor. It had become tarnished (Fig. 2) and oxidation had dripped onto the limestone headpiece, leaving a messy streak of green-tinted residue (Fig. 6). In 2010, an enthusiastic troop of Eagle Scouts, led by young Michael Deal (a relative of the McElveens), undertook the onerous task of cutting back vegetation, scrubbing Abbot's stained memorial, painting the iron fence around the cemetery,

straightening the historical marker along Arcola Road, and installing a small directional sign near the cemetery (Allen 2010). The figures of Durden & Mullen (2012) show the fruits of these labors. Since that time, Janice Hendrix has hired workers to help keep the cemetery clean, but its long-term maintenance will probably be entrusted to local family members.

The cemetery is easy to find (Fig. 7). From the north, turn south from Arcola Road (CR 582) onto McElveen Cemetery Road (CR 357) and travel 0.31 mi (0.5 km). Turn left onto McElveen Kendrick Pond Road (CR 358) and drive 0.21 mi (0.33 km) until you come to a dirt drive on the left that leads to the McElveen home. Turn into the drive and you will see the cemetery a short distance up on the right behind a row of trees. The cemetery can also be reached from Mud Road to the south by traveling north on McElveen Cemetery Road for 0.87 mi (1.4 km) until you reach McElveen Kendrick Pond Road on the right. The GPS coordinates of the cemetery are roughly 32.31802, -81.600834.

Despite the implied connection, the cemetery is not located along McElveen Cemetery Road. Old maps of the area reveal that the western portion of McElveen Kendrick Pond Road was originally a lane leading to the old McElveen home and cemetery. It received its current name after the creation of Kendrick Pond, a reservoir formed around 1960 when Iric Branch was dammed just east of the cemetery.

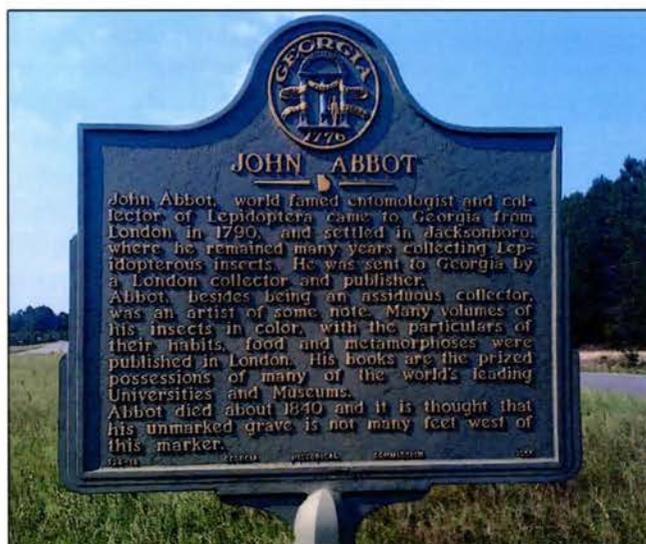


Fig. 8. Erroneous state historical marker in Screven County, Georgia.

An erroneous historical marker. It is not widely known that there is another Georgia historical marker commemorating Abbot. Erected by the Georgia Historical Commission in 1955, this marker (GHM 124-19) is located near the site of the former town of Jacksonboro in Screven County, in the median of US

301 at the intersection of SR 24, 5.5 mi (8.9 km) north of Sylvania (Fig. 8). The former county seat of Screven County, Jacksonboro was allegedly "cursed" by a traveling minister in 1830, thereby leading to the town's imminent demise (Krakow 1975). The inscription on this marker reads:

John Abbot, world famed entomologist and collector of Lepidoptera came to Georgia from London in 1790, and settled in Jacksonboro, where he remained many years collecting Lepidopterous insects. He was sent to Georgia by a London collector and publisher.

Abbot, besides being an assiduous collector, was an artist of some note. Many volumes of his insects in color, with the particulars of their habits, food and metamorphoses were published in London. His books are the prized possessions of many of the world's leading Universities and Museums.

Abbot died about 1840 and it is thought that his unmarked grave is not many feet west of this marker.

Little about this inscription is accurate, as it reflects an outdated biography of Abbot, including the belief that he lived for many decades in the vicinity of Jacksonboro (e.g., Christian 1948). In reality, he lived in Screven

County only about three years. Similar misconceptions about Abbot's life continued well into the late 20th century, even among local historians (e.g., Welch 1974). More recent research by Vivian Rogers-Price and the late Ronald S. Wilkinson greatly enhanced our understanding of Abbot's life (see Rogers-Price 1983, 1997; Wilkinson 1985). A few years ago I urged the State of Georgia to remove the erroneous historical marker, but to my knowledge it still stands, beckoning unsuspecting drivers to glance wistfully upon a barren road median of no relevance to Abbot whatsoever.

Acknowledgments. I thank Jan Hendrix and Gail Fishman for offering information about the McElveen family and cemetery, directly and indirectly. I owe a special debt of gratitude to Janice Strickland (Statesboro Regional Library, Statesboro, Georgia) for her invaluable assistance with literature and maps. Shenae H. Barkas (Georgia Historical Society library, Savannah) and Sharon Lee & Amanda Williams (Live Oak Public Library, Savannah, Georgia) also provided literature. Violetta Wolf (Museum of Science, Boston) and Robert Young (Ernst Mayr Library, Harvard Univ.) searched their holdings for historical letters. Finally, Jim Healy (Statesboro Herald, Statesboro, Georgia) granted permission to reproduce W. H. Boan's illustration of Abbot.

