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J. BARRY LOMBARDINI: EDITOR

MICRATHETIS TRIPLEX (WALKER, 1857) (LEPIDOPTERA: NOCTUIDAE) IN LOUISIANA

BY

VERNON ANTOINE BROU JR.

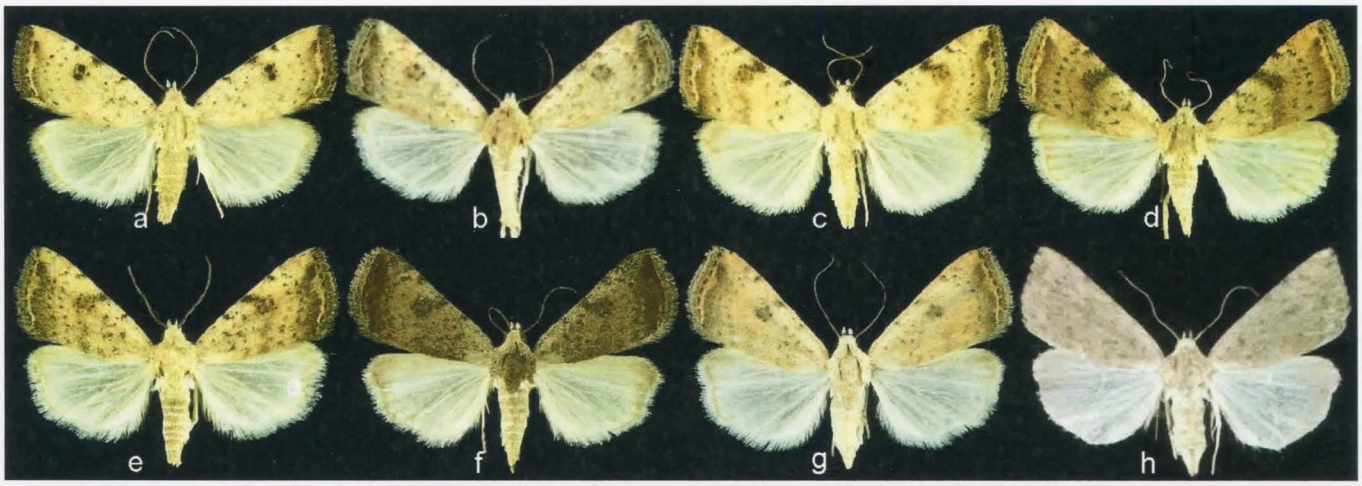

Fig. 1. ***Micrathetis triplex*** phenotype variations: a-d. males, e-h. females.

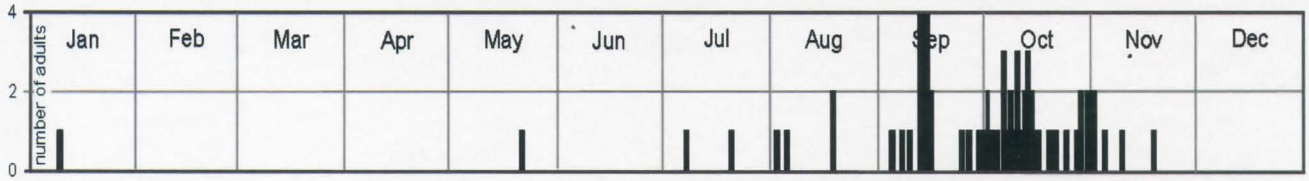

Fig. 2. Adult ***M. triplex*** captured in Louisiana. n = 107

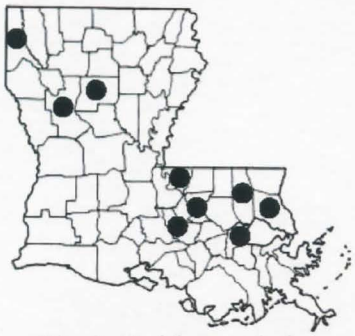

Fig. 3. Parish records for ***M. triplex***.

The small noctuid moth ***Micrathetis triplex*** (Walker, 1857) (Fig.1) was described from a single male from Honduras (Type locality). The Holotype specimen is located in the Natural History Museum (BMNH), London. The colors and maculations of the forewings in the original description were based upon a single specimen in a species we now know has numerous differently appearing phenotypes. Consequently, the 1857 description is quite limited in its relevance for a species that can be very variable in these characteristics. Though the hindwings of most specimens appear somewhat uniform, semi translucent in color, with few specimens exhibiting feeble areas of light brown scales occasionally along outer wing margins, or immaculate. In 1857, this species was originally described as *Lampyga triplex* Walker.

The range of ***triplex*** in the New World includes Florida to California, most often in southern states and areas of the U.S, and further south through Mexico, the Antilles, Central America, and well into South America. Heppner (2003) listed the range of ***triplex*** to include Florida to Texas, West Indies, Mexico, and Central America, and dates in all months. This species was not covered by Covell (1984), nor Powell and Opler (2009). There are many publications available on ***triplex***, but I noted only two larval food plants mentioned, one being species of sweet potatoes, and numerous references mentioning feeding upon species of avocados. About 20% of annual US production of sweet potatoes is grown in Louisiana.

The phenology impression of ***triplex*** in Louisiana indicates this species is a typical fall visitor, the adult populations peaking during the months of September and October (Fig. 2). The parish records in Louisiana are illustrated in Fig. 3.

Literature Cited

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

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

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

Walker, 1857. List of the Specimens of Lepidopterous Insects in the Collection of the British Museum, *Lamphyga triplex* 11:721.

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

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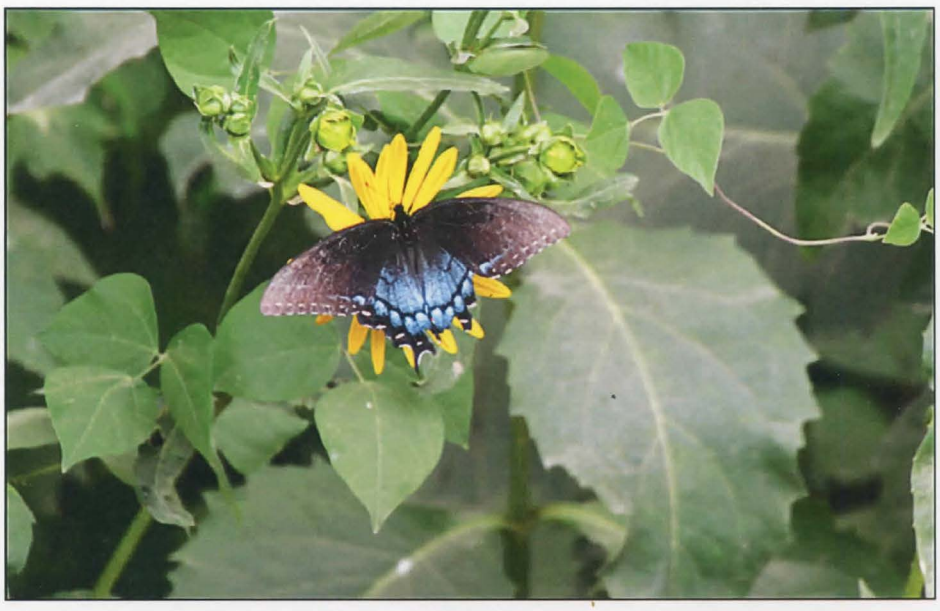

***Papilio glaucus*, female, nectaring on *Silphium perfoliatum*, (August, 2016) in the Ozark National Forest along Cove Creek Road, Crawford County, Arkansas (Photo by David Rupe)..**

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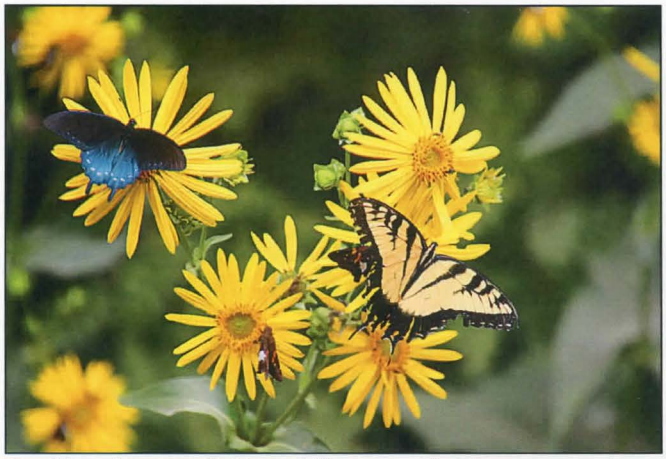
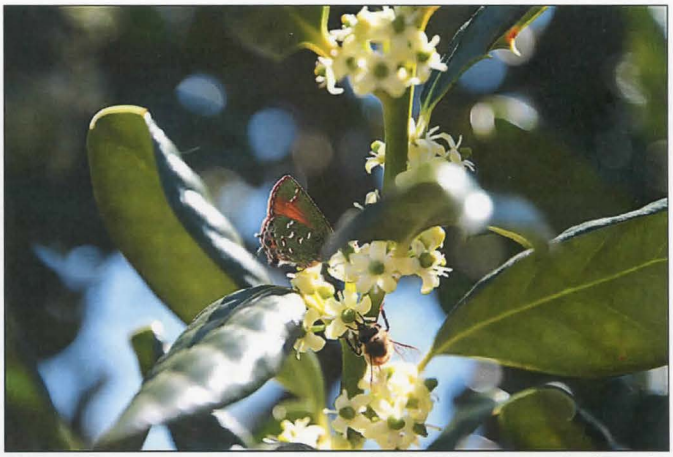


***Papilio glaucus, Battus philenor*, and *Epargyreus clarus* nectaring on *Silphium perfoliatum*, (August 2016) in the Ozark National Forest along Cove Creek Road, Crawford County, Arkansas (Photo by David Rupe).**



***Callophyrs gyrneus*, taken in April 2017 in the yard of David Rupe (Prairie Grove, Arkansas) (Photo by David Rupe).**

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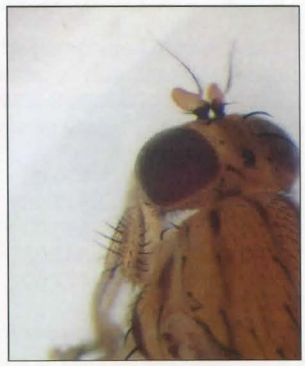
ERRATUM

In the article published in the March (2017) issue of the SLS NEWS (Volume 39 no.1), on page 45, there unfortunately is a misspelling of the genus name of the fly.

UNEXPECTED DISCOVERY WHILE COLLECTING MICRO LEPIDOPTERA BY UV TRAP "A VERY PRETTY LAUXANIIDAE, NAMELY A MALE *POECOLIMINETTA PICTICORNIS*"
BY
F. MATTHEW BLAINE

Poecoliminetta should be spelled ***Poecilominettia.*** Sorry for this error. [The Editor]

In addition, presented here are additional photos of *Poecilominettia picticornis*. (The photos were taken by **Ruud van der Weele**.)



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A LEPIDOPTERA BIODIVERSITY BLITZ AT THE NATURE CONSERVANCY'S SPLINTER HILL BOG PRESERVE IN BALDWIN COUNTY, ALABAMA

BY

HUGO L. KONS, JR. (HLK)[1], ROBERT J. BORTH (RJB)[2], JAMES T. VARGO (JTV)[3], LANCE A. DURDEN (LAD)[4], AND JEFFREY R. SLOTTEN (JRS)[5]

Abstract

We present the results of a Lepidoptera biodiversity blitz conducted at the Nature Conservancy's Splinter Hill Bog Preserve in Baldwin County, Alabama, from 26 April through 1 May 2016. Four hundred fifty-five species were collected, including 334 Macrolepidoptera species. Habitats sampled include pitcher plant seepage bog, hydric to xeric longleaf pine savanna, hardwood swamp along a small creek, shrubby wetland, and xeric oak-pine forest. Species accounts and/or images are provided for selected species representing notable records, habitat specialists, and/or members of species complexes with problematic taxonomy.

Introduction

The Nature Conservancy's Splinter Hill Bog Preserve is located on the Southeastern Coastal Plain at the headwaters of the Perdido River in Baldwin County, Alabama, just north of the northwest border of the Florida Panhandle. The Preserve contains seepage bog communities, hydric to xeric longleaf pine savanna, sandhill with longleaf pine savanna or woodland, and hardwood swamps and shrubby wetlands along Dyas Creek. The Preserve contains five species of pitcher plants, including some of the largest white-topped pitcher plant bogs in the world (nature.org 2016).

The Nature Conservancy's mission is "to conserve the lands and waters on which all life depends" (The Nature Conservancy 2016). Insect collecting for biodiversity inventories is a crucial aspect of this mission, since insects comprise a large portion of animal biodiversity, and there will be no way to evaluate if a large portion of the fauna of ecosystems are being conserved in the future without a historical baseline of authoritatively determined and vouchered records of the insect species they contain. Techniques such as collecting at MV or UV lighted sheets, UV light traps, rotten fruit baited traps, and netting specimens are not used to control insect populations as they are ineffective for this purpose, but they are very useful for detecting what is present, making them ideal for biodiversity inventories on conservation lands. Near-thorough inventories even limited to Macrolepidoptera species are extremely difficult to obtain and require years of effort throughout the season; however, faunal samples of several hundred species can sometimes be obtained during short biodiversity blitzes conducted by skilled collectors in diverse habitats under favorable weather conditions. Nature Conservancy lands have been the sites of several recent biodiversity blitzes in the southeastern United States, including the Apalachicola Bluffs and Ravines Preserve in north central Florida (Kons and Borth 2006) and the Roy E. Larsen Sandyland Sanctuary in East Texas (Bordelon and Knudson 1999, Kons and Borth 2009).

Splinter Hill Bog Preserve was the site of a Southern Lepidopterists' Society field trip from 26 April to 1 May 2016. During this interval we conducted a Lepidoptera biodiversity blitz, attempting to document as many Lepidoptera species as possible. The results are presented herein.

Materials and Methods

Lepidoptera surveys were conducted with MV/UV sheets (Figure 2:A), UV light traps (Figure 2:D), bait traps (Figure 2:F), and by netting specimens during the day. Details on the dates, locations, and habitats present at survey stations are presented in Table 1 and Figure 1. Overall, the vast majority of effort was devoted to surveying the much more diverse nocturnal fauna. **[Figures, Legends, Tables start on pgs. 120, 127, 129.]**

Some MV/UV light and all bait trap survey stations were run all night at a single location, and all Macrolepidoptera species encountered were documented. These are designated with an "*" in Table 1, and include two MV sheet samples (illuminated by a 400-watt MV light and 15-watt UV light and monitored throughout the night), eight UV trap samples, and eleven bait trap samples. UV traps at sites 1-4 (see Table 1) were the design shown in Figure 2:D and in more detail in Kons and Borth (2007a), whereas the traps at sites 5-6 were the design available from Leroy Koehn shown at http://www.leptraps.com/lighttraps.htm. All bait traps were the type H design shown in Figure 2:F and in more detail in Kons and Borth (2007a).

Genitalic dissections and vesica eversions were conducted by HLK for exemplar males of certain species to make or confirm identifications, including *Thorybes*

confusis, Thorybes pylades, Erynnis baptisiae, Pyrgus communis, Hypomecis sp. 1, *Lytrosis sinuosa, Nemoria elfa,* "*Litodonta*" new sp., *Metalectra albilinea, Dysgonia telma, Doryodes bistrialis, Virbia opella, Virbia* sp. 1, *Virbia* sp. 2, and *Leucania* sp. Abdominal cuticles were dissected for exemplar males of *Euagrotis lubricans* complex species 2 and 3. The dissection/ vesica eversion procedure is as described in Kons and Borth (2015).

The data set includes specimens determined by each author, but examples of all Macrolepidoptera species recorded were examined by HLK. "Microlepidoptera" species for the families not included in Kons and Borth (2006) were identified by JTV and/or LAD. Survey stations that include inventories of all of the "microlepidoptera" families are designated "#" in Table 1. All species recorded are based on at least one voucher specimen for each unique record. Voucher specimens are currently retained in the personal collections of the authors in support of our ongoing research activities.

Results

Four hundred fifty-five Lepidoptera species were recorded from Splinter Hill Bog Preserve between 26 April and 1 May 2016. A checklist and survey data for the 334 Macrolepidoptera species recorded is presented in Table 2, whereas the same is presented for 121 "microlepidoptera" species in Table 3. Table 4 presents the survey data for individual bait traps, whereas all MV sheet, UV trap, and diurnal records are included in Tables 2-3. The tables include the Hodges et al. (1983) MONA number which serves as a citation for the author and year of description.

Exemplar voucher specimens for 57 of the species recorded are shown in Figures 3-4. Species were selected for inclusion in the figures based on one or more of the following criteria: poorly-known, problematic species-level nomenclature, habitat specialist, localized occurrence, or frequently misidentified. These species are addressed in more detail in the discussion.

Structural characters of the male genitalia or antennae are presented for eleven of the species recorded from Splinter Hill in Figures 5-7. These species were selected either because structural characters are needed for reliable determinations (*Thorybes confusis, T. pylades, Erynnis baptisiae, Nemoria elfa, Dysgonia telma, Doryodes bistrialis*) or species-level nomenclature is problematic ("*Litodonta*" sp., *Virbia opella, Virbia* sp. 1, *Virbia* sp. 2, *Leucania* sp.). All images of structural characters are the natural three-dimensional shape (not slide-mounted) except when otherwise noted in the figure captions.

The classification used for the checklists in Tables 2-3 follows the philosophy that classifications should reflect natural (i.e., monophyletic) groupings to the extent possible by current evidence, but that nomenclatural stability should be maintained to the extent possible, such that only changes necessary to correct errors are adopted. For example, former families Lymantriidae and Arctiidae are actually lineages within Noctuidae and thus downranked to subfamilies, but valid concepts of Noctuidae and Pyralidae are not subdivided into smaller families. The order of the Hodges et al. (1983) checklist is followed as closely as possible while incorporating changes supported by evidence from recent phylogenetic studies, such as Mitchell et al. (2006) and Zahiri et al. (2011, 2012a, 2012b, and 2013). Changes to the noctuid subfamily concepts follow the references cited for each southeastern genus and subfamily in Appendix A of the 2016 version of the Kons and Borth checklist of the Macrolepidoptera of northern Florida (Kons and Borth 2016).

Discussion

Habitat Dependency: Kons and Borth (2006) present habitat-dependency hypotheses for many of the resident Macrolepidoptera species that occur in northern Florida (Table 4), based largely on an analysis comparing checklists for 47 survey localities that have information on what habitats occurred in the area. With subsequent collecting, a few species have been found to be less particular in habitat than suggested by the 2006 analysis. Species hypothesized to be residents of numerous different habitat types were designated "generalists." Species which appear to be somewhat localized but not restricted to a particular type of habitat were designated "intermedialists," and species hypothesized to be dependent on a particular type of habitat were designated "specialists." Habitat specialists may be widespread species if the habitat they depend on is widespread.

Habitat Generalists: For the sample of 334 Macrolepidoptera species recorded from Splinter Hill, 259 (77.5%) are hypothesized to be generalists. Kons and Borth (2006) reported that the majority of species recorded from all localities analyzed were generalists, with a range of 68.5%-95.0% and mean of 82.7% for 24 North Florida localities where 119-642 Macrolepidoptera species were recorded. The above-average portion of non-generalists for Splinter Hill is likely due to the variety of different specialized habitat types that occur in the study area. The portion of non-generalists recorded from Splinter Hill would be expected to increase with additional surveys conducted at other times of the year, since numerous habitat specialists are univoltine and would not be present as adults during the time of our biodiversity blitz (Kons and Borth 2006). The 259 generalist Macrolepidoptera species are those not listed

below, and nearly all are also designated as generalists in Kons and Borth (2006).

Somewhat localized species not restricted to a specific habitat type: Nineteen of the species recorded from Splinter Hill appear to be somewhat localized in occurrence but not particular to a specific type of habitat in northern Florida ("intermedialists" sensu Kons and Borth (2006)). These include: *Erynnis baptisiae, Calephilis virginiensis, Glena cognataria, Lytrosis sinuosa, Euchlaena madusaria* sp. 2, *Idaea eremiata, Cyclophora packardi, Dolba hyloeus, Pagara simplex, Renia factiosalis, Renia sobrialis, Phytometria* sp. A, *Ptichodis bistrigata, Argyrostrotis quadrifilaris, Doryodes bistrialis, Paectes pygmaea, Hyperstrotia villificans, Crambodes talidiformis, Comochara cadburyi,* and *Morrisonia triangula.*

Wetland Specialists: Twenty-five wetland Macrolepidoptera species hypothesized to be wetland-dependent were recorded, including: *Neonympha areolata, Metarranthis lateritiaria, Iridopsis pergracilis, Lychnosea intermicata* (not wetland-dependent farther west), *Nematocampa baggettaria, Nemoria elfa, Idaea* near *celtima*, *Scopula purata, Cyclophora culicaria, "Litodonta"* new sp., *Virbia* sp. 2, *Dysgonia similis, Dysgonia consobrina, Dysgonia telma, Argyrostrotis erasa, Argyrostrotis deleta, Cutina albopunctella* complex sp. 1, *Nola clethrae, Nola* nr. *pustulata, Exyra semicrocea, Bagisara brouana, Acronicta sinescripta, Acronicta insularis* complex sp. A, *Fagitana littera,* and *Euagrotis lubricans* sp. 2. Some of these species are dependent on particular types of wetlands. *Iridopsis pergracilis* and *Cutina albopunctella* are usually found in cypress wetlands (small numbers have been found in other habitats, probably dispersers). We did not see *Taxodium* (cypress) in the immediate vicinity of our survey stations, but Brent Shaver (pers. comm. 2016) reports that both *T. distichum* and *T. ascendens* occur in the Preserve. *Hypomecis* sp. 1 and *Dysgonia telma* may be particular to hydric hardwood forest.

Kons and Borth (2006) identified six Macrolepidoptera species as candidates for herb bog (=pitcher plant bog) dependency in northern Florida: *Scopula purata, Gabara distema, Exyra fax, Exyra semicrocea, Exyra ridingsii,* and possibly *Acronicta sinescripta.* Two additional candidates are *Virbia* species 2 and *Papaipema appassionata.* Four of these were recorded from Splinter Hill: *Scopula purata, Virbia* species 2, *Exyra semicrocea,* and *Acronicta sinescripta.* These are treated in more detail in the species accounts below. Adults of *Gabara distema* and *Papaipema appassionata* would not be expected during late April. The other two *Exyra* species may not be present at Splinter Hill. In Florida we have found *Exyra ridingsii* only in bogs with plentiful *Sarracenia flava,* and *Exyra fax* in bogs with plentiful *Sarracenia "rosea".* These *Sarracenia* species at Splinter Hill do not appear to be plentiful in the vicinity of our survey stations.

Hardwood Forest/Cane Habitat Specialists: At Splinter Hill, hardwood forest dependent species are associated with the hardwood swamp along Dyas Creek, although individuals of some species were found dispersing to other habitats. Sixteen Macrolepidoptera species were recorded that appear to be dependent on hardwood forest habitats in northern Florida, including *Poanes zabulon, Celastrina ladon, Cyllopsis gemma* (also in coastal palm-juniper-oak woodlands), *Enodia portlandia, Ectropis crepuscularia, Hypomecis* species 1, *Callosamia angulifera, Laothoe juglandis, Zanclognatha atrilineella, Metalectra geminicincta, Arugisa watsoni, Plusiodonta compressipalpis, Zale galbanata, Dysgonia telma, Anorthodes tarda,* and *Balsa labecula.* The number of species dependent on the hardwood swamp along Dyas Creek among the habitats present within Splinter Hill is probably much higher. The greatest diversity of species was found in this habitat among the areas we sampled, although this may be in part due to weather conditions, and we did not obtain MV sheet samples from any of the xeric uplands.

Arundinaria (cane) habitats are usually associated with hardwood forest habitats and are of special significance to Lepidoptera, as a number of species are thought to use *Arundinaria* exclusively for their larval host (Schweitzer et al. (2011) via Eric Quinter), and other less-specialized species use it as a host as well (JRS). Eric Quinter has studied the canebrake fauna extensively and reared a number of these species (see Schweitzer et al. (2011)). *Arundinaria* often grows along the edges of hardwood forests or along roads and trails through hardwood forest, but at some sites it occurs in the interior of hardwood forests. Sites where *Arundinaria* occurs exclusively in more-open areas lacking hardwood forest are poorly investigated for Lepidoptera in northern Florida to our knowledge. At Splinter Hill the *Arundinaria* we located in our survey area is concentrated in the vicinity of MV sheet site 2, and grows along the edges of the hardwood swamp, in openings within the hardwoods, and in wet longleaf pine savanna next to the edge of the hardwood swamp. North Florida species that are likely host specialists on *Arundinaria* include (*=reared from *Arundinaria* in Florida by one or more of the authors): **Crocidophora pustuliferalis* (HLK), **Amblyscirtes aesculapius* (HLK, JRS), **Amblyscirtes reversa* (Marc Minno, JRS), *Poanes yehl* (Scott 1986), **Enodia portlandia* (HLK), *Argillophora furcilla* (Schweitzer et al. 2011), *Protapamea danieli* (Quinter in Mikkola et al. 2009), **Franclemontia interrogans* (JRS), **Acrapex relicta* (HLK), two undescribed Apameini, an undescribed *Papaipema*, and *Leucania calidior* (Schweitzer et al.

2011). An undescribed eustrotiine also appears to be closely associated with *Arundinaria,* although we are unaware of any life history data for this species. Our surveys at Splinter Hill were outside the flight season of most of the *Arundinaria* specialist species, and the only species we documented were *Crocidophora pustuliferalis* and *Enodia portlandia.* Several noctuid species could be surveyed for later in May, including *Argillophora furcilla, Protapamea danieli, Acrapex relicta,* two undescribed Apameini, and the undescribed eustrotiine. Unfortunately, many of the *Arundinaria*-associated moths are poorly attracted to lights, so they are very difficult to document with short biodiversity blitzes, even with optimal weather during the adult flight.

Xeric Oak-Pine Upland Specialists: Thirteen xeric oak-pine habitat-dependent Macrolepidoptera species were recorded from Splinter Hill, including: *Thorybes confusis, Digrammia eremiata, Hyparpax aurora, Heterocampa varia, Grammia placentia, Pygarctia abdominalis, Sigela* species 2, *Zale declarans, Hyperstrotia aetheria* (formerly known as *nana*), *Hyperstrotia flavigutta, Emarginea percara, Leucania extincta,* and *Euagrotis lubricans* species 3. Seven of these also appear to require xeric oak-pine scrub savanna (as opposed to predominantly closed forest): *Thorybes confusis, Digrammia eremiata, Heterocampa varia, Grammia placentia, Pygarctia abdominalis, Sigela* species 2, and *Euagrotis lubricans* species 3. The remaining species are most common in sites with xeric grassland in addition to oaks and pines.

The xeric oak-pine savannas within the Splinter Hill Bog Preserve received minimal coverage from our surveys. The location of our light trap (UV Trap site 1) and bait traps in xeric oak-pine forest contained predominantly closed forest. There was some upland longleaf pine savanna west of survey station MV Sheet 1, between the road and Dyas Creek, and that may be the origin of the few xeric oak-pine savanna species/specimens that were recorded at this survey station. Most of the xeric oak-pine savanna within the Preserve is located far enough from parking areas that carrying in the heavy generators and batteries needed to operate night-collecting lights would have been difficult. These areas received only some diurnal surveying on 26 April.

Fire Management/Recent Management History: Brent Shaver provided the following information about recent management in the Preserve:

"Recent management in the bog near the parking area begins around 2002 when a wildfire burned about 40 acres around the parking area. The then industrial forestry owner clearcut the site and planted loblolly pine, which we have been doing our best to [eradicate] with fire ever since we purchased it around 2004. In about 2007-08 we planted longleaf in and around the loblolly outside of the bog. In 2015 we hand felled most of the remaining loblolly pine. Also, in 2013 we removed several windrows that were remnants of the 2003 loblolly reforestation project. In general, we burn all of the Preserve every two years, or about half of the Preserve annually. In the bogs we use winter burns to promote pitcher plant flowering and spring burns to get better shrub control" (pers. comm. 2016).

Brent Shaver also provided a map with recent burn units for the Preserve. The 2015 and 2016 burn units were divided such that the upland habitats contained large burned and unburned areas each of these years. However, most of the pitcher plant bog/wet pine savanna near the parking area was burned on 27 January 2015, while none of it was burned in 2016. All of the MV/UV sheets, light traps, bait traps, and night surveying was conducted in areas not burned during 2016.

Some qualitative comparisons were made between the burned and unburned upland areas during the day on 26 April by HLK/RJB. The understory of the upland area burned in 2016 was still extensively charred, with grasses and herbs just beginning to resprout. We did not see any Lepidoptera in this area except for some papilionids flying through it. In contrast, immediately-adjacent unburned areas on the opposite side of the trail contained many moths that were flushed out of grasses or shrubs while walking through the understory. Many of these were from "microlepidoptera" families that were only sampled with lights at night in other parts of the Preserve; however, some notable Macrolepidoptera species were flushed out in these unburned uplands including *Prosoparia floridana, Doryodes bistrialis,* and *Virbia rubicundaria. Thorybes confusis* and *T. pylades* were nectaring on *Phlox* and other flowers blooming only in the unburned areas. *Virbia aurantiaca* was the most numerous Macrolepidopteran flushed from the grass in the unburned portion of the uplands, but none were seen in the recently-burned areas.

While fire management is important for maintaining and restoring a variety of early-successional habitats including longleaf pine savanna, Kons and Borth think it is important to leave a large portion of a habitat type unburned during a given season to allow refugia for recolonization of the burned areas by Lepidoptera species. In addition to causing mortality for immature stages unable to escape a fire, immediately after a burn understory host plant vegetation and adult nectar and shelter sources are temporarily eliminated. HLK has also noted via qualitative observation that Lepidoptera larvae can be found in large numbers in Floridian xeric oak-pine savannas during the spring, but larvae are much sparser and harder to find in late May

and early June. Late May and early June are typically the start of the rainy season when storms producing lightning become frequent, and lightning strikes are believed to be the source of wildfires that maintained fire-dependent plant communities in presettlement times (Meyers and Ewel 1990). Timing of controlled burns may greatly influence larval mortality, with spring burns likely causing the highest mortality overall, although there are many different adult phenologies of xeric upland-dependent species (Kons and Borth 2006). Effects on Lepidoptera from differences in ecosystem structure resulting from burning at different times of the year are largely unknown.

Arundinaria (cane) is an important consideration for site management of natural areas because there is no safe burning season for all of the associated specialist Lepidoptera species, and some would be vulnerable to fires at any time of year; thus, it is critical for Lepidoptera specialists that unburned refugia be established for controlled burns of *Arundinaria* habitats (Schweitzer et al. 2011 via Eric Quinter). These authors also note that some species appear to require dense stands of *Arundinaria* that are not frequently burned. We recorded only two Lepidoptera species that are known *Arundinaria* specialists from Splinter Hill, but our surveys were conducted outside of the likely adult flight season for most of the other species.

We know little about the short- or long-term effects on Lepidoptera of different fire-management regimes in southeastern bog or other wetland habitats, although it is noteworthy that *Exyra semicrocea, Scopula purata,* and *Acronicta sinescripta* were all found in the bog habitat one season after much or all of this habitat was burned in late January 2015. Pitcher plant bog is unequivocally the breeding habitat for *Exyra semicrocea* (see species account below), and a suspected (based on adult distributions) although unproven breeding habitat for *Scopula purata* and *Acronicta sinescripta.* We are aware of only one southeastern bog-dependent species for which some information on the effects of different fire-management regimes is available, *Hemipachnobia subporphyrea,* a species that is apparently restricted to bogs on the Atlantic Coastal Plain and utilizes the leaves of *Dionaea muscipula* (Droseraceae) as a larval host. Schweitzer et al. (2011) reported that this species is sensitive to both too-frequent and too-infrequent fire, and may become extirpated under conditions of annual to semiannual burning. The largest known population is at a site with three burn units, one of which was burned each year in an orderly rotation (Schweitzer et al. 2011). Comparisons of alternative fire regimes are needed for other bog-dependent species in the southeastern U.S.

Weather Conditions: Kons and Borth have repeatedly observed that the optimal weather conditions for Lepidoptera biodiversity blitzes are hot, humid conditions with no rain and minimal wind, following several days without any heavy rain. The weather conditions during our Splinter Hill surveys were often suboptimal. On 25 April, the day before our first survey date, there was prolonged heavy rain in the area, including after dark. On 27 April, there was heavy rain in the late afternoon, and on 30 April there was heavy rain shortly after dark (no survey was conducted at Splinter Hill on 28 April). Furthermore, conditions in the savanna and pitcher plant bog were fairly windy for much of the night on 29 April, although it was much calmer on 26 April. Frequently, cloudy, rainy, and/or windy conditions during the day provided limited opportunity for diurnal surveying. Numbers of moths found at the MV sheets were generally below-average for the time of year and diversity of habitats, and numbers of moths in bait traps were generally low. Despite suboptimal weather conditions, a long species list was obtained due to the multi-day effort by multiple participants, although many of the species were recorded from one or a few individuals. The best conditions were at the MV sheet in the hardwood swamp on 29 April. This area was shielded from wind, and it had not rained for about 48 hours before the night survey began. Moth numbers were especially high there between 3:00am and sunrise, and numerous species were recorded only from this sheet during this time period.

Species with Problematic Taxonomy: A significant complication for producing checklists of southeastern Lepidoptera is that the Southeast still contains numerous species not recognized by current taxonomy. In HLK's judgment, at least 24 (over 7%) of the Macrolepidoptera species recorded from Splinter Hill are either undescribed or part of species complexes where multiple species are currently combined under a single name, based on corresponding differences in two or more of the following: pattern morphology, structural morphology, the 5' region of the mitochondrial gene cytochrome oxidase subunit I (COI 5'), and habitat association. These include some of the habitat specialists and notable distributional records. These species (with HLK's provisional nomenclature) are designated with an "*" in the Table 2 checklist. Exemplar voucher specimens of most of these species are shown in Figures 3-4, and all of them are treated in the species accounts below. Additional species on the list may also prove to be part of species complexes with further study, such as *Nemoria elfa, Hydria prunivorata, Zanclognatha protumnusalis, Zanclognatha obscuripennis, Renia sobrialis, Metalectra geminicinta, Zale minerea, Zale aeruginosa, Hyperstrotia villificans, Crambodes talidiformis, Emarginea percara,* and *Fagitana littura.*

Accounts for Selected Species

[*=Provisional species-level nomenclature: undescribed and/or part of a species complex]
[Numbers after species names are from the Hodges et al. (1983) checklist]

The accounts below are for species representing notable records, habitat specialists, members of species complexes with problematic taxonomy, and/or widely misunderstood and frequently-misidentified taxa. The accounts include information on these species from Splinter Hill as well as habitat information from northern Florida and sometimes other areas. Larval host records are provided or cited when available. Cases of problematic species-level taxonomy and/or use of provisional species-level nomenclature are discussed. Species in most of the "microlepidoptera" families are overall much more poorly-known relative to the Macrolepidoptera species in terms of their distributions and habitat dependencies. Consequently, the species accounts deal mainly with Macrolepidoptera species.

PYRALIDAE

***Crocidophora pustuliferalis* (4943) (Figure 3A):** HLK has reared this species from several *Arundinaria* habitats in Jackson, Gadsden, Liberty, and Okaloosa counties in Florida, and has only found larvae on *Arundinaria* and the adults in close proximity to *Arundinaria.* Covell (1984) reported the larval host as *Arundinaria,* and we are unaware of other reported host plants. At Splinter Hill we did not find the larvae but collected two fresh adults in the hardwood swamp along Dyas Creek, one at a MV sheet and one in a UV trap. In the experience of Kons and Borth, this species does not readily come to light, and most of our records are from rearing. We have found the larvae feeding on *Arundinaria* within hydric and mesic hardwood forests and in wet pine savanna along the edge of hardwood swamps near small creeks. Most Florida sites where we found this species are sites where we encountered several other localized *Arundinaria*-specialist species, except in the Blackwater River State Forest at a site we surveyed for only one night. Otherwise, we have not found it at sites which contain only the most widespread of the *Arundinaria* specialists (*Amblyscirtes aesculapius, Enodia portlandia, Leucania calidior*), such as the intensively-collected former property of the American Entomological Institute (Alachua County, Florida).

RHOPALOCERA

Most Rhopalocera species recorded during our bioblitz are widespread generalists; however, the diurnal weather conditions and time of year were suboptimal for surveying this group. The best time to survey savanna habitats for Rhopalocera in the Southeast is during the fall and to a lesser extent the spring, when far more nectar sources are available.

***Thorybes confusis* (3913) (Figures 5A-E & K):** This species appears to be restricted to xeric oak-pine savannas, although the adults sometimes disperse to surrounding habitats. It is very difficult to make observations of this species because it so closely resembles the more common and widespread *T. pylades,* which flies with it. However, the male genitalia are very distinctive between the two species (Figure 5), and additional exemplars are shown at http://www.lepidopterabiodiversity.com/Dissections/Rhopalocera/Thorybes.htm. Three dissected male specimens from survey area D2 (see Figure 1) included two *T. confusis* (Figures 5A-E & K; one of these) and one *T. pylades* (Figures 5F-J & L). One of these *T. confusis* was found nectaring on *Phlox* and the other was basking in a sunny open sandy patch on a trail, both in the unburned section of the xeric oak-pine savanna. Other *Thorybes* individuals were found nectaring on flowers only available in the unburned section of the xeric oak-pine uplands. One undetermined *Thorybes* was found near the site of UV Trap 1 sipping nutrients from moist sand on the road before the sun had started shining on 30 April; this is an unusual time of day to find a *Thorybes* active. Scott (1986) reported the larval hosts are Leguminosae.

***Erynnis baptisiae* (3959) (Figures 5M-O):** One male of this species was collected along the main trail near the boardwalk side trail in day survey area 1, but was not identified until after it was dissected months later. It was found flying along the trail and landed on fern fronds in dappled sun about one foot off the ground. This species cannot be reliably separated from small specimens of *Erynnis horatius* from wing pattern, and some phenotypes can also be confused with *E. zarucco.* However, male genitalia of *E. baptisae* (Figures 5M-O) are distinctive from both. Only two voucher specimens of *Erynnis* were collected during the bioblitz, and the other is clearly *E. horatius* due to its large size. About ten other *Erynnis* were seen along the main trail and the side trail with the boardwalk when conditions were sunny on 26 April, some of which were seen only in flight. The bioblitz also occurred during the flight season of *Erynnis zarucco,* but none of the *Erynnis* examined closely were this species.

Erynnis baptisiae is a common and widespread generalist in part of its range, particularly in the Upper Austral Life Zone. However, it is much more poorly documented in low elevations of the Gulf states. It is difficult to detect because *Erynnis horatius* is common and widespread throughout this region, and while *E.*

baptisiae is smaller than most specimens of *E. horatius, E. horatius* is much more common and most HLK dissections of smaller *Erynnis* from this area have turned out to be *E. horatius.* HLK doubts most reports of *E. baptisiae* from peninsular Florida (Gainesville) are correctly determined, and has found no specimens that match *E. baptisiae* in male genitalia from this area. However, HLK has dissected single male specimens of *E. baptisiae* from two sites in the central Florida Panhandle: Aspalaga Road (Gadsden County) and the vicinity of Hickory Branch (Liberty County). Minno et al. (2006) reported finding larvae of *Erynnis baptisiae* on *Baptisia calycosa* var. *villosa* from Kepner Pond natural area in Okaloosa County, FL, and confirmed reared adults with genitalic dissection.

***Enodia portlandia* (4568):** Three individuals were found in the bait traps in the hardwood swamp along Dyas Creek, and three more were seen in the same area at dusk on 29 April. Larvae of this species can be found on *Arundinaria,* and adults occur in mesic and hydric hardwood forest habitats with *Arundinaria. Enodia portlandia* is among the most widespread of the *Arundinaria* specialists in the Gulf region, along with *Amblyscirtes aesculapius* and *Leucania calidior.*

***Neonympha areolata* (4576) (Figure 4AE):** *Neonympha areolata* is associated with the pitcher plant bogs at Splinter Hill, as is the case for populations in the Apalachicola National Forest in Liberty and Franklin counties and in the Blackwater River State Forest in Santa Rosa County (HLK/RJB). Other Florida populations occur in various other low grassy wetlands. When conditions become cloudy, individuals often fly into dense vegetation of shrubby or forested wetlands bordering the low wetlands that adults frequent under sunny conditions. We are uncertain how many individuals we saw at Splinter Hill, as most potential individuals were not examined closely enough to identify, and *Hermeuptychia hermes* and *Megisto cymela* were also seen flying in the pitcher plant bogs. *Neonympha areolata* has been reared in captivity on *Carex, Scirpus* (Cyperaceae), *Digitaria,* and *Sorghastrum* (Gramineae) (Robinson et al. 2002).

The identity of southeastern specimens of *Neonympha* has been controversial with respect to the application of the names *areolata* and *helicta.* Gatrelle (1999) suggested *helicta* was a valid species and that it occurred in Florida and southern Alabama. Specimens from wetlands in northern Florida exhibit continuous variation in wing pattern and male genitalia, and HLK and LAD conclude that Gatrelle's (1999) wing-pattern characters for separating *helicta* and *areolata* are within the range of infrapopulation variation exhibited by *N. areolata.* A few specimens dissected from East Texas are like the Florida material. However, Gatrelle (1999) also reported populations of *N. helicta* from dry upland habitats in the Carolinas and Mississippi. HLK has not dissected any material from upland populations and makes no judgment on the taxonomic status of these populations, but thinks all of the wetland material he has examined from North Florida represents a single species. Gatrelle's (1999) Figure 9 from Baldwin County, Alabama, identified as *helicta,* is in HLK's opinion within the range of infrapopulation pattern variation exhibited by *areolata.*

GEOMETRIDAE

***Digrammia eremiata* (6357):** One Splinter Hill specimen taken in wet longleaf pine savanna/pitcher plant bog on 26 April at MV sheet site 1 is almost certainly a disperser from the uplands. In northern Florida and eastern Texas, this species is locally common in longleaf pine sandhill savannas, and sometimes also occurs in xeric oak-pine forests with openings (Kons and Borth 2016, pers. obs.). Larvae have been reared from two genera of Leguminosae: *Astragalus nuttallianus* and *Tephrosia* (Ferguson 2008), and Wunderlin et al. (2016) report that eight species of *Tephrosia* occur in Florida. Florida specimens of *D. eremiata* have been confused with *Digrammia ordinata,* and HLK has seen no correctly-determined specimens of *D. ordinata* from Florida or the Gulf Coast area.

****Hypomecis* species 1 (Figure 3B):** *Hypomecis* is in need of further revision, as there are more species than were recognized in Rindge (1973), and which species the names *umbrosaria* and *gnopharia* apply to is not clear. HLK suspects the two male specimens Rindge (1973) illustrated as *gnopharia* are not the same species, and that there are at least seven species in Florida. *Hypomecis luridula, H. buchholzaria,* and two grayish species (to which the names *H. umbrosaria* and *H. gnopharia* may apply) occur in xeric uplands. *Hypomecis longipectinaria* is more widespread, occurring in hydric, mesic, and xeric wooded habitats, including common oak-pine forest and mesic hardwood-pine forest on former agricultural land. Two additional species that occur in hydric hardwood forest are poorly-known, but the small sample suggests they differ from the others in pattern and male genitalia. One of these was found at Splinter Hill: one fresh and one worn specimen were collected at the MV sheet in hydric hardwood swamp along Dyas Creek, and another was taken in a light trap in xeric oak-pine forest, which may be a disperser from the forested wetlands. The worn specimen was dissected and closely matched a dissected specimen from hydric hardwood forest from Aspalaga Road (Liberty County, Florida) collected on 28 April 2005. *Hypomecis* species 2 appears to be a univoltine

spring species and is more-easily recognized from wing pattern than most *Hypomecis*. HLK collected four specimens on 10 March 2000 at Aspalaga Road but none were found during surveys later in the season. Specimens Kons and Borth have collected from the mid-latitudes of eastern North America include a number of phenotypes that are not good matches to any of the Florida specimens in pattern, but most of this material has not been dissected.