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1. Abbot to Stephen Elliott, 3 Aug. 1817, Gray Herbarium Archives, Harvard Univ.
2. Abbot to Heinrich Escher-Zollikofer, 1 May 1818, Kroch Library, Cornell Univ., CU.
3. Abbot to H. Escher-Zollikofer, 5 Dec. 1832, CU.
4. Abbot to William Swainson, 7 June 1819, Linnean Society of London; LSL.
5. Abbot to H. Escher-Zollikofer, 10 Nov. 1818, CU.
6. Abbot to W. Swainson, 15 Dec. 1819, LSL.
7. Abbot to H. Escher-Zollikofer, 5 Dec. 1832, CU.
8. Abbot to H. Escher-Zollikofer, 30 Nov. 1833, CU.
9. Abbot to H. Escher-Zollikofer, 12 Nov. 1836, CU.
10. John E. Le Conte to Thaddeus W. Harris, 13 July 1840, Ernst Mayr Library, Harvard Univ., MCZ.
11. Augustus G. Oemler to T. W. Harris, 27 April 1834, MCZ.
12. A. G. Oemler to T. W. Harris, 27 April 1834, MCZ.
13. A. G. Oemler to T. W. Harris, 14 March 1851, MCZ.
14. Augustus Oemler to Samuel H. Scudder, 5 Apr. 1887, Houghton Library, Harvard Univ.

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Charlie sends in the following Florida report from James:

James K. Adams provided the following moth records for a visit to the Mexico Beach area, Bay County, back in July 8-13, 2012:

PSYCHIDAE: *Cryptothelia gloveri*, *Oiketicus abbottii*. **COSSIDAE:** *Givera anna*. **LIMACODIDAE:** *Apoda rectilinea*, *Monoleuca rectifascia*, *Natada nasoni* (small, dark), *Parasa indetermina*, *Euclea delphinii*. **DREPANIDAE:** *Oreta rosea* (all orange form). **GEOMETRIDAE:** *Macaria varadaria*, *Digrammia sanfordi*, *Glena cognataria*, *Stenaspilatodes antidiscaria*, *Euchlaena madusaria*, *Nemoria outina*, *N. rubrifrontaria*, *Idaea ostentaria* (?), *I. taturata*, *Cyclophora culicaria*. **SATURNIIDAE:** *Anisota virginiensis* (pellucida), *Automeris io*, *Antheraea polyphemus*, *Actias luna*. **SPHINGIDAE:** *Lapara phaeobrachycera*, *Darapsa myron* (dark). **NOTODONTIDAE:** *Datana robustior*, *D. ranaeeps*, other *Datana* spp., *Heterocampa astarte*, *H. varia*, *Litodonta* sp. nov., *Hyparpax*

aurora. **EREBIDAE:** *Crambidia lithosoides*, *Virbia* sp. nov., *Prosoparia floridana*, *Hypenula cacuminalis*, *Hyperstrotia aetheria*, *Gabara* sp. 1, *Gabara* sp. 2, *Argyrostrotis sylvarum*, *A. deleta*, *A. erasa*, *A. quadrifilaris*, *Ptichodis vinculum*, *Epidromia* sp., *Pseudanthracia coracias*, *Zale* sp.1, *Zale* sp. 2, *Z. aeruginosa*, *Z. declarans*. **NOCTUIDAE:** *Acronicta longa*, *Harrismemna trisignata*, *Spragueia onagrus*, *Bagisara rectifascia*, *Eudryas unio*, and *Diphthera festiva*.

Barbara Woodmansee spent the beautiful day February 9, 2013, along Nature Drive at Lower Suwanee National Wildlife Area, Levy County, and recorded the following:

We had a 20 species day, which I thought was just fine for mid-February butterflies. The only surprise for the day was a very fresh white peacock. I guess they're really getting established here now. We also had 2 zebra heliconians in opposite parts of the Nature Drive - nice to see that they're getting along too. Everything else was to be expected - both black and yellow tiger SWTs, a black, zebra and a handful of palamedes swallowtails, many cloudless and 1 sleepy orange sulphur, a red-banded HS, many Carolina satyrs, both pearls and phaons, a fresh red admiral, 5 queens, a gorgeous question mark, 1 horaces and 1 juvenal's DW, 2 longtails and 3 clouded skippers and I'm 90% sure I saw 2 silver-spotted skippers flying in different places. Possibly a monarch, but I didn't count it because I only saw it from a distance.

Barbara Woodmansee also reported sighting the following butterflies at San Felasco Hammock State Park, Alachua County, on March 2, 2013: *Polites vibex*, *Papilio glaucus*, *P. palamedes*, *Limenitis arthemis astyanax*, *Polygonia interrogationis*, *Vanessa atalanta*, *V. virginiensis*, and *Hermeuptychia sosybius*.

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

The contributors include James Adams (JKA or no notation). Other contributors are spelled out with the appropriate 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 2013 unless otherwise specified.

Carbondale, I-75 exit 326, Whitfield Co., March 12:

NOCTUIDAE: *Feralia major*.

Forsyth, Monroe County (2246 Hwy. 42-South), Terry Johnson, Feb. 24:

ELACHISTIDAE: *Semioscopis merricella* (STATE).

Sapelo Island, McIntosh Co., John Hyatt (JH) and Lance Durden (LD): Some of the following are likely county records.

Aug 2012, LD:

TORTRICIDAE: *Sparganothis sulfureana*. **CRAMBIDAE:** *Diacme mopsalis*, *Omiodes indicata*, *Argyria auratella*. **PYRALIDAE:** *Tampa dimediatella*. **EREBIDAE:** *Neoplynes eudora* (STATE), *Virbia rubicundaria*, *Hypenula cacuminalis*, *Hemeroplanis habitalis*. **NOCTUIDAE:** *Eublemma minima*.

Sept. 2012, LD:

CRAMBIDAE: *Diacme mopsalis*, *Samea ecclesialis*, *Herpetogramma bipunctalis*. **PYRALIDAE:** *Dioryctria amatella*, *Melitara prodenialis*. **GEOMETRIDAE:** *Pimaphera sparsaria*, *Patalene olyzonaria*, *Idaea demissaria*, *Idaea taturata*, *Pleuroprucha insulsaria*, *Cyclophora myrtaria*. **EREBIDAE:** *Virbia rubicundaria*. **NOCTUIDAE:** *Condica concisa*.

Jan. 2012, LD:

GELECHIIDAE: *Dichomeris ligulella*. **CRAMBIDAE:** *Diacme elealis*, *Diacme adipaloides*, *Diacme mopsalis*, *Samea ecclesialis*, *Doncaula sordidella*. **GEOMETRIDAE:** *Macaria aemulataria*, *Macaria transitaria*, *Digrammia continuata*, *Pimaphera sparsaria*, *Iridopsis defectaria*, *Phigalia denticulata*, *Eutrapela clemataria*, *Patalene olyzonaria*, *Procherodes lineola*, *Synchlora frondaria*, *Cyclophora packardi*, *Cyclophora myrtaria*, *Scopula lautaria*, *Orthonama obstipata*, *Costaconvexa centrostrigaria*, *Eupithecia miserulata*. **SPHINGIDAE:** *Enyo lugubris*. **EREBIDAE:** *Cisthene subjecta*, *Schrankia macula*, *Zale lunata*, *Zale squamularis*, *Mocis latipes*, *Mocis disseverans*, *Doryodes bistrialis*. **NOCTUIDAE:** *Simyra insularis*.

Feb. 21/22, JH:

NYMPHALIDAE: *Heliconius charitonius*, *Vanessa atalanta*, *Euptychia sosybius*, *Danaus plexippus* (!).
PIERIDAE: *Phoebus sennae eubule*, *Eurema lisa*, *Abaeis nicippe*. **URODIDAE:** *Urodus parvula*.
LACTURIDAE: *Lactura pupula*. **GEOMETRIDAE:** *Marcaria distributaria*, *Digrammia continuata*,
Anavitrinella pampinaria, *Pimaphera sparsaria*, *Nacophora quernaria*, *Ceratomyx satanaria*, *Pero honestaria*,
Metarranthus obfirmaria, *Prochoerodes lineola*, *Eutrapela clemataria*, *Patalene olyzonaria*, *Synchlora frondaria*,
Hethemia pistasciaria, *Hydria prunivorata*. **LASIOCAMPIDAE:** *Phyllodesma occidentis*. **NOTODONTIDAE:**
Symmerista albifrons. **EREBIDAE:** *Spilosoma virginica*, *Melipotis jucunda*, *Zale lunata*, *Zale oblique*, *Zale declarans*,
Mocis marcida, *Cissusa spadix*, *Phoberia atomaris*. **NOCTUIDAE:** *Psaphida styracis*, *Condica videns*,
Xystopeplus rufago, *Sericaglaea signata*, *Egira alternans*, *Leucania linita*.

Glynn Co., house of Mike Chapman, Feb. 23-24, Mike Chapman:

The cherry laurel in my yard started blooming this weekend and attracted a few butterflies, among them the first Snout (*Libytheana carinenta*) I've seen in Glynn county and only the second in a coastal county. Also seen: **HESPERIIDAE:** *Urbanus proteus*, *Erynnis juvenalis*, *Polites vibex*. **PAPILIONIDAE:** *Papilio palamedes*. **PIERIDAE:** *Phoebis sennae eubule*. **LYCAENIDAE:** *Calycopis cecrops*, *Strymon melinus*. **NYMPHALIDAE:** *Vanessa atalanta*.

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Harry LeGrand sends in the following report: "**FALL BUTTERFLY RECORDS FOR NORTH CAROLINA – 2012**":

Place names refer to counties unless otherwise indicated, and records are not new county reports unless indicated. Records are all from September through November 2012. The excellent numbers and diversity of species from the summer continued into the fall. Unfortunately, the good handful of immigrants and strays reported from neighboring South Carolina during the fall months were not able to be found in North Carolina, other than *Zerena cesonia*. The highlight was the great proliferation of *Nathalis iole* in the eastern half of the Piedmont, absolutely unprecedented in the state.