***Iridopsis pergracilis* (6580) (Figure 3H):** One fresh female was collected at the MV sheet in the hardwood swamp along Dyas Creek. Zhang (1994) reported *Taxodium distichum* as a larval foodplant, and HLK has reared this species from *Taxodium* (cypress) at the University of Florida Natural Area's wetland restoration (Alachua County). In northern Florida this species occurs in a variety of wetlands with *Taxodium,* including hydric hardwood forest, cypress swamp, pitcher plant bogs with cypress, and maritime woodland/salt marsh (Kons and Borth 2006). We did not see *Taxodium* in the immediate vicinity of where this specimen was collected, but Brent Shaver (pers. comm. 2016) reports both species of *Taxodium* occur in the Preserve. It was not unusual to find dispersing individuals in mesic hardwood-pine forest about a mile away from cypress at the former American Entomological Institute property in Alachua County, Florida (HLK).

***Episemasia solitaria* (6713):** Only one specimen was found during our Splinter Hill bioblitz, in a UV light trap in pitcher plant bog. This species is fairly widespread and has been found in a wide variety of habitat types (Kons and Borth 2006). However, many of the individual specimens are from wetlands, and it is not clear if this species is a generalist which is most common in wetland habitats or a wetland-dependent species that frequently disperses to other habitats. Sites where this species is most numerous also contain high densities of ericaceous plants, although to our knowledge there are no reported host records. This species can be locally common in pitcher plant bogs and other wetlands in the Apalachicola National Forest.

***Lytrosis sinuosa* (6721) (Figure 3D)**: All Splinter Hill specimens were males found in the hardwood swamp along Dyas Creek, including two at a MV sheet and one each in two different light-trap samples. Recent Florida Panhandle records from Kons-Borth surveys include Alum Bluff at the Apalachicola Bluffs and Ravines Preserve (Liberty County) and a pitcher plant bog in the Apalachicola National Forest in Franklin County. Alum Bluff contains xeric oak forest along the crest but numerous other habitats occur in the vicinity, including mesic and hydric hardwood forest and turkey oak/longleaf pine sandhill scrub savanna. Brou (2005a) reported that this species occurs commonly near Abita Springs, Louisiana, but we have seen few other specimens from the Gulf Coast region. Brou (2005a) reported two Louisiana localities, and Bordelon and Knudson (1999) reported two sites in southeast Texas. This species is probably underrepresented in collections due to its short univoltine flight, primarily in April and sometimes extending into early May. Most southeastern specimens have been collected in wetlands, and those from Alum Bluff were in close proximity to wetlands. Schweitzer et al. (2011) reported that *Quercus stellata* is probably the main food plant in New Jersey; however, in the Gulf region this tree appears to be much more widespread than the moth.

****Euchlaena madusaria* species 2 (6731 complex) (Figure 3E)**: This Austral Life Zone species is characteristic of xeric oak-pine uplands with abundant ericaceous plants, but the adults also show up in lower numbers in wetlands in close proximity to uplands. A few specimens were found in the hardwood swamp along Dyas Creek. This species is fairly widespread in the Gulf region, but we illustrate it because it is part of a complex in which two species are currently combined under one name. *Euchlaena madusaria* species 1 is illustrated in Handfield (1999) Plate 31; this species inhabits the Canadian Life Zone, and in Wisconsin, Kons and Borth have found it primarily in oak-pine barrens, with some additional specimens from bogs.

***Metarranthis lateritiaria* (6829) (Figure 3C)**: This species appears to be restricted to wooded swamps along streams and rivers. We found several worn males in the hardwood swamp along Dyas Creek, and one fresher female (illustrated) in a UV trap in xeric oak-pine forest, which we suspect is a disperser from the forested wetlands along Dyas Creek. This species is probably underrepresented in collections because it has a short univoltine flight, primarily in April and sometimes extending into early May. In the Florida Panhandle, Kons and Borth have found it during recent surveys in forested swamps along Revell Branch in Liberty County and along the Perdido River in Escambia County, but most of our survey sites were probably surveyed outside of its flight season. Vernon Brou has found larvae on *Persea palustris* (Lauraceae) in Louisiana (Schweitzer et al. 2011), and while it is unknown if this is the sole host plant, the aforementioned Florida localities contain this plant. Until recently, it was unclear what name applied to this species, as both the names *pilosaria* and *lateritiaria* were being applied to the same species in the southeastern U.S.; thus, it was called "*Metarranthis* sp." in Kons and Borth (2006). Schweitzer et al. (2011) reported that *pilosaria* applies to an Atlantic Coastal Plain species that occurs from Massachusetts to New Jersey, and they illustrate a pair of *lateritiaria* from coastal South Carolina.

***Lychnosea intermicata* (6858) (Figure 3G)**: In northern Florida this species appears to be fairly local and often uncommon. It occurs in open wet habitats, including pitcher plant bogs, low grassy wetlands, and wet pine savanna, and sometimes may be found more readily by flushing it out of vegetation during the day than with lights at night. This species is abundant on dry prairies in southwestern Missouri, and some populations occur in xeric oak-pine savannas in western Louisiana and East Texas (HLK/RJB), but thus far the Florida populations we have found are associated with wetlands. One specimen was flushed out of low vegetation in the pitcher plant bog on 26 April at Splinter Hill, but none came to sheets or light traps. Other possible individuals were seen flying out of low vegetation during the day but were not examined closely enough to identify.

***Nematocampa baggettaria* (7010.1) (Figure 3F)**: A single female specimen was collected at MV sheet site 2 in the hardwood swamp, a typical habitat type for this species. This species was first described in 1993 and has a limited known distribution including southeastern Louisiana to northern Florida and the Atlantic Coastal Plain as far north as North Carolina (Brou 1994a, Ferguson 1993, Kons and Borth 2006). Habitat dependency appears to include a variety of types of wooded wetlands, including hydric hardwood forest, cypress swamp, white cedar forest, and maritime forest (coastal juniper-palm-oak-cypress forest) (Kons and Borth 2006). Recently, Kons and Borth recorded over 20 individuals in one night at a MV sheet in a pitcher plant bog in Franklin County, Florida, but there was a densely-forested cypress swamp behind the bog. In Kons-Borth's experience it is more typical to find no more than a few individuals of this species at a MV sheet on a given night, even with good weather conditions. During some nights in North Florida we have netted individuals flying at night when none came to our lights.

***Nemoria elfa* (7029) (Figures 3L, 5G-H):** This wetland species is fairly common at Splinter Hill in both the pitcher plant bog and hardwood swamp along Dyas Creek. In northern Florida, it occurs in many types of wetlands including hydric hardwood forest, cypress swamp, pitcher plant bog, and white cedar swamp (Kons and Borth 2006). It is interesting that specimens with the structural characters of *N. elfa* can have either a white or red wing fringe in some areas, including at Splinter Hill. Red-fringed individuals are often misidentified as *Nemoria extremaria,* but *extremaria* differs by the shorter pectinations on the male antennae (Figure 5:C) and genitalic characters noted in Ferguson (1985). Based on specimens we have examined for structural characters, *Nemoria extremaria* is endemic to peninsular Florida, where it occurs as far north as Putnam County (Kons and Borth 2006). However, it is interesting to note that other southeastern *Nemoria* species do not show infraspecific variation in white or red fringe color to our knowledge, thus the possibility that *elfa* could be a species complex merits further study. While Ferguson (1985) reported that larvae feed on *Liquidambar styraciflua* in captivity, *N. elfa* is absent at many sites where *L. styraciflua* is common, and common at some sites where *L. styraciflua* is absent.

****Idaea* near *celtima* (Figure 3K)**: Three fresh specimens were recorded at Splinter Hill, including two at MV sheet site 1 in hydric longleaf pine savanna/pitcher plant bog. Kons and Borth had previously found this poorly-known species in North Florida (Liberty County) in pitcher plant bog in the Apalachicola National Forest. True *Idaea celtima* was described from Mexico and is locally common in subtropical woodland in the Lower Rio Grande Valley of Texas. The syntypes can be viewed at http://entomology.si.edu/Lepidoptera/geos/SterrhinaeTypes/NeoSterrhinaeTypes_celtima-P.html. To HLK's knowledge, true *celtima* does not occur in the southeastern United States, although the name has been incorrectly applied to *Idaea pervertipennis* and various other species of *Idaea* from the Southeast. Male genitalia differ between *celtima* and nr. *celtima* but there are also apparent pattern differences such as the shape of the postmedial line, although few specimens of near *celtima* have been available for study. Also, the few specimens of nr. *celtima* that we have collected are distinctly larger than specimens from series of *celtima* we have collected or examined from South Texas, although size should never be considered reliable as any species can produce stunted individuals. *Idaea pervertipennis* (which occurs in peninsular South Florida) is also similar in pattern, but can be readily distinguished by the intense purplish-red scaling distal to the postmedial lines. Another similar phenotype occurs in hydric hardwood forest/cypress swamp at Caddo Lake State Park in northeast Texas (Marion County).

***Cyclophora culicaria* (7134) (Figure 3I)**: One fresh male specimen was collected at MV sheet site 2 on 29 April in the hardwood swamp along Dyas Creek, and extends the known range west of that reported in Kons and Borth (2006) and Schweitzer et al. (2011). This species may have been first emerging during our biodiversity blitz. At the Perdido River Preserve in Escambia County, Florida, Kons and Borth found only one individual specimen at a sheet on 28 April, but on 1 May (albeit also a warmer night) over 25 individuals came to the sheet. This species was previously only known from southern Georgia, the north-central Florida Panhandle, and north peninsular Florida to our knowledge. Kons and Borth (2006) reported it from six

localities in North Florida, including Alachua, Dixie, and Liberty counties, but we have subsequently added additional localities for Escambia, Gulf, and Franklin counties, and JTV has previously collected a specimen in Columbia County. In southern Georgia, James Adams has collected it in Ware and Brantley counties (Schweitzer et al. 2011). It appears to be wetland-dependent. Habitat types from the Kons-Borth surveys include hydric hardwood forest along streams and rivers, coastal salt marsh/maritime woodland, pitcher plant bog/cypress swamp, and wooded wetlands with *Pinus elliottii, Chamaecyparis thyoides, Magnolia virginiana,* and *Ilex coriacea.* We have also found a few specimens in turkey oak sandhill, pine-palmetto flatwoods, and coastal oak-pine scrub in close proximity to wetlands.

***Scopula purata* (7158) (Figure 3J)**: This species was associated with the pitcher plant bog at Splinter Hill. Only two specimens came to lights in the pitcher plant bog, but HLK netted nine probable individuals while walking around in the bog at night on 27 April. The netted individuals were very worn and were released, and the worn condition may have been due to a heavy rain that afternoon that left the vegetation wet and dripping after dark (the specimen from 26 April was fresh). One individual was taken in a UV trap in the hardwood swamp on 27 April, which may have been a disperser from the pitcher plant bog. In Florida, Kons and Borth have found this species primarily in pitcher plant bogs in the Apalachicola National Forest. We have also found a few specimens in hardwood swamps along small creeks in this national forest, but these sites are in close proximity to pitcher plant bogs and we have found the *Sarracenia*-feeder *Exyra semicrocea* at the same locations.

***Coryphista meadii* (7290):** One extremely-worn specimen was collected at the MV sheet in the hardwood swamp along Dyas Creek, which almost certainly represents a stray from the Upper Austral Life Zone or further north. We found another worn specimen earlier the same day in Escambia County, Florida, at the Perdido River Preserve. The reported larval hosts are *Berberis thunbergii, B. vulgaris,* and *Mahonia aquifolium* (Robinson et al. 2002) and these plants are not recorded from the Gulf region per USDA (2016). Southeastern and south-central specimens of *Disclisioprocta stellata* and *Archirhoe neomexicana,* respectively, are sometimes misidentified as *Coryphista meadii,* and Kons and Borth (2006) regarded Kimball's (1965) report of *C. meadii* from Cassadaga (in central Florida) as very doubtful. These recent records suggest it can stray as far south as the North Florida border (although probably very rarely), but we still have not seen fresh specimens south of the Upper Austral Life Zone (or any others from the Gulf region). In the Transition Zone of Wisconsin *C. meadii* is not particular in habitat and even occurs in suburban yards, but it is most often found as single individuals (HLK/RJB).

***Hydria prunivorata* (7292) (Figure 3N):** One fresh Splinter Hill specimen was collected at a MV sheet in the hardwood swamp along Dyas Creek. This species was not recorded from any of the North Florida localities in Kons and Borth (2006); however, we subsequently collected a specimen at the Perdido River Preserve in Escambia County, and Kimball (1965) reported one specimen from the same county. *Hydria prunivorata* is widespread in the Canadian, Transition, and Upper Austral Life Zones in a variety of habitats (HLK/RJB), and reported host plants include members of the families Ericaceae, Rosaceae, and Salicaceae (Robinson et al. 2002). It seems odd that a widespread polyphagous northern species would show up in the western Florida Panhandle area but not have been recorded from far more extensive surveys in the central Panhandle, which has a cooler climate and more northern elements in the flora and Lepidoptera fauna. More material is needed to explore the possibility that the Splinter Hill and Escambia County specimens represent a separate species disjunct from the northern material.

***Eubaphe meridiana* (7441) (Figure 3M):** At Splinter Hill this species was regularly encountered at lights in both the pitcher plant bog and hardwood swamp habitats, but none were found in the xeric oak-pine uplands. The majority of specimens from the Kons-Borth North Florida surveys are from wetland habitats, including herb bog, cypress swamp, hydric hardwood forest, white cedar swamp, and salt marsh/maritime woodland, but smaller numbers have also been found in mesic and upland habitats. It is not clear if it is a generalist or if it is a wetland specialist with the records from other habitats representing dispersers. However, pitcher plant bogs and other wetlands in the vicinity of bogs are where we have found this species in the greatest numbers. To our knowledge the larval host(s) are unknown.

SATURNIIDAE

***Callosamia angulifera* (7765)**: The larval foodplant of this species, *Liriodendron tulipifera,* occurs along the edges of the hardwood swamp along Dyas Creek. Four males came to MV sheets, two in the pitcher plant bog/hydric longleaf pine savanna near the parking lot and two at MV sheet site 2 in the hardwood swamp. Several female *Callosamia* were observed flying during the late afternoon in the hardwood swamp near the site of MV sheet 2, but they were far too high up to capture and identify. *Callosamia angulifera* appears to be a local species in North Florida; it occurs where *Liriodendron* grows along the edge of hydric hardwood forest. In the mesic hardwood forests of the

Appalachians, *C. angulifera* is much more common and widespread. It can also be locally common in some parts of Louisiana, where Brou (1994b) reported hundreds can be encountered on a single night at a single light. Kons-Borth surveys have never found more than a few individuals at a MV light on a single night in northern Florida. While many additional host records besides *Liriodendron* are reported in Robinson et al. (2002), the distribution of this moth seems to closely coincide with the distribution of *Liriodendron.*

NOTODONTIDAE

***"Litodonta"* new species (Figures 3P & 6A-F):** At Splinter Hill, this species was found in many of the MV/UV samples from the hardwood swamp along Dyas Creek (Table 2), although few individuals were encountered at the individual survey stations, as is typical for this species. At MV sheets, males flew very late at night and were found between 3:35 and 5:39am at Splinter Hill. This undescribed species is often misidentified as *Litodonta hydromeli* which it superficially resembles, but the genitalia (Figures 6A-F) are so different the two species are probably not closely related (HLK). True *L. hydromeli* occurs along the transitional band between the Austral and Sonoran Life Zones, and reports of *L. hydromeli* from Georgia and Florida are likely errors and probably refer to this species. However, several publications have recognized this species as distinct from *L. hydromeli,* including Bordelon and Knudson (1999), Brou (2005b), and Kons and Borth (2006), where it was reported as *"Litodonta* species" or "*Litodonta* new species". In Texas, Kons and Borth found this species in hydric hardwood forest at Martin Dies Jr. State Park (Jasper County). In northern peninsular Florida, it occurs in "maritime hammock" (juniper/palm/cypress/oak woodlands)/salt marsh wetland complexes in coastal Dixie County (Kons and Borth 2006) and we also collected it in wooded wetlands at the Perdido River Preserve in Escambia County in 2016. While this species has been found in several different types of wetlands, it appears to be quite local, and we have surveyed numerous wooded swamps in northern Florida where we did not encounter it during its flight season.

***Heterocampa varia* (7982) (Figure 3O)**: This is one of the most notable records obtained during the Splinter Hill biodiversity blitz. Two specimens were collected at MV sheet site 1 on 26 April in hydric longleaf pine savanna/pitcher plant bog, but these specimens almost certainly represent dispersers from xeric oak-pine savanna. In Florida, Kons and Borth have found this species only in extensive longleaf pine/turkey oak scrub savannas, including the Katharine Ordway Preserve (Putnam County), Citrus Tract of the Withlacoochee State Forest (Citrus County), and the Apalachicola Bluffs and Ravines Preserve (Liberty County). This species has been widely misunderstood as Kimball (1965) illustrated a pair of misidentified *Heterocampa obliqua* as *Heterocampa varia*, but a detailed account of *H. varia* is presented in Schweitzer et al. (2011), and the male genitalia are illustrated at: http://www.lepidoptera biodiversity.com/Dissections/Notodontidae.htm. There is another very poorly-known and apparently undescribed species, similar to *H. obliqua* and *H. varia,* that has a distinctive wing pattern, but male genitalia appear to be indistinguishable from those of *H. obliqua* (HLK, see above website). This species has been misidentified as *H. varia* in Texas. The Splinter Hill specimens are the westernmost specimens of *H. varia* that we are aware of, and outside of Florida, Schweitzer et al. (2011) reported *H. varia* only from the Atlantic Coastal Plain. Larvae have been found on three species of *Quercus* in New England (*Q. stellata, Q. prinoides,* and *Q. ilicifolia*) but the moth appears to be much more localized than any of these trees. At Kons and Borth's (2006) Florida localities, *Quercus laevis* is the dominant oak in the longleaf pine savannas where we have found this species.

***Hyparpax aurora* (8022) (Figure 3:Q-R)**: In most of Florida, this species occurs as the "*perophoroides*" phenotype, but the specimens from Splinter Hill are much closer to the nominate *aurora* phenotype. Kons and Borth have also found a specimen close to the nominate phenotype in Jackson County in the north-central Florida Panhandle, and in Liberty County intermediate specimens occur with more common "*perophoroides*" phenotypes. *H.* "*perophoroides*" has previously been treated as a separate species in Florida Lepidoptera inventories (Kimball 1965, Minno 1992, Kons and Borth 2006), but Kons-Borth now think it is a geographic variant of *Hyparpax aurora* due to specimens intermediate in wing pattern and a lack of discrete diagnostic differences (the two phenotypes overlap in COI 5' sequences and HLK found no genitalic differences). The typical Florida habitat is xeric oak-pine savanna, but some specimens have been found in mostly-closed oak-pine forest as well. Only two specimens were collected at Splinter Hill, probably because our MV/UV survey stations were not in xeric oak-pine savanna and the specimens probably represent dispersers from this habitat. One specimen was collected at MV sheet site 1 pitcher plant bog/hydric longleaf pine savanna, and the other at MV sheet site 2 in the hardwood swamp along Dyas Creek. Reported larval hosts include *Quercus* and several *Viburnum* species (Robinson et al. 2002).

NOCTUIDAE

Crambidia* nr. *pallida: At Splinter Hill this species was common at the wetland survey stations but oddly

did not show up in the light-trap samples from the upland oak-pine forest. This species is common and widespread throughout northern Florida and it occurs in every habitat type we have sampled for Lepidoptera. In the central Panhandle *Crambidia* near *pallida* is sympatric with *C. pallida*, but at Splinter Hill, all of the individuals were *C.* nr. *pallida.* The two species differ by male genitalia and COI 5' sequences, but so far we have found no overlap in size, with *C. pallida* consistently larger than nr. *pallida* (HLK/RJB). However, a small specimen of *C. pallida* would be hard to recognize unless it was sequenced or dissected, because the wing pattern of the two species does not appear to be diagnostic. At the time of Kons and Borth (2006), we had not yet investigated the genitalia or genetics of this complex, and records for both species were lumped under *C. pallida.* All of the Kons and Borth (2006) records from northern peninsular Florida are actually *C.* nr. *pallida,* whereas all of the central Panhandle localities where we reported *C. pallida* contain both species. *Crambidia lithosioides* was also present at Splinter Hill but less common than *C.* nr. *pallida. C. lithosioides* is variable in size and cannot be separated from either *C. pallida* or nr. *pallida* on this basis (although it is usually the size of *C. pallida*), but it can be readily distinguished under a microscope by the closed areolet on the dorsal forewing. *C. lithosioides* also differs in male genitalia and COI 5', but the areolet is the quickest character for identification.

***Virbia opella* complex (Figures 4N-O & 7)**: The name *Virbia opella* has been applied to members of a species complex including three Florida species with corresponding differences in wing pattern and COI 5' sequences. All three were found sympatric at Splinter Hill, and one male of each was dissected (Figure 7). A possible additional *opella*-complex species occurs in western Louisiana and eastern Texas. HLK tentatively applies *opella* to a species that ranges from northern Florida to the southern Transition Life Zone, based upon the type locality of Pennsylvania (the other species are southeastern); however, there may be additional northern species in this complex.

***Virbia opella* (8118) (Figures 4N & 7A-F):** At Splinter Hill five individuals were found at lights in the hardwood swamp along Dyas Creek. This species is actually much more poorly-known in northern Florida than suggested by Kons and Borth (2006) because at the time we lumped all three of the Florida species in this complex under this name. The only *V. opella* sensu stricto that HLK can confirm from Florida are from Escambia County (Perdido River Preserve) and Jackson County (Buena Vista Road and a culvert west of Hwy. 271). These Florida specimens have been found in hydric hardwood forest, slash pine-magnolia-gallberry forested wetlands, mesic hardwood forest, and upland oak-pine forest. The other records for *Virbia opella* from Florida in Kons and Borth (2006) are for the following two species. This species has a black hindwing with a variable amount of dark brownish-red, whereas the following two have a variable amount of brighter reddish-orange, including along the inner margin.

***Virbia* sp. 1 (Figures 7G-L):** We collected at least one male at Splinter Hill in the hardwood swamp at MV sheet 2, the farthest west HLK has seen a specimen of this species. Genitalia of this specimen (Figures 7G-L) closely match a dissected specimen from Gainesville, FL. This species occurs mainly in peninsular Florida, where it is common in a variety of habitats, including mesic hardwood-pine forest on former agricultural land. Kons-Borth surveys also found one specimen from the Florida Panhandle (Liberty County). This species exhibits broad but continuous variation in the amount of black on the hindwings, and specimens with more extensive black on the hindwings have been identified as *V. opella* whereas specimens with less black are the source of erroneous identifications of *Virbia ferruginosa* from Florida. Forewing color varies continuously from pale orange to brownish, including among the sequenced voucher specimens, but it is not as dark as the following species. *Virbia ferruginosa* probably does not occur in Florida, although a related species occurs farther north in western Louisiana and eastern Texas, which is sometimes misidentified as *rubicundaria* (below).

***Virbia* sp. 2 (Figures 4O & 7M-R):** Two Splinter Hill specimens were collected in pitcher plant bog in UV trap 4 on 29 April. One male was dissected (Figures 7M-R) and closely matches a dissection of this species from a pitcher plant bog in Liberty County, FL. This species may have been first emerging as no individuals showed up in the bog on 26 or 28 April. We have collected this species mainly in pitcher plant bogs in the Apalachicola National Forest in Liberty and Franklin counties, FL. We have also collected a few specimens in white cedar and hardwood swamps, but these sites were in close proximity to pitcher plant bogs and we collected the *Sarracenia*-feeder *Exyra semicrocea* at the same locations. Unlike species 1, species 2 exhibits little variation in forewing color, and it is consistently darker than species 1. However, it is variable in the amount of black on the hindwing. When series are compared side-by-side, species 1 and species 2 also differ subtly in hindwing coloration.

***Virbia rubicundaria* (8122):** Several individuals were flushed out of the grass when walking through unburned oak-pine savanna on 26 April. *Virbia aurantiaca* was present in the same area and was much more common. *V. rubicundaria* is associated with xeric grassy uplands in northern Florida. The name *rubicundaria* has been

applied to a variety of different *Virbia* species in collections and articles, but Covell (1984) and Kons and Borth (2006) applied it to the same species called *rubicundaria* in the Zaspel et al. (2008) revision (Plate 2: 4-5). Florida specimens of the same species have been identified as *rubicundaria* and *immaculata*, but true *immaculata* differs in pattern and genitalia and occurs well to the north of FL, primarily in the Upper Austral Zone. Various other *Virbia* are misidentified as *rubicundaria,* including *aurantiaca* and a southern species in the *ferruginosa* complex that occurs in Louisiana and East Texas. To HLK's knowledge, *rubicundaria* never has black on the hindwing in males, which will separate it from many (but not all) specimens of *aurantiaca* or specimens in the *ferruginosa* complex. *Virbia aurantiaca* males without black on the hindwings have the black markings replaced by a pale cream or yellow coloration, and we are aware of no overlap in size between *rubicundaria* and specimens of the *ferruginosa* complex (these are larger than *rubicundaria* and also differ in male genitalia).

***Grammia placentia* (8191):** Only one male was collected at Splinter Hill, in UV trap 4 in wet longleaf pine savanna/pitcher plant bog. It is almost certainly a disperser from the uplands. This species is characteristic of xeric longleaf pine/turkey oak savanna in northern Florida, although a few specimens have been found in other xeric uplands. At many sites, few specimens are encountered on any given night, but it is a common species in longleaf pine/turkey oak sandhill savanna at the Apalachicola Bluffs and Ravines Preserve (ABRP) in Liberty County, Florida. This may be related to the ABRP management practice of leaving much of the habitat unburned during controlled burns, and conducting the burns just before the start of the rainy season. Forbes (1960) reported this species to be polyphagous on low plants, which seems odd for a species restricted to xeric oak-pine savannas.

***Pygarctia abdominalis* (8255) (Figure 4P):** One male was collected at a MV sheet in hydric longleaf pine savanna/pitcher plant bog, which almost certainly represents a disperser from the uplands. The Florida habitat is that noted for *Grammia placentia* above, and the two species often occur together. Like *G. placentia,* it is most common at the ABRP among the North Florida localities reported in Kons and Borth (2006), although it is not as common as *G. placentia* there. HLK has also seen Florida specimens of this species determined as *Pygarctia spraguei* and *Pygarctia eglenensis,* but they have all been typical *abdominalis,* the only *Pygarctia* species HLK has seen from northern Florida. Robinson et al. (2002) report the larval host of closely-related *Pygarctia spraguei* to be *Euphorbia* including *E. heterophylla*; *E. heterophylla* is not recorded from Florida but sixteen congeners are reported from Florida by Wunderlin et al. (2016).

***Dasychira meridionalis/basiflava*:** Our specimens from Splinter Hill may represent one or both of these species, as they cannot be separated from wing pattern in most of the southeastern United States, and Ferguson (1978) found no genitalic differences. Kons and Borth have sampled this complex for COI 5' from peninsular North Florida, the central and western Florida Panhandle, and eastern and central Texas, and there are two species diagnosable from corresponding differences in COI 5' and larvae associated with the names *basiflava, meridionalis, matheri, kerrvillei, pallorosa,* and *memorata.* One species is *D. basiflava,* and *kerrvillei* and *pallorosa* are geographic variants but not discrete entities, as the variation in wing pattern is continuous. The other species is *D. meridionalis*, and *memorata* is a geographic variant but not a discrete entity as the wing pattern variation is continuous. Ferguson (1978) had considered *kerrvillei* and *pallorosa* to be subspecies of *meridionalis,* but from COI 5' samples and larvae found in East Texas by Kons-Borth we are unaware of any evidence that the range of *meridionalis* reaches Texas. Ferguson (1978) described *matheri* based on wing pattern and size; however, the wing pattern and size of the specimens he illustrates are within the range of continuous variation exhibited by southern populations of both *meridionalis* and *basiflava.* Therefore, HLK thinks there is clearly no justification for recognizing *matheri* as a valid taxon, although without data on the genetics or larval morphology from the type locality it is unknown if it is a synonym of *basiflava* or *meridionalis.* Kons and Borth have not found *D. basiflava* in peninsular Florida, where all larvae and sequenced specimens have been *meridionalis,* but *meridionalis* and *basiflava* are sympatric in the western Panhandle. It is unclear how far west *meridionalis* ranges along the Gulf. Both *D. meridionalis* and *D. basiflava* have reported host plants from numerous families (Robinson et al. 2002), but larvae HLK has found in Florida and East Texas were all feeding on *Quercus*.

***Dasychira leucophaea* sp. 1 (Figure 4Q):** HLK thinks there are two species combined under this name based on discrete differences in male pattern and differences in distribution. There may be differences in COI 5' also, but the sample size is too small. Most Florida specimens HLK has examined are species 2, but Kons and Borth have found species 1 in the western Panhandle (Santa Rosa County). The four South Carolina males illustrated by Ferguson (1978) are also species 1. One specimen of species 1 from Splinter Hill was taken in the hardwood swamp along Dyas Creek. Both this and the Santa Rosa County specimen were taken in hardwood swamps along small creeks in the vicinity of pitcher plant bog and longleaf pine savanna uplands. In species 1 males, the forewing basal area across from the reniform has a contrasting lighter patch, which is clear on the worn Splinter Hill specimen. In species 2 males,

the darkest part of the basal area is adjacent to the costa, including the area where the light patch occurs in species 1. HLK has examined few female specimens that can be definitively associated with males; it is possible species 2 females are more whitish with sparser and more-diffuse dark markings, but much more material would be needed to confirm this. Unfortunately Ferguson (1978) designated an Abbot painting of a female *Dasychira* as the lectotype of *leucophaea* (see Figure 12 in Calhoun (2006)). HLK has not checked for genitalia differences, but as Ferguson (1978) did not find differences between *Dasychira leucophaea, D. cinnamomea,* and *D. obliquata,* genitalia may not be helpful in this complex. Ferguson (1978) reported the larval host for *D. leucophaea* to be *Quercus* spp.

***Simplicia cornicalis* (8339.1) (Figure 3X):** One fresh specimen was taken at the MV sheet in the hardwood swamp along Dyas Creek. This species is an introduced exotic, widespread in Asia and the South Pacific, which was first recorded from North America at the Archbold Biological Station in 2006 by JTV (Dickel et al. 2010). HLK first found it in Gainesville (Alachua County) in 2008, and Vernon Brou recorded it from St. Tammany Parish, Louisiana, the same year. It is established in Gainesville and HLK has found it every year from 2008-2015, although it has never become common or reliable, with no more than one or two individuals found on the occasional nights it is encountered. The initial records from 2006-2009 were all from Sept.-Dec. (Dickel et al. 2010) but subsequently HLK has found it every month from April-December in Gainesville. Larvae feed on dead plant tissue, including members of the Palmae, Leguminosae, Malvaceae, and Cucurbitaceae (Dickel et al. 2010 and included references). Kons and Borth have found it in hydric hardwood forest, mesic hardwood forest, and xeric oak-pine uplands, so it appears to be a generalist. LAD has taken it sporadically on Sapelo Island, Georgia.

***Zanclognatha*:** Taxonomy of this genus is especially problematic, and HLK thinks there are multiple cases where two or more species are currently combined under a single name. Images of many of the species in the eastern United States can be viewed at: http://www.lepidopterabiodiversity.com/GTInsects/Noctuidae/Herminiinae/Zanclognatha.htm.

***Zanclognatha lituralis* complex (Figures 3V-W (both species)):** Two species have been combined under the name *Zanclognatha lituralis*. They were recognized in Rings et al. (1992), but only one was illustrated and the species continue to be mixed in collections. The types of *lituralis* are apparently lost (Poole 1989). In HLK's opinion Hubner's (1818) type figure cannot be reliably attributed to a specific *Zanclognatha* species, but the dark outer forewing band with a contrasting white subterminal line is actually most characteristic of *Zanclognatha gypsalis*. However, the postmedial line shape does not match any *Zanclognatha* species and the drawing is so crude that *lituralis* certainly cannot be excluded. HLK applies *lituralis* to the species shown under this name in Rings et al. (1992), the first reference to recognize the two species, and "nr. *lituralis*" to the second species. Rings et al. (1992) reported nr. *lituralis* was browner and more mottled; from HLK's series it is darker and browner but not always more mottled. This wing-pattern difference matches differences in COI 5' (HLK/RJB).

Both *Z. lituralis* and nr. *lituralis* were recorded at Splinter Hill. Single specimens of each were collected in the hardwood swamp along Dyas Creek, and one nr. *lituralis* was taken in wet longleaf pine savanna/pitcher plant bog. Both species are habitat generalists in the Southeast, but usually few specimens are found on a given night. In Florida, *lituralis* is seldom-recorded and poorly-known, whereas nr. *lituralis* is widespread and frequently recorded by one or two individuals per night, and occasionally more. *Zanclognatha lituralis* is of sporadic occurrence in the Gainesville area (Alachua County) and HLK recorded it only during five seasons from 1996-2016 (starting with 2002), but during these seasons both species occurred together at the former American Entomological Institute property. *Zanclognatha lituralis* ranges widely in the eastern United States, from the Canadian Life Zone to the Gulf and occasionally into northern peninsular Florida. *Zanclognatha* nr. *lituralis* is widespread in the Lower Austral Zone (Kons and Borth, pers. obs.) but inland it occurs as far north as central Ohio (Rings et al. 1992). Several *Zanclognatha* species including "*lituralis*" are reported to be polyphagous on dead leaves (Robinson et al. 2002).

***Zanclognatha minoralis* complex (Figures S-T, two species):** Two species have been combined under the names *minoralis, theralis,* and *gypsalis* in low elevations of the southeastern U.S. These species are herein designated *minoralis* complex species 1 and 2, and can be separated by corresponding differences in wing pattern and COI 5' (HLK/RJB). The easiest wing-pattern character for separation is the subterminal line. In species 1, it contains prominent contrasting black scaling along at least part of its length (Figure 3S), whereas in species 2, it is white with no more than scattered and diffuse black scaling (Figure 3T). Recently, HLK examined photographs of the types associated with the three names. *Zanclognatha gypsalis* occurs in the Canadian Life Zone of the Appalachians, and *Zanclognatha theralis* is a Canadian Life Zone phenotype that occurs in eastern Canada; neither of these names are applicable to the southeastern fauna. The *Zanclognatha minoralis* lectotype is from Long

Island, New York; it resembles species 2 but is clearly not the same, with much bolder and more-contrasting antemedial and postmedial lines. HLK is uncertain if species 2 is a geographic variant of *minoralis* or a separate species. HLK also examined photographs of the types of *inconspicualis* and *deceptricalis,* and has not seen any matching material from low elevations of the Southeast. *Z. deceptricalis* occurs in the Canadian Life Zone and *inconspicualis* (which may turn out to be a species complex) occurs from the Canadian-Upper Austral Life Zones (HLK/RJB). Species 1 does not match any of these morphotypes.

At Splinter Hill, three specimens of species 1 and one specimen of species 2 were found at the MV sheet in the hardwood swamp along Dyas Creek. Species 1 is widespread in many habitat types from peninsular Florida across the Gulf region to eastern Texas. It is often common and geographically variable, being smaller on average southward into peninsular Florida. Species 2 is somewhat more localized and occurs in a subset of the sites where species 1 occurs. It is most common in diverse mesic or hydric hardwood forests, but we have also found it in xeric oak-pine uplands, cypress swamps, and herb bogs. It appears to be absent from central and southern peninsular Florida but occurs at least as far south as Alachua County (HLK/RJB).

***Zanclognatha protumnusalis* complex (8349) (Figure 3U):** Only one somewhat-worn specimen was found at Splinter Hill, at the MV sheet in the hardwood swamp along Dyas Creek. This species is widespread and occurs in many habitat types (Kons and Borth 2006), but often few individuals are found on a given night. More than one species has been included under the name *protumnusalis,* but HLK thinks only one occurs in low elevations of the Southeast. Transition and Upper Austral Zone specimens are often paler, smaller, and more 'washed-out' than southeastern material, but are otherwise comparable in pattern without any clearly discrete and consistent differences. The holotype is a good match to this northern material (HLK). A species similar to *protumnusalis* occurs in the Canadian Life Zone with more black markings than nominate *Z. protumnusalis* but less than the recently-described *Z. dentata* (="nr. *protumnusalis*" of Kons and Borth (2007b)). Reported larval hosts of *protumnusalis* include *Quercus* (Fagaceae) as well as species of *Abies, Picea,* and *Pinus* (Pinaceae), and it has been reared in captivity on dead leaves (Robinson et al. 2002).

****Renia salusalis* sp. 1:** This species is a common and widespread generalist in Florida and adjacent areas, although it was not numerous during our Splinter Hill bioblitz where a few individuals were found in hydric hardwood swamp and xeric oak-pine forest. *Renia salusalis* sp. 2 occurs north and west of Florida. The males are difficult to separate from pattern alone, but species 1 has reddish females that can be confused with *Renia fraternalis,* whereas species 2 has gray females. Several *Renia* species including "*salusalis*" are reported to be polyphagous on dead leaves (Robinson et al. 2002).

***Renia sobrialis* (8387) (Figure 3Y):** This species was regularly encountered in the hydric hardwood swamp along Dyas Creek. One specimen was found in a light trap in the pitcher plant bog and none in the xeric oak-pine uplands; thus, the hardwood swamp along Dyas Creek may be the critical habitat for the Splinter Hill population. In northern Florida, it is somewhat local and typically encountered in small numbers. It has not been recorded from a number of well-surveyed sites with common habitats such as second-growth mesic hardwood-pine forest and xeric oak-pine forest. Habitats in which it has been found include mesic and hydric hardwood forest, herb bog, salt marsh/maritime woodland, cypress swamp, and white cedar swamp (Kons and Borth 2006). In the Canadian and Transition Life Zone of Wisconsin, there are populations associated with xeric oak-pine barrens, but occasional Florida specimens from xeric uplands have been in close proximity to mesic hardwood forest and/or forested wetlands (HLK/RJB). This species has been misidentified as *Renia nemoralis* and other *Renia* species, and may be the source of dubious reports of *Renia nemoralis* from Florida.

****Hypenodes* new sp. 1 (Figure 3Z):** Two specimens of this undescribed species (not included in Ferguson's (1954) revision) were collected at the MV sheet in the hardwood swamp along Dyas Creek. This species is a widespread generalist in Florida and is recorded from a variety of habitat types (Kons and Borth 2006) although it tends to be most-numerous in forested wetlands. HLK has seen material of this species only from peninsular Florida and the Gulf Coast region (ranging to East Texas), although it probably also occurs north along the Atlantic Coastal Plain as do many southeastern species. To HLK's knowledge this is the only *Hypenodes* in Florida and the Gulf Coast region, and reports of comparably-sized *Hypenodes fractilinea* are misidentifications of this species. The new species can be distinguished from most other *Hypenodes* by the deep notch in the postmedial line across from the reniform; the only other species with this notch is *Hypenodes franclemonti,* which has a more-mottled, contrasting pattern and a broadly-disjunct range in the Canadian Life Zone.

****Dyspyralis* new sp. 1 (Figure 3AA):** About 20 individuals were encountered at MV sheets, UV traps, and bait traps in the hardwood swamp and xeric oak-

pine forest, but none were found in the more-open wet longleaf pine savanna/pitcher plant bog, probably due to the windier conditions (this minute species is often not encountered at lights or bait under windy conditions). This species is a widespread generalist of the Southeast, and can sometimes be common at rotten banana bait. Kons and Borth surveys have found it as far north as southern Indiana (Posey County) and as far west as Oklahoma County, Oklahoma. It was reported as "*atrinanula*?" in Kons and Borth (2006), based on a Smithsonian specimen identified with this name, but HLK can find no reference to this name in the published literature.

***Sigela*:** HLK has examined photographs of the *Sigela* types, revealing that the names have been applied erroneously in collections and the literature, including Kons and Borth (2006). Images of the southeastern *Sigela* species with the correct names can be viewed at: http://www.lepidopterabiodiversity.com/GTInsects/Noctuidae/Boletobiinae/Sigela.htm. Illustrations of *basipunctaria* in the Texas literature show a whitish, undescribed species that occurs in the Sonoran Zone including central-west Texas and Colorado. Actual *Sigela basipunctaria* specimens are typically misidentified as *Sigela eoides* in collections and mixed with *Sigela* species 2 (undescribed), but a diagnosis is provided at the above website. *Sigela basipunctaria* is widespread in Florida, but its distribution west of Florida is poorly-known, and despite extensive surveys in eastern Texas, Kons and Borth found it only at Palmetto State Park in Gonzales County. *Sigela* species 2 (below) is widespread in both northern Florida and eastern Texas, and is the source of erroneous reports of *eoides* from Texas. *Sigela eoides* appears to be confined to peninsular Florida, and occasionally occurs as far north as Gainesville (Alachua County), probably only as a stray or ephemeral migrant. The name *penumbrata* has been correctly applied to a grayish Florida species and incorrectly applied to an undescribed species that occurs in Louisiana, eastern Texas, and Arkansas. Another undescribed yellow-and-purplish species occurs in peninsular Florida.

Sigela basipunctaria, S. eoides, and species 2 may be distinguished from all other eastern U.S. *Sigela* species by their brownish-tan coloration. All three species have distinct black markings, absent in *S. penumbrata*. *Sigela basipunctaria* is similar to species 2; however, in species 2 the costa is edged with a black band. This band is peppered with whitish scales and interrupted by a series of small whitish patches. In *basipunctaria* there is no such dark band along the costa; rather, there is only a series of disjunct black blotches separated by tan scales. *S. basipunctaria* has the forewings extensively peppered with black scaling, whereas in species 2 the black scaling is primarily confined to the costa, black blotches along the PM line, a terminal row of black dots, and two prominent black dots basal to the PM line (these black markings are present in *basipunctaria* in addition to the extensive peppering of black scales basal to the PM line). In species 2 the remainder of the forewing is almost devoid of black scales. Some individuals of *basipunctaria* have the peppering of black scaling forming a series of conspicuous, continuous, undulating black lines, whereas other individuals have the black scales more scattered without distinct lines. *Sigela eoides* lacks black scaling along the costa, has brown banding on the forewings, and has a large reniform spot with white scaling inside.

***Sigela basipunctaria* (8434):** One specimen was recorded at a MV sheet in hydric longleaf pine savanna/pitcher plant bog. This species occurs in many types of habitat in Florida. A few sequenced specimens form two COI 5' groups, but HLK did not have males from both groups to compare genitalia. There were no apparent differences in pattern between the two groups.

****Sigela* sp. 2 (new) (Figure 3AB):** One specimen was collected with the above species, and may represent a disperser from the uplands. This species is probably dependent on oak-pine uplands, including pine flatwoods and oak-pine savanna, but lower numbers are sometimes found in adjacent habitats.