PAPILIONIDAE:

Papilio cresphontes, 2 were seen in a year near Leicester in Buncombe on September 4 (Doug Johnston). There have been scattered sightings from this mountain county for a few years, suggesting several local breeding colonies, though most records are of individuals coming to nectar in yards and gardens. An almost certain migrant or stray was seen by Gene Schepker in his Winston-Salem yard in Forsyth on September 15.

PIERIDAE:

Pontia protodice, this strongly declining species was reported from Durham (Randy Emmitt, Dorothy Pugh), Macon (Jason Love), Mecklenburg (Kevin Metcalf), and Wake (Mike Turner); however, all sightings were of single individuals.

Zerene cesonia, the first state record in several years was one seen in flight at close range in Raleigh, Wake (COUNTY), on October 25 by Mike Turner.

Pyrisitia lisa, this species made a good showing across the entire state this summer into fall; the peak single day counts were 75 in Croatan National forest in Craven on September 28 (Randy Emmitt), 47 in Orange on September 15 (Emmitt), and 40 in Madison on September 7 (Gail Lankford).

Nathalis iole, this stray continued its unprecedented "march" eastward across the Piedmont, though it is not possible to know if individuals seen away from Winston-Salem (in Forsyth) originated from the huge colony at a waste treatment site there. A count of about 800 at this site on September 14 (Gene Schepker *et al.*) was absolutely stunning, as prior to 2012, the peak state count was just 6 individuals. Records were far too numerous to mention, though in addition to Forsyth it was seen in the Piedmont in Chatham (COUNTY), Durham (COUNTY), Halifax (COUNTY), Mecklenburg, Orange (COUNTY), Vance (COUNTY), and Wake (COUNTY); and in the mountains in Swain (COUNTY).

NYMPHALIDAE:

Agraulis vanillae, much more widespread and numerous than usual as fall, the species was found nearly statewide, with notable counts being 16 at Raleigh, where normally scarce, on September 12 (Mike Turner); and 200 at Fort Fisher in New Hanover on September 5 (Billy Weber).

Boloria bellona, very uncommon in the Piedmont were 3 seen in the foothills of Surry, by Gene Schepker on September 1.

Vanessa cardui, good to very good numbers continued all season, with 2012 representing the best year for the species in the state in over 20 years. The best single-day counts were 62 in Wake on September 8 (Mike Turner), In fact, it was one of the more numerous butterflies in some areas in November.

Danaus gilippus, the species was seen only at Fort Fisher (New Hanover), their only semi-consistent breeding locale in the state; the peak count was 13 on October 15 (Daniel Hueholt).

HESPERIIDAE:

Urbanus proteus, the species was widespread across the state, including in the lower mountains, during the fall, with the best count being a notable 125 in Brunswick on September 22 (Harry LeGrand).

Copaeodes minima, Mike Turner saw two near a flatrock on September 14 in eastern Wake; this likely represents a small colony at the northern edge of the range. One seen in a yard in Huntersville (Mecklenburg) on October 6 by Kevin Metcalf is also at the northern edge of the range.

Hesperia leonardus. Gail Lankford saw two individuals in Madison (**COUNTY**) on September 7; but (sadly) there was just one other report, from the Piedmont.

Polites vibex, an excellent count for an area near the northeastern edge of the range was 30 on mainland Dare on September 10 (Richard Stickney).

Poanes yehl, one seen at the N.C. Museum of Life and Science garden in Durham on September 1 (Tom Krakauer) was quite rare there and at the inner edge of the species' range, if it is even resident there.

Poanes viator, Mike Turner saw up to 7 individuals on several dates at a known site in Wake below Falls Lake dam, and two at a new site at Jordan Lake (Chatham) on September 28. The species is rare and at the inner edge of its range in these two counties.

Euphyes berryi, a count of 12 in mainland Dare on September 8, made by HL, Tom Stock, and Salman Abdulali, was a good tally, even though at a regular locale.

Euphyes maculata, though at a known site, a fresh individual photographed by Billy Weber in Craven on September 5 likely represented an adult from a "freak" third brood; the second brood typically ends by August 20, and this season was about 10-14 days advanced.

Oligoria maculata, one seen by Harry LeGrand just west of Lewiston Woodville in Bertie on September 13 extended the range farther northwestward by about 15 miles; LeGrand had made a first county record in Bertie in August.

Calpodus ethlius, adults of the species were seen much more often than usual in fall, being noted on 6 occasions, from the coast inland the Wake.

Megathymus yuccae, larval tent "sleuth" David Campbell found several of this species in Transylvania (**COUNTY**) during the season. This represents a first report for the species in the state's mountains, though *Yucca filamentosa* is not scarce in some counties in the province.

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

Ro Wauer sends in the following report: "**BUTTERFLIES RECORDED AT LICK CREEK PARK, BRAZOS CO., TEXAS, DURING 2012**"

I visited Lick Creek Park on 48 occasions during 2012, between January 5 and December 18, 4 times each in January, February, March, April, May, and October, 5 times in June, 2 times in July, November and December, 7 times in August, and 6 times in September. Each visit lasted 3 to 4 hours between 8:30am and 3pm; temperatures ranged from 65 to 90 degrees F. The following list was derived from those visits; the dates and (number) of species found are included. A few numbers are included in bold when those numbers represent significant highs, undoubtedly due to very recent emersions.