****Phytometra* sp. A [*] (Figure 4A-B):** Two species are included under the name *rhodarialis* with corresponding differences in wing pattern and COI 5'. Only one of them (species A) was found at Splinter Hill, and it was found regularly in both the wet pine savanna/pitcher plant bog and hardwood swamp but did not show up in light-trap samples from the xeric oak-pine forest. Species A is often found in these habitats in Florida as well, and also occurs in cypress swamp, salt marsh, relatively pristine mesic hardwood forest, and xeric oak-pine savanna. However, it is seldom found in some common habitats such as mesic hardwood-pine forest on former agricultural land and closed oak-pine forest, and perhaps only as dispersers. The similar *Phytometra* species B is poorly-known in Florida, but has been found with species A in Gadsden and Alachua counties; however, species B appears to be more common and widespread in East Texas than species A (HLK/RJB). HLK recently examined a photograph of the holotype of *rhodarialis* and found that it is neither of these species; instead, it is a Neotropical species not known from the United States. Three other names are listed as synonyms of *rhodarialis* in Poole (1989), but HLK has not seen photographs of the types.

***Metalectra geminicincta* (8507.1) (Figure 4C):** One fresh specimen was taken at the MV sheet in the

hardwood swamp along Dyas Creek. This species may have been first emerging at this time as this is one of our earliest records for this species. In northern Florida most specimens from the Kons-Borth surveys have been collected in mesic or hydric hardwood forest, with a few from upland oak-pine habitats in close proximity to hardwood forest, and this species may be hardwood forest-dependent (Kons and Borth 2006). It is somewhat localized in occurrence, and has never been found in mesic hardwood-pine forest on former agricultural land at the former American Entomological Institute property (Alachua County) but occurs in more pristine hardwood-forest habitats in the same county. The most individuals we have encountered were in high-quality mesic-hydric hardwood forest along the Santa Fe River (Alachua County). *Metalectra geminicinta* was described from syntypes from Mexico and Cuba (Poole 1989) and Dickel (1991) was unaware of any records from South Florida. The habitat association and Florida distribution are uncharacteristic of other species described from Mexico or Cuba which occur in the U.S., and HLK thinks the species-level taxonomy should be reevaluated.

***Metalectra tantillus* (8502):** Four individuals were found at lights at Splinter Hill, two in the pitcher plant bog/wet longleaf pine savanna and two in the hardwood swamp along Dyas Creek. This species occurs in a wide variety of habitat types in northern Florida (Kons and Borth 2006). It does not come readily to lights, but when bait is attracting large numbers of moths (not the case during our bioblitz) it can be found more reliably and in larger numbers. Specimens of *M. tantillus* are often misidentified as *Idia scobialis,* a species with very similar pattern but for which HLK has seen no correctly-determined specimens from low elevations of the Gulf states. *Metalectra diabolica* is also similar but apparently very local in the Southeast. Larvae of *M. tantillus* have been reported feeding on fungus and on the bark of dead maples (Robinson et al. 2002). The adults occur in many upland habitats where maples are absent, although maples were plentiful along Dyas Creek.

***Metalectra albilinea* (8504) (Figure 4D):** Small numbers of this species were found at Splinter Hill at lights in the hardwood swamp along Dyas Creek and in the xeric oak-pine forest uplands. One male from the hardwood swamp was dissected for confirmation. In northern Florida, this species is a widespread generalist, but often few individuals are found on individual nights. Exceptions can occur when bait is attracting large numbers of moths, and under these conditions the adults are more common at bait than at lights. At Splinter Hill, none were attracted to bait. In size and pattern, this species is very similar to *Metalectra richardsi*, but the two species differ in male genitalia and COI 5' characters. HLK has been unable to confirm the occurrence of *richardsi* in Florida, as all Florida specimens dissected have thus far exhibited the continuous genitalic variation of *albilinea,* including from the relatively cooler central Panhandle. Larvae of three related species of *Metalectra* (*discalis, quadrisignata,* and *tantillus*) have been reported both as detritophagous and feeding on fungi (Robinson et al. 2002).

***Prosoparia floridana* (8419.2) (Figure 3AC)**: One fresh female was flushed from the grass in unburned xeric oak-pine savanna on 26 April. While this species is widespread in peninsular Florida, it appears to be much more localized in the Panhandle, where Kons-Borth surveys found it at sites in Liberty and Franklin counties. Splinter Hill is the westernmost locality of which we are aware, and west of the distribution reported in Lafontaine and Dickel (2009). It occurs primarily in xeric oak-pine uplands, including degraded habitats near suburban areas, and can be plentiful in mesic hardwood-pine forest in close proximity to xeric oak-pine uplands, but is seldom found in hardwood forest several miles from xeric uplands. The Franklin County site is a pitcher plant bog near a cypress swamp, but xeric pine savanna occurs in the area which was not investigated. Prior to Lafontaine and Dickel (2009), this species was lumped with *Prosoparia perfuscaria,* a species (or species complex) which occurs in the mountains of West Texas and Arizona but does not occur in the southeastern U.S. *Prosoparia floridana* has a distinctly bivoltine phenology (Kons and Borth 2006), which is unusual for a southeastern quadrifine noctuid species.

***Lesmone hinna* (8653)**: One specimen was found in a bait trap in xeric oak-pine forest. In northern Florida, this species is widespread in numerous habitat types (Kons and Borth 2006) but usually uncommon with few individuals encountered on a given night. Two species with corresponding differences in pattern and COI 5' are currently combined under this name, one in the southeast U.S. and one in South and Central Texas. The male genitalia are similar with possible minor differences that need to be verified with larger series (HLK). Based on the type locality of Florida, *hinna* applies to the southeastern species.

***Zale coracias* (8683)**: One Splinter Hill specimen was taken in a bait trap in xeric oak-pine forest. This species can be common when rotten banana bait is attracting large numbers of moths, but since it is much less common or reliable at lights, it is usually found in low numbers when bait is not working well. Schweitzer et al. (2011) suggested this species was poorly-known and probably found mostly in sandhill and scrub habitats, but actually it is widespread in northern Florida and occurs in a wide variety of habitats with oak, as suggested by the fifteen localities reported in Kons and Borth (2006). It is most common in xeric upland sites, including

sandhill and scrub as well as oak-pine forest, but it also occurs in mesic and wetland sites. This species has the classic Atlantic Coastal Plain/peninsular Florida/northern Gulf region distribution, but in addition it ranges west and north to the Sonoran/Austral Zone boundary area in Texas and Oklahoma (HLK/RJB). Tietz (1972) reported the larval foodplant to be *Quercus alba,* but it almost certainly feeds on other species of oaks at localities where *Quercus alba* is absent. This species is sometimes placed in the separate genus *Pseudanthracia*, but HLK is unaware of any phylogenetic justification for classifying it in a separate genus from other Nearctic *Quercus*-feeding *Zale*.

***Zale minerea* (8697) (Figure 3G):** At Splinter Hill, three specimens were found in light traps in the xeric oak-pine uplands and one was found in the hardwood swamp along Dyas Creek. In northern Florida, this species is a generalist that occurs in hydric to xeric forested and savanna habitats (Kons and Borth 2006), and reported host plants include trees in nine different families (Robinson et al. 2002). Taxonomic research is needed to evaluate if the current concept of *Z. minerea* really includes a single species. Wisconsin populations of *Z. minerea* are univoltine and include phenotypes we have not seen in the Southeast, whereas southeastern populations are multivoltine. Furthermore, COI 5' analysis shows that the current concept of *Z. minerea* includes multiple divergent haplotype groups, but we have not compared structural morphology among these groups.

***Dysgonia consobrina* (8724):** One specimen was found in a light trap in the hardwood swamp. In northern Florida, this is an infrequently-encountered, localized wetland obligate that occurs in hydric hardwood forest and pitcher plant bog/cypress swamp. Recently the Nearctic "*Dysgonia*" have sometimes alternatively been classified as *Neodysgonia* (Sullivan 2010) or *Gondysia* (Sullivan and Legrain 2011). However, in HLK's opinion, none of these generic concepts represent natural groups, and thus HLK uses *Dysgonia* sensu the Hodges et al. (1983) checklist until a generic revision with natural groups is published.

***Dysgonia similis* (8725):** One specimen was found in a bait trap in the hardwood swamp along Dyas Creek. Two other probable individuals were flushed from low vegetation in the hardwood swamp but not examined closely. This wetland species occurs in forested wetlands in Florida (Kons and Borth 2006), and seldom comes to lights. It is most often found at rotten fruit bait or by flushing it out of low vegetation during the day.

***Dysgonia telma* (8726.1) (Figures 4E & 6I-O):** Two individuals were found at the MV sheet in the hardwood swamp along Dyas Creek, both of which were confirmed with genitalic dissection (Figures 6I-O; one of these specimens). Prior to 2008, records of two southeastern species were lumped under the name *Dysgonia smithii. Dysgonia telma* appears to be dependent on hydric hardwood forest in northern Florida, eastern Texas, and southern Indiana, whereas *D. smithii* is usually found in mesic or upland habitats in the Southeast. The two species fly together where uplands and wetlands occur in close proximity at the Bluffs and Ravines Preserve in Liberty County, Florida (HLK/RJB). *Dysgonia telma* and *smithii* cannot be reliably separated from wing pattern, but genitalic differences are shown in Sullivan (2010). A third genitalia type is represented by a specimen with similar wing pattern collected by Kons and Borth in central Texas.

****Cutina albopunctella* sp. 1 (8728) (Figure 4I):** One specimen was found at the MV sheet in the hardwood swamp along Dyas Creek. The only recorded hosts of *Cutina* are *Taxodium* (Pogue and Ferguson 1998) (see *Taxodium* comments under *I. pergracilis* (above)). Two possible species currently combined under the name *Cutina albopunctella* need further study. Peninsular Florida and the central Florida Panhandle contain species 2, which is highly variable in wing pattern with both strongly-contrasting and plainer phenotypes. However, even the plainer forms are more boldly-marked with stronger contrasts than species 1. Species 1 has a plainer, more-muted pattern, and exhibits minimal variation in wing pattern. It occurs in *Taxodium* habitats north and west of Florida, but we recently found it in the western Panhandle (Escambia County). We have not yet found the two species to be sympatric or any evidence of a blend zone.

***Argyrostrotis*:** The Hodges et al. (1983) MONA checklist recognizes ten species of *Argyrostrotis,* and all ten of these names have been applied to southeastern specimens in collections. Kons and Borth (2006) recognized only six valid species, all of which were recorded during the Splinter Hill bioblitz. Kons and Borth (2006) were unsure of how all of the names applied, but noted the names *flavistriaria, carolina,* and *herbicola* had been applied to a single species that exhibits continuous variation, and that *erasa* and *deleta* had been applied to the same species. We subsequently sampled COI 5' for all of the southeastern phenotypes and found six clades corresponding to the same six species recognized in Kons and Borth (2006). Sullivan and Lafontaine (2011) recognized these same six species in their nomenclatural revision of *Argyrostrotis.* They formally synonymized *carolina* and *herbicola* with *flavistriaria,* but applied *contempta* and *erasa* differently. The holotype of *contempta* is lost, but Sullivan and Lafontaine (2011) hypothesized this name applies to the same species as *flavistriaria* from the original description, and this interpretation is adopted

herein. The lectotype of *erasa* shown in Figure 16 of Sullivan and Lafontaine (2011) is the species that formerly had the name *contempta,* including in Kons and Borth (2006). The lectotype of *deleta* shown in Figure 17 of Sullivan and Lafontaine (2011) is the species that was identified as both *erasa* and *deleta* in collections, and was reported as *erasa* in Kons and Borth (2006). *Argyrostrotis flavistriaria, A. quadrifilaris, A. sylvarum, A. erasa,* and *A. deleta* have similar habits and a distribution including part of the Atlantic Coastal Plain, the northern Gulf Coast region extending from Florida to eastern Texas, and at least the northern part of peninsular Florida. These species are both diurnal and nocturnal. They all fly together in some pitcher plant bogs and salt marsh/maritime woodland complexes, but different combinations of these species occur in other types of habitats (Kons and Borth 2006). Herb bogs are the habitat where they tend to be most common, although none of them are restricted to bogs. *Argyrostrotis anilis* is widely-distributed in eastern North America and less of a habitat specialist than the other species in the Southeast.

***Argyrostrotis erasa* (8761):** At Splinter Hill this species was occasionally encountered in the pitcher plant bog and hardwood swamp, where it was flushed from vegetation during the day and encountered flying at night. The flight was mostly low to the ground, weaving in and out of vegetation, as is also characteristic of the other *Argyrostrotis* exclusive of *anilis.* Relatively fewer individuals of *A. erasa* came to the MV and UV lights in the bog and hardwood swamp than were seen during the day or free-flying at night. This species was much less common than *A. deleta* and *A. flavistriaria. Argyrostrotis erasa* appears to be a wetland-dependent species but occurs in a variety of wetland types, including herb bog, hydric hardwood forest, cypress swamp, white cedar swamp, and salt marsh (Kons and Borth 2006, reported as *contempta*). Smaller numbers of adults are sometimes found in xeric oak-pine uplands in proximity to wetlands, but this was not the case during our bioblitz.

***Argyrostrotis flavistriaria* (8759):** At Splinter Hill this species was frequently flushed during the day while walking through the pitcher plant bog and hardwood swamp along Dyas Creek. It was also regularly found flying along or across the main trail from the parking lot at night. Relatively few individuals came to MV or UV lights in the bog, hydric longleaf pine savanna, and hardwood swamp, except between 3am and sunrise on 29 April at the MV sheet in the hardwood swamp. About 25 individuals came to the sheet during this interval. *Argyrostrotis flavistriaria* occurs in the same habitats as *A. erasa* but is more widespread, and we have also found populations associated with rich mesic hardwood forest. We also have Florida specimens from xeric oak-pine uplands, but these may be dispersers from wetlands or hardwood forest that occurred in close proximity. None were found in the xeric uplands at Splinter Hill. Tietz (1972) reported the larval host as *Scutellaria* (Labiatae), and there are thirteen species in this genus reported for Florida in Wunderlin et al. (2016).

***Argyrostrotis sylvarum* (8760):** This species was occasionally encountered during the day after being flushed from vegetation walking through pitcher plant bog, hydric longleaf pine savanna, and hardwood swamp habitats, but it was much less numerous than *A. deleta* and *A. flavistriaria.* Occasional individuals also came to lights in these same habitats. In northern Florida *A. sylvarum* occurs in the same types of wetlands noted for *erasa* (above) in addition to some sites with mesic hardwood forest (Kons and Borth 2006). Smaller numbers of Florida specimens from xeric oak-pine uplands may represent dispersers from nearby wetland or hardwood forest habitats. None were found in the uplands at Splinter Hill. The reported larval host is *Lyonia fruticosa* (Ericaceae) (Tietz 1972), but the distribution of this plant per USDA (2016) does not extend west of the central Florida Panhandle, whereas the moth occurs as far west as East Texas (Bordelon and Knudson 1999, Kons and Borth 2009).

***Argyrostrotis deleta* (8763)**: This was by far the most common Lepidoptera species seen during the day during the Splinter Hill bioblitz. Well over one hundred individuals were likely seen flying during the day or flushed from the vegetation in the pitcher plant bog, hydric longleaf pine savanna, and hardwood swamp, although none were seen in the xeric oak-pine uplands. While individuals must be collected for definitive identification (the pattern is quite similar to *A. erasa* and the behavior is similar to four other *Argyrostrotis* species), with few exceptions *A. deleta* is smaller than these other *Argyrostrotis* species. Only occasional individuals came to MV and UV lights in these habitats, although many were found free-flying at night in close proximity to lighted sheets and traps. However, about 25 probable individuals came to the MV sheet during a period of high moth activity in the hardwood swamp between 3am and sunrise on the night of 29 April. In northern Florida *A. deleta* occurs in the same types of wetland habitats noted for *A. erasa* above, but it is more widespread with *A. erasa* occurring in a subset of the sites where *A. deleta* has been found (Kons and Borth 2006, but note the nomenclatural differences specified under the *Argyrostrotis* header section above).

***Argyrostrotis quadrifilaris* (8762):** Only two specimens were recorded during the Splinter Hill bioblitz, one in pitcher plant bog/hydric longleaf pine savanna near the parking lot and one in the hardwood swamp along Dyas

Creek. In North Florida this species occurs in both upland and wetland sites, including xeric pine-palmetto flatwoods, herb bogs, salt marsh/maritime woodland, cypress swamp, and longleaf pine/turkey oak sandhills (Kons and Borth 2006). We have found it most commonly in pine-palmetto flatwoods and herb bogs. This species is frequently misidentified. It is polymorphic with two discrete forms: one form has two white lines on the forewing and is sometimes confused with *A. anilis,* and another form without white lines is misidentified under various names. The COI 5' sequences and male genitalia do not differ between these two forms, and they occur together at any site where we have recorded more than a few individuals (HLK/RJB). One of each form was recorded from Splinter Hill. Tietz (1972) reported a host record of *Gossypium herbaceum* (Malvaceae); however, the combined Florida distribution of this plant reported in USDA (2016) and Wunderlin et al. (2016) includes only one of the Florida counties where we reported *A. quadrifilaris* in Kons and Borth (2016).

***Ptichodis bistrigata* (8751) (Figure 4H):** One worn specimen was found at Splinter Hill at the MV sheet in pitcher plant bog/wet longleaf pine savanna the first day of the bioblitz. It may represent a disperser from the xeric uplands, and is an unusually late specimen of this univoltine spring species this far south. In Gadsden County, Florida, HLK found fresh specimens in xeric oak-pine savanna uplands on 10 March, but none were found in hydric or mesic hardwood forest a mile or less away on the same road on the same date. Other Florida specimens examined by HLK were from March or early April. Other *Ptichodis* or *Argyrostrotis* species are sometimes misdetermined as *P. bistrigata,* and this probably accounts for almost-certainly erroneous reports of *bistrigata* from July and August in Kimball (1965).

***Doryodes bistrialis* (8765) (Figures 4F & 6P-R):** One fresh male was collected after being flushed out of tall grass in the unburned portion of the xeric oak-pine savanna (in the vicinity of D2 on Figure 1). In North Florida this species occurs in both pitcher plant bogs and xeric longleaf pine savanna. We did not find it in the pitcher plant bog at Splinter Hill, although we would expect it to occur there. This species tends to be smaller and paler than *D. fusselli,* but the two species can only be reliably separated from genitalia or DNA. The everted vesica and valvae of the Splinter Hill specimen are shown in Figures 6P-R.

In 2007 and 2008 Kons and Borth sampled *Doryodes* for COI 5' from eastern Texas and the Gulf Coast region of Florida, and discovered this material forms seven DNA clades separate from *grandipennis* on the Atlantic Coast. Furthermore, HLK found there were eight male genitalia types included with material from the areas sampled, all distinct from *grandipennis* from the Atlantic Coast. Seven of these eight species were included in Lafontaine and Sullivan (2015), with the unsequenced species not included. Material that had been reported as *bistrialis* (Kimball 1965, Bordelon and Knudson 1999, Kons and Borth 2006) included three species: two associated with salt marsh and one that occurs in pitcher plant bogs and longleaf pine savannas. The pitcher plant bog/longleaf pine savanna species has an account in Schweitzer et al. (2011) under the provisional name "*Doryodes* species (not formally described)" and one of the salt marsh species was shown in Kimball (1965) as *Doryodes bistrialis.* The holotype of *bistrialis* is lost, but Lafontaine and Sullivan (2015) designated a specimen of the species in Schweitzer (2011) as the neotype of *bistrialis,* and named the two salt marsh species as *fusselli* and *broui.* HLK thinks the extant type of *promptella* is probably either *fusselli* or *bistrialis,* but this type has not been dissected. Another *bistrialis*-like phenotype occurs in South Florida, including in subtropical hardwood woodland and degraded fields and wetlands along canals where the habitat is being overrun with exotic plants. This material has not been sequenced but the male genitalia closely match *bistrialis*, although the habitat is very uncharacteristic of *bistrialis* from the remainder of its range.

***Paectes pygmaea* (8959) (Figure 4L):** *Paectes pygmaea* was recorded from three specimens at Splinter Hill, all from the hardwood swamp along Dyas Creek. One male was dissected for confirmation. *Paectes pygmaea* occurs in a variety of hydric, mesic, and xeric habitats in northern Florida, but it has not been found in some relatively well-sampled localities with common habitats (Kons and Borth 2006). It is generally more common in the Panhandle than in peninsular Florida. We include an account because HLK believes the taxonomy of this species and its relatives has been widely misunderstood, and *Paectes pygmaea* has been misidentified as *P. abrostolella* in the Southeast, including Florida.

Paectes pygmaea is part of a complex including four species with distinctive vesica structure and COI 5' sequences, but which are difficult or impossible to distinguish from wing pattern (HLK). Exemplar images of adults and male genitalia of each of these species can be viewed at http://www.lepidopterabiodiversity.com/Dissections/Euteliinae/PaectesPygmaeaComplex.htm. These species appear to have been lumped under two names (*pygmaea* and *abrostolella*) in Metzler and Franclemont (1991). From dissections, HLK thinks *pygmaea* is the only species of this complex that occurs in the southeastern Gulf Coast region, contrary to Metzler and Franclemont's (1991) report of both *pygmaea* and *abrostolella* from Florida. Exemplar HLK

dissection vouchers for all of the localities reported for *pygmaea* in Kons and Borth (2006) plus additional Florida localities have all been *pygmaea,* as well as all HLK dissection vouchers from the Piney Woods region of East Texas.

HLK tentatively applies *pygmaea* based on the type locality of "Aus Georgien in Florida," and the observation that all HLK dissection vouchers from the southeast Gulf Coast region have been the same species. Other names available for the complex (*flabella, abrostolella,* and *praepilata*) cannot be applied from the vague type localities, and HLK doubts they could be reliably applied without dissection of the actual types. The other three species are referred to as *pygmaea* complex species 1-3. *Paectes pygmaea* is sexually dimorphic with the females more variable and usually lighter gray than the brownish-gray males. It is widespread in the Austral Life Zone at least as far west as the Piney Woods region of eastern Texas, and inland it has been found at least as far north as southeastern Wisconsin (Kons et al. 2014a,b). Species 1 can be either dark brownish-gray or light gray. Some dark individuals are probably impossible to reliably separate from *pygmaea* based solely upon wing pattern, and the light-gray males can be confused with species 3 (see below). This species is widespread in the Austral/Sonoran boundary area in Oklahoma and Texas, the Edwards Plateau in central Texas, and the Trans-Pecos mountains of western Texas including the Davis and Franklin mountains. It often occurs in xeric habitats with a mix of oak woodland and grassland. We are unsure of how far north, east, or west it ranges, but none of HLK's dissections from the Piney Woods region of East Texas or farther east have been this species. Species 2 occurs in Arizona, and HLK has no dissection vouchers of this species from Texas or farther east, but we do not know its western distribution outside of Arizona. Species 3 is known to us primarily from a diverse mesic hardwood forest in Clay County, Tennessee, but we also have dissection and DNA vouchers from a mesic hardwood forest in Missouri. Species 3 is often light gray in both genders (some darker females occur in Missouri) and has a contrasting patch of rich brown scaling distal to the postmedial line. The males are usually lighter gray than *pygmaea* but could be confused with the light-gray males of species 1; however, they usually (not always) have more extensive brown forewing scaling distal to the postmedial line relative to species 1. HLK thinks the Ohio specimen illustrated as a male of *Paectes abrostolella* in Rings et al. (1992, Plate XIV No. 39) is actually a female (note the filiform antennae), possibly of species 3. The lightest-gray specimens from northern Florida approach species 3 in pattern, but the genitalia have been typical of *pygmaea* (HLK).

***Nola pustulata* complex (8989, 8989.1) (Figures 4J-K (both species)):** Douglas Ferguson recognized that two species were encompassed by the name *Nola pustulata,* but these findings were never published. The species are sympatric at Splinter Hill. *Nola pustulata* (Figure 4J) is seldom-collected and poorly-known as far south as Splinter Hill, and in Florida Kons and Borth found it at only one site in Gadsden County (Aspalaga Road). *Nola* near *pustulata* (Figure 4K) occurs in a variety of wetland types in northern Florida (and elsewhere along the Gulf) including pitcher plant bogs, cypress swamps, and hydric hardwood forest (Kons and Borth 2006). At Splinter Hill, *Nola pustulata* was recorded from three individuals: two from light traps in the xeric oak-pine forest and one from a light trap in the hardwood swamp. A small series of specimens from the complex collected at the MV sheet in the hardwood swamp on 29 April all represent near *pustulata,* but about 15 worn individuals from this species complex were not collected (perhaps worn from the recent heavy rains). No specimens of either species were found in the wet pine savanna/pitcher plant bog, although *Nola* nr. *pustulata* would be expected in this habitat.

***Nola clethrae* (8996) (Figure 4L):** A few fresh specimens were found in the hardwood swamp along Dyas Creek, where we observed the reported larval host (*Clethra alnifolia* (Clethraceae) (Poole 1989)) growing along the edge. In North Florida this wetland species occurs in hydric hardwood forest and other types of forested wetlands (Kons and Borth 2006). The larval host often grows along edges or in openings within these forested wetlands. In collections, this species is often mixed with the *Meganola minuscula* complex, a complex of species including both a univoltine (spring) and multivoltine generalist species in northern Florida (HLK). The multivoltine species is widespread in peninsular Florida and ranges west to the central Panhandle, but we did not find it in the western Panhandle or at Splinter Hill.

***Exyra semicrocea* (9024) (Figure 4U):** This species is fairly common at Splinter Hill and was regularly encountered in the pitcher plant bog. It came to lights at night, was netted flying in the bog at night, and found in *Sarracenia leucophylla* pitchers during the day. This is the most widespread of the three *Exyra* species that occur in northern Florida, and is found in both bogs dominated by *Sarracenia leucophylla* and *S. flava.* Reported larval hosts are all *Sarracenia* but include six species, including *S. flava* and *S. leucophylla* (Robinson et al. 2002). While this species is restricted to a specialized pitcher plant bog habitat type, it can be common where it occurs; for example, Brou (2008) reported finding hundreds of individuals every year in Abita Springs, Louisiana. This species is a strong

disperser, and Kons-Borth surveys have regularly encountered it in other habitats in the vicinity of pitcher plant bogs, including xeric longleaf pine savanna in eastern Texas, and xeric pine-palmetto flatwoods, turkey oak scrub savanna, and hardwood swamp in northern Florida. At Splinter Hill, four individuals came to the MV sheet in the hardwood swamp on 29 April, but all other individuals encountered were in pitcher plant bogs.

***Hyperstrotia aetheria* (9036)**: One specimen was taken in a light trap in xeric oak-pine forest. In North Florida surveys by Kons-Borth this species was found primarily in turkey oak/longleaf pine sandhill scrub savannas, but it also occurs in other types of xeric oak-pine habitats. Until recently, this species was known as *Hyperstrotia nana* based on Plate XIV Figure 9 in Kimball (1965), and sometimes the same species was identified as *nana* and *aetheria* in the same collection. HLK has examined a photograph of the holotype of *aetheria* and it is the same species called *nana* in Kimball (1965), but no type is available for *nana.* However, Lafontaine and Schmidt (2015) proposed that *H. nana* is actually the same species as *H. villificans* based on a painting in Hubner (1818). HLK now uses *aetheria* for the species illustrated as *nana* in Kimball (1965) as there is no ambiguity associated with this name. "*Hyperstrotia* species" of Kons and Borth (2006) is an undescribed species similar to *aetheria* that occurs in peninsular Florida. The host of *H. aetheria* is unknown, but congeners are reported from Fagaceae and/or Ulmaceae (Robinson et al. 2002).

***Acontia aprica* (9136)**: One Splinter Hill specimen was found at a MV sheet in pitcher plant bog/hydric longleaf pine savanna. This species can be abundant in open grassland habitats in the Upper Austral, Sonoran, and Subtropical Life Zones (southern Texas), but in northern Florida it is usually uncommon in natural habitats, and was recorded from only two of the North Florida localities included in Kons and Borth (2006). Most of the Kons-Borth North Florida specimens were from mowed grassy strips along highways in the Panhandle in areas with grassy-shrubby fields, lawns, and buildings. We also collected a specimen and observed six more likely individuals in a mowed strip along a highway in Atmore, AL, during the time of the bioblitz. Southeastern specimens of *Acontia aprica* are sometimes misidentified as *A. tetragona,* a species which is widespread in central, southern, and western Texas. HLK has not seen *A. tetragona* from the northern Gulf region, although material that looks similar in pattern (but not compared with dissections) occurs in southern Florida. Reported host plants for *A. aprica* are Malvaceae, including *Alcea rosea* and *Althaea* (Robinson et al. 2002). *Alcea rosea* is not known to be native to Florida but has been cultivated (Wunderlin et al. 2016), and is a potential natural host in the Upper Austral Zone. USDA (2016) shows few records of this plant from Texas and Oklahoma where *A. aprica* is very widespread (except in the east), so clearly there are other host plants.

****Bagisaria rectifascia* sp. 2 (Figure 4U):** One specimen was found at the MV sheet in the hardwood swamp. This species is widespread in northern Florida and occurs in a variety of different habitats (Kons and Borth 2006) but is usually uncommon with few specimens encountered on any given night. It occurs from northern Florida to eastern Texas and inland at least as far north as southern Indiana. *Bagisara rectifascia* species 1 is illustrated in Rings et al. (1992) Plate XIII Figure 25. This species is more northern and much more localized and poorly-known: among extensive surveys in Wisconsin, Kons and Borth found this species only in oak-pine barrens in northwest and central Wisconsin (Burnett and Jackson counties). The two species are easily separated from wing pattern, and have very different distributions and habitat associations. HLK is unaware of geographic variation in wing pattern in either species.

***Bagisara brouana* (9176.1) (Figure 4R):** Three individuals were found in the hydric longleaf pine savanna/pitcher plant bog, eight in the hardwood swamp, and one in the xeric oak-pine forest. Seven came to MV sheets and the remainder were in UV light traps. When this species was described by Ferguson (1997) he was aware of records only from three coastal counties of Mississippi and two Louisiana parishes, including Vernon Brou's Abita Springs study site where most of the known specimens were collected. Kons and Borth (2006) reported North Florida localities from Dixie, Liberty, Gadsden, Jackson, and Santa Rosa counties, and we have since found localities in Franklin, Gulf, and Escambia counties. All of these Florida records are from wetlands or habitats in close proximity to wetlands, although the types of wetlands vary among the localities, including pitcher plant bog/cypress swamp, hydric hardwood forest, wooded wetlands, and salt marsh/coastal palm-pine-red cedar-cypress woodland. The larval host is unknown, but Brou (2003) suspected *Hibiscus aculeatus* (Malvaceae), a common species at the Abita Springs, Louisiana, locality. This plant also occurs at the Splinter Hill Preserve (Brent Shaver, pers. comm. 2016) and in all of the Florida counties where Kons and Borth have recorded *B. brouana* (Wunderlin et al. 2016). Ferguson (1997) reported that the few recorded larval host records for *Bagisara* were all species of Malvaceae.

***Acronicta sinescripta* (9272.1) (Figures 4W-X):** Two fresh males were collected at MV sheets at Splinter Hill, one in hydric longleaf pine savanna/pitcher plant bog, and one in the hardwood swamp along Dyas Creek.

This is one of the most notable records from the Splinter Hill bioblitz, and it is poorly-known outside of the type locality of Abita Springs, Louisiana, where Brou (2005c) reported finding 162 individuals. Ferguson (1998) reported it from coastal South Carolina, peninsular Florida, Mississippi, and Louisiana. Kons and Borth (2006) recorded it only from two pitcher plant bogs in Liberty County, Florida, despite extensive surveys in North Florida wetlands during its potential flight season. Most specimens have been collected in or near pitcher plant bogs (Schweitzer et al. 2011), but Ferguson (1988) reported five specimens from the Archbold Biological Station (Highlands County, Florida) in 1959, a locality not reported to contain pitcher plant bog (ABS 2004).

***Acronicta insularis* sp. A:** One male was collected at the MV sheet in the hardwood swamp. This species is a wetland obligate and the conspicuous larvae appear to feed exclusively on *Typha,* as HLK has found hundreds of larvae on *Typha* in Florida and Texas but none on other plants. In contrast, *Acronicta insularis* sp. B is highly polyphagous and can be found in numerous habitats, including old fields where the larvae can be common. We did not see *Typha* in the immediate vicinity of our survey stations, but it likely occurs in the vicinity along Dyas Creek. Species A occurs in the southeastern U.S. at least as far west as Comanche County, Oklahoma, whereas species B is widespread in the Canadian, Transition, and Upper Austral Life Zones. Species B has dark longitudinal streaks on the wings which are lacking in species A. This species was classified in the genus *Simyra* in the Hodges et al. (1983) MONA check list. However, cladistic analysis of public COI 5' sequences places it embedded within the *Acronicta* and close to *Acronicta oblinita,* and furthermore these two species have similar larvae with the segments ringed by scoli with radiating elongate setae (HLK).

***Balsa labecula* (9664) (Figure 4Z):** One fresh specimen was collected at the MV sheet in the hardwood swamp along Dyas Creek. This species appears to be much more localized and poorly-known in northern Florida than in the Transition and Upper Austral Life Zones where it is widespread. All North Florida localities from the Kons-Borth surveys are from mesic and/or hydric hardwood forests. Kons and Borth (2006) reported only four localities from recent northern Florida surveys; however, we have subsequently found additional sites in the central Panhandle.

***Ogdoconta pulvilinea* (9724.3) (Figure 4V):** One specimen was collected at the MV sheet in the hardwood swamp along Dyas Creek. In Florida this species appears to be a habitat generalist, with the longest series of specimens collected in mesic hardwood-pine forest on former agricultural land at the best-studied locality, the former American Entomological Institute property (Alachua County). In Alachua County, the date of first recorded occurrence varies greatly between seasons, suggesting it may be a migrant to that area. This species is reported as *Ogdoconta* sp. nr. *tacna* in Kons and Borth (2006) from six localities in Alachua, Dixie, Gadsden, and Jackson counties, and we have subsequently added Citrus, Franklin, Gulf, Liberty, and Escambia counties. Almost-certainly erroneous reports of the Sonoran Zone species *Ogdoconta tacna* from Florida probably all refer to this species. West of the Florida Panhandle HLK has seen few U.S. specimens. Kons and Borth collected single specimens in Jasper and Cameron counties, Texas, and HLK has seen single specimens from West Feliciana Parish, Louisiana (photo supplied by Vernon Brou) and Wilkinson County, Mississippi. After sequencing specimens from Alachua County for COI 5', Kons and Borth discovered it closely matched a species Dan Janzen had sequenced from Costa Rica, *Ogdoconta pulvilinea.* J. Donald Lafontaine provided a photograph of the type of *pulvilinea* and it is an excellent match in wing pattern to the U.S. material, but we have not examined the genitalia of any Costa Rican specimens. HLK is unaware of any reported morphological differences between *Ogdoconta pulvilinea* and *Ogdoconta fergusoni*, so we report records under the older name, *pulvilinea.*

***Crambodes talidiformis* (9661):** One specimen was collected at the MV sheet in the hardwood swamp along Dyas Creek. This species is somewhat local but occurs in a variety of habitats in the Transition and Upper Austral Life Zones; however, we have encountered few specimens as far south as Splinter Hill. Kons and Borth surveys yielded only two specimens from northern Florida, from Jackson and Escambia counties. A taxonomic evaluation is needed to determine if material from central and southern Texas is a separate species from material from the eastern United States.

***Fagitana littera* (9629) (Figure 4T):** This wetland species was regularly encountered in the hardwood swamp along Dyas Creek. It is associated with wooded wetlands with plentiful ferns in North Florida and East Texas (HLK/RJB), and the reported larval hosts are various ferns (Robinson et al. 2002). Ferns occur in abundance within and along the edges of the hardwood swamp along Dyas Creek. This species occurs along the Gulf and Atlantic coasts and in peninsular Florida, and in an apparently disjunct area of the Upper Midwest east into Canada. A taxonomic evaluation is needed to determine if material from these two areas is really all one species.

***Emarginea percara* (9718) (Figure 4Y):** One fresh specimen was collected at the MV sheet in the hardwood swamp along Dyas Creek. This is an atypical habitat for this species, and it almost certainly represents a disperser from the xeric uplands. The typical North

Florida habitat is xeric oak-pine savannas, although smaller numbers of individuals have been found in more closed xeric oak-pine forest habitats (Kons and Borth 2006). Reported larval hosts are two species of *Phoradendron* (Viscaceae) (Robinson et al. 2002) that do not occur in Florida or Alabama per USDA (2016). However, the distribution of *Emarginea percara* in the southeastern U.S. is within the range of *Phoradendron leucarpum*, although the moth appears to be more localized and restricted in habitat than this plant. A taxonomic evaluation is needed to determine if southeastern specimens are really the same species as similar material from central Texas and the southwestern U.S.

***Leucania phragmatidicola* (10444)**: Three specimens were found in the hydric longleaf pine savanna/pitcher plant bog, one of which was confirmed by genitalic dissection. This species is widespread in open grassy habitats in much of eastern North America but we have rarely found it as far south as Splinter Hill. Kons and Borth also recorded it at the Perdido River Preserve in Escambia County, FL, but it did not show up in extensive surveys in the central Panhandle. We have found a similar species, *Leucania linda,* in the central Panhandle and Dixie County, Florida.

***Leucania* sp. unplaced (Figures 4AB & 6S-AB):** Two male specimens of an unrecognized *Leucania* were collected, one in a UV trap in the hardwood swamp along Dyas Creek and one in a UV trap in hydric longleaf pine savanna/pitcher plant bog. This species closely resembles *Leucania calidior* in pattern but it lacks the dense tuft of hair on the male foreleg. The genitalia of one of these specimens are shown in Figures 6S-AB.

***Morrisonia triangula* (10521.1) (Figure 4Z):** Six individuals were encountered at UV lights in the xeric oak-pine forest, and single individuals were found in the pitcher plant bog and hardwood swamp. This species appears to be quite local in northern Florida but not associated with a particular type of specialized habitat; Florida specimens are from hardwood forest, xeric oak-pine forest, and forested wetlands. Kons and Borth North Florida surveys found it at four sites in Escambia, Okaloosa, and Liberty counties, and Sullivan and Adams (2009) also reported Alachua and Monroe counties.

***Euagrotis lubricans* complex (Figures 4AC-AD):** The *Euagrotis lubricans* complex includes four species: *Euagrotis sullivani* and three species included under the name *lubricans.* Examples of the adults and male abdominal cuticles of each species can be viewed at: http://www.lepidopterabiodiversity.com/GTInsects/Noctuidae/Noctuinae/Euagrotis.htm. HLK also thinks three *Euagrotis* species are combined under the name *illapsa* in the southeastern United States, although none of these species were recorded from Splinter Hill, and two of them may be peninsular Florida endemics (see above website).

Euagrotis sullivani is variable in wing pattern and can be confused with all of the other species, but is the only one of the four that lacks abdominal brushes in males. It occurs in a variety of habitats including hardwood forest, xeric oak-pine forest, xeric longleaf pine savanna, and herb bogs. This appears to be the most-common species of the complex in East Texas, but Kons-Borth surveys yielded only one Florida specimen (confirmed with dissection), from Buena Vista Road in Jackson County. *E. lubricans* species 1 is widespread and occurs in a variety of habitat types, but is seldom encountered. The wing pattern is similar to that of *sullivani* and species 2 (Figure 4AD), but it has small abdominal pockets (similar to *sullivani* but slightly larger) with abdominal brushes (unlike *sullivani*). *E. lubricans* species 2 and 3 both have larger abdominal pockets with abdominal brushes, but they can be separated from each other by wing pattern and have different habitat affiliations. *E. lubricans* species 2 occurs in bogs and cypress swamps and has a more-mottled pattern and a more distinct postmedial line than species 3 (Figure 4AC), which occurs in upland oak-pine savanna. All three "*lubricans*" species can be found flying together where uplands and wetlands occur in close proximity in the Apalachicola National Forest. The name *sullivani* can be applied unequivocally from the diagnosis and figures in Lafontaine (2004), but we do not know which species is the true *lubricans.*

Four specimens in the complex were collected at Splinter Hill representing two of the species, and one of each was dissected for confirmation. Two specimens of *lubricans* species 2 were taken at a light trap in the pitcher plant bog on 29 April; they may have been first emerging as none were found on 26-27 April. Single specimens of *lubricans* species 3 were found in the xeric oak-pine forest and in hydric longleaf pine savanna/pitcher plant bog, the latter almost certainly representing a disperser from the uplands.

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References

Archbold Biological Station, 2004. *Principal habitats*. Web Page: http://www.archbold-station.org/html/aboutus/habitats.html {cited as "ABS 2004" in text}.

Bordelon, Charles and Edward Knudson, 1999. *Checklist of the Lepidoptera of the Big Thicket National Preserve Texas*. Texas Lepidoptera Survey Pub. 2.

Brou, Vernon A., 1994a. Additional information on the geometrid genus *Nematocampa* in Louisiana. *Southern Lepidopterists News* 16(1):1-2. http://www.lsuinsects.org/people/vernonbrou/pdf/1994.%2028.%20Additional%20information%20on%20the%20geometrid%20genus%20Nem.pdf

Brou, Vernon A., 1994b. The genus *Callosamia* Packard (Saturniidae), in Louisiana. *Southern Lepidopterists News* 16(1): 2-4.

Brou, Vernon A., 2003. The occurrence of *Bagisara brouana* Ferguson in southeast Louisiana. http://www.lsuinsects.org/people/vernonbrou/pdf/2003.%2073.%20The%20occurrence%20of%20Bagisara%20brouana%20Ferguson%20in% 20so.pdf

Brou, Vernon A., 2005a. *Lytrosis* Hulst of Louisiana. *Southern Lepidopterists News* 27(1). http://www.lsuinsects.org/people/vernonbrou/pdf/2005.%20107.%20Lytrosis%20Hulst%20of%20Louisiana.%20So.%20Lepid.%20News.pdf

Brou, Vernon A., 2005b. Two undescribed species of Notodontidae from Louisiana. *Southern Lepidopterists News* 27(3):82-83. http://www.lsuinsects.org/people/vernonbrou/pdf/2005.%20116.%20Two%20Undescribed%20Species%20Of%20Notodontidae%20From%20Lou.pdf

Brou, Vernon A., 2005c. *Acronicta sinescripta* in Louisiana. http://www.lsuinsects.org/people/vernonbrou/pdf/2005.%20123.%20Acronicta%20sinescripta%20Ferguson%20in%20Louisiana.%20So.pdf

Brou, Vernon A., 2008. *Exyra semicrocea* (Guenée) in Louisiana. http://www.lsuinsects.org/ people/vernonbrou/pdf/2008.%20165.%20Exyra%20semicrocea%20%28Guenee%29%20in%20Louisiana.%20So.%20Lepi.pdf

Calhoun, John V., 2006. A glimpse into a "Flora et Entomologia": The natural history of the rarer Lepidopterous insects of Georgia by J. E. Smith and J. Abbot (1797). *Journal Lep. Soc.* 60(1): 1-37.

Covell, Charles V. Jr., 1984. *A field guide to the moths of eastern North America.* The Peterson Field Guide Series. Houghton Mifflin Company. Boston.

Covell, Charles V. Jr., 1999. *The butterflies and moths (Lepidoptera) of Kentucky.* Kentucky State Preserves Commission Scientific and Technical Series Number 6.

Dickel, Terhune S., 1991. New records of noctuid moths from Florida (Lepidoptera: Noctuidae). *Tropical Lepidoptera* 2(1): 53-58.

Dickel, Terhune S., Vernon A. Brou Jr., and John B. Heppner, 2010. New North American records of the Asian species, *Simplicia cornicalis* in Florida and Louisiana (Lepidoptera: Noctuidae: Herminiinae). *Lepidoptera Novae* 3(1): 53-56.

Ferguson, Douglas C., 1954. A revision of the genus *Hypenodes* Doubleday with descriptions of a new species Lepidoptera, Phalaenidae). *The Canadian Entomologist.* LXXXVI (7): 289-298.

Ferguson, Douglas C., 1978. *The moths of America north of Mexico Fascicle 22.2, Noctuoidea: Lymanriidae.* The Wedge Entomological Research Foundation.

Ferguson, Douglas C., 1983. A revision of the species of *Nematocampa* (Geometridae: Ennominae) occurring in the United States and Canada. *Journal of the Lepidopterists' Society.* 47: 60-77.

Ferguson, Douglas C., 1985. *The moths of America north of Mexico Fascicle 18.1, Geometroidea: Geometridae (part).* The Wedge Entomological Research Foundation.

Ferguson, Douglas C., 1988. New species and new nomenclature in the American Acronictinae (Lepidoptera: Noctuidae). *Journal of Research on the Lepidoptera*. 26(1-4): 201-218.

Ferguson, Douglas C., 1993. A revision of the species of *Nematocampa* (Geometridae: Ennominae) occurring in the United States and Canada. *Journal of the Lepidopterists' Society*. 47(1): 60-77.

Ferguson, Douglas C., 1997. Review of the new world Bagisarinae with descriptions of two new species from the southern United States (Noctuidae). *J. of the Lep. Soc*. 51(4): 344-357.

Ferguson, Douglas C., 2008. *The moths of America north of Mexico Fascicle 17.2, Geometroidea: Geometridae (part).* The Wedge Entomological Research Foundation.

Forbes, WilliamT.M., 1960. Lepidoptera of New York and neighboring states. Part IV. *Memoirs, Cornell University Agricultural Experiment Station*. 371: 1-188.

Gatrelle, Ronald R., 1999. Hubner's *helicta*: the forgotten *Neonympha. The Taxonomic Report*. 1(8):1-8.

Handfield, Louis, 1999. *Le guide des Papillons du Quebec*. Volume I. Broquet. Quebec, Canada.

Hodges, Ronald W. et al ., 1983. *Check List of the Lepidoptera of America North of Mexico*. Great Britian, University Press, Cambridge. 284 pp.

Kimball, Charles P., 1965. *The Lepidoptera of Florida.* Div. of Plant Industry, State of FL Dept of Agriculture. Gainesville, FL.

Kons, Hugo L. Jr., 2001. *Contributions Toward a Lepidoptera (Psychidae, Yponomeutidae, Sesiidae, Cossidae, Zygaenoidea, Thyrididae, Drepanoidea, Geometroidea, Mimalonoidea, Bombycoidea, Sphingoidea, & Noctuoidea) Biodiversity Inventory of the University of Florida Natural Area Teaching Lab*. natl.ifas.ufl.edu http://natl.ifas.ufl.edu/ docs/ NATL Moths.pdf

Kons, Hugo L. Jr. and Robert J. Borth, 2006. Contributions to a study of the diversity, distribution, habitat association, and phenology of the Lepidoptera of Northern Florida. *North American Journal of Lepidoptera Biodiversity* 1: 1-213. http://www.lepidopterabiodiversity.com/VolIpdfs.htm

Kons, Hugo L. Jr. and Robert J. Borth, 2007a. *Lepidoptera survey methods utilized in North American Journal of Lepidoptera Biodiversity publications*. Web Page: http://www.lepidopterabiodiversity.com/SurveyMethods.htm

Kons, Hugo L. Jr. and Robert J. Borth, 2007b. *Check list of the Lepidoptera recorded from Kingdom Come State Park in mid July and early August of 2002.* Lepidoptera Biodiversity LLC. Web Page: http://www. lepidopterabiodiversity.com/Bioblitz/KCSPList.htm

Kons, Hugo L. Jr. and Robert J. Borth, 2007c. *A Lepidoptera survey expedition to the Blackwater River State Forest in Okaloosa and Santa Rosa Counties*. Web Page: http://www.lepidopterabiodiversity.com/Bioblitz/ BWRSFList.htm

Kons, Hugo L. Jr. and Robert J. Borth, 2009. *Lepidoptera biodiversity surveys conducted at the Roy Larsen Sandyland Preserve in early June of 2008*. 2009 web page draft version available at: http://www. lepidopterabiodiversity.com/Bioblitz/SandylandList_files/SandylandList.pdf

Kons, Hugo L. Jr. and Robert J. Borth, 2015. A new species of *Catocala* (Lepidoptera: Noctuidae) from the southeastern United States. *Bulletin of the Peabody Museum of Natural History*, 56(1), 55-65.

Kons, Hugo L. Jr. and Robert J. Borth, 2016. *Contributions to a check list of the Lepidoptera of Northern Florida.* Lepidoptera Biodiversity LLC. Web Page, Sept. 2016 Version. http://www.lepidopterabiodiversity.com/CL/ FLList.htm

Kons, Hugo L. Jr., Robert J. Borth, and Thomas S. Barina, 2014a. *Contributions to a check list of the Lepidoptera of Wisconsin.* Lepidoptera Biodiversity LLC. Web Page, January 2014 Version: http://www.lepidoptera biodiversity.com/CL/WIList.htm

Kons, Hugo L. Jr., Robert J. Borth, and Thomas S. Barina, 2014b. *Contributions to a check list of the Lepidoptera of the Southern Kettle Moraine State Forest in southeastern Wisconsin.* Lepidoptera Biodiversity LLC. Web Page, February 2014 Version: http://www.lepidopterabiodiversity.com/CL/SKMList.htm

Lafontaine, J. Donald, 2004. Noctuoidea, Noctuidae (part): Noctuinae, Agrotini *in* Hodges, R. W., ed., *The Moths of North America*, fasc. 27.1

Lafontaine, J. Donald and Terhune S. Dickel, 2009. The genus *Prosoparia* in North America with the description of a new species from Florida (Lepidoptera: Noctuidae: Boletobiinae). *Lepidoptera Novae* 2: 179-183.

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

Lafontaine, J. Donald and J. Bolling Sullivan, 2015. A revision of the genus *Doryodes* Guenée), 1857, with descriptions of six new species (Lepidoptera, Erebidae, Catocalinae, Euclidiini). *ZooKeys* 527:3-30.

Metzler, Eric H. and John G. Franclemont, 1991. A review of four species names of *Paectes* from North America (Noctuidae: Euteliinae). *Journal of the Lepidopterists' Society* 45(1): 34-41.

Meyers, Ronald L. and John J. Ewel, 1990. *Ecosystems of Florida.* University of Central Florida Press.

Mikkola, Kauri, J. Donald Lafontaine, and Jocelyn Gill, 2009. *The moths of North America*. Fascicle 26.9, Noctuoidea, Noctuidae (part). The Wedge Entomological Foundation.

Minno, Marc C., 1992. Lepidoptera of the Archbold Biological Station, Highlands County, Florida. *Florida Entomologist*. 75(3): 297-329. http://journals.fcla.edu/flaent/article/view/58855/56534

Minno, Marc C., Jeffrey R. Slotten, and Mary Ann Friedman, 2006. Rediscovery of the Wild Indigo Duskywing Skipper (*Erynnis baptisiae* Forbes) in Florida. *Southern Lepidopterists' News* 28(2): 49-52.

Mitchell, Andrew, Charles Mitter, and Jerome C. Regier, 2006. Systematics and evolution of the cutworm moths (Lepidoptera: Noctuidae): evidence from two protein-coding nuclear genes. *Systematic Entomology*, 31: 21-46.

nature.org., 2016. *Splinter Hill Bog Preserve*. http://www.nature.org/ourinitiatives/regions/northamerica/splinter-hill.xml

Pogue, Michael G. and Douglas C. Ferguson, 1998. A revision of the cypress-feeding moths of the genus *Cutina*. *Proceedings of the Entomological Society of Washington* 100(2): 331-352.

Poole, Robert W., 1989. *Lepidopterorum catalogues (new series) fascicle 118: Noctuidae*. E. J. Brill, Leiden, The Netherlands.

Rindge, Frederick H., 1973. A revision of the North American species of the genus *Pseudoboarmia* (Lepidoptera, Geometridae). *American Museum Novitates*. No. 2514: 2-27.

Rings, Roy W., Eric H. Metzler, Fred J. Arnold, and David H. Harris, 1992. *The owlet moths of Ohio*. Bulletin of the Ohio Biological Survey 9(2).

Robinson, Gaden S., Phillip R. Ackery, Ian J. Kitching, George W. Beccaloni, and Luis M. Hernandez, 2002. *Hostplants of the moth and butterfly caterpillars of America North of Mexico*. Memoirs of the American Entomological Institute 69.

Schweitzer, Dale F., Marc C. Minno, and David L. Wagner, 2011. *Rare, declining, and poorly known butterflies and moths (Lepidoptera) of forests and woodlands in the eastern United States*. U.S. Forest Service, Forest Health Technology Enterprise Team.

Scott, James A., 1986. *The butterflies of North America*. Stanford University Press, Stanford.

Sullivan, J. Bolling, 2010. A new genus and species for *Dysgonia* (Lepidoptera, Erebidae, Erebinae) from southeastern United States. *ZooKeys*. 39:85-97.

Sullivan, J. Bolling and James K. Adams, 2009. A new species of *Morrisonia* (Noctuidae) from southeastern North America. *Journal of the Lepidopterists' Society* 63(1): 21-26.

Sullivan, J. Bolling and Legrain, Albert, 2011. *Gondysia* preceeded *Neodysgonia* (Lepidoptera, Erebidae, Erebinae), a new generic synonymy from southeastern United States-corrigendum. *ZooKeys* 149: 103-106.

Sullivan, J. Bolling and J. Donald Lafontaine, 2011. New synonymies and combinations in *Argyrostrotis* Hübner (Lepidoptera, Erebidae, Erebinae, Poaphilini). *ZooKeys*. 149: 107-116.

The Nature Conservancy, 2016. *About Us: Vision and Mission*. http://www.nature.org/about-us/vision-mission/index.htm?intc=nature.fnav.about

Tietz, H. M., 1972. *An index to the described life histories, early stages and hosts of the Macrolepidoptera of the continental United States and Canada*. A.C. Allyn, Sarasota, Florida.

USDA. 2016. *Plants Database*. http://plants.usda.gov

Wunderlin, Richard P., Bruce F. Hansen, Alan R. Franck, and Frederick B. Essig, 2016. *Atlas of Florida Plants* (http://florida.plantatlas.usf.edu/). [S. M. Landry and K. N. Campbell (application development), USF Water Institute.] Institute for Systematic Botany, University of South Florida, Tampa.

Zahiri, Reza, Ian J. Kitching, J. Donald Lafontaine, Marko Mutanen, Lauri Kaila, Jeremy D. Holloway & Niklas Wahlberg, 2011. A new molecular phylogeny offers hope for a stable family level classification of the Noctuoidea (Lepidoptera). *Zoologica Scripta* 40(2):158-173.

Zahiri, Reza, Jeremy D. Holloway, Ian J. Kitching, J. Donald Lafontaine, Marko Mutanen, & Niklas Wahlberg, 2012a. Molecular phylogenetics of Erebidae (Lepidoptera: Noctuoidea). *Systematic Entomology*, 37: 102-124.

Zahiri, Reza, J. Donald Lafontaine, Jeremy D. Holloway, Ian J. Kitching, B. Christian Schmidt, Lauri Kaila, & Niklas Wahlberg, 2012b. Major lineages of Nolidae (Lepidoptera, Noctuoidea) elucidated by molecular phylogenetics. *Cladistics 1* (2012): 1-23.

Zahiri, Reza, J. Donald Lafontaine, Christian Schmidt, Jeremy D. Holloway, Ian J. Kitching, Marko Mutanen, & Niklas Wahlberg, 2013. Relationships among the basal lineages of Noctuidae (Lepidoptera, Noctuoidea) based on eight gene regions. *Zoologica Scripta* 42(5):488-507.

Zaspel, Jennifer M. & Susan J. Weller, 2006. Review of the generic limits of the tiger moth genera *Virbia* Walker and *Holomelina* Herrich-Schäffer (Lepidoptera: Arctiidae: Arctiinae) and their biogeography. *Zootaxa* 1159: 1-68.

Zaspel, Jennifer M., Susan J. Weller, and Ring T. Cardé, 2008. A review of *Virbia* (formerly *Holomelina*) of America North of Mexico (Arctiidae: Arctiinae: Arctiini). *Florida Museum of Natural History Bulletin* 48(3): 59-118.

Zhang, Bin-Cheng, 1994. *Index of economically important Lepidoptera*. CAB International, Wallingford.

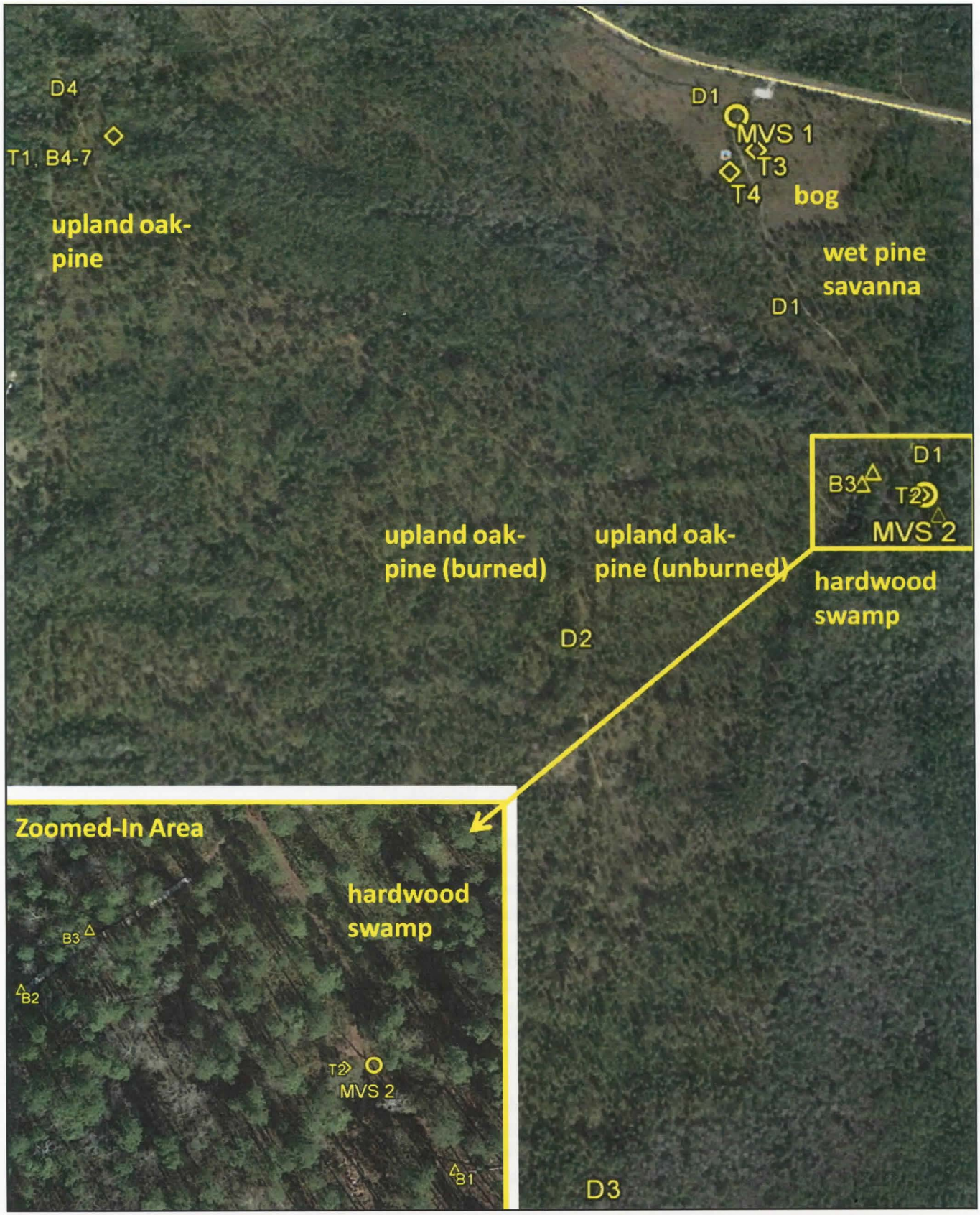


Figure 1. **(Legend is on page 127.)**

Figure 2. (Legend is on page 127.)

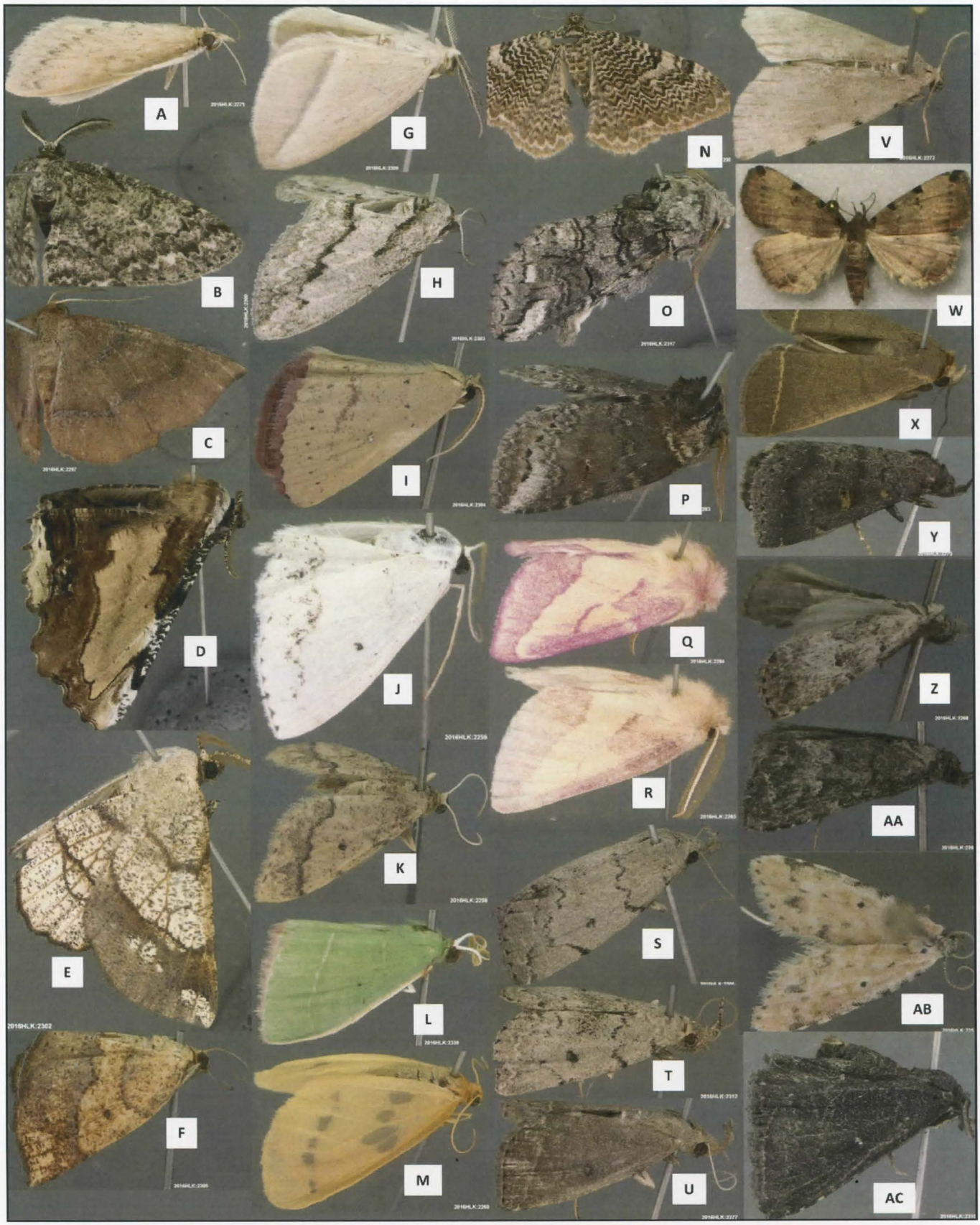
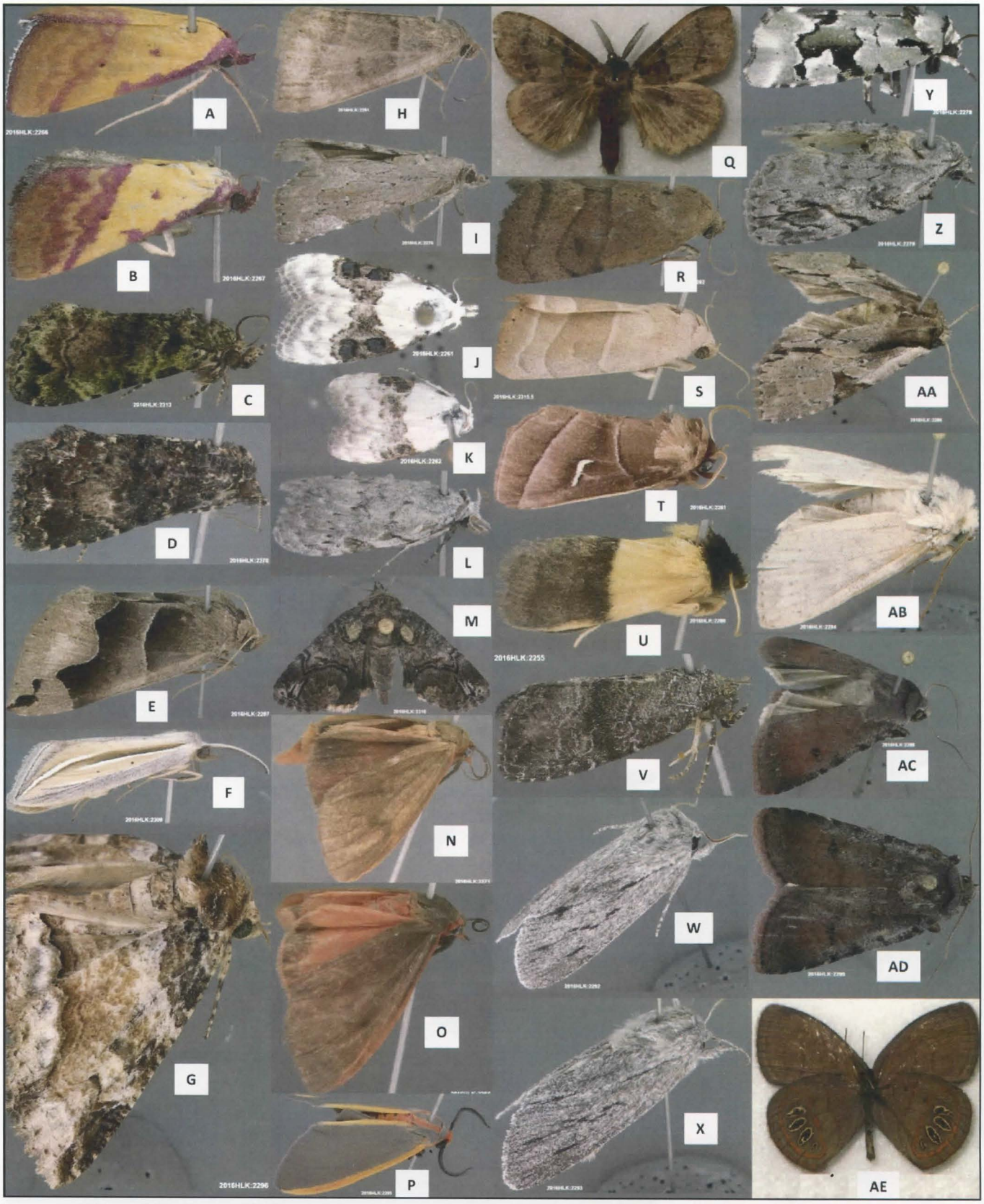


Figure 3. (Legend is on page 127.)



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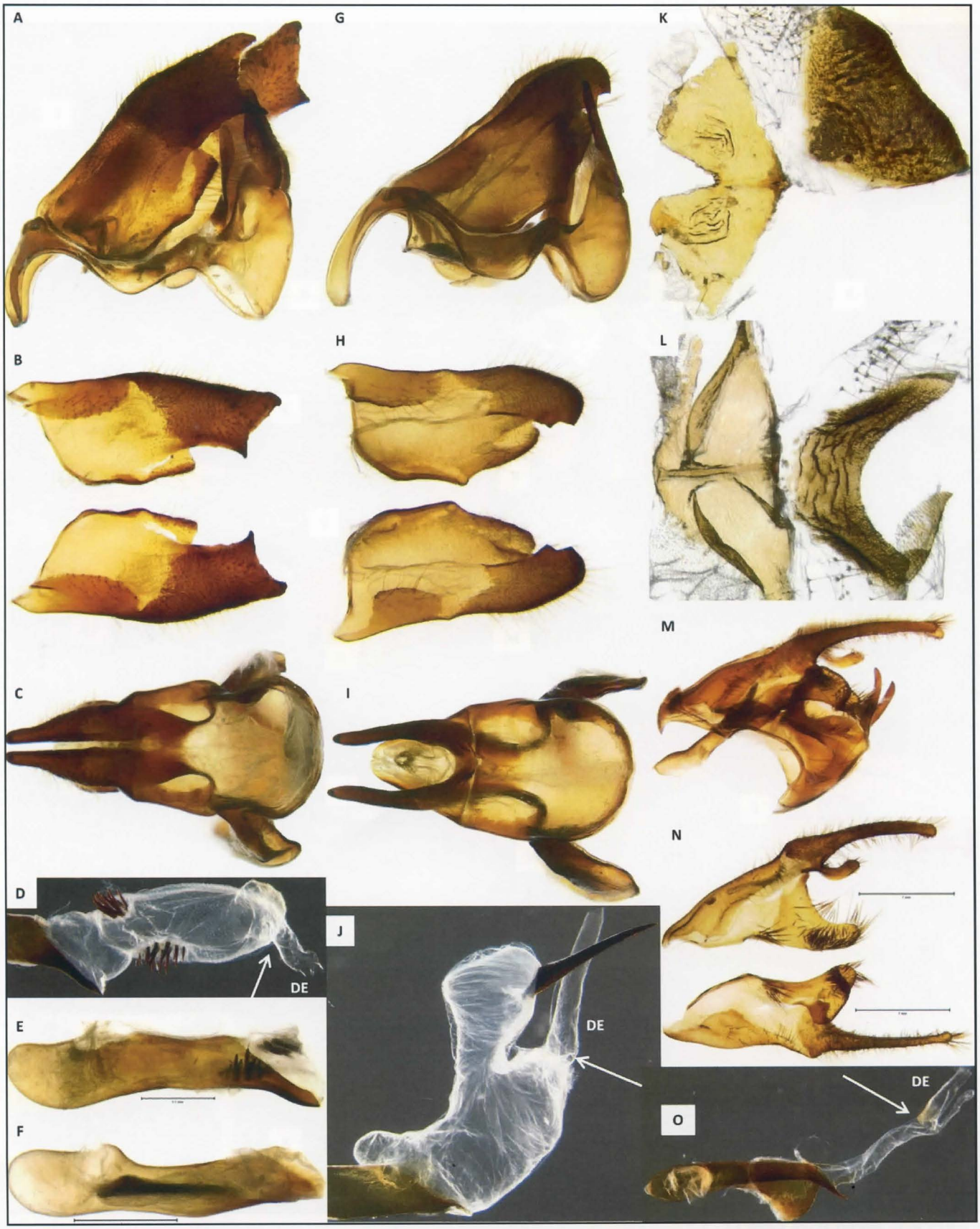

Figure 5. (Legend is on page 128.)

Figure 6. **(Legend is on page 128.)**

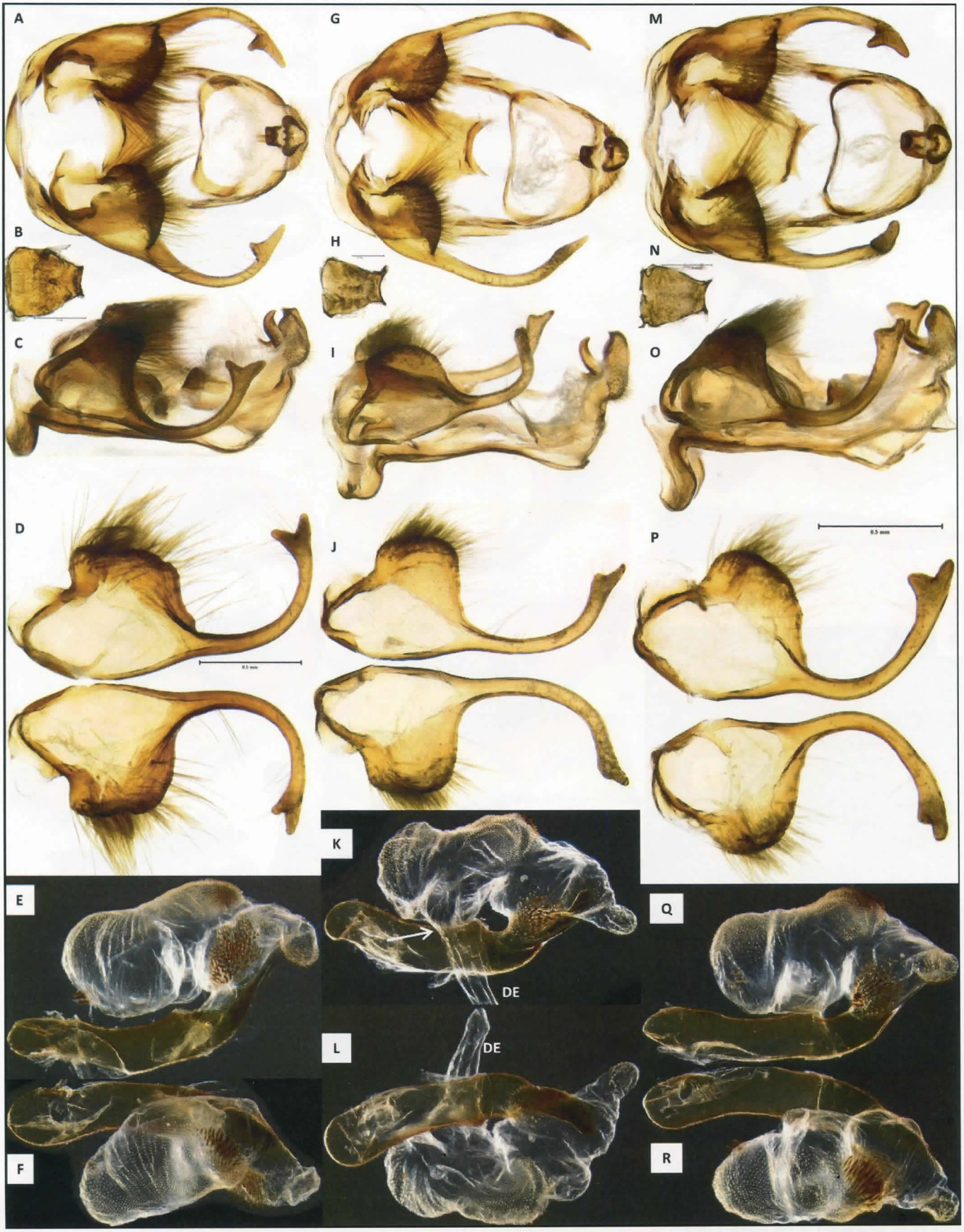

Figure 7. (Legend is on page 128.)

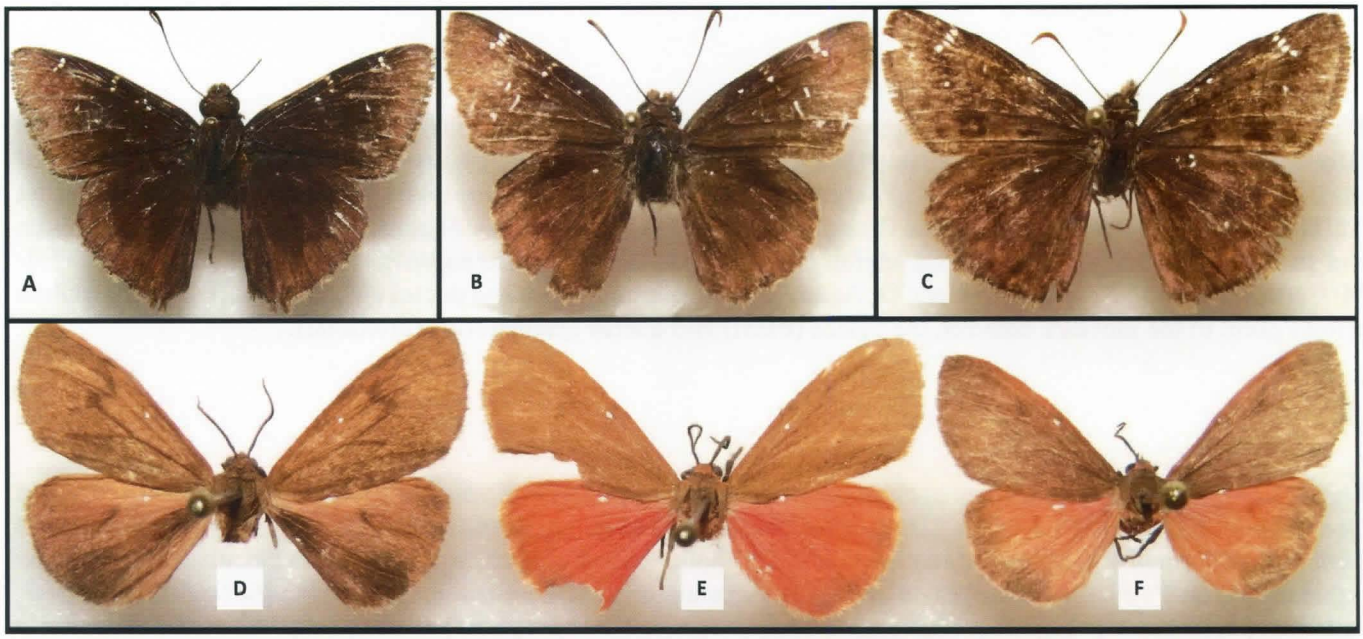

Figure 8 (Legend is on page 128.)

Legends for Figures 1-8.

Figure 1: Location of some MV sheets, UV light traps, bait traps, and diurnal survey areas at the Splinter Hill Preserve. MVS=MV Sheet, T=UV Trap, B=Bait Trap, D=Diurnal Survey Area (see Table 1 for coordinates and habitats of each survey station).

Figure 2: Examples of habitats surveyed at the Splinter Hill Preserve. **A:** MV Sheet site 1 in longleaf pine savanna/pitcher plant bog near the parking lot; **B:** *Sarrencenia leucophylla* near MV Sheet site 1; **C:** UV Trap site 2 at the edge of a hardwood swamp corridor along a small creek, with plentiful cane and ferns in the understory; **D:** UV Trap at site 2; **E:** Pitcher plant bog near UV Trap site 4; **F:** Bait Trap site 2 in hardwood swamp along the boardwalk; **G:** UV Trap site 1 in upland oak-pine forest; **H:** Xeric oak-pine savanna in diurnal survey area D2.

Figure 3: Exemplar voucher specimens collected at the Splinter Hill Preserve (*=provisional nomenclature of HLK). PYRALIDAE. **A:** *Crocidophora pustuliferalis.* GEOMETRIDAE. **B:** **Hypomecis* sp. 1; **C:** *Metarranthis lateritiaria;* **D:** *Lytrosis sinuosa;* **E:** **Euchlaena madusaria* complex sp. 2; **F:** *Nematocampa baggettaria*; **G:** *Lychnosea intermicata;* **H:** *Iridopsis pergracilis;* **I:** *Cyclophora culicaria;* **J:** *Scopula purata;* **K:** **Idaea* near *celtima*; **L:** *Nemoria elfa*; **M:** *Eubaphe meridiana;* **N:** *Hydria prunivorata.* NOTODONTIDAE. **O:** *Heterocampa varia;* **P:** *"Litodonta"* new sp.; **Q-R:** *Hyparpax aurora.* NOCTUIDAE. **S:** **Zanclognatha* nr. *minoralis* sp. 1; **T:** **Zanclognatha* nr. *minoralis* sp. 2; **U:** *Zanclognatha protumnusalis* complex; **V:** *Zanclognatha lituralis;* **W:** *Zanclognatha* nr. *lituralis;* **X:** *Simplicia cornicalis;* **Y:** *Renia sobrialis;* **Z:** **Hypenodes* new sp. 1; **AA:** **Dyspyralis* new sp. 1; **AB:** **Sigela* sp. 2 (new); **AC:** *Prosoparia floridana.*

Figure 4: Exemplar voucher specimens collected at the Splinter Hill Preserve (*=provisional nomenclature of HLK). NOCTUIDAE. **A-B:** **Phytometra* sp. A; **C:** *Metalectra geminicincta;* **D:** *Metalectra albilinea;* **E:** *Dysgonia telma*; **F:** *Doryodes bistrialis*; **G:** *Zale minerea;* **H:** *Ptichodis bistrigata;* **I:** **Cutina albopunctella* complex sp. 1; **J:** *Nola pustulata;* **K:** *Nola* nr. *pustulata* (I & J show relative size); **L:** *Nola clethrae*; **M:** *Paectes pygmaea*; **N:** *Virbia opella;* **O:** **Virbia* sp. 2; **P:** *Pygarctia abdominalis;* **Q:** **Dasychira leucophaea* complex sp. 1; **R:** *Bagisara brouana;* **S:** **Bagisara rectifascia* complex sp. 2; **T:** *Fagitana littera*; **U:** *Exyra semicrocea*; **V:** *Ogdoconta pulvilinea*; **W-X:** *Acronicta sinescripta;* **Y:** *Emarginea percara;* **Z:** *Balsa labecula.*; **AA:** *Morrisonia triangula*; **AB:** *Leucania* sp.; **AC:** **Anicla lubricans* complex sp. 3; **AD:** **Anicla lubricans* complex sp. 2. NYMPHALIDAE. **AE:** *Neonympha areolata.*

Figure 5: Male genitalic characters of exemplar Splinter Hill voucher specimens of Hesperiidae. ***Thorybes confusis*** **[Dissection No. HLK:2440]: A:** Capsule (lateral); **B:** Valvae (inner); **C:** Uncus/Tegumen (posterior); **D:** Everted vesica and ductus ejaculatorius (DE); **E:** Phallus; **K:** Juxta/anellus (flattened on slide). ***Thorybes pylades*** **[Dissection No. HLK:2441]: F:** Phallus; **G:** Capsule (lateral); **H:** Valvae (inner); **I:** Uncus/Tegumen (posterior); **J:** Everted vesica and ductus ejaculatorius (DE); **L:** Juxta/anellus (flattened on slide). ***Erynnis baptisiae*** **[Dissection No. HLK:2426]: M:** Capsule (lateral); **N:** Valvae (inner); **O:** Aedeagus with everted vesica and ductus ejaculatorius (DE). Note: white arrows point to the juncture between the vesica (basal) and ductus ejaculatorius (proximal).

Figure 6: Male genitalic and antennal characters of exemplar Splinter Hill voucher specimens of Geometroidea and Noctuoidea. ***"Litodonta"*** **new sp. [Dissection No. HLK:2444]: A:** Capsule (ventral); **B:** Capsule (lateral); **C:** Terminal abdominal segment, with tergite on left; **D:** Phallus/scoop-shaped region of ductus ejaculatorius; **E:** Same (opposite side); **F:** Phallus with vesica and ductus ejaculatorius (DE) everted. ***Nemoria elfa*** **(red-fringed): G:** Antennal pectinations **(=Fig. 3L); H:** Relative comparison (in the same photo) of antennal pectinations of *Nemoria elfa* (left) (Splinter Hill) and *Nemoria extremaria* (right) (Florida). ***Dysgonia telma*** **[Dissection No.: HLK:2287] (=Fig. 4E): I:** Capsule (ventral); **J:** Capsule (lateral); **K:** Valvae (inner); **L:** Uncus/tegumen/tuba analis (lateral); **M:** Juxta/anellus (flattened on slide); **N:** Phallus; **O:** Vesica (inverted, not everted). ***Doryodes bistrialis*** **[Dissection No. HLK:2308] (=Fig. 4F): P:** Everted vesica (lateral); **Q:** Same, opposite side; **R:** Valvae (inner). ***Leucania*** **sp. [Dissection No. HLK:2294] (=Fig. 4AB): S:** Capsule (ventral); **T:** Capsule (lateral); **U:** Valvae (inner); **V:** Uncus/tegumen/tuba analis (lateral); **W:** Juxta/anellus (ventral); **X:** Everted vesica and ductus ejaculatorius (DE) (lateral); **Y:** Aedeagus (lateral); **Z:** Juxta/anellus (lateral); **AA:** Same as X, opposite side; **AB:** Same as Y, opposite side. Note: white arrows point to the juncture between the vesica (basal) and ductus ejaculatorius (proximal).

Figure 7: Male genitalic characters of exemplar Splinter Hill voucher specimens of three sympatric *Virbia* species (Noctuidae: Arctiinae). ***Virbia opella*** **[Dissection No. HLK:2271] (=Fig. 4N): A:** Capsule (ventral); **B:** Juxta/anellus (flattened on slide); **C:** Capsule (lateral); **D:** Valvae (inner); **E:** Phallus with vesica everted (lateral); **F:** Same, opposite side. ***Virbia*** **sp. 1 [Dissection No. HLK:2445]: G:** Capsule (ventral); **H:** Juxta/anellus (flattened on slide); **I:** Capsule (lateral); **J:** Valvae (inner); **K:** Phallus with vesica and ductus ejaculatorius (DE) everted (lateral); **L:** Same, opposite side. ***Virbia*** **sp. 2 [Dissection No. HLK:2256] (=Fig. 4O): M:** Capsule (ventral); **N:** Juxta/anellus (flattened on slide); **O:** Capsule (lateral); **P:** Valvae (inner); **Q:** Phallus with vesica everted (lateral); **R:** Same, opposite side. Note: white arrows point to the juncture between the vesica (basal) and ductus ejaculatorius (proximal).

Figure 8: Dissected male voucher specimens (Hesperiidae & Arctiinae). **A:** ***Thorybes pylades***, Dissection No. HLK:2441. **B:** ***Thorybes confusis***, Dissection No. HLK:2440. **C:** ***Erynnis baptisiae***, Dissection No. HLK:2426. Note: D-F are a single photograph showing relative color differences without photographic variables. **D:** ***Virbia opella***, Dissection No. HLK: 2271. **E:** ***Virbia*** **species 1**, Dissection No. HLK:2445. **F:** ***Virbia*** **species 2**, Dissection No. HLK:2256.