A grand total of 61 species were recorded during the 48 visits; I suspect that this list would have been larger during a "normal" summer period, but the area had not yet recovered from the severe drought of 2011. Five of the 61 species – **Mazans Scallopwing, Spicebush Swallowtail, Ceraunus Blue, Julia Heliconian, and Zebra Heliconian** - represent new species for Lick Creek Park.

The order of listing and scientific names are derived from Jonathan P. Pelham's "A Catalogue of the Butterflies of the United States and Canada" (2008).

FAMILY HESPERIIDAE:

- Northern Cloudywing (*Thorybes pylades*): Aug. 3(1); Aug. 14(3).
 Confused Cloudywing (*Thorybes confusus*): Aug. 24(1).
 Mazans Scallopwing (*Staphylus mazans*): Aug. 24(1); Aug. 31(1); Sept. 18(2); Sept. 27(1); Oct. 11(1).
 Juvenal's Duskywing (*Erynnis juvenalis*): Feb. 29(3); Mar. 6(1); Mar. 14(4); Mar. 23(1).
 Horace's Duskywing (*Erynnis horatius*): Feb. 23(3); Mar. 6(5); Mar. 14(6); Mar. 23(2); April 24(12); May 1(14); May 8(14); May 13(24); May 29(2); June 5(3); June 13(3); June 19(1); June 25(3); June 29(5); July 14(7); July 23(6); Aug. 3(4); Aug. 6(2); Aug. 14(3); Aug. 28(3); Aug. 31(1); Sept. 18(5); Sept. 24(5); Sept. 27(6); Oct. 4(4); Oct. 11(2); Oct. 22(1).
 Funereal Duskywing (*Erynnis funeralis*): Mar. 31(1); April 9(1); April 24(1); May 8(1); May 13(6); May 29(1); June 13(1); Aug. 31(1); Oct. 11(1).
 Wild Indigo Duskywing (*Erynnis baptisiae*): Mar. 6(1); Mar. 23(1).
 Common Checkered-Skipper (*Pyrgus communis*): Feb. 14(2); Feb. 23(5); Feb.29(8); Mar. 6(4); Mar. 14(4); Mar. 23(3); Mar. 31(3); April 4(1); April 9(6); April 24(8); May 1(10); May 8(5); May 13(10); May 29(10); June 5(5); June 13(4); June 19(2); June 25(12); June 29(15); July 14(4); July 23(1); Aug. 14(1); Aug. 21(2); Aug. 28(2); Aug. 31(1); Sept. 10(1); Oct. 4(1).
 Ocola Skipper (*Panoquina ocola*): Aug. 21(1); Sept. 18(1); Sept. 24(1); Sept. 27(1); Oct. 4(1); Oct. 22(1); Oct. 31(1); Nov. 5(2).
 Celia's Roadside-Skipper (*Amblyscirtes celia*): Mar. 31(1); April 4(1); April 24(1); May 29(1); June 5(2); June 13(1); June 19(4); June 25(1); June 29(1); July 14(1); July 23(10); Aug. 3(8); Aug. 6(25+); Aug. 14(3); Aug. 21(2); Aug. 24(3); Aug. 28(4); Aug. 31(2); Sept. 10(4); Sept. 18(20); Sept. 24(12); Oct. 4(2); Oct. 11(2).
 Bell's Roadside-Skipper (*Amblyscirtes belli*): Mar. 23(1); Mar. 31(1); July 23(1); Aug. 3(2); Aug. 14(2); Aug. 24(2); Aug. 28(1); Sept. 10(2).
 Eufala Skipper (*Lerodea eufala*): May 29(1); June 29(1); July 14(1); July 23(3); Aug. 21(1); Aug. 24(1); Sept. 10(1); Oct. 22(3); Oct. 31(4); Nov. 6(6).
 Clouded Skipper (*Lerema accius*): Mar. 23(2); Mar. 31(4); April 4(3); April 9(6); April 24(5); May 8(1); May 29(4); June 5(1); June 13(2); June 19(2); June 25(3); July 14(40+); July 23(4); Aug. 3(12); Aug. 6(12); Aug. 14(2); Aug. 21(3); Aug. 24(2); Aug. 28(8); Aug. 31(2); Sept. 10(6); Sept. 18(4); Sept. 24(8); Sept. 27(3); Oct. 4(20+); Oct. 11(18); Oct. 22(5); Oct. 31(4); Nov. 6(3); Nov. 28(3).
 Fiery Skipper (*Hylephila phyleus*): Mar. 6(1); Mar. 23(2); Mar. 31(3); April 4(2); May 1(3); May 13(3); June 19(1); July 14(1); Aug. 3(1); Sept. 18(1); Sept. 24(1); Nov. 6(1).
 Southern Broken-Dash (*Wallengrenia otho*): May 8(2); May 13(2); May 29(3); June 5(2); June 13(2); Aug. 21(1); Aug. 28(3); Aug. 31(1); Sept. 10(9); Sept. 18(12); Sept. 24(10); Sept. 27(22); Oct. 4(1); Oct. 11(3); Oct. 22(3).
 Northern Broken-Dash (*Wallengrenia egeremet*): May 29(1).
 Sachem (*Atalopedes campestris*): April 4(1); May 1(2); May 8(4); May 13(3); June 29(1); Sept. 18(1); Sept. 27(1).
 Dun Skipper (*Euphyes vestris*): Mar. 31(2); April 4(3); April 9(1); April 24(3); May 8(2); May 13(2); May 29(1); June 5(2); June 13(5); June 19(12); June 29(1); July 14(1); July 23(4); Aug. 3(6); Aug. 6(4); Aug. 14(3); Aug. 21(1); Aug. 24(3); Aug. 28(5); Aug. 31(6); Sept. 10(7); Sept. 18(12); Sept. 24(15); Sept. 27(10); Oct. 4(12); Oct. 11(9); Oct. 22(10); Oct. 31(1); Nov. 6(2).