Table 1: Dates and locations of Lepidoptera Survey Stations at the Splinter Hill Preserve from 26 April-1 May 2016

Date	Survey Station (s)	Locality	Exact/ Vicinity	Latitude ° 'N	Longitude ° 'W	Habitat
26 April 2016	MV Sheet 1 *	Main trail near parking lot	E	31.02483	87.68557	Hydric-upland longleaf pine savanna/ pitcher plant bog
26 April 2016	UV Trap 1 *	Trail by northwest corner	V	31.02508	87.69461	Xeric oak-pine forest with openings
26 April 2016	UV Trap 2 *	Near end of north-south trail from parking lot	E	31.01936	87.68365	Hydric longleaf pine savanna with cane/hardwood swamp edge
26 April 2016	Bait Trap 1 *	Near end of north-south trail from parking lot	E	31.01912	87.68343	Hardwood swamp along small creek
26 April 2016	Bait Trap 4 *	Trail by northwest corner	V	31.02508	87.69461	Xeric oak-pine forest with openings
26 April 2016	Bait Trap 5 *	Trail by northwest corner	V	31.02508	87.69461	Xeric oak-pine forest with openings
26 April 2016	Bait Trap 6 *	Trail by northwest corner	V	31.02508	87.69461	Xeric oak-pine forest with openings
26 April 2016	Bait Trap 7 *	Trail by northwest corner	V	31.02508	87.69461	Xeric oak-pine forest with openings
26 April 2016	Diurnal Ar. 1	Main north-south trail from parking lot	V	31.02483	87.68557	Mesic-hydric longleaf pine savanna/ pitcher plant bog
26 April 2016	Diurnal Ar. 2	Unburned side of trail; xeric oak-pine forest and savanna	V	31.01792	87.6884	Xeric oak-pine forest and savanna
26 April 2016	Diurnal Ar. 3	S end of hiking trail system	V	31.01172	87.68853	Hardwood swamp along small creek
26 April 2016	Diurnal Ar. 4	Trail by northwest corner	V	31.02597	87.69536	Shrubby-grassy wetland adj to hardwood swamp and uplands
27 April 2016	UV Trap 1 *	Trail by northwest corner	V	31.02508	87.69461	Xeric oak-pine forest with openings
27 April 2016	UV Trap 2 *	Near end of north-south trail from parking lot	E	31.01936	87.68365	Hardwood swamp edge/hydric longleaf pine savanna with cane
27 April 2016	UV Trap 3 *	Pitcher plant bog east of trail from parking lot	E	31.02428	87.68534	Pitcher plant bog/longleaf pine savanna
27 April 2016	Bait Trap 1 *	Near end of north-south trail from parking lot	E	31.01912	87.68343	Hardwood swamp along small creek
29 April 2016	MV Sheet 2 *	End of north-south trail from parking lot	E	31.01936	87.68358	Hardwood swamp along small creek
29 April 2016	UV Trap 1 *	Trail by northwest corner	V	31.02508	87.69461	Xeric oak-pine forest with openings
29 April 2016	UV Trap 4 *	West of north-south trail from parking lot	E	31.02398	87.68575	hydric longleaf pine savanna/pitcher plant bog
29 April 2016	Koehn UV Trap 5 *	West of north-south trail from parking lot	E	31.015	87.697	Hardwood swamp along small creek
29 April 2016	Koehn UV Trap 6 *	Near north-south trail from parking lot	E	31.0183	87.6847	Pitcher plant bog/longleaf pine savanna
29 Apr-1 May 2016	3 UV Traps #	Pitcher plant bog in vicinity of parking lot	V	31.025	87.686	Pitcher plant bog/longleaf pine savanna
29 Apr-1 May 2016	3 UV Traps #	On or near the boardwalk	V	31.02	87.684	Hardwood swamp along small creek
29 Apr-1 May 2016	MV/UV Lights #	North south trail from parking lot to hardwood swamp	V	31.02483	87.68557	Pitcher plant bog/longleaf pine savanna/hardwood swamp
29 April 2016	Bait Trap 2 *	Along boardwalk through hardwood swamp	E	31.01959	87.68441	Hardwood swamp along small creek
29 April 2016	Bait Trap 3 *	Along boardwalk through hardwood swamp	E	31.01974	87.68424	Hardwood swamp along small creek
29 April 2016	Bait Trap 4 *	Trail by northwest corner	V	31.02508	87.69461	Xeric oak-pine forest with openings
29 April 2016	Bait Trap 5 *	Trail by northwest corner	V	31.02508	87.69461	Xeric oak-pine forest with openings
29 April 2016	Bait Trap 6 *	Trail by northwest corner	V	31.02508	87.69461	Xeric oak-pine forest with openings

* = All night single survey station where all Macrolepidoptera species encountered were recorded.

= All "microlepidoptera" species were included in the inventory.

Table 2: Lepidoptera Biodiversity Blitz Checklist & Survey Data For Macrolepidoptera Species Collected at the Splinter Hill Preserve from 26 April-1 May 2016

		pine flatwoods/bog						hardwood swamp							upland oak-pine for.					
		MV Sheet 1	UV Trap 3	UV Trap 4	UV Trap 6	3 UV Traps	Day Area 1	Day Area 1	MV Sheet 2	UV Trap 2	UV Trap 2	UV Trap 5	3 UV Traps	4 Bait Traps	Day Area 1	Day Area 3	MV&UV in bog/ hardwoods	UV Trap 1	UV Trap 1	7 Bait Traps	Day Area 2	Day Area 4
		26 April	27 April	29 April	29 April	29 Apr.-1 May	26 April	29 Apr-1 May	29 April	26 April	27 April	29 April	29 Apr.-1 May	26-29 April	29 Apr-1 May	26-Apr	29 Apr-1 May	26 April	27 April	26 & 29 April	26 April	26 April
* = Provisional species level nomenclature for members of species complexes and/or undescribed species																						
MACROLEPIDOPTERA [334]		93	20	20	13				177	54	37	18						60	54	63		
RHOPALOCERA [29]																						
HESPERIOIDEA [11]																						
HESPERIIDAE [10]																						
Pyrginae [5]																						
3910	*Thorybes pylades*																					X
3913	*Thorybes confusis*														X						X	
3952	*Erynnis horatius*						X															
3959	*Erynnis baptisiae*						X															
3966	*Pyrgus communis*						X															
Hesperiinae [6]																						
3998	*Lerema accius*																					X
4013	*Hylephila phyleus*						X	X							X							
4041	*Polites themistocles*						X															
4045	*Polites vibex*							X														X
4060	*Poanes zabulon*							X							X							
4078	*Euphyes vestris*							X														
PAPILIONOIDEA [19]																						
PAPLIONIDAE [3]																						
4176	*Papilio glaucus*							X							X							
4181	*Papilio troilus*														X							
4182	*Papilio palamedes*						X															
PIERIDAE [4]																						
4197	*Pieris rapae*						X	X														
4228	*Phoebis sennae*						X								X							
4237	*Eurema lisa*						X								X							
4243	*Eurema daira*						X	X														
LYCAENIDAE [3]																						
4299	*Calycopis cecrops*															X						
4359	*Hemiargus ceraunus*						X															
4363	*Celastrina ladon*																					X
RIODINIDAE [1]																						
4386	*Calephelis virginiensis*	Larvae found on 30 April																				
NYMPHALIDAE [8]																						
4440	*Junonia coenia*						X								X							X
4481	*Phyciodes tharos*																					X
4522	*Basilarchia arthemis*																					X
4568	*Enodia portlandia*													X								
4573	*Cyllopsis gemma*													X								
4574	*Hermeuptychia hermes*															X						X
4576	*Neonympha areolata*							X														
4578	*Megisto cymela*													X								

Table 2 Part 1

Table 2: Lepidoptera Biodiversity Blitz Checklist & Survey Data For Macrolepidoptera

		pine flatwoods/bog						hardwood swamp								upland oak-pine for.					
		MV Sheet 1	UV Trap 3	UV Trap 4	UV Trap 6	3 UV Traps	Day Area 1	MV Sheet 2	UV Trap 2	UV Trap 2	UV Trap 5	3 UV Traps	4 Bait Traps	Day Area 1	Day Area 3	MV/UV in bog/ hardwoods	UV Trap 1	UV Trap 1	UV Trap 1	7 Bait Traps	Day Area 2	Day Area 4
		26 April	27 April	29 April	29 April	29 Apr.-1 May	26 April	29 April	26 April	27 April	29 April	29 Apr.-1 May	26-29 April	29 Apr-1 May	26-Apr	29 Apr-1 May	26 April	27 April	29 April	26 & 29 April	26 April	26 April
GEOMETROIDEA [67]		16	5	3	3			45	11	5	3						18	14	18			
GEOMETRIDAE [67]		16	5	3	3			45	11	5	3						18	14	18			
Ennominae [40]		6	3	1	1			25	6	2	2						11	11	11			
6326	*Macaria aemulataria*																		X			
6336	*Macaria distribuaria*							X										X				
6339	*Macaria transitaria*	X						X														
6341	*Macaria bicolorata*	X						X								X		X	X			
6357	*Digrammia eremiata*	X																				
6405	*Digrammia gnophosaria*							X														
6439.1	*Hypomecis longipectinaria*																			X		
* 6440.1	*Hypomecis* sp. 1							X										X				
6450	*Glena cognataria*															X						
6478	*Exelis pyrolaria*							X	X													
6580	*Iridopsis pergracilis*							X														
6582	*Iridopsis vellivolata*							X														
6584	*Iridopsis humaria*							X														
6586	*Iridopsis defectaria*							X									X		X			
6590	*Anavitrinelia pampinaria*							X														
6597	*Ectropis crepuscularia*							X	X								X		X			
6598	*Protoboarmia porcelaria*							X								X		X				
6599	*Epimecis hortaria*	X						X				X				X	X					
6620	*Melanolophia canadaria*											X							X			
6654	*Hypagyrtis unipunctata*					X		X				X					X	X	X			
6655	*Hypagyrtis esther*	X	X					X				X					X	X				
6667	*Lomographa vestaliata*															X						
6711	*Ilexia intractata*							X									X	X	X			
6713	*Episemasia solitaria*			X																		
6721	*Lytrosis sinuosa*							X		X						X						
6726	*Euchlaena obtusaria*		X			X		X			X		X			X	X		X			
* 6731	*Euchlaena madusaria* sp. 2									X						X						
6733	*Euchlaena amoenaria*							X	X								X	X	X	X		
6735	*Euchlaena pectinaria*							X														
6828	*Metarranthis homuraria*								X													
6829	*Metarranthis lateritiaria*								X							X		X				
6858	*Lychnosea intermicata*						X															
6885	*Besma quercivoraria*											X										
6908	*Nepytia semiclusaria*	X	X		X			X	X		X	X				X						
6941	*Eusarca confusaria*															X						
6966	*Eutrapela clemataria*							X									X	X				
6974	*Patalene olyzonaria*																X					
6982	*Prochoerodes lineola*							X								X		X	X			
7009	*Nematocampa resistaria*																X		X			
7010.1	*Nematocampa baggettaria*							X														

Table 2 part 2

Table 2: Lepidoptera Biodiversity Blitz Checklist & Survey Data For Macrolepidoptera

		pine flatwoods/bog						hardwood swamp								upland oak-pine for.				
		MV Sheet 1	UV Trap 3	UV Trap 4	UV Trap 6	3 UV Traps	Day Area 1	MV Sheet 2	UV Trap 2	UV Trap 2	UV Trap 5	3 UV Traps	4 Bait Traps	Day Area 1	Day Area 3	MV/UV in bog/ hardwoods	UV Trap 1	UV Trap 1	UV Trap 1	7 Bait Traps	Day Area 2	Day Area 4
		26 April	27 April	29 April	29 April	29 Apr.-1 May	26 April	29 April	26 April	27 April	29 April	29 Apr.-1 May	26-29 April	29 Apr-1 May	26-Apr	29 Apr-1 May	26 April	27 April	29 April	26 & 29 April	26 April	26 April
Geometrinae [6]		0	1	0	1			6	1	0	1					3	3	0	1			
7029	*Nemoria elfa*		X					X			X					X						
7033	*Nemoria lixaria*							X				X				X	X		X			
7034	*Nemoria saturiba*				X			X	X													
7059	*Synchlora frondaria*							X								X	X					
7071	*Chlorochlamys chloroleucaria*							X														
7075	*Chloropteryx tepperaria*							X									X					
Sterrhinae [14]		8	1	1	0			7	2	3	0						3	3	6			
* 7109	*Idaea* near *celtima*	X														X						
7114	*Idaea demissaria*	X				X		X		X		X				X			X			
7115	*Idaea eremiata*							X								X	X	X	X			
7120	*Idaea violacearia*	X						X				X				X		X	X			
7122	*Idaea tacturata*																		X			
7132	*Pleuroprucha insulsaria*							X	X													
7134	*Cyclophora culicaria*							X														
7136	*Cyclophora packardi*																		X			
7151	*Scopula aemulata*	X																				
7158	*Scopula purata*	X	X							X												
7159	*Scopula limboundata*	X				X		X	X			X				X	X	X	X			
7173	*Leptostales pannaria*	X																				
7177	*Leptostales laevitaria*															X						
7181	*Lophosis labeculata*	X		X				X		X						X	X					
Larentiinae [7]		2	0	1	1			7	2	0	0						1	0	0			
7290	*Coryphista meadii*							X														
7292	*Hydria prunivorata*							X														
7414	*Orthonama obstipata*	X						X														
7416	*Costaconvexa centrostrigaria*					X		X				X										
7441	*Eubaphe meridiana*	X		X	X	X		X	X			X				X						
7474	*Eupithecia miserulata*							X	X								X					
7648	*Dyspteris abortivaria*							X														
LASIOCAMPOIDEA [3]		0	0	0	1			3	0	1	0						1	0	0			
LASIOCAMPIDAE [3]		0	0	0	1			3	0	1	0						1	0	0			
7674	*Tolype notialis*				X			X								X						
7683	*Artace cribraria*							X		X							X					
7701	*Malacosoma americanum*							X								X						
BOMBYCOIDEA [17]		6	1	0	3			7	2	0	1						3	2	1			
APATELODIDAE [2]		2	1	0	1			2	0	0	1						0	1	0			
7663	*Apatelodes torrefacta*	X	X					X			X	X				X						
7665	*Olceclostera angelica*	X			X			X										X				
SATURNIIDAE [7]		4	0	0	0			3	0	0	0						2	1	1			
Citheroniinae [3]		2	0	0	0			1	0	0	0						0	0	0			
7704	*Eacles imperialis*	X														X						
7708	*Citheronia sepulcralis*	X																				
7715	*Dryocampa rubicunda*							X				X										

Table 2 part 3

Table 2: Lepidoptera Biodiversity Blitz Checklist & Survey Data For Macrolepidoptera

		pine flatwoods/bog							hardwood swamp								upland oak-pine for.						
		MV Sheet 1	UV Trap 3	UV Trap 4	UV Trap 6	3 UV Traps	Day Area 1	Day Area 1	MV Sheet 2	UV Trap 2	UV Trap 2	UV Trap 5	3 UV Traps	4 Bait Traps	Day Area 1	Day Area 3	MV&UV in bog/ hardwoods	UV Trap 1	UV Trap 1	UV Trap 1	7 Bait Traps	Day Area 2	Day Area 4
		26 April	27 April	29 April	29 April	29 Apr.-1 May	26 April	29 Apr-1 May	29 April	26 April	27 April	29 April	29 Apr.-1 May	26-29 April	29 Apr-1 May	26-Apr	29 Apr-1 May	26 April	27 April	29 April	26 & 29 April	26 April	26 April
Hemileucinae [1]		1	0	0	0				0	0	0	0						1	0	1			
7746	*Automeris io*	X																X		X			
Saturniinae [3]		1	0	0	0				2	0	0	0						1	1	0			
7757	*Antheraea polyphemus*					X							X					X	X				
7758	*Actias luna*					X			X				X										
7765	*Callosamia angulifera*	X							X														
SPHINGIDAE [8]		0	0	0	2				2	2	0	0						1	0	0			
Sphinginae [4]		0	0	0	2				1	2	0	0						0	0	0			
7784	*Dolba hyloeus*								X	X													
7789	*Ceratomia catalpae*				X																		
7816	*Lapara coniferarum*									X													
7827	*Amorpha juglandis*				X																		
Macroglossinae [4]		0	0	0	0				1	0	0	0						1	0	0			
7870	*Sphecodina abbottii*																				X		
7873	*Amphion floridensis*																				X		
7885	*Darapsa myron*								X									X					
7886	*Darapsa choerilus*													X			X				X		
NOCTUOIDEA [217]		71	14	17	6	0	0	0	122	41	31	14	0	0	0	0	0	38	38	44	0	0	0
NOTODONTIDAE [16]		6	0	0	2				7	2	2	1						2	3	5			
7907	*Datana integerrima*				X				X														
7915	*Nadata gibbosa*	X																X	X	X			
7920	*Peridea angulosa*	X							X				X				X			X			
* 7968.9	*"Litodonta"* new sp.				X				X	X		X	X				X						
7977	*Heterocampa astarte*																			X			
7982	*Heterocampa varia*	X																					
7983	*Heterocampa obliqua*										X												
7990	*Heterocampa umbrata*												X							X			
7994	*Heterocampa guttivitta*									X							X						
7998	*Lochmaeus manteo*																			X			
7999	*Lochmaeus bilineata*	X																					
8005	*Schizura ipomoeae*								X				X					X	X				
8007	*Schizura unicornis*	X							X										X				
8011	*Schizura leptinoides*								X														
8017	*Oligocentria lignicolor*										X												
8022	*Hyparpax aurora*	X							X														
NOCTUIDAE [201]		65	14	17	4				115	39	29	13						36	35	39			
Arctiinae [24]		7	1	4	0				10	7	4	2						5	3	3			
8045	*Crambidia lithosioides*	X	X						X	X													
* 8045.2	*Crambidia* near *pallida*	X		X		X			X	X	X		X				X						
8067	*Cisthene plumbea*	X							X									X	X	X			
8072	*Cisthene packardii*								X								X	X		X		
8090	*Hypoprepia fucosa*									X	X		X				X	X	X	X			
8098	*Clemensia albata*									X								X					
8099	*Pagara simplex*								X														
8106	*Utetheisa bella*																					X	
8114	*Virbia laeta*								X	X							X						

Table 2 part 4

Table 2: Lepidoptera Biodiversity Blitz Checklist & Survey Data For Macrolepidoptera

		pine flatwoods/bog						hardwood swamp							upland oak-pine for.				
		MV Sheet 1	UV Trap 3	UV Trap 4	UV Trap 6	3 UV Traps	Day Area 1	Day Area 1	MV Sheet 2	UV Trap 2	UV Trap 2	UV Trap 5	3 UV Traps	4 Bait Traps	Day Area 3	MV/UV in bog/hardwoods	UV Trap 1	UV Trap 1	UV Trap 1	7 Bait Traps	Day Area 2	Day Area 4
		26 April	27 April	29 April	29 April	29 Apr.-1 May	26 April	29 Apr-1 May	29 April	26 April	27 April	29 April	29 Apr.-1 May	26-29 April	29 Apr-1 May	29 Apr-1 May	26 April	27 April	29 April	26 & 29 April	26 April	26 April
8118	*Virbia opella*								X			X	X									
* 8118.2	*Virbia* sp. 1								X													
* 8118.3	*Virbia* sp. 2			X																		
8121	*Virbia aurantiaca*																				X	
8122	*Virbia rubicundaria*																				X	
8134	*Spilosoma congrua*															X						
8137	*Spilosoma virginica*	X																				
8140	*Hyphantria cunea*										X					X						
8146	*Hypercompe scribonia*	X																				
8169	*Apantesis phalerata*			X																		
8171	*Apantesis nais* (=*vittata*)								X	X		X	X			X						
8191	*Grammia placentia*			X																		
8203	*Halysidota tessellaris*	X							X	X	X					X	X	X				
8217	*Leucanopsis longa*															X						
8255	*Pygarctia abdominalis*	X																				
Lymantriinae [5]		1	0	0	0				3	0	0	0					0	2	1			
8292	*Dasychira tephra*								X									X				
8298	*Dasychira meridionalis* (prob)								X							X						
* 8301	*Dasychira leucophaea* sp. 1												X									
8307	*Dasychira manto*												X									
8316	*Orgyia leucostigma*	X							X				X			X		X	X			
Herminiinae [36]		9	3	4	1				29	7	4	0					7	8	9			
8322	*Idia americalis*	X	X						X					X		X	X		X			
8323	*Idia aemula*	X			X				X					X		X	X	X	X	X		
8326	*Idia rotundalis*	X				X			X	X	X		X	X		X	X	X		X		
8328	*Idia julia*								X	X								X		X		
8329	*Idia diminuendis*	X		X					X		X		X	X		X	X	X	X	X		
8333	*Idia denticulalis*																			X		
* 8334	*Idia lubricalis* sp. 1								X					X				X	X	X		
* 8334	*Idia lubricalis* sp. 2													X						X		
8339.1	*Simplicia cornicalis*								X													
8340	*Zanclognatha lituralis*								X							X						
* 8340.1	*Zanclognatha* sp. nr. *lituralis*					X			X													
* 8343.1	*Zanclognatha* nr. *minoralis* sp. 1								X													
* 8343.2	*Zanclognatha* nr. *minoralis* sp. 2								X													
8346	*Zanclognatha atrilineella*	X																				
8347	*Zanclognatha obscuripennis*								X								X					
8349	*Zanclognatha protumnusalis*								X													
8357.1	*Macrochilo hypocritialis*								X	X	X		X			X			X			
8360	*Macrochilo orciferalis*															X						
8361	*Macrochilo louisiana*								X													
8364	*Phalaenostola larentioides*								X							X						
8366	*Tetanolita mynesalis*					X			X				X									
8368	*Tetanolita floridana*								X				X									
8370	*Bleptina caradrinalis*	X							X				X					X				
8371	*Bleptina inferior*	X		X		X			X	X			X				X	X	X			

Table 2 part 5

Table 2: Lepidoptera Biodiversity Blitz Checklist & Survey Data For Macrolepidoptera

		pine flatwoods/bog							hardwood swamp								upland oak-pine for.					
		MV Sheet 1	UV Trap 3	UV Trap 4	UV Trap 6	3 UV Traps	Day Area 1	Day Area 1	MV Sheet 2	UV Trap 2	UV Trap 2	UV Trap 5	3 UV Traps	4 Bait Traps	Day Area 1	Day Area 3	MV&UV in bog/ hardwoods	UV Trap 1	UV Trap 1	UV Trap 1	7 Bait Traps	Day Area 2	Day Area 4
		26 April	27 April	29 April	29 April	29 Apr.-1 May	26 April	29 Apr-1 May	29 April	26 April	27 April	29 April	29 Apr.-1 May	26-29 April	29 Apr-1 May	26-Apr	29 Apr-1 May	26 April	27 April	29 April	26 & 29 April	26 April	26 April
8376	*Hypenula cacuminalis*								X														
* 8378	*Renia salusalis* sp. 1								X	X										X			
8379	*Renia factiosalis*												X										
8381	*Renia discoloralis*								X				X				X						
8384.1	*Renia flavipunctalis*																			X			
8385	*Renia fraternalis*	X	X						X				X					X	X	X			
8386	*Renia adspergillus*	X		X					X				X				X						
8387	*Renia sobrialis*		X						X	X	X		X				X						
8393	*Lascoria ambigualis*								X														
8398	*Palthis asopialis*								X														
8400	*Redectis pygmaea*									X													
8401	*Redectis vitrea*			X					X														
Hypenodinae [4]		0	0	0	0				3	1	1	0						0	0	1			
* 8424.1	*Hypenodes* new sp. 1								X														
* 8428.1	*Dyspyralis* new sp. 1								X	X	X			X			X			X	X		
8430	*Parahypenodes quadralis*													X									
8431	*Schrankia macula*								X														
Boletobiinae [8]		3	2	1	0				6	3	2	1						1	1	1			
8434	*Sigela basipunctaria*	X																					
* 8434.1	*Sigela* sp. 2 (new sp.)	X																					
* 8481.1	*Phytometra* not *rhodarialis*:sp. A	X	X			X			X	X	X	X	X				X						
8499	*Metalectra discalis*			X					X	X	X			X						X			
8500	*Metalectra quadrisignata*								X					X									
8502	*Metalectra tantillus*		X						X								X						
8504	*Metalectra albilinea*								X	X								X	X				
8507.1	*Metalectra geminicincta*								X														
Hypeninae [1]		0	0	0	0				1	0	0	0						0	0	0			
8442	*Hypena baltimoralis*								X														
Eulepidotinae [4]		2	0	0	0				3	0	0	0						1	2	1			
8471	*Hemeroplanis habitalis*	X																					
8587	*Panopoda rufimargo*	X							X									X	X	X			
8588	*Panopoda carneicosta*								X										X				
8589	*Panopoda repanda*								X														
Pangraptinae [2]		1	0	0	0				1	2	0	1						1	1	0			
8490	*Pangrapta decoralis*	X							X	X			X				X	X	X				
8491	*Ledaea perditalis*									X		X					X						
Scolecocampinae [3]		0	1	1	0				2	1	1	1						1	2	3			
8509	*Arugisa lutea*		X	X					X	X	X							X	X	X			
8510	*Arugisa watsoni*												X				X			X			
8514	*Scolecocampa liburna*								X			X							X	X			
Hypocalinae [1]		1	0	0	0				1	0	0	0						1	0	1			
8528	*Hypsoropha hormos*	X							X								X	X		X			
Calpinae [1]		0	0	0	0				1	0	0	0						0	0	0			
8534	*Plusiodonta compressipalpis*								X														
Scoliopterygidae [1]		0	0	0	0				0	0	0	0						0	0	0			
8545	*Anomis erosa*													X									

Table 2 part 6

Table 2: Lepidoptera Biodiversity Blitz Checklist & Survey Data For Macrolepidoptera

		pine flatwoods/bog							hardwood swamp								upland oak-pine for.				
		MV Sheet 1	UV Trap 3	UV Trap 4	UV Trap 6	3 UV Traps	Day Area 1	Day Area 1	MV Sheet 2	UV Trap 2	UV Trap 2	UV Trap 5	3 UV Traps	4 Bait Traps	Day Area 1	Day Area 3	MV/UV in bog/ hardwoods	UV Trap 1	UV Trap 1	UV Trap 1	7 Bait Traps	Day Area 2	Day Area 4
		26 April	27 April	29 April	29 April	29 Apr.-1 May	26 April	29 Apr-1 May	29 April	26 April	27 April	29 April	29 Apr.-1 May	26-29 April	29 Apr-1 May	26-Apr	29 Apr-1 May	26 April	27 April	29 April	26 & 29 April	26 April	26 April
Incertae Sedis [6]		1	0	0	0				5	0	1	0						1	0	1			
8411	*Colobochyla interpuncta*								X														
8419.2	*Prosoparia floridana*																					X	
8437	*Abablemma brimleyana*								X														
8440	*Nigetia formosalis*					X			X					X									
8488	*Hormoschista latipalpis*								X														
8525	*Phyprosopus callitrichoides*	X							X		X						X	X		X			
Erebinae (=Catocalinae) [28]		12	3	1	0				13	5	4	4						5	2	4			
8585.3	*Epidromia rotundata*																				X		
8651	*Lesmone detrahens*	X				X			X	X	X		X				X	X					
8653	*Lesmone hinna*																				X		
8666	*Metria amella*																				X		
8683	*Zale coracias*																				X		
8689	*Zale lunata*								X					X					X	X	X			
8691	*Zale declarans*																				X		
8692	*Zale galbanata*	X							X														
8694	*Zale aeruginosa*																				X		
8697	*Zale minerea*								X									X		X	X		
8717	*Zale horrida*													X									
8721	*Allotria elonympha*					X								X			X	X	X				
8724	*Dysgonia consobrina*											X											
8725	*Dysgonia similis*													X									
8726.1	*Dysgonia telma*								X														
8727	*Parallelia bistriaris*		X											X						X			
* 8728	*Cutina albopunctella* sp. 1								X														
8759	*Argyrostrotis flavistriaria*	X							X	X	X	X					X						
8760	*Argyrostrotis sylvarum*	X							X	X	X	X					X						
8761	*Argyrostrotis erasa*	X				X			X				X				X						
8763	*Argyrostrotis deleta*	X		X		X			X	X		X					X						
8762	*Argyrostrotis quadrifilaris*	X							X														
8764	*Argyrostrotis anilis*	X							X														
8733	*Caenurgia chloropha*	X	X						X		X						X	X					
8744	*Mocis marcida*	X	X							X								X		X			
8745	*Mocis texana*	X																					
8751	*Ptichodis bistrigata*	X																					
8765	*Doryodes bistrialis*																					X	
Euteliinae [4]		2	0	1	0				0	0	0	1						0	0	0			
8955	*Marathyssa inficita*	X		X													X						
8957	*Paectes oculatrix*	X																					
8959	*Paectes pygmaea*											X											
8962	*Paectes abrostoloides*																				X		
Afridinae [1]		0	0	0	0				1	0	0	0						0	0	0			
8102	*Afrida ydatodes*								X														
Chloephorinae [1]		0	0	0	0				1	0	0	0						0	0	0			
8974	*Garella nilotica*								X														

Table 2 part 7

Table 2: Lepidoptera Biodiversity Blitz Checklist & Survey Data For Macrolepidoptera

		pine flatwoods/bog							hardwood swamp									upland oak-pine for.				
		MV Sheet 1	UV Trap 3	UV Trap 4	UV Trap 6	3 UV Traps	Day Area 1	Day Area 1	MV Sheet 2	UV Trap 2	UV Trap 2	UV Trap 5	3 UV Traps	4 Bait Traps	Day Area 1	Day Area 3	MV/UV in bog/ hardwoods	UV Trap 1	UV Trap 1	UV Trap 1	7 Bait Traps	Day Area 2	Day Area 4
		26 April	27 April	29 April	29 April	29 Apr.-1 May	26 April	29 Apr-1 May	29 April	26 April	27 April	29 April	29 Apr.-1 May	26-29 April	29 Apr-1 May	26-Apr	29 Apr-1 May	26 April	27 April	29 April	26 & 29 April	26 April	26 April
Nolinae [3]		0	0	0	0				1	0	0	0						1	0	1			
8989	*Nola pustulata*												X					X		X			
* 8989.1	*Nola* sp. nr. pustulata								X														
8996	*Nola clethrae*								X				X										
Dyopsinae [1]		0	0	0	0				0	0	0	0						0	0	0			
8556	*Litoprosopus futilis*													X									
Plusiinae [2]		1	1	1	1				1	1	0	0						0	0	0			
9024	*Exyra semicrocea*	X	X	X	X	X			X								X						
8886	*Enigmogramma basigera*									X													
Incertae Sedis [4]		1	0	1	0				2	2	1	0						2	3	2			
9025	*Oruza albocostaliata*																X		X				
9036	*Hyperstrotia aetheria*																		X				
* 9038	*Hyperstrotia villificans*	X		X					X	X								X		X			
9039	*Hyperstrotia flaviguttata*								X	X	X							X	X	X			
Eustrotiinae [2]		0	0	0	0				2	1	1	0						0	1	0			
9044	*Marimatha nigrofimbria*					X			X	X	X		X						X				
9047	*Protodeltote muscosula*								X														
Acontiinae [4]		2	0	0	0				0	1	1	0						0	0	0			
9085	*Tarachidia semiflava*	X																					
9090	*Tarachidia candefacta*										X												
9127	*Spragueia leo*									X													
9136	*Acontia aprica*	X																					
Bagisarinae [2]		1	0	0	0				2	1	1	0						1	0	0			
* 9169	*Bagisara rectifascia* sp. 2								X														
9176.1	*Bagisara brouana*	X							X	X	X		X					X					
Acronictinae [9]		6	0	1	0				6	1	0	0						3	4	3			
9211	*Acronicta tritona*	X																					
9246	*Acronicta clarescens*	X																					
9251	*Acronicta retardata*	X							X					X				X			X		
9254	*Acronicta afflicta*																	X	X	X			
9255	*Acronicta brumosa*								X								X		X	X			
9272.1	*Acronicta sinescripta*	X							X														
* 9280a	*Acronicta insularis* sp. A								X														
9285	*Polygrammate hebraeicum*	X		X					X	X							X	X	X	X			
8104	*Comachara cadburyi*	X							X										X				
Eriopinae [4]		2	0	0	0				4	0	2	1						0	0	0			
9630	*Callopistria floridensis*								X														
9631	*Callopistria mollissima*								X			X											
9632	*Callopistria granitosa*	X							X		X												
9633	*Callopistria cordata*	X							X		X												
Balsinae [1]		0	0	0	0				1	0	0	0						0	0	0			
9664	*Balsa labecula*								X														

Table 2 part 8

Table 2: Lepidoptera Biodiversity Blitz Checklist & Survey Data For Macrolepidoptera

		pine flatwoods/bog						hardwood swamp								upland oak-pine for.				
		MV Sheet 1	UV Trap 3	UV Trap 4	UV Trap 6	3 UV Traps	Day Area 1	Day Area 1	MV Sheet 2	UV Trap 2	UV Trap 2	UV Trap 5	3 UV Traps	4 Bait Traps	Day Area 1	Day Area 3	MV/UV in bog/ hardwoods	UV Trap 1	UV Trap 1	UV Trap 1	7 Bait Traps	Day Area 2	Day Area 4
		26 April	27 April	29 April	29 April	29 Apr.-1 May	26 April	29 Apr-1 May	29 April	26 April	27 April	29 April	29 Apr.-1 May	26-29 April	29 Apr-1 May	26-Apr	29 Apr-1 May	26 April	27 April	29 April	26 & 29 April	26 April	26 April
Condicinae [9]		1	1	0	0				5	1	1	0						1	2	2			
9690	*Condica videns*	X	X							X	X								X				
9693	*Condica mobilis*								X														
9696	*Condica vecors*								X											X			
9699	*Condica sutor*								X														
9700	*Condica claufacta*													X			X						
9689	*Perigea xanthioides*																	X		X			
9720	*Ogdoconta cinereola*																		X				
9724.3	*Ogdoconta pulvilinea*								X														
9661	*Crambodes talidiformis*								X														
Azeniina [1]		0	0	0	0				1	1	1	0						0	1	1			
9725	*Azenia obtusa*								X	X	X								X	X			
Heliothinae [1]		1	0	0	0				0	0	0	0						0	0	0			
11070	*Heliothis subflexus*	X																					
Noctuinae [28]		11	2	2	2				9	4	4	2						5	3	5			
9619	*Phosphila miselioides*			X		X				X		X						X	X				
9522	*Iodopepla u-album*	X	X						X	X	X		X				X						
9556	*Chytonix palliatricula*																X	X	X	X			
9629	*Fagitana littera*								X	X	X	X											
9650	*Anorthodes tarda*												X										
9669	*Spodoptera ornithogalli*		X															X					
9672	*Spodoptera eridania*																				X		
9676	*Elaphria nucicolora*								X														
9678	*Elaphria versicolor*	X							X								X						
9679	*Elaphria chalcedonia*																				X		
9681	*Elaphria festivoides*																		X				
9682	*Elaphria exesa*								X														
9684	*Elaphria grata*																X						
9687	*Gonodes liquida*																				X		
9688	*Galgula partita*	X							X								X			X			
9718	*Emarginea percara*								X														
9818	*Amolita fessa*	X			X						X						X						
10439	*Leucania extincta*	X																					
10444	*Leucania phragmatidicola*	X															X						
10450.2	*Leucania* sp. unplaced				X					X													
10454	*Leucania latiuscula*								X														
10455	*Leucania scirpicola*	X							X		X									X			
10456	*Leucania adjuta*	X																					
10521.1	*Morrisonia triangula*	X											X					X		X			
10664	*Agrotis subterranea*													X									
* 10901.1	*Euagrotis lubricans* sp. 2			X																			
* 10901.2	*Euagrotis lubricans* sp. 3	X																X					
10911	*Anicla infecta*	X																		X			

Table 2 part 9

Table 3: Lepidoptera Biodiversity Blitz Checklist & Survey Data for "Microlepidoptera" Species

		pine flatwoods/bog					hardwood swamp						uplands		
		MV Sheet 1	UV Trap 3	UV Trap 4	UV Trap 6	3 UV Traps	MV Sheet 2	UV Trap 2	UV Trap 2	UV Trap 5	3 UV Traps	MV&UV lights in bog/ hardwoods	UV Trap 1	UV Trap 1	UV Trap 1
		26 April	27 April	29 April	29 April	29 Apr.-1 May	29 April	26 April	27 April	29 April	29 Apr.-1 May	29 Apr-1 May	26 April	27 April	29 April
* = Taxon included in the inventory for this survey station(s) Note: "microlepidoptera" is not a natural group or taxonomic rank.															
"microlepidoptera" Total [122]						*					*	*			
TINEOIDEA [4]						*					*	*			
PSYCHIDAE [1]		*	*	*	*	*	*	*	*	*	*	*	*	*	*
450	*Basicladus tracyi*											X			
TINEIDAE [3]						*					*	*			
335	*Amydria margoriella*											X			
355.1	*Acrolophus heppneri*										X	X			
366	*Acrolophus mortipennella*											X			
GRACILLARIOIDEA [1]						*					*	*			
BUCCULATRICIDAE [1]						*					*	*			
485	*Bucculatrix solidaginiella*											X			
GELECHIOIDEA [16]						*					*	*			
OECOPHORIDAE [2]						*					*	*			
1043	*Decantha stecia*											X			
1046	*Epicallima argenticinctella*										X				
AUTOSTICHIDAE [2]						*					*	*			
1134.1	*Spinitibia hodgesi*											X			
1142	*Glyphidocera septentrionella*										X				
MOMPHIDAE [1]		*	*	*	*	*	*	*	*	*	*	*	*	*	*
1443	*Mompha eloisella*	X					X					X			
COSMOPTERIGIDAE [3]						*					*	*			
1503	*Melanocinclis lineigera*											X			
1513	*Pyroderces badia*											X			
1515	*Limnaecia phragmitella*										X				
GELECHIIDAE [7]						*					*	*			
1716	*Monochroa quinquepunctella*											X			
1761	*Aristotelia roseosuffusella*											X			
1840	*Exoteleia pinifoliella*											X			
2229	*Battaristis vittella*											X			
2297.2	*Dichomeris bolize*											X			
2234	*Anacampsis coverdalella*										X				
2302.4	*Dichomeris aglaia*											X			
YPONOMEUTOIDEA [1]		*	*	*	*	*	*	*	*	*	*	*	*	*	*
ATTEVIDAE [1]		*	*	*	*	*	*	*	*	*	*	*	*	*	*
2401	*Atteva punctella*	X					X	X				.			
URODOIDEA [1]		*	*	*	*	*	*	*	*	*	*	*	*	*	*
URODIDAE [1]		*	*	*	*	*	*	*	*	*	*	*	*	*	*
2415	*Urodus parvula*						X	X				X			X

Table 3 part 1

Table 3: Lepidoptera Biodiversity Blitz Checklist & Survey Data for "Microlepidoptera" Species															
		pine flatwoods/bog					hardwood swamp						uplands		
		MV Sheet 1	UV Trap 3	UV Trap 4	UV Trap 6	3 UV Traps	MV Sheet 2	UV Trap 2	UV Trap 2	UV Trap 5	3 UV Traps	MV/UV lights in bog/ hardwoods	UV Trap 1	UV Trap 1	UV Trap 1
		26 April	27 April	29 April	29 April	29 Apr.-1 May	29 April	26 April	27 April	29 April	29 Apr.-1 May	29 Apr-1 May	26 April	27 April	29 April
UNASSIGNED APODITRYSIA [1]						*					*	*			
2493	*Cycloplasis panicifoliella*											X			
COSSOIDEA [4]		*	*	*	*	*	*	*	*	*	*	*	*	*	*
COSSIDAE [4]		*	*	*	*	*	*	*	*	*	*	*	*	*	*
2659	*Inguromorpha basalis*											X			
2668	*Givira anna*	X				X	X								
2671	*Givira francesca*	X					X					X			
2674	*Cossula magnifica*	X					X								
TORTRICOIDEA [23]						*					*	*			
TORTRICIDAE [18]						*					*	*			
Olethreutinae [14]						*					*	*			
2727	*Paralobesia cyclopiana*										X				
2738	*Endothenia hebesana*											X			
2828	*Olethreutes griseoalbana*										X	X			
2829	*Olethreutes osmundana*											X			
2898	*Retinia gemistrigulana*											X			
3142	*Eucosma cataclystiana*											X			
3151	*Pelochrista scintillana*											X			
3184.1	*Epiblema glenni*											X			
3190	*Epiblema desertana*										X	X			
3218	*Sonia constrictana*											X			
3228	*Gypsonoma salicicolana*											X			
3274.1	*Crocidosema lantana*										X				
3423	*Larisa subsolana*											X			
3486	*Cydia toreuta*											X			
Tortricinae [4]						*					*	*			
3633	*Choristoneura parallela*											X			
3688	*Clepsis peritana*											X			
3695	*Sparganothis sulfureana*											X			
3732	*Platynota flavedana*											X			
COCHYLIDAE [5]						*					*	*			
3754	*Aethes angulatana*											X			
3760.1	*Aethes seriatana*											X			
3763	*Eugnosta bimaculana*										X	X			
3764	*Eugnosta sartana*					X					X	X			
3790	*Eugnosta erigeronana*											X			
ZYGAENOIDEA [12]		*	*	*	*	*	*	*	*	*	*	*	*	*	*
MEGALOPYGIDAE [3]		*	*	*	*	*	*	*	*	*	*	*	*	*	*
4642	*Lagoa pyxidifera*	X													
4644	*Lagoa crispata*	X	X	X	X	X	X	X	X		X	X			X
4647	*Megalopyge opercularis*						X							X	

Table 3 part 2

Table 3: Lepidoptera Biodiversity Blitz Checklist & Survey Data for "Microlepidoptera" Species																
		pine flatwoods/bog					hardwood swamp						uplands		
		MV Sheet 1	UV Trap 3	UV Trap 4	UV Trap 6	3 UV Traps	MV Sheet 2	UV Trap 2	UV Trap 2	UV Trap 5	3 UV Traps	MV/UV lights in bog/ hardwoods	UV Trap 1	UV Trap 1	UV Trap 1
		26 April	27 April	29 April	29 April	29 Apr.-1 May	29 April	26 April	27 April	29 April	29 Apr.-1 May	29 Apr-1 May	26 April	27 April	29 April
LIMACODIDAE [9]		*	*	*	*	*	*	*	*	*	*	*	*	*	*
4657	*Heterogenea shurtleffi*						X	X							
4665	*Lithacodes fasciola*	X	X		X	X	X	X		X	X	X	X		X
4667	*Apoda y-inversum*												X		
4669	*Apoda biguttata*				X										
4671	*Prolimacodes badia*						X			X					
4679	*Natada nasoni*						X					X			
4681	*Isa textula*													X	
4685	*Adoneta spinuloides*						X						X	X	
4697	*Euclea delphinii*					X	X				X				
PYRALOIDEA [58]						*					*	*			
PYRALIDAE [58]						*					*	*			
Nymphulinae [8]						*					*	*			
4746	*Chrysendeton imitabilis*					X						X			
4748	*Elophila icciusalis*											X			
4751	*Elophila gyralis*										X	X			
4754	*Elophila tinealis*										X				
4755	*Elophila obliteralis*					X					X	X			
4759	*Parapoynx maculalis*											X			
4764	*Parapoynx allionealis*											X			
4785	*Eoparargyractis irroratalis*											X			
Glaphyriinae [1]						*					*	*			
4896	*Chalcoela pegasalis*											X			
Pyraustinae [12]						*					*	*			
4943	*Crocidophora pustuliferalis*						X	X							
4955	*Anania leuschneri*											X			
5156.5	*Duponchelia fovealis*											X			
5117	*Loxostegopsis merrickalis*											X			
5149	*Niphograpta albiguttalis*											X			
5160	*Desmia maculalis*											X			
5172	*Diasemiodes janassialis*					X						X			
5176	*Anageshna primordialis*										X	X			
5177	*Apogeshna stenialis*										X	X			
5223.1	*Palpita maritima*										X				
5320	*Donacaula amblyptepennis*											X .			
5323	*Donacaula uxorialis*										X				