FAMILY PAPILIONIDAE:

- Pipevine Swallowtail (*Battus philenor*): Feb. 9(1); Feb. 29(3); Mar. 6(9); Mar. 14(3); April 4(3); April 9(4); April 24(3); May 1(2); May 8(2); May 13(2); May 29(2); June 25(1); July 14(1); July 23(1); Aug. 6(2); Aug. 14(1); Aug. 31(1); Oct. 31(2); Nov. 6(1).

- Black Swallowtail (*Papilio polyxenes*): Feb. 23(4); Feb. 29(5); Mar. 6(10); Mar. 14(3); April 4(1); April 9(2); April 24(2); May 1(3); May 8(4); May 13(3); May 29(6); June 5(1); June 13(4); June 19(3); June 29(1); July 23(2); Aug. 3(1); Aug. 6(2); Aug. 31(1); Sept. 18(1); Sept. 27(1); Oct. 11(1); Nov. 6(1).
- Giant Swallowtail (*Papilio cresphontes*): Mar. 14(2); April 9(2); May 13(3); May 29(5); June 5(1); June 13(1); June 19(1); July 23(1); Aug. 3(1); Aug. 6(3); Aug. 14(6); Aug. 31(9); Sept. 10(5); Sept. 18(5); Sept. 24(2); Dec. 7(1).
- Eastern Tiger Swallowtail (*Papilio glaucus*): Mar. 6(1); April 24(1); May 8(1); Aug. 3(1); Aug. 6(2); Aug. 21(1); Sept. 10(1); Sept. 24(1); Sept. 27(1).
- Spicebush Swallowtail (*Papilio troilus*): July 23(1); Aug. 31(1).

FAMILY PIERIDAE:

- Dainty Sulphur (*Nathalis iole*): Jan. 5(7); Jan. 11(5); Jan. 20(4); Jan. 27(4); Feb. 9(1); Feb. 14(6); Feb. 23(9); Feb. 29(22); Mar. 6(12); Mar. 14(10); Mar. 23(8); Mar. 31(5); April 4(5); April 9(20+); April 24(14); May 1(12); May 8(40+); May 13(50+); May 29(25); June 5(6); June 13(1); June 19(1); June 25(2); June 29(3); July 23(1); Aug. 31(1); Oct. 4(2); Oct. 11(1); Oct. 22(4); Oct. 31(5); Nov. 6(22); Nov. 28(3); Dec. 7(1); Dec. 18(3).
- Sleepy Orange (*Abaeis nicippe*): Jan. 5(1); Feb. 14(1); Feb. 29(1); Mar. 6(3); May 13(3); June 13(1); Jan. 27(1); June 19(4); June 25(1); July 14(1); July 23(5); Aug. 3(5); Aug. 6(3); Aug. 14(3); Aug. 24(2); Aug. 28(4); Aug. 31(6); Sept. 10(2); Sept. 18(4); Sept. 24(3); Sept. 27(5); Oct. 4(5); Oct. 22(4); Oct. 31(1); Nov. 6(1); Dec. 7(8).
- Little Yellow (*Pyrisitia lisa*): Jan. 5(4); Jan. 27(1); Feb. 14(2); Feb. 23(3); Feb. 29(1); Mar. 6(2); Mar. 23(2); Mar. 31(4); April 1(1); April 9(2); April 24(6); May 1(18); May 8(8); May 13(12); May 29(8); June 5(10); June 13(8); June 19(20+); June 25(25+); June 29(30+); July 14(15); July 23(8); Aug. 3(8); Aug. 6(7); Aug. 14(6); Aug. 21(12); Aug. 24(12); Aug. 28(15); Aug. 31(12); Sept. 10(2); Sept. 18(3); Sept. 24(1); Sept. 27(2); Oct. 4(4); Oct. 11(3); Oct. 22(2); Oct. 31(4); Nov. 6(3); Dec. 7(6); Dec. 18(4).
- Orange Sulphur (*Colias eurytheme*): Jan. 27(1); Feb. 14(3); Feb. 23(4); Feb. 29(2); Mar. 6(3); Mar. 14(3); Mar. 23(10); Mar. 31(8); April 4(4); April 9(24); April 24(12); May 1(20); May 8(5); May 13(6); May 29(2); June 5(1); Nov. 28(2); Dec. 18(2).
- Cloudless Sulphur (*Phoebis sennae*): Feb. 23(1); Mar. 23(2); Mar. 31(3); April 4(1); April 9(2); April 24(1); May 1(5); May 13(5); May 29(3); June 5(8); June 13(10); June 19(5); June 25(8); June 29(15); July 14(12); July 23(20+); Aug. 3(10); Aug. 6(6); Aug. 14(5); Aug. 21(6); Aug. 24(6); Aug. 28(12); Aug. 31(15); Sept. 10(3); Sept. 18(5); Sept. 24(7); Sept. 27(4); Oct. 4(1); Oct. 11(8); Oct. 22(6); Oct. 31(9); Nov. 6(3); Dec. 7(1); Dec. 18(9).
- Large Orange Sulphur (*Phoebis agarithe*): April 4(1).
- Falcate Orangetip (*Anthocharis midea*): Feb. 14(3); Feb. 23(14); Feb. 29(14); Mar. 6(10); Mar. 14(4); Mar. 23(10); Mar. 31(1).
- Checkered White (*Pontia protodice*): Mar. 23(1); April 4(1); April 9(1); April 24(3); May 1(12); May 8(6); May 13(22); May 29(6); June 5(8); June 13(1); June 19(3).