Table 3 part 3

Table 3: Lepidoptera Biodiversity Blitz Checklist & Survey Data for "Microlepidoptera" Species																				
		pine flatwoods/bog						hardwood swamp							uplands					
		MV Sheet 1	UV Trap 3	UV Trap 4	UV Trap 6	3 UV Traps	29 Apr.-1 May	MV Sheet 2	UV Trap 2	UV Trap 2	UV Trap 5	3 UV Traps	29 Apr.-1 May	MV/UV lights in bog/hardwoods	UV Trap 1	UV Trap 1	UV Trap 1	26 April	27 April	29 April
		26 April	27 April	29 April	29 April	29 Apr.-1 May		29 April	26 April	27 April	29 April	29 Apr.-1 May								
Crambinae [19]						*						*		*						
5364	*Crambus multilinellus*					X								X						
5369	*Crambus quinquareatus*											X								
5372	*Crambus satrapellus*					X						X		X						
5380	*Neodactria zeellus*													X						
5393	*Raphiptera argillaceellus*													X						
5403	*Agriphila vulgivagellus*											X								
5413	*Pediasia trisecta*					X														
5419	*Microcrambus biguttellus*													X						
5420	*Microcrambus elegans*					X						X								
5460	*Argyria nummulalis*													X						
5462	*Argyria rufisignella*					X														
5463	*Argyria lacteella*													X						
5464	*Urola nivalis*	X	X	X		X		X				X		X						
5465	*Argyria auratella*					X								X						
5482	*Haimbachia squamulella*											X								
5489	*Haimbachia placidella*													X						
5501	*Xubida relovae*					X								X						
Pyralinae [2]						*						*		*						
5533	*Hypsopygia olinalis*													X						
5574	*Heliades mulleolella*											X		X						
Epipaschiinae [2]						*						*		*						
5579	*Macalla zelleri*													X						
5606	*Pococera asperatella*													X						
Phycitinae [12]						*						*		*						
5653	*Acrobasis vaccinii*													X						
5745	*Glyptocera consobrinella*													X						
5773	*Salebriaria engeli*													X						
5775.8	*Salebriaria carolynae*													X						
5802	*Sciota uvinella*													X						
5818	*Actrix nyssaecolella*													X						
5953	*Laetilia fiskella*													X						
5996	*Euzophera magnolialis*											X								
5999	*Eulogia ochrifrontella*													X						
6007	*Vitula edmandsii*													X						
6028	*Tampa dimediatella*													X						
6035	*Erelieva parvulella*													X						
Peoriinae [2]						*						*		*						
6049	*Peoria roseotinctella*					X														
6068	*Homosassa ella*													X						
THYRIDOIDEA [1]		*	*	*	*	*		*	*	*	*	*		*	*	*	*			
THYRIDIDAE [1]		*	*	*	*	*		*	*	*	*	*		*	*	*	*			
6085	*Meskea dyspteraria*											X		X						
PTEROPHOROIDEA [2]		*	*	*	*	*		*	*	*	*	*		*	*	*	*			
PTEROPHORIDAE [2]		*	*	*	*	*		*	*	*	*	*		*	*	*	*			
6098	*Buckleria parvulus*	X	X	X		X		X						X						
6214	*Hellinsia glenni*	X										X								

Table 3 part 4

Table 4: Lepidoptera Survey Data for Individual Bait Traps

		hardwood swamp				upland oak-pine forest						
		Bait Trap 1 26 April	Bait Trap 1 27 April	Bait Trap 2 29 April	Bait Trap 3 29 April	Bait Trap 4 26 April	Bait Trap 5 26 April	Bait Trap 6 26 April	Bait Trap 7 26 April	Bait Trap 4 29 April	Bait Trap 5 29 April	Bait Trap 6 29 April
MACROLEPIDOPTERA		**1**	**12**	**18**	**10**	**3**	**3**	**3**	**1**	**10**	**14**	**13**
RHOPALOCERA (Butterflies)		0	1	2	1	0	0	0	0	0	0	0
PAPILIONOIDEA		0	1	2	1	0	0	0	0	0	0	0
NYMPHALIDAE		0	1	2	1	0	0	0	0	0	0	0
4568	*Enodia portlandia*		X		X							
4573	*Cyllopsis gemma*			X								
4578	*Megisto cymela*			X								
GEOMETROIDEA		0	1	0	1	0	0	0	0	1	1	1
GEOMETRIDAE		0	1	0	1	0	0	0	0	1	1	1
6439.1	*Hypomecis longipectinaria*										X	X
6726	*Euchlaena obtusaria*		X		X							
6733	*Euchlaena amoenaria*									X		
BOMBYCOIDEA		0	0	0	1	0	0	0	0	1	0	2
SPHINGIDAE		0	0	0	1	0	0	0	0	1	0	2
7870	*Sphecodina abbottii*											X
7873	*Amphion floridensis*											X
7886	*Darapsa choerilus*				X					X		
NOCTUOIDEA		1	1	1	1	1	1	1	1	1	1	1
NOCTUIDAE		1	10	16	7	3	3	3	1	8	13	10
Herminiinae		1	3	4	5	3	3	3	1	4	5	4
8322	*Idia americalis*			X	X							
8323	*Idia aemula*			X	X	X		X		X		X
8326	*Idia rotundalis*		X			X	X	X		X	X	X
8328	*Idia julia*						X					
8329	*Idia diminuendis*				X		X				X	
8333	*Idia denticulalis*										X	
* 8334	*Idia lubricalis* sp. 1	X	X	X	X	X		X	X	X	X	X
* 8334	*Idia lubricalis* sp. 2		X	X	X					X	X	X
Hypenodinae		0	2	1	0	0	0	0	0	1	0	0
* 8428.1	*Dyspyralis* new sp. 1		X	X						X		
8430	*Parahypenodes quadralis*		X									
Boletobiinae		0	2	2	1	0	0	0	0	0	0	0
8499	*Metalectra discalis*		X	X								
8500	*Metalectra quadrisignata*		X	X	X							
Scoliopterygidae		0	0	1	0	0	0	0	0	0	0	0
8545	*Anomis erosa*			X								
Incertae Sedis		0	1	1	0	0	0	0	0	0	0	0
8440	*Nigetia formosalis*		X	X								
Erebinae (=Catocalinae)		0	2	4	0	0	0	0	0	2	5	5
8585.3	*Epidromia rotundata*									X		X
8653	*Lesmone hinna*											X
8666	*Metria amella*									X	X	X
8683	*Zale coracias*										X	
8689	*Zale lunata*			X							X	X
8691	*Zale declarans*										X	
8694	*Zale aeruginosa*										X	
8697	*Zale minerea*											X
8717	*Zale horrida*		X	X								
8721	*Allotria elonympha*		X									
8725	*Dysgonia similis*			X								
8727	*Parallelia bistriaris*			X								
Euteliinae		0	0	0	0	0	0	0	0	0	1	0
8962	*Paectes abrostoloides*										X	
Dyopsinae		0	0	0	1	0	0	0	0	0	0	0
8556	*Litoprosopus futilis*				X							
Acronictinae		0	0	1	0	0	0	0	0	0	0	1
9251	*Acronicta retardata*			X								X
Condicinae		0	0	1	0	0	0	0	0	0	0	0
9700	*Condica claufacta*			X			·					
Noctuinae		0	0	1	0	0	0	0	0	1	2	0
9672	*Spodoptera eridania*										X	
9679	*Elaphria chalcedonia*										X	
9687	*Gonodes liquida*									X		
10664	*Agrotis subterranea*			X								

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WHY SWEET BAY WAS REPORTED AS A FOOD PLANT OF *PAPILIO PALAMEDES* (PAPILIONIDAE)

BY

JOHN V. CALHOUN

For over a century, sweet bay, *Magnolia virginiana* L. (Magnoliaceae), was thought to serve as a food plant of the Palamedes swallowtail, *Papilio palamedes* Drury. However, attempts to confirm *M. virginiana* as an acceptable food plant of this butterfly were unsuccessful (Brooks 1962), and it was later found to be toxic to the larvae (Nitao et al. 1992, Scriber et al. 2000). *Papilio palamedes* is actually a specialist on trees of the family Lauraceae, particularly red bay (*Persea borbonia* (L.) Spreng.). The first report of *M. virginiana* as a host of this butterfly dates back over 200 years, but it was not published until the late nineteenth century.

In 1871, the American entomologist Samuel H. Scudder visited London, England, where he spent time at the British Museum. While there, he examined a large collection of watercolor drawings by the English naturalist John Abbot (1751-c.1840) (Scudder 1872). Anxious to see the New World, Abbot left England and arrived in Virginia in September 1773. He relocated to Georgia in early 1776 and lived there for the remainder of his life. Abbot eagerly studied the natural history of his new home, collecting and drawing many of the birds, insects, and spiders that he encountered. He illustrated the life histories of numerous butterflies and moths, figuring adults and their early stages with the supposed food plant. He sold numerous sets of these drawings, for which he prepared separate manuscripts of handwritten notes that detailed the food plants, rearing dates, habitats, and other pertinent information about the species portrayed.

Abbot sent a large quantity of watercolors to John Francillon (1744-1816), a prominent jeweler and natural history dealer who owned a shop in central London. For many years, Francillon acted as Abbot's agent, selling his specimens and artwork to naturalists in Britain and Europe. Francillon's collection of nearly 3000 drawings by Abbot was purchased by the British Museum in 1818. They are now preserved at The Natural History Museum, London (NHMUK; formerly BMNH), which opened in 1881.

One of the more spectacular life history illustrations that Francillon received from Abbot portrays *P. palamedes*. Probably completed between 1804 and 1810, it depicts two adult butterflies, with a caterpillar and a chrysalis on a sprig of *M. virginiana* (Fig. 1). A chewed leaf rises above the flower, suggesting feeding activity of the caterpillar. Abbot's notes for this drawing (as transcribed by Francillon) refer to the butterfly as the "Large yellow spotted black Swallow tail Butterfly," adding that its caterpillar "feeds on the Bay (as figured)."

Fig. 1. Watercolor by John Abbot, c. 1800 (© The Natural History Museum, London).

In 1873 and 1874, during meetings of the Boston Society of Natural History (BSNH), Scudder exhibited several hundred other drawings by Abbot, mostly life history studies of Lepidoptera (Scudder 1873, 1874). These illustrations, with Abbot's accompanying notes, were acquired by BSNH in January 1874. They were transferred in 1946 to Harvard University (Cambridge, Massachusetts), where they are now preserved in the Houghton Library. Included are two duplicate compositions of *P. palamedes* with *M. virginiana*, which were probably completed between 1815 and 1820. The plant and adult butterflies are considerably different from those in the earlier illustration for Francillon at NHMUK. For his drawings at Harvard, Abbot called the butterfly "*Papilio Chalcas*" and he identified the plant as "*Magnolia glauca*." These names are synonyms of *P. palamedes* and *M. virginiana*.

Based on these three drawings of *P. palamedes*, Scudder (1889) remarked that "Abbot long ago figured the larva upon Magnolia glauca." Scudder also stated that the

Florida naturalist William (Wilhelm) Wittfeld (1828-1913) had informed him that the food plant of *P. palamedes* in Florida was "red bay," which Wittfeld identified as "*Magnolia glauca*." However, Scudder correctly pointed out that Wittfeld had associated the wrong Latin name with red bay. In a letter to the lepidopterist William H. Edwards, Wittfeld correctly identified the food plant as "*Persea carolina*, or Red Bay" (Edwards 1881). "*Persea carolina*" is an old name for *P. borbonia*. Scudder's (1889) allusion to Abbot's drawings is the source of all subsequent claims that *P. palamedes* feeds on *M virginiana*. This resulted in the butterfly being called the "magnolia swallowtail" by some authors, including Harris (1931) and Clark (1936), who declared that "The caterpillars live on magnolia trees."

Abbot portrayed *P. palamedes* only with *M. virginiana*, and he did so at least six times. In addition to the three drawings already mentioned, two more are preserved at the Alexander Turnbull Library (Wellington, New Zealand) (Fig. 2) and the University of Georgia (Athens, Georgia) (Calhoun 2007a, 2007b). Completed between 1816 and 1825, they are duplicates of one another. They also match the drawings at Harvard, revealing that Abbot repeatedly copied certain compositions. Yet another of Abbot's watercolors of *P. palamedes* with *M. virginiana* is deposited at NHMUK. In private hands until 1937, it was transferred to NHMUK during the 1960s with a set of Abbot's Lepidoptera drawings. Probably completed 1812, this illustration is a duplicate of Abbot's other life history drawing of *P. palamedes* at NHMUK (Fig. 1). The two watercolors at NHMUK are older and more meticulously rendered than the other four. As Abbot aged and struggled to fulfill orders for his illustrations, the quality of his work sometimes suffered.

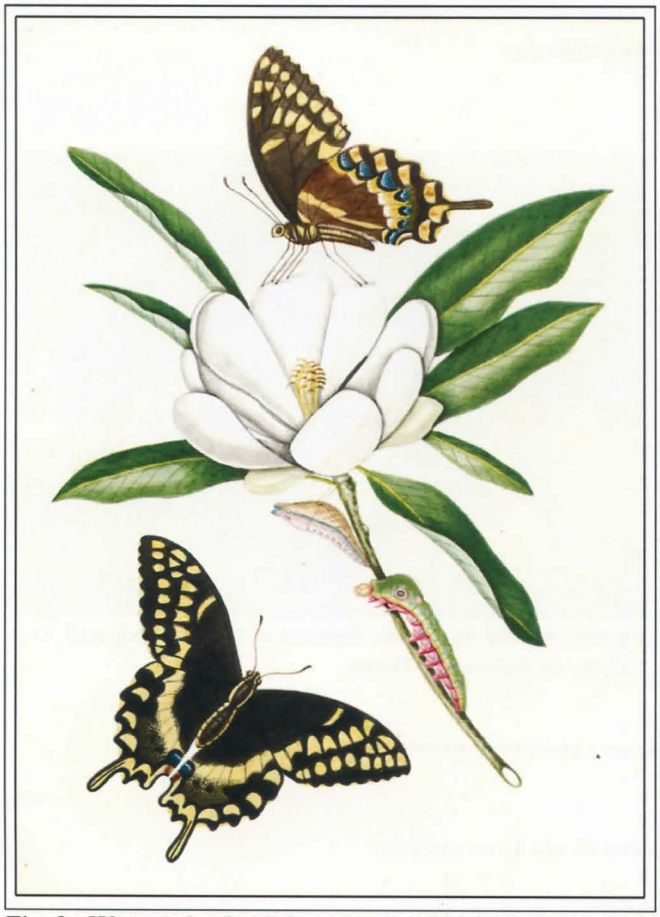

Fig. 2. Watercolor by John Abbot, c.1816-1818 (courtesy Alexander Turnbull Library).

Abbot evidently reared *P. palamedes* only twice during his six decades in Georgia; both times prior to 1800. He first mentioned rearing this butterfly in association with a drawing of a single adult male without early stages or food plant. Deposited at NHMUK, this illustration was most likely rendered between 1790 and 1800. Abbot described the coloration of the larva and recorded the dates when he reared the butterflies. He also remarked that the "Caterpillar feeds on Bay." Abbot repeated these notes, with only slight variation, for all of his life history drawings of *P. palamedes*. He recorded that one larva "Tyed up" on 30 May, "Changed" (pupated) on 31 May, and "Bred" (eclosed as an adult) on 14 June. Another "Changed" on 18 September and "Bred" on 24 March the following year. He considered the species to be "frequent all over the Country" (i.e. eastern Georgia). He interchangeably referred to this species as the "Large yellow spotted black swallow tailed Butterfly" or "*Papilio Chalcas.*" Abbot illustrated *P. palamedes* a number of additional times, but only as single adult specimens, and without accompanying notes.

Although the majority of Abbot's life history studies are accurate, some of his illustrations and written observations are the source of dubious information that continues to plague the literature. Authors have repeated many of Abbot's erroneous food plant associations without realizing their origin. For example, Abbot appears to have figured some plants strictly for their aesthetic appeal (Calhoun 2007a), and some of the supposed food plants mentioned in his notes are erroneous hosts (Calhoun 2007a, Mercader et al. 2008). In addition, Abbot's drawings occasionally associate the early stages of one species with the adults of another. Most surprising, he purposely fabricated a few figures of larvae and pupae (Calhoun 2007a). Caution must therefore be exercised when consulting Abbot's drawings and writings for life history information.

Abbot probably assumed that such discrepancies would not be detected, at least during his lifetime. He undoubtedly never envisioned the future significance of his work, nor did he comprehend the enduring consequences of his artistic license. Nevertheless, he succeeded in accurately documenting the life histories of hundreds of species of Lepidoptera. As for *P. palamedes*, we will probably never know if he make an innocent mistake, or deliberately replaced the food plant

with a more eye-catching substitute. Dramatic compositions were more popular with Abbot's customers, and his portraits of *P. palamedes* are certainly remarkable.

Literature Cited

Brooks, J. C., 1962. Foodplants of *Papilio palamedes* in Georgia. *J. Lepid. Soc.* 16:198.

Calhoun, J. V., 2007a. John Abbot's butterfly drawings for William Swainson, including general comments about Abbot's artistic methods and written observations. *J. Lepid. Soc.* 61:1-20.

Calhoun, J.V., 2007b. The butterfly drawings by John Abbot in the Hargrett Rare Book and Manuscript Library, University of Georgia. *J. Lepid. Soc.* 61:125-137.

Clark, A. H., 1936. *The swallowtail butterflies*. Smith. Inst. Ann. Rpt. 1935:383-408, pls. 1-14.

Edwards, W. H., 1881. Description of the preparatory stages of *Papilio palamedes*, Drury. (*Calchas*, Fab.). *Can. Entomol.* 13:119-123.

Harris, L., Jr., 1931. A list of the butterflies of Georgia. *Trans. Georgia Nat. Club* 1:1-27.

Harris, L., Jr., 1972. *Butterflies of Georgia.* Univ. Oklahoma Pr., Norman, Oklahoma. 326 pp., 23 pls.

Mercader, R. J., M. L. Aardema, & J. M. Scriber, 2008. Old hickory records and John Abbot's drawings: North American host records evaluated for *Papilio glaucus*. *J. Lepid. Soc.* 62:166-170.

Nitao, J. K., K. S. Johnson, J. M. Scriber, & M. G. Nair, 1992. *Magnolia virginiana* neolignan compounds as chemical barriers to swallowtail butterfly host use. *J. Chem. Ecol.* 18:1661-1671.

Scriber, J. M., N. Margraf, & T. Wells, 2000. Suitability of four families of Florida "bay" species for *Papilio palamedes* and *P. glaucus* (Papilionidae). *J. Lepid. Soc.* 54:131–136.

Scudder, S. H., 1872. Abbott's [sic] notes on Georgian butterflies. *Can. Entomol.* 4:73-77, 84-87.

Scudder, S. H., 1873. [Unpublished drawings of John Abbot]. *Proc. Boston Soc. Nat. Hist.*16:117.

Scudder, S. H., 1874. [Oemler and Gray collections of John Abbot drawings]. *Proc. Boston Soc. Nat. Hist.* 16:295.

Scudder, S. H., 1889. *The butterflies of the eastern United States and Canada with special reference to New England.* Vol. III. Author, Cambridge, Massachusetts. i-viii, 1775-1958, 89 pls., 3 maps.

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Photographed by James Bowers at Silver Falls Rest Area, nr. Crosbyton, Texas.

Photographed by James Bowers at the Garden and Arts Center in Lubbock, Texas.

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Tribute to Earth Day (April 22, 2017): Driveway/Mailbox Garden. At the home of Gary N. Ross in Baton Rouge, Louisiana. Blooms include flowering tobacco (red center), opium poppy (pink), Shirley poppy (red), blue larkspur, and daylily (yellow, left foreground). Opium poppies (red) are in upper left background (Photo by Gary N. Ross).

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NEW ONLINE ALABAMA BUTTERFLY ATLAS!

SUBMITTED BY
PAULETTE OGARD

The Alabama Butterfly Atlas has launched! http://www.alabama.butterflyatlas.usf.edu. The ABA is designed to collect, interpret, and share information about Alabama's butterfly populations for the purpose of education and conservation. Hundreds of Alabamians have come together to create this initial offering. Although the atlas focuses on Alabama, we believe it will also be useful in adjoining states.

Users can:

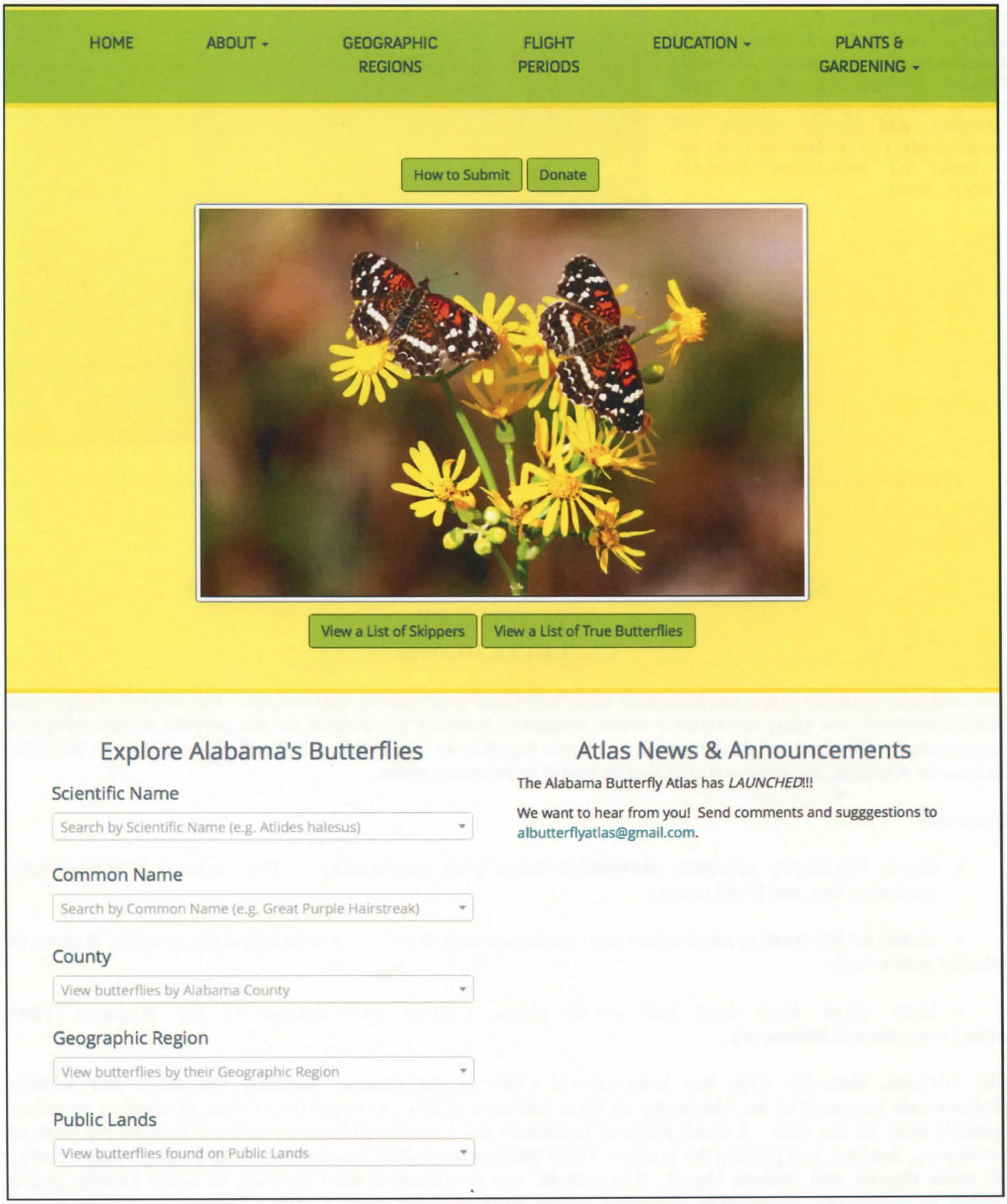
- access life history accounts, distribution maps, photographs of each life cycle stage, host plant lists, gardening tips, and flight charts;

- search for information about a particular species or look at species lists from specific counties, regions, or selected public lands;

- learn about local host and nectar plants through live linkage to the Alabama Plant Atlas (www.floraofalabama.org).

The Alabama Butterfly Atlas has been several years in the making. Butterfly specialists and wildlife professionals convened at the University of West Alabama in 2013 to begin the process of creating an online butterfly atlas for the state. A small group of volunteers that includes SLS members has continued the work of developing, funding, and guiding the project. These steering committee members are Sara Bright, Vitaly Charny, W. Mike Howell, and Paulette Ogard. The website was developed at the University of South Florida, and is funded by donations. In addition, generous grants were received from Legacy: Partners in Environmental Education and the Solon and Martha Dixon Foundation. The University of West Alabama acts as a fiscal sponsor: all contributions are tax deductible.

The website that you see now is only a beginning. We need your help to increase its breadth and depth. Please submit your Alabama field records (old and new) to albutterflyatlas@gmail.com.



Alabama Butterfly Atlas Homepage (Credit: Alabama Butterfly Atlas).

Thumbnail photos from Alabama Butterfly Atlas (Credit: Alabama Butterfly Atlas)

Alabama Butterfly Atlas

HOME ABOUT GEOGRAPHIC REGIONS FLIGHT PERIODS EDUCATION PLANTS & GARDENING

Home / Species / Banded Hairstreak

Banded Hairstreak *Satyrium calanus*

Butterfly: Wingspan: 1 to 1 1/2 inches (2.5 - 3.8 cm). The underside of the hindwing is dark brown with a band of dark dashes that are edged in white. The blue tail-spot is *not* topped with red. The hindwing has one long and one short tail. The upperside of both sexes is dark brown. Males have a forewing scent patch; females may have orange patches, but uppersides are seldom seen.

ID Tip: Undersurface hindwing has a blue patch that is not capped with red. Bands of white dashes form bars. Two sets of tails.

Egg: Flattened disc-shaped pinkish eggs are deposited on twigs, branches and in bark crevices. They are the overwintering stage.

Caterpillar: There are several color forms: creamy white with a green stripe and green blotches; green with a dark brown stripe and yellow lines: light brown with or without lines and dashes.

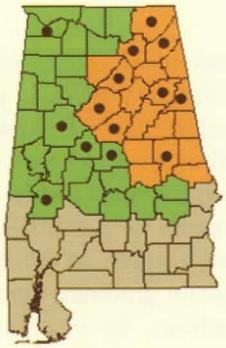
Chrysalis: Dark brown and mottled. Pellet-shaped.

View More Photos »

Jump to section: Distribution and Abundance | Habitat | Host and Nectar Plants | Landscaping Ideas | Links | Photos

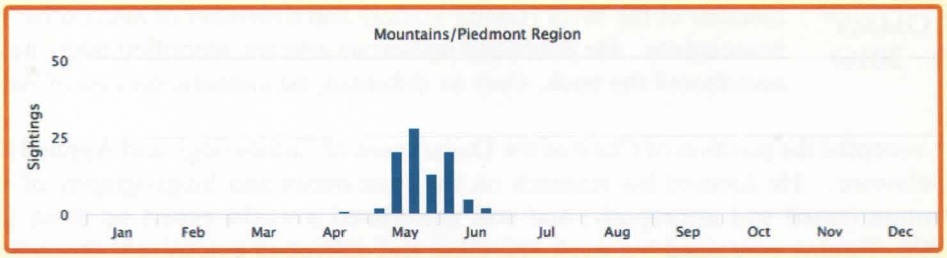
Banded Hairstreaks fly only once a year and are typically on the wing in early summer. Their genus, satyrium, includes several other species that are also univoltine (single-brooded) and share many physical and behavioral traits. Bandeds are typically the most common of that group, perhaps because their habitat is so common.

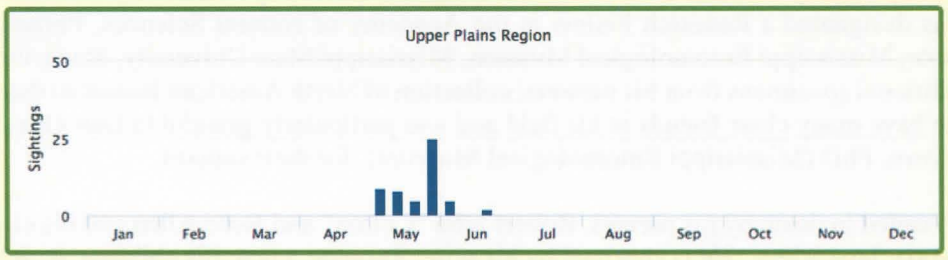
An excerpt from the Alabama Butterfly Atlas Banded Hairstreak Species page (Credit: Alabama Butterfly Atlas).



Sightings in the following counties: **Bibb, Blount, Calhoun, Chilton, Cleburne, Colbert, DeKalb, Jackson, Jefferson, Marengo, Marshall, Shelby, Tallapoosa, Tuscaloosa**

View Map with County Names





Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
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Distribution and abundance graphics from the Alabama Butterfly Atlas Banded Hairstreak Species page (Credit: Alabama Butterfly Atlas).

(Palette Haywood Ogard, E-Mail: habitatdesigns@hotmail.com)

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ROBERT T. "TOMMY" ALLEN
DECEMBER 14, 1939 - OCTOBER 21, 2016

ROBERT T. "TOMMY" ALLEN (1939 - 2016)

Robert T. "Tommy" Allen, PhD, passed away from heart failure on Friday, October 21. He was born December 14, 1939, in Farmerville, LA, graduated from High School in 1958, earned a BA in entomology from Louisiana State University in 1962, and an MS in 1964. He joined the faculty of the University of Arkansas, Fayetteville, in 1968 and received his PhD (1969) from the University of Illinois in 1969. While at the University of Arkansas, Tommy worked on the ecology of ground beetles and became Curator of the Arthropod Museum. Due to his own collecting, that of his many graduate students, and by arranging for the purchase of important collections, he is credited with expanding that museum from a small voucher collection of crop insects into a highly valued systematic research collection with specimens from all over the world (many from habitats that no longer exist). Tommy was a founding member of the Willi Hennig Society and a member of many other entomological associations. He published numerous articles, identified many new species, and coauthored the book, *Only in Arkansas*, on endemic species of Arkansas.

In 1991 Tommy accepted the position of Chair of the Department of Entomology and Applied Ecology, at the University of Delaware. He focused his research on the systematics and biogeography of the Symphyla, Diplura, and Protura (small soil arthropods) and was considered a world expert on those groups. Upon retirement in 1996, Tommy continued his work, traveling and collecting extensively throughout the United States. He was designated a Research Fellow at the Academy of Natural Sciences, Philadelphia, and an Adjunct Professor, Mississippi Entomological Museum, Mississippi State University, Starkville, and donated over 25,000 additional specimens from his personal collection of North American insects to those institutions. He continued to have many close friends in his field and was particularly grateful to Dan Otte, PhD (ANSP), and Richard Brown, PhD (Mississippi Entomological Museum), for their support.

Tommy was preceded in death by his parents, Robert Jehu "Cotton" and Bebe Allen and his sisters, Sunshine Sturgeon and Mazy Jane Allen. He is survived by his wife, Suzanne Allen; his children, R. Jehu (Jay) Allen and Hannah S. Allen; and many other friends and family.

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Canyon north of highway 114 just west of Silver Falls Rest Area near Crosbyton, Texas (Photo by James Bowers).

REMEMBERING FLORIDA NATURALIST BUCK COOPER

BY
MARC C. MINNO

On December 20, 2016, Byrum Wilson (Buck) Cooper died of congestive heart failure at the Good Shephard Hospice in Lakeland, Florida. He was just over 88 years old.

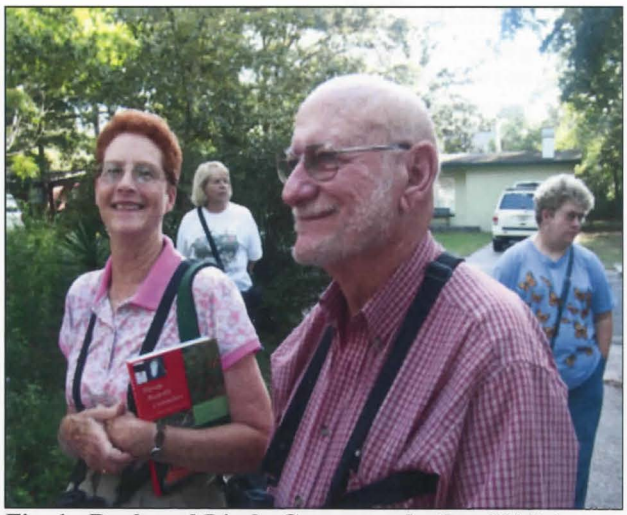

Fig. 1. Buck and Linda Cooper and other NABA folks visiting the Minno garden in Gainesville in May 2005 (photo by Kathy Malone).

Many years previously, in August 1997, my wife Maria and I visited the Audubon Kissimmee Prairie Sanctuary (now part of Kissimmee Prairie State Park) in Polk County to search for the rare and declining Arogos Skipper (*Atrytone arogos arogos*). The preserve manager at that time, Paul Gray, kindly offered to drive us around the extensive property on a swamp buggy. Before setting out, Paul asked me if I knew the Coopers. He said that Buck and Linda Cooper had been out to the preserve to look for butterflies. This was the first time that I had heard of Buck and Linda Cooper and their strong interest in documenting butterflies. Paul told me that they intended to photograph in the field every species of butterfly found in Florida!

I met Buck and Linda a few years later at a Florida Native Plant Society field trip and again at a natural history workshop that Maria organized for the League of Environmental Educators of Florida at the Welaka State Forest. Buck and Linda were expert at identifying birds and butterflies in the field. They also came to our house in Gainesville a few times to see our butterfly garden (Figure 1). On one of these visits they brought us a gift of a small potted Jack-In-the-Bush (*Chromolaena odorata*) butterfly attracting plant as a present. I think Buck told me that they had bought this plant at a nursery in Texas. We still have descendants of Buck and Linda's gift growing in our yard and attracting lots of butterflies when they flower in late summer and fall.

Buck and Linda shared a love of nature rarely seen today. They gave many presentations on identifying Florida butterflies to groups such as the Florida Native Plant Society and North American Butterfly Association and at birding festivals and other nature related events. We sometimes crossed paths at the Florida Birding Festival in St. Petersburg and the Space Coast Birding and Wildlife Festival in Titusville, where the Coopers also organized the butterfly watching field trips. Linda photographed the butterflies and created slide shows. Buck would narrate the presentations with an engaging style that was quite popular. The audience was always attentive even as he pointed out field marks on the drabbest of skippers.

Buck was born in Bartow, Florida, the last of 13 children. His mother Laura Elizabeth Wilson died after his birth. His father Charley Byrum Cooper died when Buck was only three. Buck then went to live with his older brother Robert and wife Ruth Cooper in New Port Richey. He graduated from Gulf High School in 1947 and then studied herpetology at the University of Florida. He never finished his degree however, but instead joined the Air Force in 1950. In 1975 he retired from the Air Force as a Lieutenant Colonel. Afterward, he and his first wife Gwen operated an antique shop in Lake Alfred for many years. In 1987 he married Linda Grable. They were sole mates. Buck and Linda volunteered as the resident naturalists at the Audubon Street Nature Center in Winter Haven until 1999. Then they moved to Haines City and planted a butterfly garden.

I asked Linda if she could send me information on how she and Buck got interested in butterflies. She sent me the following recollections in an email on March 11, 2017.

> "We got interested in butterflies when we kept seeing skippers and didn't know what they were.

Skippers were the driving force in our interest in butterflies. We are charter members of North American Butterfly Association. Our first survey was at Kissimmee Prairie Preserve State Park [KPPSP] before it became a state park when we had access for the 4th of July counts. Disney Wilderness Preserve was our second survey site and things just snowballed when state park and other land managers found someone who would do year long surveys and give them a checklist of species found there. Colt Creek State Park, Lake Kissimmee State Park, Lake Louisa State Park, Circle B Bar Reserve, Van Fleet and Withlacoochee State Trails, and Bok Tower Gardens in addition to the two original surveys sites all have checklists from year long surveys done with dedicated volunteers. We had so much fun at KPPSP that we ended up with three years of data.

Butterfly presentations on gardening, imperiled butterflies, butterflies on public lands, butterflies found in specific counties, the connections of butterflies and wildflowers, life histories of butterflies, butterfly identification and just about anything connected with butterflies we could make into a program suitable for public enjoyment and education were given from the far western panhandle into the Florida Keys and everywhere in between. I took photos and put the programs together, but Buck was the presenter. We have done field trips for Spacecoast Birding Festival, Suncoast Birding Festival, Water, Wings and Wild Things as well as for NABA chapters.

Buck's greatest excitement with butterflies was always the education part. Taking people out and getting them excited about behavior gave him the biggest boost. The past few years were challenging, but he could sit on a bench or in a chair and open people's eyes to the beauty of butterflies and get them thinking about planting a butterfly garden so they could experience butterflies at their homes and with their families.

I have never seen or photographed Pepper and Salt Skipper, Falcate Orangetip, Eastern Comma or Disguised Scrub-Hairstreak in Florida, though we made serious efforts to do so. Other than those I have photographed the regularly expected species in Florida.

Buck said his happiest years were at UF where he spent countless hours collecting herps at Paynes Prairie when it was a wild place with no highway through it. He and fellow natural history students stayed in a small house on Bivens Arm. He was on a six week collecting trip to Blue Mountains of Jamaica with Dr. Coleman Goins during the early 50s to collect herps and specifically study markings on whistling frogs. He should have graduated in 1951 but joined the USAF when recruiters came to UF during the Korean War.

We started going to south Texas for birds and evolved into going for butterflies when butterfly gardens were added to the World Birding Centers and wildlife refuges scattered from Brownsville to Falcon Dam. We have spent six weeks in Texas for the past seven years, headquartered in Mission. Here we were field trip leaders for the Texas Butterfly Festival for a number of years. He spent hours talking to people at the various gardens while I wandered around taking photos. I will return this fall to our rented 'casita' near Bentsen State Park and the National Butterfly Center.

We were the 2013 recipients of the Green Horizon Land Trust 'Blazing Star Award'. It honors those who have made significant contributions to the preservation of environmentally-sensitive lands or education. We were resident naturalists at the Audubon/Street Nature Center in Winter Haven for 13 years. We received the Florida Audubon's distinguished Allan Cruickshank Memorial Award for our conservation work in Florida and were recognized by the Florida Game and Freshwater Fish Commission (now FFWCC) with an award for our contribution to wildlife preservation. From 2007-2009 we were regional coordinators for Florida Natural Areas Inventory, surveying large public conservation lands for rare butterfly species."

Buck is survived by spouse Linda Cooper, children Byrum Wilson Cooper, Jr., Dena Cooper-Beecher, Laura Barr, stepchildren Julie Stevenson, Joseph Grable, niece Patricia Crisman, and step niece Mary Beth Litrico. Memorial donations can be to these organizations:

National Butterfly Center 3333 Butterfly Park Drive, Mission, TX 78572

Good Shepherd Hospice 3470 Lakeland Hills Blvd, Lakeland, FL 33805

Friends of Kissimmee Prairie Preserve, 3304 NW 192nd Avenue, Okeechobee, FL 34972

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IODOPEPLA U-ALBUM (GUENÉE, 1852) (LEPIDOPTERA: NOCTUIDAE) IN LOUISIANA

BY

VERNON ANTOINE BROU JR.

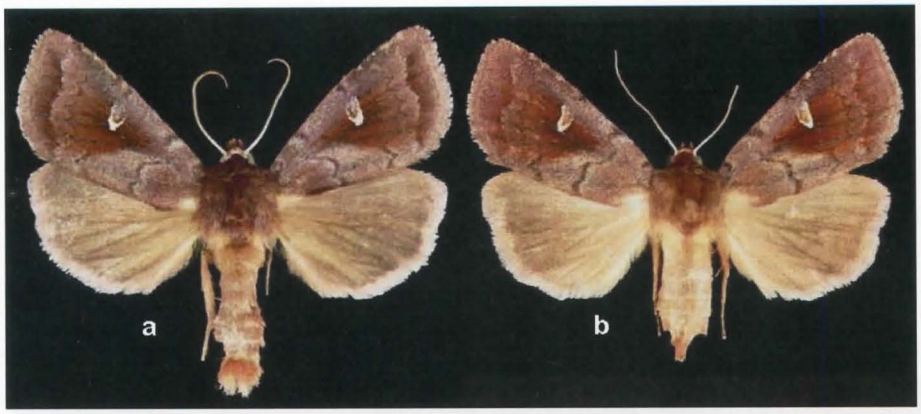

Fig. 1. ***Iodopepla u-album*** a. male, b. female.

The rather abundant noctuid species ***Iodopepla u-album*** (Guenée) (Fig. 1) occurs in Ontario and across much of the eastern United States, south to the Gulf States. This species was originally described as ***Ceramica u-album*** Guenée, in 1852, Type locality, Florida, and was placed in the genus ***Iodopepla*** by Franclemont (1964).

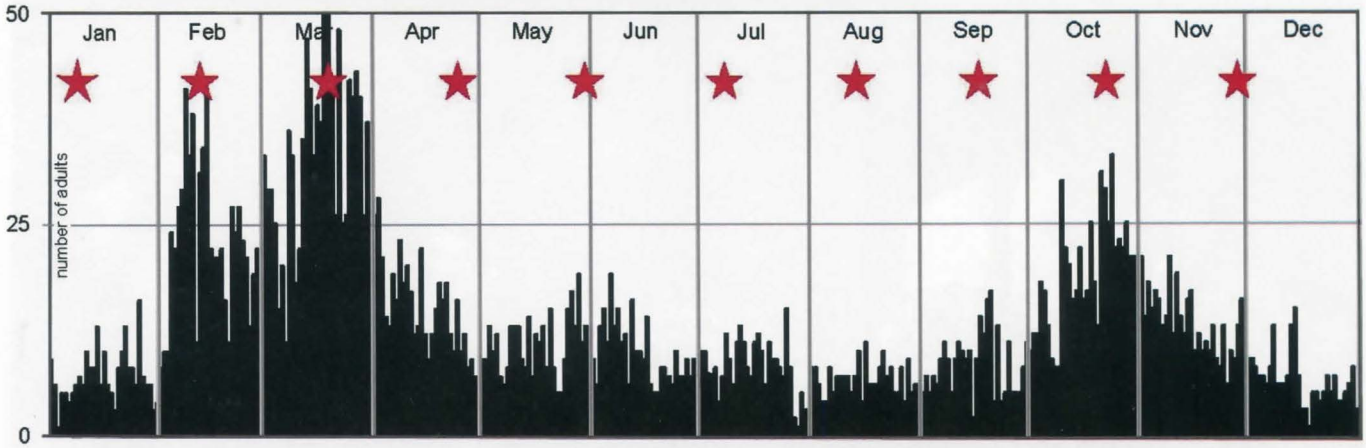

Fig. 2. ***Iodopepla u-album*** captured at sec. 24T6SR12E, 4.2 mi NE of Abita Springs, Louisiana. n = 4,882

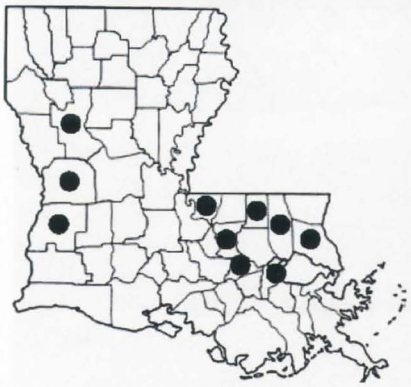

Fig. 3. Parish records for ***Iodopepla u-album***.

Franclemont (1964) remarked this species "has had a rather checkered taxonomic existence". This author provided a discussion about ***u-album*** stating that it had been described three times by different workers, each time in a different genus, and additionally placed in ***Mamestra***, ***Hydroecia***, ***Gortyna***, ***Phuphena***, ***Oligia***, and ***Apamea***.

In southern Louisiana, ***u-album*** is very common, as exemplified by its 10 annual broods at approximately 38-day intervals. I have logged adults captured in ultraviolet light traps on all 366 days of the year. The brood peaks at the Abita Sprins entomological study site are indicated by red stars on the phenogram (Fig. 2). Despite a sizeable sample, many times greater than the amount logged in Fig. 2, there is little notable variation in the appearance of adult phenotypes illustrated in Fig. 1, from across the state.

Chapin and Callahan (1967) included ***u-album*** on their list of noctuidae for Louisiana. Covell (1984) did not cover this rather commonly encountered species. Heppner (2003) stated the range for ***u-album*** includes Massachusetts to Florida, and Illinois to Texas, and (adults) January through December.

The ten confirmed parish records within Louisiana are illustrated in Fig. 3.

Literature cited

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

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

Franclemont J.G., 1964. Notes and two new genera (Lepidoptera: Noctuidae). *Proc. Ent. Soc. Wash.* 66: 71-73.

Guenée, A., 1852. *Species Généraldes Lepidoptères. Noctuelites*. vol 5-7, Paris.

Heppner, J.B., 2003. *Arthropods of Florida and neighboring land areas*, vol. 17: Lepidoptera of Florida, Div. Plant Industry, Fla.

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

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TRIBUTE TO EARTH DAY (April 22, 2017): Central Garden at the home of Gary N. Ross in Baton Rouge, Louisiana. Blooms include petunia ("Tidal Wave")-silver, blue larkspur, zinnia (pink), Mimulus (yellow), and sunflowers (yellow background). (Photo by Gary N. Ross)

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DIAPHANIA INFIMALIS (GUENÉE, 1854) (LEPIDOPTERA: CRAMBIDAE) IN LOUISIANA

BY

VERNON ANTOINE BROU JR.

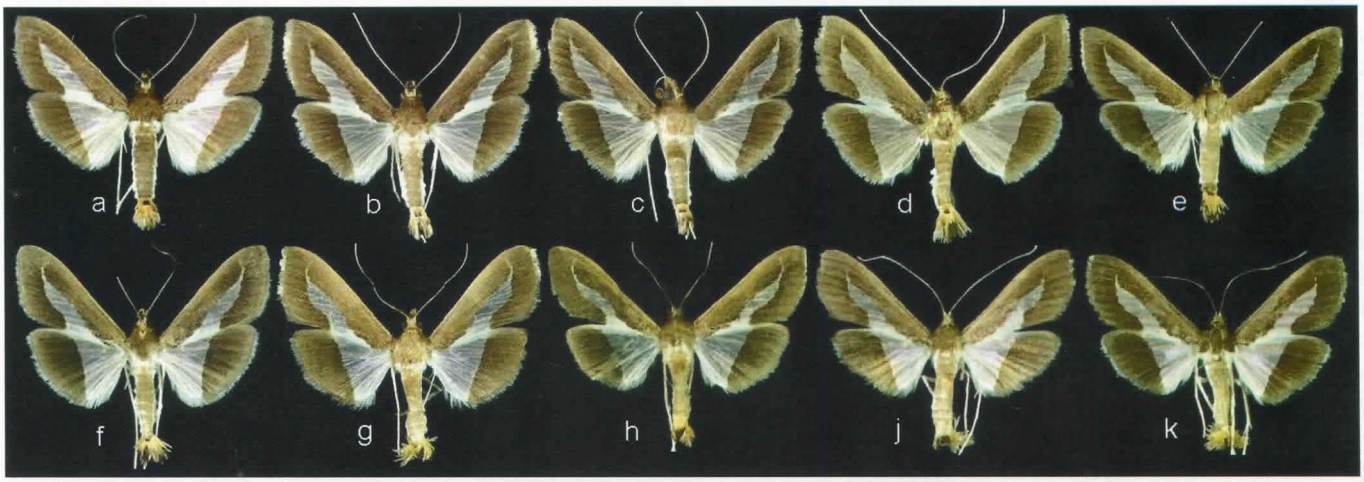

Fig. 1. ***Diaphania infimalis*** phenotypes: a-e. males, f-k, females.

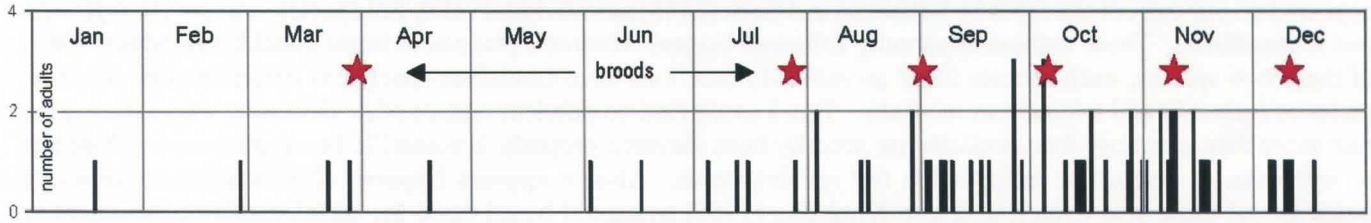

Fig. 2. Adult ***Diaphania infimalis*** captured in Louisiana. n = 63

Fig. 3. Parish records for ***D. infimalis***.

The crambid moth ***Diaphania infimalis*** (Guenée) (Fig.1) is one of the smallest in size members of the genus, ***Diaphania*** Hübner, 1818. The original published description (**Guenée,** 1854) is in the French language. Guenée remarked concerning ***infimalis***, "*It is the smallest of all...only 23mm*". Guenée described this species based upon a single male specimen, but mentions seeing a female originating from an unknown location. Much of the original description is dubious or unclear, and of little use for other distinguishing characteristics among the dozens of similar appearing species. ***D. infimalis*** was not addressed by Covell (1984) for eastern North America, nor Heppner (2003) for the state of Florida, nor Powell and Opler (2009) for western North America. Though, Heppner did list ***Diaphania 'modialis'*** (Dyar) in Florida.

Based upon limited numbers of captured adult specimens, ***infimalis*** appears to have six or more annual broods within Louisiana, second brood peaking in late July, and at approximate 32-day intervals (Fig. 2).

Scholtens and Solis (2015) listed nine species of ***Diaphania*** occurring in America, north of Mexico. Previously, Brou (2016) published on one of them, ***Diaphania hyalinata*** (Linnaeus), a well known agricultural pest which feeds upon plants of the family Cucurbitaceae. Hostplants mentioned in scientific literature for most all of the various species of ***Diaphania*** are apparently members of the family Cucurbitaceae.

Clavijo (1990) published a remarkable taxonomic study of 32 species (including 4 new species) belonging to the "*black and white*" ***Diaphania***. All the species he treated were redescribed. ***Diaphania*** was divided into the species-groups: ***"hyalinata"***, ***"fumosalis"*** and ***"auricollis"***, and he provided keys for these groups, and for the species he studied. Clavijo stated "*all species studied are found in tropical and subtropical America, except* ***D. indica*** (Saunders) *which has a pantropical distribution*". Regarding ***infimalis***, Clavijo examined **54** specimens (47 males and 7 females) from: UNITED STATES: Florida, Louisiana (two specimens captured by myself in 1975), and

Texas, MEXICO, GUATEMALA, BELIZE, BAHAMAS, CUBA, JAMAICA, PANAMA, VENEZUELA, and BOLIVIA. This author stated "*male with very weak parategumen sclerite is a very particular diagnostic character in this species*".

Clavijo stated the Type: ***Phakellura infimalis*** Guenée, 1854, originated from French Guyana, Cayenne (original description). The Type was not located. In synonymy, ***Phakellura immaculalis*** Walker, 1859, Holotype female from the United States (original description). Type deposited in the Natural History Museum, London, England, and this specimen was examined by Clavijo. Also in synonymy, ***Glyphodes infimalis modialis*** Dyar, 1912, holotype male from Cuernavaca (Crawford), Mexico. Type deposited in National Museum of Natural History, Smithsonian Institution, Washington. Type number 14433, and this specimen was also examined by Clavijo.

Partly responsible for confusion involving this species are sexual dimorphism differences with respect to the amounts of, and shapes of, the black and white areas upon both forewings and hindwings. The females have much wider (bolder) black bands, especially noticeable on the hindwings, than appearing on males. The basal edge of the black hindwing band on females is often noticeably convex, and the area of white scales on forewings of females is narrower and appears more tortuous in shape. Also, adult specimens which are aged, or on the wing longer, have (black areas) which instead appear light brown (fuscous) in color, whereas on recently emerged, and more freshly captured adults, these areas are distinctly black.

Dyar (1901) stated the larvae of ***D. infimalis***, feed upon ***Melothria grendula*** (Cucurbitaceae). I call to the attention of the reader, both ***Diaphania infimalis*** Guenée, and (***Glyphodes***) ***Diaphania infimalis modialis*** (Dyar, 1912) have appeared on our current checklist by Scholtens and Solis (2015) as individual valid, full species, namely (***D. infimalis*** and ***D. modialis***). These authors apparently followed Eugene Monroe's placement in the checklist (Hodges, 1983) of these two species, each species listed as valid. In fact, I do have Louisiana specimens determined by Munroe, males as ***infimalis*** and a female as ***modialis***. But, I could find no publications, or other evidence, where during the past more than a century that ***modialis*** has actually been elevated properly in scientific literature from a subspecies of ***infimalis,*** to distinct or indisputable full species status. Also, it appears Heppner (2003) followed Munroe's treatment of these two names, and also Kimball's (1965) treatment based upon the unsubstantiated statement in passing, that Kimball published "*Capps has called my attention to the fact that North American specimens have been erroneously called* ***infimalis*** *(Guenée)*". Consequently, Kimball did not include ***infimalis*** as occurring in Florida, but listed numerous records only and all, as ***modialis***. Kimball's plate XXV illustrates a specimen he identified as ***D. modialis***, equivalent to the ones I provide here in Fig.1 as ***D. infimalis***. Heppner (2003) used the same plate of pyralidae illustrating ***modialis*** that appeared in Kimball (1965), but Heppner reassigned it as plate V in his revised, augmented, and far more comprehensive publication on the lepidoptera of Florida.

The parish records in Louisiana are illustrated in Fig. 3. Sixty-one specimens in 47 years of continuous and interminable, nightly light trapping using mostly five to seven, multilamp, high wattage UV traps, makes ***infimalis*** a true rarely encountered species in this state. I thank James Hayden and José Clavijo for commenting on this manuscript.

Literature Cited

Brou Jr., Vernon A., 2016. Diaphania hyalinata (Linnaeus) (Lepidoptera: Crambidae) in Louisiana. *South. Lepid. News* 38: 227-228.

Clavijo, A. J. A., 1990. *Systematics of black and white species of the genus Diaphania Hübner (1818) (Lepidoptera: Pyralidae: Pyraustinae).* Dissertation: Montreal, Canada McGill Univ. 215 pp.

Dyar, H. G., 1901. Descriptions of sorne Pyralid larvae from Southern Florida. J. N. York. *Ent. Soc.*, 9: 19-24.

Dyar, H. G., 1912. Some Lepidoptera from Mexico. *Pomona College J. Entom.* 4: 746-748.

Guenée, A., 1854. *Deltoides et Pyralites.* In J.B.A.D. Boisduval and A. Guenée, Histoire naturelle des insectes: Species général des Lépidoptères, 8:448 pp., Paris: Librairie Encyclopedique de Roret.

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

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.

Kimball, C. P., 1965. *Arthropods of Florida and neighboring land areas*, vol. 1: Lepidoptera of Florida, Div. Plant Industry, Fla. Dept. Agr., Gainesville. v + 363pp., 26 plates.

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

Scholtens,B.G. and **M. A. Solis,** 2015. *Annotated check list of the Pyraloidea (Lepidoptera) of America North of Mexico.* ZooKeys 535: 1–136. doi: 10.3897/zookeys.535.6086.

Walker, F., 1859. *List of the Specimens of Lepidopterus Insects in the Collection of the British Museum.* 18: 509-798.

ANICLA INFECTA OCHSENHEIMER 1816, (LEPIDOPTERA: NOCTUIDAE) IN LOUISIANA

BY

VERNON ANTOINE BROU JR.

Fig. 1. Adult ***Anicla infecta*** phenotypes, male and females, all from Abita Springs, Louisiana.

Fig. 2. Adult ***Anicla infecta*** captured in Louisiana. n = 8,968

Images of adult phenotypes (Fig.1), phenology data (Fig. 2), and distribution (Fig. 3) of the noctuid moth ***Anicla infecta*** Ochsenheimer (Fig.1), all within the state of Louisiana are provided. The larval stage of this species is commonly known as the 'green cutworm' and is a well-known polyphagus agricultural pest. It occurs thoughout the Americas. Numerous publications can be found concerning ***infecta*** occurring from the countries of Canada, south to Brazil, Chile, and Ecuador. Köhler, (1945), Teston, *et al.* (2001), and others, also reported ***infecta*** has numerous adult morphological variations (phenotypes).

Based upon adults captured in ultraviolet light traps within Louisiana, under wild, natural conditions, ***infecta*** has seven annual broods, at approximately 51-day intervals (Fig. 2). Research published by Teston,*et al.* (2001), under laboratory conditions in Brazil indicated that the complete life cycle of ***A. infecta*** was 49.9 days, of which 3.2 days were required for egg development, 18.7 for larval, 3.3 for pre-pupal, and 12.6 days for pupal development. These same authors stated in their study, ***infecta*** females laid on average, 521 ova, and resulted in an approximate 1:1 sex ratio. Their stock originated from (Brazil) Rio Grande do Sul, RS. These same authors found that a previously published description concerning the life cycle of ***A. infecta*** by Foerster & Mello (1996) actually refers to a different species, ***Anicla ignicans*** (Guenée, 1852), and that both species have similar developmental characteristics.

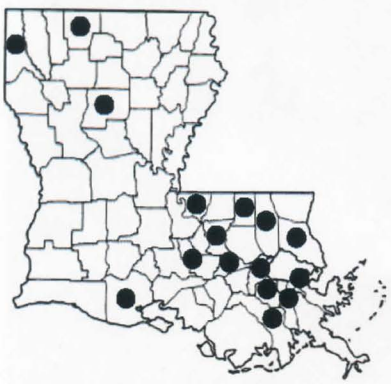

Fig. 3. Parish records for ***A. infecta***.

A. infecta was previously recorded for Louisiana by both Jung (1950), and Chapin & Callahan (1967). I have recorded adults in all 365/366 days of the year. Knudson & Bordelon (1999) listed ***infecta*** as occurring in Texas.

A. infecta was originally described as ***Agrotis infecta*** Ochsenheimer in 1816. Lafontaine (2004) treated six of the nine species of the subgenus ***Anicla*** Grote. This same author reviewed both ***infecta*** and also ***ignicans***. Regarding ***ignicans***, Lafontaine provided morphological characteristics to aid in distinguishing ***ignicans*** and ***infecta***, and also stated ***infecta*** is most likely to be confused with ***ignicans***. Lafontaine also designated a Lectotype specimen for ***ignicans*** from Brazil in the Oberthür collection of the British Museum Nat. Hist. The Louisiana parish records for ***infecta*** are illustrated in Fig. 3. I thank J. Donald Lafontaine for commenting on this species account

Literature cited

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

Foerster L.A. & Mello, M.E.F., 1996. Desenvolvimento e sobrevivência de Anicla infecta Guenée (Lepidoptera: Noctuidae) em diferentes temperaturas. *Anais Soc. Entomol. Brasil, Piracicaba,25* (1): 33-38.

Jung, R. C., 1950. An annotated list of the Lepidoptera of the New Orleans area. *Proc. Louisiana Acad. Sci.* 13: 46-47.

Knudson, E. & C. Bordelon, 1999. *Texas Lepidoptera Survey, Checklist of the Lepidoptera of Texas 2000 edit.* Privately printed.

Köhler, P.E., 1945, Los «Noctuidae» argentinos. Subfamilia Agrotinae. *Acta Zool. Lilloana, Tucumán,3*: 59-134.

Lafontaine, J.D., 2004. *Moths of America North of Mexico*, Fascicle 27.1: p. 43; pl. A.9-12.

Ochsenheimer, F., 1816. Die Schmetterlinge von Europa. Fierter BandSchmett. Eur.4:1-223(4).

Teston, J.A., A. Specht, and E. Corseuil, 2001. Biology of Anicla infecta (Ochsenheimer, 1816) (Lepidoptera, Noctuidae, Noctuinae), under laboratory conditions. *Braz. J. Biol.*, vol. 61, no. 4, São Carlos.

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SPRING DESERT COLLECTING IN SOUTHERN CALIFORNIA

BY

KELLY RICHERS

Eastern California can be divided into two rough zones regarding the advent of spring. North of the San Gabriel/San Bernardino Mountains is what is termed the high desert, and south of those ranges is what is termed the low desert. Spring comes early to the low deserts and adjacent mountain ranges of the low desert. It comes later, sometimes much later, to the high desert and areas up toward Bishop.

This year the rains finally came to California, breaking a chain of drought years that has severely limited collecting due to reduced plant life, reduced length of flight seasons, and extreme heat conditions. There was reportedly almost double the yearly average of rain over the winter this year across the state, with the south only slightly behind that. Average rainfall for the Anza Borrego State Park Research Station is about 6.18 inches per year, and this year there was significantly more rain than that. Perhaps the amount of rain was not double, but enough rain fell that there was a rare massive bloom at the Anza Borrego State Park and the surrounding areas. This meant two things of importance to entomologists. First, the insect life was going to have an excellent spring. Second, there was the probability that word would get out to nature lovers about the flowers and there might be substantial crowds around the state park.

The area around Anza Borrego has long held a high interest for lepidopterists. Many species not found widely in California are in the area, and the place known as "Scissors Crossing" repeatedly appears in the literature of desert moth records. Warner Springs, Borrego Springs, the Warner Mountains (not the ones in Modoc Co.) all are areas that have records found in few other places.

The area to which I am referring is around a body of water known as the Salton Sea. The Salton Sea was formed when the Colorado River diverted into an area lower than the surrounding drainage basin, then rediverted, leaving a huge body of water that is slowly evaporating and getting saltier. This whole area lies south of Palm Springs, and since the Interstate 10 Freeway is hidden behind a shield of mountains all along the length of this valley until approaching Palm Springs, a casual traveler never gets to see (or smell) the unusual area. However, due to a peculiar set of circumstances I was able to visit the area twice this spring when I had never been there previously.

This year there was a school district state Superintendent's meeting in Indian Wells, which put me in early February just north of the area of low desert described above. Thus I could at least do a cursory survey of the area and set a couple of traps on the foothills of the San Jacinto Mountains.

Then, David Wagner contacted some of us to meet in Anza Borrego in early March to assist in a caterpillar study he is doing on western caterpillars. Naturally, out of the good of my heart I volunteered to catch adult moths for study. I was fortunate enough to convince a former school district superintendent, Dr. James Forrest, to accompany me on this planned two night trip.

Rare blooming desert at Anza Borrego State Park.

In addition, expert desert collector Dave Wikle contacted me and showed me a potential location to go for a night- not where I expected near Anza Borrego, but eastward across the valley at the north end of the Salton Sea near Mecca, called Box Canyon. He agreed to meet us there March 9th after he drove down from Pasadena.

So, after a five hour drive from Bakersfield, we arrived in Mecca, and headed east to explore the canyon. There was no massive flower bloom in Box Canyon. In fact, it looked just like any other canyon in the desert in the spring, with occasional blooms close to the ground and scattered bushes. We drove back that afternoon not particularly impressed and went to Indio to stay in a motel room. A very expensive motel room, as it turned out, because some big-wig tennis tournament had jacked the prices up to double their normal cost, so we spent $200 for a modest room.

In early evening we headed south back to Mecca and east into the canyon, which starts at about 350 feet elevation and climbs slowly east into the hills. Dave had warned us to set the traps out of sight from passers-by, so we used my little red wagon with the wide wheels to trundle traps and batteries back into the smaller offshoot

A typical canyon where traps were set. We had a trap in this canyon at Anza Borrego along Route 78.

canyons, until we had seven traps set, about a quarter mile apart, starting at about 7.5 miles east of Mecca. Then we drove up to 10.7 miles east of Mecca out of sight of the traps by a half mile, away from the occasional camper we saw, and set up a black light and mercury vapor light, right off the side of the road with a sheet spread, toward the large wash south of the road. This road, 66th Avenue, actually goes all the way through this small mountain or hill area and joins up with Interstate 10 again about 7 miles further on to the east. One would never suspect moth collecting here driving on I-10.

The temperature was dropping from about 75'Fahrenheit to the 55' range over the next two hours, and the occasional moth flew into the sheet, but the collecting was anything but exciting. Therefore, I had few expectations when we shut down at 11 p.m. from the sheet. Barely 30 seconds after we shut down Dave Wikle drove up, so we might have had a few beers and talked for a time, then we drove back to Indio.

The next day, we retrieved the traps, getting a fairly late start and not getting to the canyon until about 8:30 a.m., much later than I like to pick up traps, with dawn at 6:00 or so. However, all the traps were intact, all had worked we found all of them, and they all had more moths in them than I expected. I put them into envelopes en masse for temporary storage, put the container into a cooler, talked to Dave (who had slept in the canyon) and headed out toward the official rendezvous at Anza Borrego. It was now Friday the 10th of March.

A magnificent selection of *Glaucina* moths from the California desert in March. At least three and possibly six species involved, requiring a museum visit for identification.

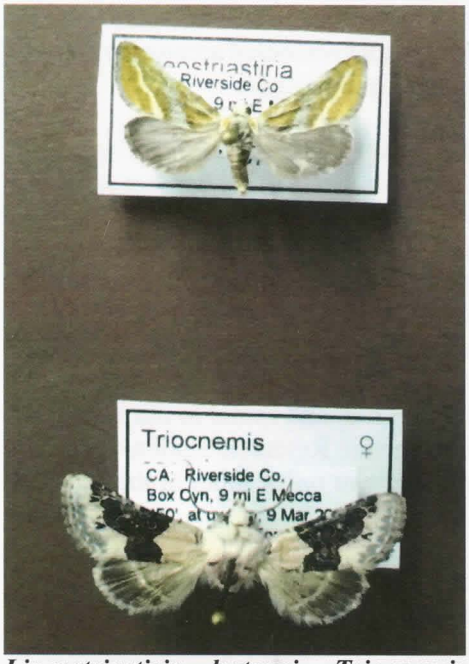
Desert Species *Crimona pallimedia*, *Argentostiria koebelei*, two of the most beautiful moths collected.

The situation at Anza Borrego was completely unexpected. Driving east from the Salton Sea on the most decrepit road I believe I have ever been on that has been called "paved" we came through a barren wasteland of badlands, then suddenly dropped into a valley where indeed, flowers were blooming everywhere. The area around Borrego Springs was alive with flowers, and even more alive with tourists. Apparently the entire cities of San Diego and Los Angeles had emptied out to see the flowers. Traffic was slowed, with literally hundreds of cars parked along the roadsides where people wandered among the flowers taking pictures. It was quite a sight.

Unfortunately, the town of Borrego Springs was only equipped to handle about one tenth the number of people present. When we drove up to the State Park HQ to find out where to report, the police had diverted traffic and would not let anyone stop, as there was no place to park within over a mile of the HQ. We drove a half mile, did a U turn, and yelled out the window who we were and where did we go? They yelled back nicely to stop at the store in town. This we did, and found to our relief that the University of Riverside Research Station where we were to meet was some two miles south of the chaos of the main HQ.

Since we were two of the first people there, they were very accommodating, and got us a room for the night. The total cost was less than $50. Quite a difference from Indio. Dave Wikle joined us later, and we planned a campaign to set traps east of the HQ on Route 78 that transected up the mountain range to the east of the park. Early in the evening we did just that,

Identified moths from Box Canyon and Anza Borrego.



***Lineostriastiria hutsoni, Triocnemis saporis* common spring fliers but very local to desert hillsides.**

From left to right, Dave Wikle, Val Albu and James Forrest at the UC Riverside Research Station looking at the moth trap from March 10, 2017.

and set 7 traps climbing from the Research Station elevation of 710' up to 3200' over a less than 9 mile area. We set up in culvert areas, mini canyons, behind rocks and off turnouts so traffic would not want to stop and disturb the traps.

The next morning, Saturday, we arose early, and by 6:30 started retrieving the traps. After doing so, we went to the research station, met Dave Wagner and his team of researchers, and prepared to head out about noon, as there would be others arriving to use the rooms and set up, and we needed to go back for school district reasons.

Apparently the radio stations, or perhaps the television stations, had continued to hype the flowers at Anza Borrego. I have never seen a nine mile traffic jam until March 11, 2017, but for the people driving in from the west, there was a nine mile line coming down the mountain moving at three miles an hour. You do the calculations. Unbelievable. I can just imagine the number of spouses sitting in the passenger seat saying "I told you this was a bad idea!"

After sorting the moths at home, there were a significant number of species new to me and quite a few that have very limited distribution in the desert areas of California and into Arizona. Attached is a list of the species spread. Interestingly, since this was an Anza Borrego study looking at differences in elevation, there do appear to be significant differences in the species caught at the valley level (which includes everything below 900 feet), and the hillsides and mountainous terrain. In addition, there are significant differences in the eastern side of the valley (Box Canyon) versus the west side (Borrego).

If I can get permission from the UC Riverside Research Station, I will return to repeat this exercise in October, and the comparison will be reported.

UC Riverside Research Station at Borrego Springs.

Identified moths from Box Canyon and Anza Borrego.

Identified moths from Box Canyon and Anza Borrego.

Identified moths from Box Canyon and Anza Borrego.

Mona #	Species	Box Cyn	AB 710'	AB 875	AB 1375	AB 1935	AB 2685	AB 2735	AB 3295'	
980	Ethmia discistrigella	5M								
2259	Epilechia catalinella				3 M 1 F					STATE
3445	Ofatulena luminosa	1M								Co
4820	Chrismania pictipennal	1M								
4828	Pseudoschinia elautali	21M 7F	1M			3M 1F				
4832	Noctueliopsis palmalis	10M 1F	1M							
4834	Noctueliopsis ardalis	1M		10M	1M					
4838	Noctueliopsis virula	6M 2F								
5023	Pyrausta napaealis				1M	1M				
5916	Heterographis morrisor	4M 1F								
6381	Digrammia colorata	17M 3F	3M	9M 1F	6M					
6455.a	Stenoporpia pulchella coolidgearia					1M 1F	2M			
6750	Pero invioleta			1M						
7901	Clostera apicalis		1M							
8474	Hemeroplanis incusalis	10M 18F								
8568	Euaonia clarki	2M								
8610	Melipotis acontioides	1F								
8613	Forsebia cinis	1M 1F								
8614	Bulia deducta	1F					1M			
8882	Abrostola parvula					6M 2F	1M			
8907	Megalographa biloba						1M			
9018	Cobubatha dividua		1M	1F						
9020.1	Allerastria annae	10M 3F								
9042	Grotellaforma lactea			1M	11M 2F					
9105	Ponometia acutus		1F							
9109	Ponometia elegantula	1M								
9165	Aleptina semiatra	26M 13F	4M 1F	1M 1F	1M					
9717	Emarginea pallida	3M								
9728	Azenia virida	1M 1F								
9730	Azenia templetonae	7M 5F								Co
9756	Lineostriatstira hutsoni	36M 17F	2M 1F	1F						
9779	Argentostiria loebelei	13M 3F		1M						
9784	Stiria consuela	2M								
9794	Nocloa rivulosa			1F			4M 1F	1M	7M 1F	

Table 1 (Part 1): Identified species from locations in Box Canyon east of the Salton Sea and Anza Borrego State Park west of the Salton Sea, showing elevation differences in species.

9795	Nocloa pallens	1M			5M 1F	1M			
9830	Walterella ocellata					1F	2M 1F	1M	
9833	Fotella notalis	3M 1F							
10026	Pleromella opter								1F
10046	Oxycnemis fusimacula	3M 3F	5M 2F	1F	5M 1F			1M	
10053	Tristyla abliplagiata	6M							
10101	Sympistis occata	3M 1F							
10111	Unicella primula	7M 2F		1M 2F	1F				
10114	Sympistis rosea				1M				
10174	Tricnemis saporis	10M 16F							
10175	Crimona pallimedia	22M 8F	1M	1M					
10258	Anarta antica	3M 1F							
10482	Orthosia ferrigera								2M
10511	Egira curialis					1M	3M	1M	1M
10515	Egira perlubens						1M		
10692	Protogygia album	1M 5F			1M				
10744	Euxoa serricornis				1M	8M 2F			
10896	Protogygia polingi	10M 6F							
11134.2	Schinia desertricola	8M 5F							
11161	Schinia jaegeri	4M 1F							
11167	Schinia niveicosta	6M 7F							
11233	Neogrotella macdunno	9M 6F							
Mona #	Species	Box Cyn\B	Lodg\AB	875\AB	1375\AB	1935\AB	2685\AB	2735	AB 3295'

Table 1 (Part 2): Identified species from locations in Box Canyon east of the Salton Sea and Anza Borrego State Park west of the Salton Sea, showing elevation differences in species.

(Kelly Richers [kerichers@wuesd.org])

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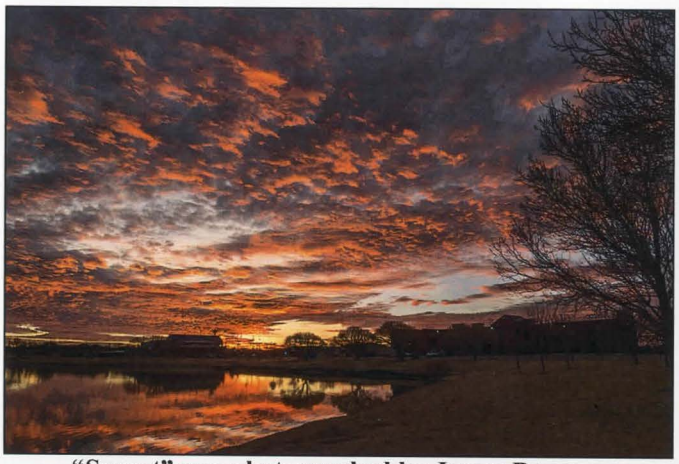

"Sunset" was photographed by James Bowers in Lubbock, Texas.

"Lightning", photographed by James Bowers, was close to the CapRock Winery in Lubbock, Texas.

HELICONIUS CHARITHONIUS AND *DANAUS PLEXIPPUS* IN COPULA

BY

MARC C. MINNO AND MARITA GUILDERSON

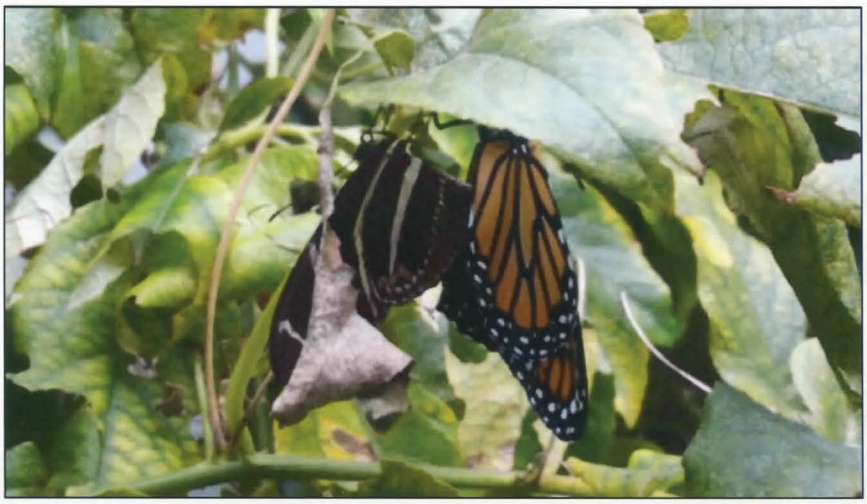

Fig. 1. *Heliconius charitonius* and *Danaus plexippus* in copula.

Around 11:00 am on December 5, 2016, co-author Marita noticed a number of adult zebra heliconians (*Heliconius charithonia tuckeri* W. P. Comstock and F. M. Brown: Nymphalidae: Heliconiinae) fluttering in a particular area of her yard in High Springs, Alachua County, Florida. She decided to investigate and discovered a mating pair of butterflies. But astonishingly, the mating pair represented two different species, a zebra heliconian and a monarch (*Danaus plexippus plexippus* Linnaeus: Nymphalidae: Danainae).

Marita took a few quick photos with her cell phone and then left for work. At 12:10 pm, the pair was still attached, but when approached they separated and flew away. Marita's best photo (Fig. 1) reveals that the *D. plexippus* was a female since no pocket gland is visible on the hindwing adjacent to vein CuA_2. Only males have the alar pocket glands. The zebra heliconian is presumed to have been a male.

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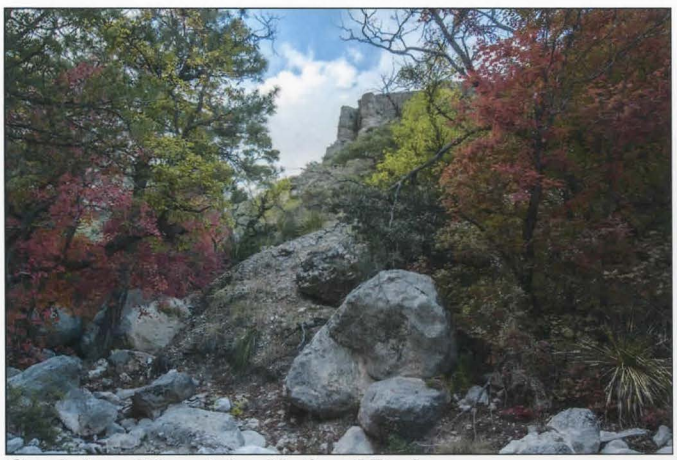
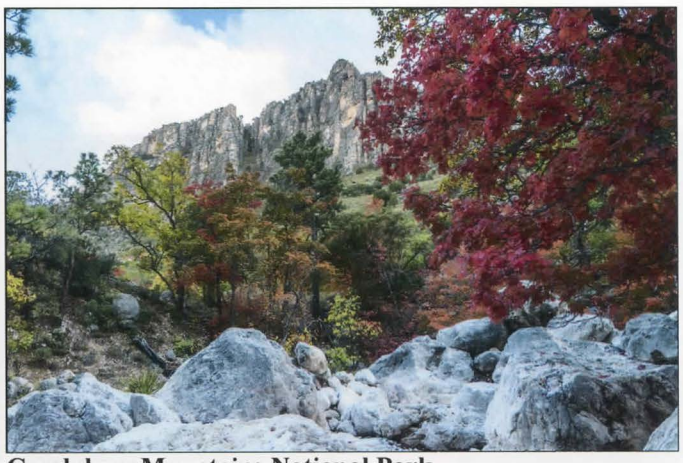


Guadalupe Mountains National Park (Photo by James Bowers).



Guadalupe Mountains National Park (Photo by James Bowers).

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A LARVAL HOST DISCOVERED FOR *CAUDELLIA FLORIDENSIS* NEUNZIG (PYRALIDAE: PHYCITINAE) IN THE FLORIDA KEYS

BY

MARC C. MINNO, JAMES E. HAYDEN, AND TRUDY FERRARO

On February 2, 2017, Trudy Ferraro (park biologist) was checking on a rare epiphytic orchid at John Pennekamp Coral Reef State Park on Key Largo, Monroe County, Florida. This particular plant was growing on a black mangrove stump in the middle of mangrove swamp. Although widespread in tropical America, the cowhorn orchid (*Cyrtopodium punctatum* (L.) Lindl.: Orchidaceae) is quite local in southern Florida (Brown and Folsom 2002) and is listed by the Florida Department of Agriculture and Consumer Services (FDACS) as a State Endangered plant (see http://www.freshfromflorida.com/Divisions-Offices/Plant-Industry/Bureaus-and-Services/Bureau-of-Entomology-Nematology-Plant-Pathology/Botany/Florida-s-Endangered-Plants/Endangered-Threatened-and-Commercially-Exploited-Plants-of-Florida).

Trudy noticed that a dried seed pod of the cowhorn orchid had been damaged and found a small caterpillar inside. She was curious to determine if this herbivore was also rare or maybe new to Florida. She placed the seed pod in a small jar. Trudy observed that the caterpillar fed on all parts inside the pod, not just the seeds, and noted frass and silk webbing (Fig. 1).

On March 1, 2017, a very small dark gray moth with a pale stripe across the middle of the forewings emerged. The specimen (sample number E2017-737-1) was given to James Hayden, Curator of Lepidoptera with the Florida State Collection of Arthropods (FSCA) in Gainesville, a part of FDACS. Dr. Hayden dissected the genitalia and determined the female specimen to be *Caudellia floridensis* Neunzig. The specimen has been vouchered in the FSCA.

Described in 1990, the larval host of *C. floridensis* has not previously been determined. Of the six species of *Caudellia* treated in Neunzig *et al.* 1990, the larval host of only one was known, *Caudellia apyrella* Dyar on seeds of *Cuscuta* sp. in the Convolvulaceae. We do not know if *Caudellia floridensis* feeds exclusively in orchid seed pods, but cowhorn orchid seems to be too rare to be the only host.

In his description of *C. floridensis*, Dr. Neunzig lists the holotype from Upper Key Largo and paratypes from Key Largo, Windley Key, Long Key, and No Name Key in Monroe County, and others from Collier and Manatee counties, Florida. The dates of collection include January, February, March, April, August, and December. The Moth Photographers Group website (accessed April 2017) has an image of a pinned adult specimen by James Hayden (Fig. 1) and a range map with the above mentioned locations in southern Florida and one in Louisiana (perhaps an error?).

All of the specimens in the type series were collected mostly on state conservation lands by Southern Lepidopterist Society (SLS) members Terhune S. Dickel, Dave Baggett, and Woody Dow. Most of the specimens were deposited in public collections including the FSCA, North Carolina State University, and the U.S. National Museum. This is a terrific example of citizen science and how park staff can network with our members to increase knowledge of Florida's biodiversity. For years, SLS members have worked to document Florida's diverse lepidopteran fauna, but much remains to be explored and discovered.

Literature Cited

Brown, P. M. with drawings by S. Folsom, 2002. *Wild orchids of Florida with references to the Atlantic and Gulf Coastal Plains.* University Press of Florida, Gainesville. 409 pp.

Neunzig, H. H., K.B. Sandved, and N.A. Leidy, 1990. *Pyraloidea: Pyralidae (Part), Phycitinae (Part).* The Wedge Entomological Research Foundation. The Moths of America North of Mexico, Including Greenland Fascicle 15.3:78-79.

Moth Photographer's Group Website (accessed April 2017). 179425 – 6012.1 – *Caudellia floridensis* – Neunzig, 1990. Available at http://mothphotographersgroup.msstate.edu/species.php?hodges=6012.1

[Continue to next page.]

Fig. 1. *Caudellia floridensis* Neunzig 1990 (Pyralidae: Phycitinae). Adult (upper left photo by James E. Hayden), last instar larva (upper right photo by Trudy Ferraro), and larva in a dried seed pod of *Cyrtopodium punctatum* (Orchidaceae) (lower photo by Trudy Ferraro).

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Photographed by James Bowers at the Garden and Arts Center in Lubbock, Texas.

Photographed by James Bowers at Silver Falls Rest Area nr. Crosbyton, Texas.

OBITUARY FOR BILL BLACK JR.

Bill Black Jr. (1945 - 2017)

William Ray Black Jr., age 71, of Paducah, KY, died Saturday, March 18, 2017 at his home. Bill was born September 30, 1945 in New York City to William Ray Black and Virginia Giblin Black. He graduated from Paducah Tilghman High School in 1963 and attended Princeton University on a NROTC Scholarship. He graduated in 1967 with a degree in History and was commissioned a 2nd Lieutenant in the U.S. Marine Corps. He served two tours in Vietnam, where he earned a Bronze Star for meritorious service and two Purple Hearts. He completed his service to the Marines in 1971, having attained the rank of Captain. Following his service in Vietnam, Bill returned to his hometown of Paducah, and joined his father and grandfather in the family construction business at Ray Black & Son. He specialized in historic preservation throughout his career and restored many historic buildings in Paducah. Bill became the Scoutmaster of Boy Scout Troop 1 in 1985 and kept the historic troop from losing its charter as one of 7 original troops in the U.S. The troop grew to more than 70 scouts, from all backgrounds, under his leadership. Bill also served on the Paducah Independent School Board for 24 years. He was a passionate lepidopterist, archaeologist, and collector of all things he found interesting. He hosted many field trips to western Kentucky for the Society of Kentucky Lepidopterists and supported its awards program by supplying several Carl Cornett Award gifts. He served several years as SKL President. He was an avid seeker of new collecting sites, and was passionate about locating new populations of both moths and butterflies. He made major contributions to the knowledge of the noctuoid genus *Papaipema* in cane thickets in the Purchase area of Kentucky. He discovered the first breeding colonies of the Gulf Fritillary, *Agraulis vanillae* in 1989, and located the first major populations of such charismatic skipper species as *Euphyes dukesi*. He worked to protect habitat where this species and another recently discovered southern species, *Megathymus yuccae*, was breeding (the northernmost known population in the Mississippi Valley).

Bill is survived by his wife of 44 years, Nancy Fowler Black; three sons, William Ray (Will) Black III and his wife, Sarah Maggos Black, David Dawson Black and his wife, Lindsay McMaster Black and Merle Fowler Black and his wife, Emily Yocum Black; and five grandchildren.

Bill had an infectious, and consuming passion for Lepidoptera and for his fellow lepidopterists. I think of him as the "heart and soul" of the Kentucky Lepidopterists. I, his family, and his many friends and colleagues will miss him terribly.

Charlie Covell

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MANY THANKS TO OUR GENEROUS DONORS

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WELCOME TO OUR NEW MEMBER

Kelli Whitney
5930 NE 18th Ave
#307
Fort Lauderdale, FL 33334

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Photographed by James Bowers at the Garden and Arts Center in Lubbock, Texas.

Photographed by James Bowers at the Garden and Arts Center in Lubbock, Texas.

REPORTS OF STATE COORDINATORS

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

Vitaly Charny sends in the following report for Oakmulgee WMA of Talladega NF. This list is specific for Bibb County which is part of the Forest. The area is mostly bottom land along creeks of Coastal Planes close to the Fall Line. It is located about 60-70 miles SW from Birmingham, Alabama. This list does not contain all the butterflies documented for Bibb County.