FAMILY LYCAENIDAE:

- Great Purple Hairstreak (*Atlides halesus*): May 1(3); Oct. 11(1); Oct. 22(1).
- Northern Oak Hairstreak (*Satyrrium favonius ontario*): April 4(12); April 9(22); April 24(10); May 1(1).
- Soapberry Hairstreak (*Phaeostrymon alcestis*): April 24(1).
- Henry's Elfin (*Callophrys henrici*): Feb. 23(2); Feb. 29(2); Mar. 6(5); Mar. 14(2); Mar. 23(1).
- Red-banded Hairstreak (*Calycopis cecrops*): July 23(4); Aug. 3(9); Aug. 6(2); Aug. 14(1); Aug. 21(5); Aug. 24(8); Aug. 28(1); Aug. 31(3); Sept. 10(6); Sept. 18(20+); Sept. 24(15); Sept. 27(18); Oct. 4(20+); Oct. 11(14); Oct. 22(14); Oct. 31(20+); Nov. 6(15); Nov. 28(1).
- Dusky-blue Groundstreak (*Calycopis isobeon*): April 4(1); May 13(5); Aug. 3(1); Aug. 24(2); Sept. 10(1); Sept. 27(2).
- Gray Hairstreak (*Strymon melinus*): Feb. 14(1); Feb. 23(2); Feb. 29(2); Mar. 6(4); Mar. 14(3); April 4(4); April 9(2); April 24(15); May 1(18); May 8(5); May 13(20); May 29(18); June 5(12); June 13(4); June 19(3); June 25(2); June 29(3); July 14(8); July 23(1); Aug. 3(4); Aug. 14(2); Aug. 24(1); Aug. 28(1); Sept. 10(2); Sept. 24(1); Sept. 27(2); Oct. 4(6); Oct. 11(4); Oct. 22(6); Oct. 31(1); Nov. 6(12).
- Ceraunus Blue (*Hemiargus ceraunus*): Aug. 28(2); Sept. 27(1); Oct. 31(1).
- Reakirt's Blue (*Echinargus isola*): Mar. 23(1); April 9(2); May 1(1); May 8(5); Nov. 6(1).

FAMILY NYMPHALIDAE:

- American Snout (*Libytheana carinenta*): May 1(12); May 13(4); Aug. 28(1); Aug. 31(3); Sept. 10(1); Sept. 18(1); Oct. 4(1); Oct. 22(70+); Oct. 31(50+); Nov. 6(12); Nov. 28(8); Dec. 7(20+); Dec. 18(40+).
- Monarch (*Danaus plexippus*): Mar. 14(2); Mar. 23(6); Mar. 31(2); April 4(2); April 9(1); April 24(4); May 1(2); May 8(3); May 13(1); Sept. 10(1); Oct. 22(4).
- Queen (*Danaus gilippus*): April 24(2); May 13(1); Aug. 3(1); Aug. 31(2); Sept. 10(1); Sept. 18(3); Oct. 11(1); Oct. 22(20+); Oct. 31(15); Nov. 28(3); Dec. 7(2); Dec. 18(1).
- Gulf Fritillary (*Agraulis vanillae*): Jan. 11(2); Jan. 27(2); Feb. 14(4); Feb. 23(3); Mar. 6(5); Mar. 14(2); Mar. 23(2); April 4(1); April 9(3); April 24(7); May 1(6); May 8(7); May 13(8); May 29(6); June 5(4); June 13(6); June 19(12); June 25(12); June 29(20); July 14(25); July 23(25+); Aug. 3(40+); Aug. 6(40+); Aug. 14(22); Aug. 21(15); Aug. 24(11); Aug. 28(22); Aug. 31(26); Sept. 10(22); Sept. 18(18); Sept. 24(10); Sept. 27(12); Oct. 4(15); Oct. 11(10); Oct. 22(20); Oct. 31(22); Nov. 6(14); Nov. 28(6); Dec. 7(9); Dec. 18(10).
- Julia Heliconian (*Dryas iulia*): Sept. 10(1); Sept. 27(1); Oct. 11(1).
- Zebra Heliconian (*Heliconius charithonia*): Aug. 31(1); Sept. 24(1).
- Variegated Fritillary (*Euptoieta claudia*): Jan. 27(2); Feb. 23(4); Feb. 29(10); Mar. 6(12); Mar. 23(10); Mar. 31(1); April 4(5); April 24(60+); May 1(24); May 8(30+); May 13(27); May 29(5); June 5(9); June 13(3); June 19(2); June 25(2); June 29(2); July 14(2); Aug. 6(1); Aug. 21(2); Oct. 22(1); Nov. 6(1); Nov. 28(2).
- Hackberry Emperor (*Asterocampa celtis*): Mar. 31(2); April 9(2); April 24(7); May 1(6); May 8(8); May 13(5); May 29(1); July 23(2); Aug. 3(4); Aug. 31(3); Sept. 10(3); Sept. 18(2); Sept. 24(1); Sept. 27(4); Oct. 4(2); Oct. 11(2); Oct. 22(2).
- Tawny Emperor (*Asterocampa clyton*): May (1); Oct. 31(1).
- American Lady (*Vanessa virginiensis*): Feb. 29(2); Mar. 6(2); Mar. 14(1); Mar. 14(9); Mar. 23(2); Mar. 31(4); April 4(3); April 9(5); April 24(4); May 1(8); May 8(4); May 13(22); June 25(3); Aug. 6(1); Aug. 14(1); Nov. 28(1).
- Painted Lady (*Vanessa cardui*): Feb. 23(1); Mar. 14(1); April 24(1); May 1(1); May 13(2); Nov. 6(1); Dec. 18(1).
- Red Admiral (*Vanessa atalanta*): Jan. 5(2); Jan. 11(2); Feb. 9(1); Feb. 23(3); Feb. 29(4); Mar. 23(8); Mar. 31(5); April 4(2); April 9(2); April 24(4); May 1(2); May 13(2); Aug. 31(1); Oct. 11(1); Nov. 6(1); Dec. 7(1); Dec. 18(1).
- Mourning Cloak (*Nymphalis antiopa*): Mar. 6(2).
- Question Mark (*Polygonia interrogationis*): Jan. 27(2); Feb. 23(3); Feb. 29(3); Mar. 6(1); Mar. 14(4); Mar. 23(4); Mar. 31(200+); April 4(150+); April 9(200+); April 24(50+); May 1(18); May 8(30+); May 13(70+); May 29(12); June 5(5); June 13(4); June 19(3); June 25(3); June 29(1); July 14(1); July 23(4); Aug. 3(6); Aug. 6(1); Aug. 14(5); Aug. 21(1); Aug. 24(2); Aug. 28(1); Aug. 31(3); Sept. 10(3); Sept. 18(2); Nov. 6(1); Nov. 28(1).
- Common Buckeye (*Junonia coenia*): Jan. 11(1); Jan. 20(1); Jan. 27(2); Feb. 9(2); Feb. 14(2); Feb. 23(3); Feb. 29(5); Mar. 6(16); Mar. 14(3); Mar. 23(12); Mar. 31(6); April 4(8); April 9(16); April 24(25); May 1(8); May 8(15); May 13(50+); May 29(30); June 5(7); June 13(5); June 19(4); June 25(5); June 29(8); July 14(12); July 23(8); Aug. 3(4); Aug. 6(1); Aug. 14(3); Aug. 21(3); Aug. 28(3); Sept. 18(2); Sept. 24(1); Sept. 27(1); Oct. 4(1); Oct. 11(2); Oct. 22(2); Oct. 31(4); Nov. 6(6); Nov. 28(24); Dec. 7(30+); Dec. 18(30+).
- Silvery Checkerspot (*Chloysne nycteis*): Mar. 6(1); Mar. 23(4); Mar. 31(9); April 4(2); May 1(3); May 8(1); May 13(40+); May 29(8); June 13(2); June 19(10); June 25(4); June 29(7); July 14(5); July 23(10); Aug. 3(6); Aug. 6(12); Aug. 14(8); Aug. 21(4); Aug. 24(2); Aug. 28(2); Aug. 31(4); Sept. 10(12); Sept. 18(9); Sept. 24(9); Sept. 27(10); Oct. 4(24); Oct. 11(4); Oct. 31(3); Nov. 6(1).
- Bordered Patch (*Chloysne lacinia*): Sept. 24(1).
- Phaon Crescent (*Phycoides phaon*): Mar. 23(2); April 24(2); May 1(1); May 8(1); May 13(2); May 29(3); June 19(1); July 14(2); July 23(2); Aug. 6(3); Aug. 14(2); Nov. 28(1).
- Pearl Crescent (*Phycoides tharos*): May 1(2); June 19(3); June 25(2); June 29(4); July 14(10); July 23(12); Aug. 3(30+); Aug. 6(25+); Aug. 14(6); Aug. 21(7); Aug. 24(10); Aug. 28(6); Aug. 31(20); Sept. 10(3); Sept. 18(7); Sept. 27(13); Oct. 4(5); Oct. 11(12); Oct. 22(15); Oct. 31(12); Nov. 6(16); Dec. 7(1).
- Goatweed Leafwing (*Anaea andria*): Mar. 6(2); July 14(5); Aug. 3(1); Aug. 28(2); Aug. 31(2); Sept. 10(2); Sept. 18(2); Sept. 27(1); Nov. 6(7); Nov. 3).
- Little Wood Satyr (*Megisto cymela*): Mar. 31(5); April 4(5); April 9(2); April 24(2).

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