Epargyreus clarus	Silver Spotted Skipper
Urbanus proteus	Long Tailed Skipper
Achalarus lyciades	Hoary Edge
Thorybes bathyllus	Southern Cloudy Wing
Thorybes pylades	Northern Cloudy Wing
Thorybes confusis	Confused Cloudy Wing
Erynnis brizo	Sleepy Dusky Wing
Erynnis juvenalis	Juvenal's Dusky Wing
Erynnis horatius	Horace Dusky Wing
Erynnis martialis	Mottled Duskywing
Erynnis zarucco	Zarucco Dusky Wing
Erynnis baptisiae	Wild Indigo Dusky Wing
Pyrgus communis	Common Checkered Skipper
Nastra lherminier	Swarthy Skipper
Lerema accius	Clouded Skipper
Ancyloxypha numitor	Least Skipper
Hylephila phyleus	Fiery Skipper
Polites themistocles	Tawny-edged Skipper
Polites origenes	Crossline Skipper
Polites vibex	Whirlabout
Wallengrenia otho	Southern Broken Dash
Wallengrenia egeremet	Northern Broken-Dash
Pompeius verna	Little Glass Wing
Problema byssus	Byssus Skipper
Poanes hobomok	Hobomok Skipper
Poanes zabulon	Zabulon Skipper
Poanes yehl	Yehl Skipper
Euphyes vestris	Dun Skipper
Amblyscirtes hegon	Pepper and Salt Skipper
Amblyscirtes aesculapius	Lace-winged Roadside Skipper
Amblyscirtes vialis	Common Roadside Skipper
Lerodea eufala	Eufala Skipper
Oligoria maculata	Twin-spot Skipper
Calpodes ethlius	Brazilian Skipper
Panoquina ocola	Ocola (Long Wing)
Megathymus yuccae	Yucca Giant Skipper
Battus philenor	Pipe-vine Swallowtail
Eurytides marcellus	Zebra Swallowtail
Papilio polyxenes	Black Swallowtail
Papilio glaucus	Tiger Swallowtail
Papilio troilus	Spicebush Swallowtail
Papilio palamedes	Palamedes Swallowtail
Papilio cresphontes	Giant Swallowtail
Pieris rapae	Cabbage Butterfly
Anthocharis midea	Falcate Orange Tip
Colias philodice	Clouded Sulphur
Colias eurytheme	Orange Sulphur
Zerene cesonia	Southern Dogface
Phoebis sennae	Cloudless Sulphur
Eurema daira	Barred Yellow
Eurema lisa	Little Yellow

Eurema nicippe	Sleepy Orange
Nathalis iole	Dainty Sulphur
Feniseca tarquinius	Harvester
Atlides halesus	Great Purple Hairstreak
Callophrys henrici	Henry's Elfin
Satyrium favonius	Oak Hairstreak
Satyrium titus	Coral Hairstreak
Satyrium calanus	Banded Hairstreak
Satyrium liparops	Striped Hairstreak
Calycopis cecrops	Red-banded Hairstreak
Strymon melinus	Gray Hairstreak
Cupido comyntas	Eastern Tailed Blue
Celastrina ladon	Spring Azure
Celastrina neglecta	Summer Azure
Libytheana carinenta	American Snout
Danaus plexippus	Monarch
Agraulis vanillae	Gulf Fritillary
Euptoieta claudia	Variegated Fritillary
Speyeria cybele	Great Spangled Fritillary
Chlosyne nycteis	Silvery Checkerspot
Phyciodes tharos	Pearl Crescent
Junonia coenia	Buckeye
Polygonia interrogationis	Question Mark
Polygonia comma	Eastern Comma
Nymphalis antiopa	Morning Cloak
Vanessa atalanta	Red Admiral
Vanessa cardui	Painted Lady
Vanessa virginiensis	American Lady
Limenitis arthemis astyanax	Red-spotted Purple
Limenitis archippus	Viceroy
Anaea andria	Goatweed Leafwing
Asterocampa celtis	Hackberry Butterfly
Enodia portlandia	Southern Pearly-eye
Enodia anthedon	Northern Pearly-eye
Enodia creola	Creole Pearly-eye
Satyrodes appalachia	Appalachian Brown
Cyllopsis gemma	Gemmed Satyr
Hermeuptychia sosybius	Carolina Satyr
Hermeuptychia intricata	Intricate Satyr
Neonympha areolatus	Georgia Satyr
Neonympha helicta	Helicta Satyr
Neonympha mitchellii	Mitchell's Satyr
Megisto cymela	Little Wood Satyr

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

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

Charlie sends in the following report:

Butterfly observations for Gainesville, Alachua County, FL, from Feb. 1, 2017 to May 15, 2017 recorded by Charles V. Covell Jr.:

Erynnis horatius, March 18, April 11, 15, 26, 28, 29, May 3, 4, 7
Pyrgus sp., April 26
Ancyloxipha numitor, Feb. 28
Hylephila phyleus, March 8, 29, 31, April 5, 8, 12, 14, 15, 19, 22, 28, 29, May 3, 10, 12
Euphyes vestris metacomet, April 28
Papilio troilus, Feb. 1, 28, March 8, 17, May 7
Papilio glaucus, Feb. 11, 28, April 8, 29
Papilio polyxenes asterius, Feb. 17, 28, 17, April 22
Heraclides crespohontes, Feb. 19, 25, April 5, 25
Pontia protodice, March 29, April 12, 21, 22, 28, May 10, 14
Phoebis sennae, Feb. 1, 6, 10, 19, 24, 25, 28, March 1, 3, 4, 7, 11, 20, 22, 24, 25, 29, 31, April 1, 5, 10, 18, 19, 21, 22, 29, May 3, 10
Abaeis nicippe, Feb. 25, 28, March 8, April 12,
Eurema daira, Feb. 19, 28, Apr. 29
Calycopis cecrops, March 24, May 6
Atlides halesus, April 8
Parhassius m-album, April 2, 15
Strymon melinus, April 15, 28
Leptotes cassius, March 20, 25, April 1, 2, 7, 22, May 7
Hemiargus ceraunus, April 8, 12
Libytheana carinenta, March 25, April 1, 2, 5, 9, 22, May 7
Anartia jatrophae, May 3
Polygonia interrogationis, Feb. 25
Limenitis arthemis astyanax, March 29
Junonia coenia, Feb. 3, March 11, 24, 25, 29, 31, April 5, 7, 8, 12, 14, 15, 22, 26, 28, 29, May 3, 6, 10, 12
Panoquina ocola, Dec. 7, Jan. 23, 24
Pyrisitia lisa, Dec. 17, 24
Vanessa atalanta, Feb. 1, 28, March 4, 8, 11, 22, April 8, 19, 26, 29
Vanessa virginiensis, March 29, April 7, 8, 12, 14, 15, 26, 28, 29, May 3, 6, 10, 12
Agraulus vanillae, April 12, 15, 19, 26, 27, 28, May 7, 12
Heliconius charithonia, Feb. 7, April 21, May 4, 10, 14
Megisto cymela, April 7
Danaus plexippus, Feb. 1, 3, March 8, 11, 22, 24, April 26, 28, 29, May 10

Moths:

Lasiocampidae: *Malacosoma americanum*, April 10
Sphingidae: *Lapara coniferarum*, April 26 (fresh wing)

High Springs, Alachua Co., Feb. 13 and Apr. 11: *P. sennae*
Lake Wauberg near Micanopy, Alachua Co., March 26: *P. sennae* and *J. coenia*

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The following field reports from North Florida were submitted by Barbara Woodmansee:

I found a Cecropia cocoon on Cow Creek Road in Goethe State Forest on February 4. I put her in my breeding cage on Friday evening after she eclosed and she mated for at least 15 hours Friday into Sat, and then laid 70 eggs last night. I just put her outside so she can live the rest of her short life in peace.

Feb. 28, 2017 at Devils Hammock in the upper Wacassassa WMA just west of Bronson in Levy Co.:

Erynnis sp., *Hylephila phyleus, Lerema accius, Battus philenor, Papilio palamedes, Phoebis sennae, Calycopis cecrops* (many!), *Phyciodes tharos, Phyciodes phaon, Polygonia interrogationis, Junonia coenia, Hermeuptychia sosybius, Heliconius charithonia,*

Feb. 25, Parker Field Road and Andrews Road, Alachua County (with Marc Minno):

Erynnis juvenalis, Erynnis horatius, Poanes zabulon, Lerema accius, Battus philenor, Papilio palamedes, Phoebis

sennae, Abaeis nicippe, Atlides halesus, Calycopis cecrops, Libytheana carinenta, Phyciodes tharos, Phyciodes phaon, Polygonia interrogationis, Vanessa atalanta, Anartia jatrophae, Hermeuptychia sosybius (too many to count), *Danaus gilippus,* and *Danaus plexippus.*

March 12: At San Felasco Hammock in north Gainesville, Alachua Co.

Erynnis horatius, Lerema accius, Battus philenor, Papilio glaucus, Papilio palamedes (many), *Eurytides marcellus, Heraclides cresphontes, Phoebis sennae, Abaeis nicippe, Eurema daira, Libytheana carinenta,, Phyciodes phaon, Anaea andria, Polygonia interrogationis, Vanessa atalanta, Vanessa virginiensis, Junonia coenia, Anartia jatrophae, Agraulis vanillae, Hermeuptychia sosybius,* and *Danaus plexippus.*

March 25: Dixie Mainline (10 mile road, from Suwannee to just west of Cross City, in Dixie County:

Thorybes pylades, Poanes aaroni, Atalopedes campestris, Euphyes dion, Euphyes pilatka, Polites vibex, Hylephila phyleus, Panoquina ocola, Panoquina panoquin (abundant*), Battus philenor, Papilio troilus, Papilio glaucus, Papilio palamedes, Phoebis sennae, Calycopis cecrops, Satyrium favonius, Callophrys grynea sweadneri, Parhassius m-album, Calephelis virginiensis, Phyciodes tharos, Phyciodes phaon, Limenitis archippus, Vanessa atalanta, Junonia coenia, Agraulis vanillae, Heliconius charithonia, Hermeuptychia sosybius, Danaus gilippus* and *Danaus plexippus.*

April 11: At Lower Suwanee National Wildlife Refuge, Levy Co., Barbara and Skip Blanchard recorded these species, bringing their long-term total to 87:

Epargyreus clarus, Thorybes pylades, Panoquina panoquin, Panoquina panoquinoides, Poanes aaroni, Poanes viator, Euphyes pilatka, Polites vibex, Oligoria maculata, Lerema accius, Ancyloxypha numitor, Battus philenor, Papilio troilus, Papilio glaucus, Papilio palamedes, Zerene cesonia, Phoebis sennae, Calycopis cecrops, Callophrys grynea sweadneri, Parhassius m-album, Calephelis virginiensis, Phyciodes tharos, Phyciodes phaon, Limenitis archippus, Vanessa atalanta, Junonia coenia, Agraulis vanillae, Heliconius charithonia, Hermeuptychia sosybius, Megisto cymela viola, Enodia portlandia, Danaus gilippus and *Danaus plexippus.*

Barbara also reported *2 Staphylus hayhurstii* in her yard in western Alachua County on April 11, plus caterpillars on her iresine plants. She had not seen it in several years.

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Eric Anderson caught a female *Callosamia securifera* at Paynes Prairie Preserve State Park, Alachua Co, on March 18, and it attracted males for mating.

This was a new addition to the PPPSP moth survey list, now numbering 957 identified moth species and 51 additional species known only to the genus level. Thanks to all who have assisted in building this list through new additions over the past few years. I would like to urge Florida members to send me reports of moths and butterflies, especially from middle and southern Florida. Thanks. Cheers, Charlie

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

James sends in the following report:

The contributors include James Adams (JKA or no notation), Brian Scholtens (BS), John Hyatt (JH) and Lance Durden (LD). Others are indicated with their records. Most records presented here represent new or interesting records (range extensions, unusual dates, uncommon species, county records, etc.), or more complete lists for new locations/new times of year. All known new STATE and COUNTY records are indicated, and all dates listed below are 2017 unless otherwise specified.

Wildwood, Exit 169, I-75, Dade Co.:
GEOMETRIDAE: *Glena plumosaria* (COUNTY), May 13.

Carbondale, I-75 exit 326, Whitfield Co.:
LASIOCAMPIDAE: *Heteropacha rileyana*, April 5.

Rocky Face, April 20-21:
EREBIDAE: *Metria amella* (unusual this far north, though collected here before). **NOCTUIDAE**: *Properigea* nr. *costa*.

Taylor's Ridge, April 15-16:
EREBIDAE: *Zale undularis* (pristine male). **NOCTUIDAE**: *Acronicta fallax, Morrisonia evicta* (first one in a long time).

Amicalola Falls State Park, Dawson Co., Mar. 6, Kyhl Austin:
NOCTUIDAE: *Cerastis fishii* (COUNTY).

Statesboro, Bulloch Co., LD (backyard of Lance's house:
CRAMBIDAE: *Diastictis ventralis,* March 25. (COUNTY). **THYRIDIDAE**: *Meskea dyspteraria*, March 10 (COUNTY, second in STATE).

Griffin Ridge WMA, 3 mi. SW Ludowici, Long Co., May 7-8, with Patrick Adams:
PSYCHIDAE: *Prochalia pygmaea* (COUNTY). **LIMACODIDAE**: *Isochaetes beutenmulleri, Apoda biguttata.* **LYCAENIDAE**: *Atlides halesus, Satyrium (ontario) favonius*. **PYRALIDAE**: *Arta statalis, Parachma ochracealis, Parapoynx maculalis*. **GEOMETRIDAE**: *Nematocampa resistaria, Speranza pustularia, Digrammia eremiata, Glenoides texanaria, Anavitrinella pampinaria, Protoboarmia porcellaria, Melanolophia signataria, Ilexia intractata, Besma quecivoraria, Plagodis phlogosaria, Nepytia semiclusaria, Prochoerodes lineola, Nemoria bistriaria, N. bifilata, N. lixaria, Idaea tacturata, Pleuroprucha insulsaria, Eupithecia miserulata.* **LASIOCAMPIDAE**: *Malacosoma disstria, Tolype minta, T. notialis, Artace* sp. **SATURNIIDAE**: *Automeris io*. **NOTODONTIDAE**: *Nadata gibbosa, Heterocampa obliqua, Hyperaeschra georgica, Schizura leptinoides, S. concinna*. **EREBIDAE**: *Idia rotundalis, Renia fraternalis, Nigetia formosalis, Crambidia pallida, Cisthene subjecta, C. kentuckiensis* (COUNTY), *Hypoprepia fucosa, Hyphantria cunea, Spilosoma congrua, Orgyia definita, Cutina albipunctella, Arugisa lutea, Metalectra tantillus, M. albilinea* (COUNTY), *Pangrapta decoralis, Lesmone detrahens, Panopoda repanda, Epidromia rotundata, Metria amella, Catocala ilia, C. andromedae, C. similis, C. louiseae* (COUNTY), *Argyrostrotis flavistriaria, A. sylvarum, A. deleta*. **NOLIDAE**: *Meganola spodia, M. phylla, Nola clethrae*. **NOCTUIDAE**: *Marimatha nigrofimbria, Acronicta tritrona, Chytonix palliatricula, Iodopepla u-album.*

Sapelo Island, McIntosh Co.:
April 21-23, LD:
GEOMETRIDAE: *Idaea hilliata* (ISLAND). **EREBIDAE**: *Redectis pygmaea* (ISLAND). **NOCTUIDAE**: *Derrima stellata, Sympistis* sp. nov. (first female).
May 8-11, BS, JKA and Patrick Adams:
YPONOMEUTIDAE: *Zelleria retiniella* (common!). **LACTURIDAE**: *Lactura*, sp. nov. **TORTRICIDAE**: *Olethreutes osmundana* (ISLAND). **LIMACODIDAE**: *Monoleuca erectifascia*. **HESPERIIDAE**: *Urbanus proteus*. **PAPILIONIDAE**: *Battus philenor* (ISLAND), *Eurytides marcellus* (ISLAND). **LYCAENIDAE**: *Atlides halesus* (ISLAND, common), *Parhassius m-album, Satyrium ontario favonius* (abundant), *Satyrium calanus* (ISLAND), *Celastrina neglecta* (ISLAND). **NYMPHALIDAE**: *Heliconius charitonius*. **GEOMETRIDAE**: *Pimaphera sparsaria, Iridopsis pergracilis* (ISLAND), Nemoria elfa, *Cyclophora myrtaria, Leptostales crossi, Idaea micropterata, I. hilliata* (see above), *I. ostentaria*. **EREBIDAE**: *Crambidia pallida, Neoplynes eudora, Dahana atripennis, Dyspyralis nigella, Ablemma brimleyana, Redectis pygmaea* (see above), *Litoprosopus futilis, Argyrostrotis quadrifilaris, Cutina albipunctella, Euclidea cuspidea, Mocis marcida, Melipotis jucunda, Catocala umbrosa* (ISLAND), *Zale declarans*. **NOCTUIDAE**: *Ozarba aeria* (ISLAND), *Sympistis*, sp. nov. (another female and male).

New Island records from 2016, LD and JKA visits. **TISCHERIIDAE:** *Tischeria* cf. *quercitella* (STATE). **TINEIDAE**: *Hybroma servulella, Mea bipunctella, Xystrologa* sp. nov. 5 (STATE), *Tinea* cf. *pellionella, Monopis crocicapitella, Acrolophus forbesi*. **BUCCULATRICIDAE**: *Bucculatrix magnella*. **COLEOPHORIDAE**: *Coleophora cratipennella*. **MOMPHIDAE**: *Mompha circumscriptella*. **AUTOSTICHIDAE**: *Autosticha kyotensis* (STATE). **COSMOPTERIGIDAE**: *Cosmopterix sinelinea* (STATE). **GELECHIIDAE**: *Aristotelia ivae, Coleotechnites albicostatus, Sinoe robiniella, Exoteleia pinifoliella, Telphusa* cf. *sequax* (STATE), *Chionodes dentella, C.* cf. *formosella, C.* cf. *soter* (STATE). **YPONOMEUTIDAE**: *Zelleria retiniella*. **TORTRICIDAE**: *Epiblema boxcana, Archips grisea* (STATE), *Aethes seriatana*. **CRAMBIDAE**: *Parapoynx maculalis, Glaphyria*

glaphyralis, Crocidophora pustuliferalis, Crambus multilinellus, Haimbachia squamulella. **PYRALIDAE**: *Cacotherapia unipuncta.* **NOCTUIDAE**: *Pseudeustrotia indeterminata.*

Townsend WMA, McIntosh Co., April 21, JH:
CRAMBIDAE: *Diasemiodes janassialis, Chilo erianthalis.* **GEOMETRIDAE**: *Glena cognataria* (COUNTY)
NOCTUIDAE: *Exyra semicrocea.*

Catocala micronympha **(Interesting form) from Sapelo (May 10, 2017) (Photo by James Adams).**

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

Gary Ross sends in the following report:

Butterflies Documented at the Louisiana State University Ag Center Hammond Research Station (Tangipahoa Parish), 21549 Old Hammond Hwy., Hammond, LA., October 13, 2016, 9:00 AM-Noon. One Observer: Gary Noel Ross. All butterflies observed were in the formal gardens of the station. Weather: sunny, temperature between 76-85 degrees F. The 24 species are listed in descending order of abundance, with the numeral "1" indicting only a single individual. [See "Pollination Celebration: A New Festival for Louisiana" by Gary Noel Ross, *Southern Lepidopterasts' News*, December 31, 2016 (Vol. 38:4), pages 278-292) for description of site.]

Gulf Fritillary (*Agraulis vanillae*)
Cloudless Sulphur (*Phoebis sennae*)
Monarch (*Danaus plexippus*)
Pipe-vine Swallowtail (*Battus philenor*)
Common Buckeye (*Junonia coenia*)
Long-tailed Skipper (*Urbanus proteus*)
Ocola Skipper (*Panoquina ocola*)
Giant Swallowtail (*Papilio cresphontes*)
Little Yellow (*Eurema lisa*)
Fiery Skipper (*Hylephila phyleus*)
American Painted Lady (*Vanessa virginiensis*)
Horace's Duskywing (*Erynnis horatius*)
Common Checkered Skipper (*Pyrgus communis*)
Great Southern White (*Ascia monuste*)
Sleepy Orange (*Eurema nicippe*)
Whirlabout Skipper (*Polites vibex*)
Sachem Skipper (*Atalopedes campestris*)
Eufala Skipper (*Lerodea eufala)*
Silver-spotted Skipper (*Epargyreus clarus*)
Spicebush Swallowtail (*Papilio troilus*)
Red Admiral (*Vanessa atalanta*)—1
Carolina Satyr (*Hermeuptychia sosybius*)—1
Brazilian Skipper (*Calpodes ethlius*)—1
Gray Hairstreak (*Strymon melinus*)—1

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

All records by Ricky Patterson unless otherwise indicated:

26 June 2016, Magna Vista, Issaquena county Catocala alabamae (det. by Robert Borth)

6 June 2015, Natchez Trace Parkway mile 251.1, Lee county, Eudeilinia herminiata

13 May 2017, Vicksburg, Warren county, Catocala illecta

16 May 2017, Natchez Trace Parkway mile 252, Lee county, Catocala illecta

22 June 2016, Vicksburg, Warren county, Catocala minuta (det. by Robert Borth)

17 June 2015, Bienville National Forest, FR 518 east of Harrell Prairie, Scott county, Catocala grynea

North Carolina: Steve Hall, North Carolina Natural Heritage Program, Div. of Parks & Recreation, 1615 MSC, Raleigh, NC 27699-1615, E-Mail: Stephen.Hall@ncmail.net

Steve send in the following report for North Carolina - The following selected moth records were submitted by Brian Bockhahn (BB), Ben Fleming (BF), Jesse Anderson (JA), Kevin Bischof (KB), Kyle Kittleberger (KK), Parker Backstrom (PB), and Steve Hall (SH).

ERIOCRANIIDAE:
Dyseriocrania griseocapitella APR 12, Gates, BB/KK **(COUNTY)**

COLEOPHORIDAE:
Mompha passerella MAR 29, Cumberland, BB/JA **(COUNTY)**

GELECHIIDAE:
Coleotechnites chilcotti MAY 2, Stokes, BB/KK **(STATE)**
Anacampsis conclusella MAY 2, Stokes, BB/KK **(STATE)**

ARGYRESTHIIDAE:
Argyresthia alternatella APR 17, Carteret, BB/KK

TORTRICIDAE:
Eucosma robinsonana APR 12, Gates, BB/KK **(COUNTY)**
Eucosma guttulana APR 17, Carteret, BB/KK
Eucosma cocana APR 12, Gates, BB/KK **(COUNTY)**
Epiblema boxcana APR 12, Gates, BB/KK/BF **(COUNTY)**
Pammene felicitana APR 4, Wake, KK **(COUNTY)**
Cydia latiferreana APR 12, Gates, BB/KK **(COUNTY)**

CRAMBIDAE:
Loxostegopsis merrickalis APR 20, Wake, KK **(COUNTY)**

GEOMETRIDAE:
Macaria aequiferaria APR 12, Gates, BB/KK **(COUNTY)**
Tacparia zalissaria APR 12, Gates, BB/KK
Antepione thisoaria APR 15, Burke, KB **(COUNTY)**

LASIOCAMPIDAE:
Heteropacha rileyana APR 5, Chatham, PB

SPHINGIDAE:
Dolba hyloeus APR 18, Carteret, BB/KK
Paratrea plebeja MAY 2, Orange, SH

NOCTUIDAE:
Ponometia semiflava APR 17, Carteret, BB/KK
Panthea acronyctoides MAY 3, McDowell, KB (rare in the Piedmont)

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

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

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

Ed sends the following report for Neal's Lodges in Concan, Uvalde Co., Texas, from 23-27 - IV - 2017. Interesting species included:

Glyphipterigidae: *Glyphipterix circumscriptella*
Cossidae: *Inguromorpha itzalana*
Thyatiridae: *Dysodia granulata*
Crambidae: *Hydriris ornatalis* (Inew Co. record)
Pyralidae: *Cacozelia pemphuralis* (new Co. record)
Crocidomer aimitata,
Acyclosis balconiensis
Geometridae: *Plataea blanchardaria*
Sphingidae: *Sphinx dolli*
Erebidae: *Dasychira meridionalis kerrvillei*
Noctuidae: *Cobubatha megaplaga*,
Schinia olivacea

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Texas Lep News on the Web by Monica Krancevic -

***Eubolina impartialis* Eclosion Explosion:**

On Facebook's Mothing and Moth-watching Group Tripp Davenport, Uvalde, Uvalde County, Texas, video-reported swarms of 100s of the Erebid *Eubolina impartialis* at lights during March.

In addition, iNaturalist and BugGuide reports of *Eubolina impartialis* ranged from Laredo, north to Wise County (northwest of Dallas/Fort Worth) and east to Liberty County (east of Houston) with sightings petering out around mid-April.

City Nature Challenge 2017 (04/14-04/18) was a country-wide citizen participation "bioblitz" in which 3 Texas metro areas successfully competed. Texas produced 524 of the 759 *Lepidoptera* species recorded throughout the country.

This city breakdown of species includes species seen in more than one location:
Austin – 342 species (273 moth, 70 butterfly), 167 observers, 1781 total observations http://tinyurl.com/mkugu9w
Dallas/Fort Worth – 283 species (227 moth, 56 butterfly), 224 observers, 2524 total observations http://tinyurl.com/kadkuyy
Houston – 215 species (168 moth, 37 butterfly), 140 observers, 706 total observations http://tinyurl.com/nyjtccv

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The following 4 reports were assembled by Monica Krancevic, reviewed and approved by Ed Knudson, and submitted to the Editor by Monica Krancevic:

1) **Chuck Sexton** reports on a March 30-April 1 visit to the East Texas Pineywoods Martin Dies, Jr. State Park, Jasper, Jasper County, TX (30.849N, 94.168W)

SELECTED OBSERVATIONS

Family	Species	Dates	Comments
Crambidae	*Eudonia strigalis*	03/30	

Crambidae	*Microcrambus biguttellus*	03/31	Uncommon
Depressariidae	*Psilocorsis quercicella*	03/30	
Erebidae	*Arugisa latiorella*	03/30	
Erebidae	*Cutina albopunctella*	03/31	
Erebidae	*Cutina aluticolor*	03/30	
Erebidae	*Cutina distincta*	03/31	
Erebidae	*Hyperstrotia nana*	03/31	
Erebidae	*Pangrapta decoralis*	03/31	Early
Erebidae	*Zanclognatha obscuripennis*	03/31	
Geometridae	*Euchlaena amoenaria*	03/30	
Geometridae	*Eutrapela clemataria*	03/30	
Geometridae	*Hypagyrtis unipunctata*	03/30	
Geometridae	*Idaea celtima*	03/30	
Geometridae	*Idaea productata*	03/30	
Geometridae	*Tacparia zalissaria*	03/30	Uncommon
Noctuidae	*Phosphila turbulenta*	03/31	Caterpillar
Noctuidae	*Polygrammate hebraeicum*	03/30	
Noctuidae	*Pseudeustrotia indeterminata*	03/30	
Nolidae	*Baileya ophthalmica*	03/30	
Nymphalidae	*Lethe portlandia*	03/30	
Pyralidae	*Arcola malloi*	03/30	
Pyralidae	*Heliades mulleolella*	03/30	Uncommon
Sphingidae	*Darapsa choerilus*	03/31	
Sphingidae	*Paratrea plebeja*	03/30	
Tortricidae	*Ancylis divisana*	04/01	
Tortricidae	*Argyrotaenia hodgesi*	04/01	
Tortricidae	*Choristoneura fractivittana*	03/31	Uncommon
Tortricidae	*Ecdytolopha insiticiana*	03/30	
Tortricidae	*Epiblema otiosana*	03/31	

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2) Chuck Sexton submits the following report for February 20-May 10:

Austin, Travis County, TX Private Residence (30.42N, 97.76W)

All observations are posted at: http://www.inaturalist.org/observations/gcwarbler

STATE RECORD

Family	Species	Dates	Comments
Tineidae	*Stenoptinea auriferella*	04/05	ID ECK

COUNTY RECORDS

Family	Species	Dates
Crambidae	*Niphograpta albiguttalis*	04/14
Crambidae	*Pyrausta demantrialis*	04/24
Noctuidae	*Acronicta atristrigatus*	03/01
Tineidae	*Hybroma servulella*	04/21
Tortricidae	*Cydia gallaesaliciana*	04/14
Tortricidae	*Cydia garacana*	04/15

Tineidae *Stenoptinea auriferella*, 05-IV-2017, Chuck Sexton, Travis County, Austin, Texas, (30.42N, 97.76W).

OTHER SELECTED – Uncommon at specific location

Family	Species	Dates	Comments
Crambidae	*Cnaphalocrocis trapezalis*	04/17	Early
Crambidae	*Diacme adipaloides*	03/14	
Crambidae	*Evergestis rimosalis*	04/16	
Crambidae	*Usingeriessa brunnildalis*	04/14	

Erebidae	*Halysidota tessellaris*	04/16	
Erebidae	*Idia lubricalis*	04/14	
Gelechiidae	*Helcystogramma melantherella*	04/03-04/10	
Gelechiidae	*Theisoa constrictella*	03/18	
Geometridae	*Eupithecia bolterii*	03/01-03/14	
Geometridae	*Eupithecia longidens kerrvillaria*	04/14-04/25	
Geometridae	*Eusarca confusaria*	03/18	Early
Glyphipterigidae	*Diploschizia impigritella*	04/14-04/18	Early
Noctuidae	*Acronicta afflicta*	03/20	
Noctuidae	*Elaphria versicolor*	05/06	
Noctuidae	*Ogdoconta sexta*	04/04	
Noctuidae	*Protorthodes texicana*	03/18	
Noctuidae	*Psaphida rolandi*	02/08	
Pterophoridae	*Capperia raptor*	04/14-04/18	
Pyralidae	*Moodna ostrinella*	03/21	
Thyrididae	*Meskea dyspteraria*	04/17	Early
Tortricidae	*Proteoteras aesculana*	04/06	

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3) Stuart Marcus sends this report for February 25-May 10:

Trinity National Wildlife Refuge, Liberty, Liberty County, TX (30.097N, 94.765W)

New species added to the Refuge were between these dates.

COUNTY RECORDS

Family	Species	Dates	Comments
Cossidae	*Inguromorpha basalis*	03/27	
Crambidae	*Crambus leachellus*	02/23	
Crambidae	*Microcrambus minor*	03/10	
Crambidae	*Polygrammodes flavidalis*	04/17	
Erebidae	*Apantesis phalerata*	03/27	
Erebidae	*Eubolina impartialis*	03/21	
Erebidae	*Panopoda repanda*	03/23	
Gelechiidae	*Deltophora sella*	03/15	Very early
Geometridae	*Eubaphe unicolor*	04/11	
Geometridae	*Euchlaena amoenaria*	03/23	
Noctuidae	*Acronicta americana*	04/13	
Noctuidae	*Charadra dispulsa*	03/16-04/18	
Noctuidae	*Chloridea virescens*	03/23	
Noctuidae	*Lacinipolia implicata*	03/27-04/11	
Notodontidae	*Heterocampa umbrata*	02/07	
Notodontidae	*Hyperaeschra georgica*	02/23	
Pyralidae	*Acrobasis demotella*	04/4-04/11	
Pyralidae	*Salebriaria engeli*	03/28	
Pyralidae	*Varneria postremella*	03/15-03/24	
Sesiidae	*Synanthedon scitula*	03/21	
Sphingidae	*Erinnyis obscura*	04/04	
Sphingidae	*Paonias excaecata*	03/15	
Tortricidae	*Bactra priapeia*	03/28	
Tortricidae	*Pammene medioalbana*	03/23	Uncommon

Tortricidae: Olethreutinae *Pammene medioalbana*, 23/III/2017, Stuart Marcus, Trinity River NWR, Liberty, (Uncommon).

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4) Monica Krancevic submits the following report for February 20-May 10:

Lake Jackson, Brazoria County, TX Private Residence (29.04N, 95.42W)

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

COUNTY RECORDS

Family	Species	Dates
Cossidae	*Prionoxystus robiniae*	03/29
Crambidae	*Dicymolomia grisea*	04/29
Crambidae	*Hellula kempae*	02/22, 04/11
Crambidae	*Hellula rogatalis*	04/06
Crambidae	*Pyrausta pseuderosnealis*	04/27
Erebidae	*Catocala ilia*	04/20, 05/06
Erebidae	*Cisthene packardii*	04/09, 04/24
Erebidae	*Hypocala andremona*	04/18
Erebidae	*Melipotis acontioides*	04/01, 04/28
Erebidae	*Phoberia atomaris*	03/15
Erebidae	*Zale horrida*	03/29
Euteliidae	*Marathyssa basalis*	04/02, 04/14
Geometridae	*Cleora sublunaria*	03/19
Geometridae	*Phaeoura quernaria*	03/01
Momphidae	*Mompha eloisella*	03/11
Noctuidae	*Acronicta lobeliae*	05/03
Noctuidae	*Acronicta noctivaga*	03/04, 03/09
Noctuidae	*Azenia obtusa*	05/10
Noctuidae	*Cerma cerintha*	04/04
Noctuidae	*Leucania scirpicola*	02/24, 03/22, 04/03
Oecophoridae	*Idioglossa miraculosa*	03/13
Oecophoridae	*Martyringa xeraula*	04/16
Pyralidae	*Homoeosoma electella*	02/24
Pyralidae	*Tampa dimediatella*	03/21
Pyralidae	*Tosale oviplagalis*	02/26, 03/15, 03/30
Pyralidae	*Varneria postremella*	03/24
Sphingidae	*Eumorpha pandorus*	03/31
Sphingidae	*Manduca quinquemaculata*	05/09
Sphingidae	*Paratrea plebeja*	03/21-03/24
Tortricidae	*Cenopis pettitana*	04/12
Tortricidae	*Grapholita packardi*	04/05
Tortricidae	*Sparganothis distincta*	05/10
Zygaenidae	*Harrisina americana*	03/20
Zygaenidae	*Harrisina coracina*	05/08

OTHER SELECTED – Comments refer to specific location

Family	Species	Dates	Comments
Crambidae	*Agathodes designalis*	03/15	New to location
Crambidae	*Compacta hirtalis*	05/01	Early
Crambidae	*Hyalorista taeniolalis*	05/09	Last recorded 01/03
Crambidae	*Niphograpta albiguttalis*	02/22-04/24	
Crambidae	*Palpita atrisquamalis*	03/29-04/04	East of typical range
Dryadaulidae	*Dryadaula terpsichorella*	03/15-04/29	4 sightings
Erebidae	*Pareuchaetes insulata*	04/03-05/08	Last recorded 01/25
Erebidae	*Simplicia cornicalis*	03/28	
Noctuidae	*Bagisara repanda*	01/03-05/08	
Noctuidae	*Marimatha piscimala*	04/05, 04/28, 05/09	Not every *M. nigrofimbria* checked
Noctuidae	*Pseudeustrotia indeterminata*	03/11	
Noctuidae	*Elaphria exesa*	03/09-05/01	
Pyralidae	*Penthesilea sacculalis*	05/01	Early
Sphingidae	*Agrius singulata*	04/07	Late

Sphingidae	*Erinnyis obscura*	03/31	
Sphingidae	*Enyo lugubris*	04/29	Last recorded 02/27
Tineidae	*Acrolophus mycetophagus*	01/24-05/04	Several almost each night

Batrachedridae: *Idioglossa miraculosa*, live, 13-III-2017, Monica Krancevic, Lake Jackson.

Crambidae: *Agathodes designalis*, live, 15-III-2017, Monica Krancevic, Lake Jackson.

Sesiidae: *Melittia calabaza* nectaring on *Duranta erecta*, 15-IV-2017, Monica Krancevic, Lake Jackson.

Pyschidae (????) on house wall 31-III-2017. Petal pieces reveal feeding on *Loropetalum chinese rubrum*, Monica Krancevic, Lake Jackson.

Virginia: Harry Pavulaan, P.O. Box 1124, Herndon VA 20172, E-Mail: pavulaan@aol.com

Harry sends in the following winter/spring report for Virginia:

Butterflies [County records in all CAPITALS]. A separate report for Great North Mountain follows below:

Eurytides marcellus – Loudoun County: Leesburg, Veterans Memorial Park; spring flight commenced on March 27, 2017 (obs.- Harry Pavulaan).

Papilio glaucus glaucus – Botetourt County: Daleville, March 1, 2017 (obs.- Tom Lawson). Chesterfield County: Pocahontas State Park, March 9, 2017 (obs.- Paul Bedell). Fairfax County: Lorton, Mason Neck State Park, March 25, 2017 (obs.- David Ledwith). Loudoun County: Leesburg, March 25, 2017 (obs.- Harry Pavulaan).

Colias philodice philodice - Chesterfield County: Pocahontas State Park, March 9, 2017 (obs.- Paul Bedell).

Callophrys (Mitoura) gryneus gryneus – FLUVANNA County: no location given, April 16, 2017 (photo – Allen Bryan).

Incisalia henrici henrici/viridissima – Northampton County: Kiptopeke, April 12, 2017, one of each type plus one intermediate reported (*viridissima* photo – Brian Taber).

Calycopis cecrops – POWHATAN County: no location given, April 15, 2017 (Allen Bryan).

Strymon melinus – Chesterfield County: Pocahontas State Park, March 9, 2017 (obs.- Paul Bedell). Loudoun County: Leesburg, Veterans Memorial Park, March 27, 2017 (net/release - Harry Pavulaan).

Parrhasius m-album – Richmond City: Lewis Ginter Botanical Gardens, March 26, 2017 (photo – Bill Hark).

Glaucopsyche lygdamus – ALBEMARLE County: near White Hall, March 25, 2017 (obs.- Mark Adams).

Celastrina ladon – Loudoun County: Leesburg, March 25, 2017, only one male found in Leesburg this year, despite an appreciable recovery of many blooming *Cornus florida* in Veterans Memorial Park (net/release - Harry Pavulaan).

Celastrina neglecta spring form – Loudoun County: Leesburg, Veterans Memorial Park, March 9, 2017, mass irruption of hundreds of males in Potomac River woodlands (none observed on March 8!), this one-day flight was wiped out by a deep freeze to follow commencing on March 10); March 24, 2017, first male observed after the early March deep freeze wiped out the bulk of this year's spring brood; weak resumption of spring brood on March 25, 2017, with 20+ fresh males, most netted for confirmation, no females yet; March 27, 2017, spring emergence continued with 30+ freshly emerged males and 10+ freshly-emerged females (all net/release for positive I.D. - Harry Pavulaan).

Celastrina lucia – CLARKE County (county record vouchered): Off Appalachian Trail on Mt. Weather, east of Berryville, April 16, 2017 (Harry Pavulaan). This record links previous records along the Blue Ridge from Loudoun County to Fauquier County.

Euptoieta claudia – FREDERICKSBURG City: March 13, 2017 (Allen Bryan).

Hermeuptychia sosybius – Powhatan County: no location given, April 15, 2017 (photo – Allen Bryan).

Cyllopsis gemma - FLUVANNA County: no location given, April 16, 2017 (photo – Allen Bryan).

Pholisora catullus – Powhatan County: no location given, April 15, 2017 (photo – Allen Bryan).

Pyrgus communis – Powhatan County: no location given, April 15, 2017 (photo – Allen Bryan).

Erynnis juvenalis juvenalis - ALBEMARLE County: near White Hall, March 25, 2017 (15 obs.- Mark Adams). Loudoun County: Leesburg, Veterans Memorial Park, March 25, 2017 (net/release - Harry Pavulaan).

Erynnis brizo - ALBEMARLE County: near White Hall, March 25, 2017 (6 obs.- Mark Adams).

Atalopedes campestris huron – Loudoun County: Leesburg, May 14, 2017 (obs.- Harry Pavulaan – sitting right next to me on my front steps watching the sun go down).

On April 17, 2017, I conducted my annual 4-hour spring survey of butterflies on the car-accessible north end of the Great North Mountain ridge at approx. 2300' elevation, near Hayfield, in Frederick County. Several species added to the list.

-*Neographium marcellus* – 1 observed, no doubt a stray from lower elevations.
-*Papilio polyxenes* – 1 male observed, very broad yellow bands. Evaded net.
-*Papilio glaucus* –2 observed. As typical for this site, all were undersized males.
-*Papilio troilus* – Several observed on the ridge and lower east slopes.
-*Pieris rapae* – very common on the ridgetop this spring. Yellow cresses were very evident along roadsides.
-*Anthocharis midea* – 1 net/released.
-*Colias philodice* – 1 observed flying along a roadside.
-*Colias eurytheme* – 2 observed flying along a roadside.

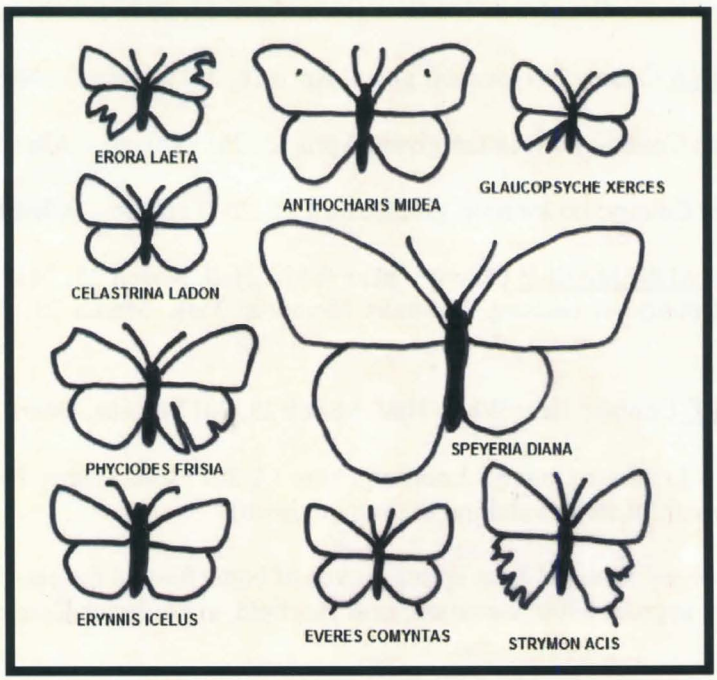
-*Incisalia augustinus croesioides* – 5 observed/collected along roadsides wherever Mountain Laurel and Blueberries were present.
-*Strymon melinus* – 3 collected.
-*Everes comyntas* – 4 observed/collected along roadsides at lower east slopes.
-*Celastrina lucia* – This area is home to a fairly large colony of 'Northern Azures'. Though common in 2016, this season they were scarce, with roughly 12 seen/collected only at one patch of habitat and two specimens nearby. This is a classic example of how to destroy a butterfly colony by means of determined roadside cutting of even the host Lowbush Blueberries along the roadside, literally to ground level, followed by herbicide spraying to the forest edge. A local resident advised me of this. The area is primarily forest with relatively few homes along forest roads, so it is a mystery to me why roadsides would be managed to this degree. The surviving part of the population was in a section of oak woodland with abundant blueberries in the understory.
-*Celastrina neglecta* – 1 collected, flying with *lucia*. The individual was considerably more age-worn than the fresher *lucia*.
-*Celastrina ladon* – 2 collected, also flying with *lucia*.
-*Boloria bellona* – 1 collected, flying along a roadside.
-*Nymphalis antiopa* – 1 observed along a roadside.
-*Vanessa virginiensis* – Several observed flying along roadsides.
-*Erynnis juvenalis* – Several observed on gravel roads and roadsides, some netted for confirmation.
-*Erynnis baptisiae* – 1 collected.

Moths [County records in all CAPITALS]:

Hemaris diffinis – FLUVANNA County: no location given, April 16, 2017 (photo – Allen Bryan).

Hemaris thysbe – FLUVANNA County: no location given, April 16, 2017 (photo – Allen Bryan).

STANDARD WING CONDITION IN A BUTTERFLY COLLECTION



Collector's Corner by Harry Pavulaan

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

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