Volume 45, Number 4 Winter 2003

NEWS OF THE LEPIDOPTERISTS' SOCIETY

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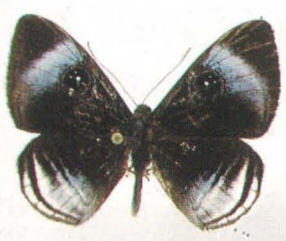

NEWS OF THE LEPIDOPTERISTS' SOCIETY

Volume 45, No. 4 Winter 2003

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Issue Date: December 1, 2003 ISSN 0091-1348

Front Cover:

Top: Snout, *Libytheana carinenta*, basking briefly in the afternoon sunshine. Photo by Akito Kawahara. See his article on the opposite page.

Bottom: Four spectacular *Mesosemia* sp. found in the Kaieteur Gorge of Guyana: (left to right) *M. philocles*, *M. ulrica*, *M. phace*, and *M. nina* (all males). Photo by Steve Fratello. See his article beginning on pp. 110 of this issue.

Behavioral Observations of *Libytheana carinenta* Cramer

*Akito Y. Kawahara**

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Behavioral observations of adult *Libytheana carinenta* Cramer ([1777]) were previously reported for mating (e.g., Rutowski et al. 1987), and migration (e.g., Collenette 1928, Fletcher 1926, Neck 1983). This paper presents detailed observations on the non-mating behavior of adults, namely the flight path, perch location, and amount of time spent during each perch documented in August 2001 and July 2002, in Berea, Kentucky. Although North American snout butterflies have previously been grouped into two or three species, this study follows a revision of the Libytheinae which reveals that all continental New-World populations are *Libytheana carinenta* (Kawahara, in prep.).

Adults of *L. carinenta* were most active in the afternoon, in open areas of hills and low-elevation mountains (fig. 1; see pp. 106 for figures 1-6). Males and females readily landed on gravel and preferred damp spots. Adults searching for a place to land flew approximately 30 cm above the ground, in a slow, bouncy fashion, similar to the flight of some satyrs (e.g., *Cercyonis pegala*), but with a distinct zigzag path. When congregations of butterflies containing numerous species were encountered, *L. carinenta*, if present, tended to rest separate from the congregation. On occasion, individuals landed on human clothing (e.g., shoes; fig. 2).

Adults usually rested for less than 2 minutes in any one place, and appeared to be very sensitive to slight changes in their surroundings. While resting, they tapped their proboscis on the ground, and bent their antennae up and down. They occasionally walked around, pausing motionless at damp spots, apparently drinking. Their wings always remained closed during their rest, but some individuals wiggled their forewings up and down approximately every 2 – 3 seconds. Individuals also angled their bodies toward or away from the sun, a behavior often associated with thermoregulation. When windy, perched adults tucked their forewings inside the hindwings, reducing the area exposed to wind.

When clouds blocked the sunlight, adults flew to nearby grasses or dead tree branches to rest (figs. 3-5), usually for more than 5 minutes. In 12 of 17 observations, adults landed with their head facing away from the tip of the branch or grass blade (fig. 6). This resting position may enhance camouflage because it perhaps allows the antennae and labial palpi to resemble the petiole of a dead leaf. In fact, adults were seen to rest in a similar posture at night, when they were least sensitive to changes in their surroundings.

Males used only their pterothoracic legs to hold onto vegetation, whereas females typically used all legs. While perched, the wings were held closed, but when sunlight hit their bodies, their wings were opened briefly (fig. 7; see cover), and they took flight several minutes later. *Libytheana carinenta* is much less responsive to movement when cryptically resting on vegetation than when more visible on the ground. Furthermore, *L. carinenta* is generally less responsive to movement than *Libythea celtis* (Kawahara pers. obs.), but this requires further testing because environmental variables (e.g., temperature) were not compared for the two species.

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Acknowledgments

I thank Robert Dirig, Cole Gilbert, Christopher Marshall, and Regan Nally for reading earlier versions of the manuscript. This project was part of an Honors Thesis at Cornell University, and was financially supported by the Cornell University College of Agriculture and Life Sciences and the Howard Hughes Research Fellowship for undergraduates.

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Collenette, C. L. 1928. A migration of *Libythea carinenta carinenta* Cr. Entomol. Mon. Mag. 64: 124-126.

Fletcher, R. K. 1926. Notes on a migration of a snout butterfly (Lepid., Libytheidae). Entomol. News 37: 106-107.

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First Notice:

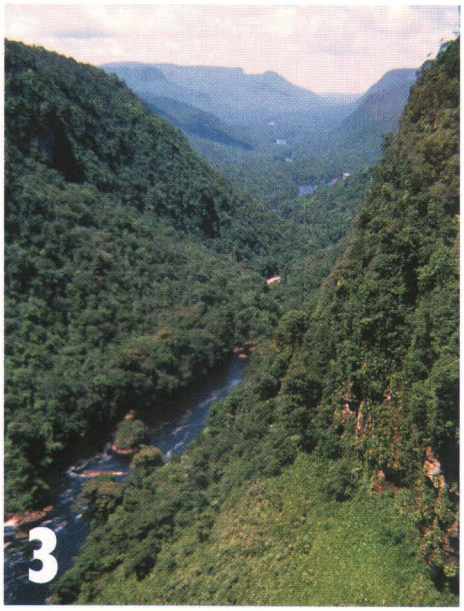
2004 Annual Meeting of the Lep. Soc. July 14-18, 2004

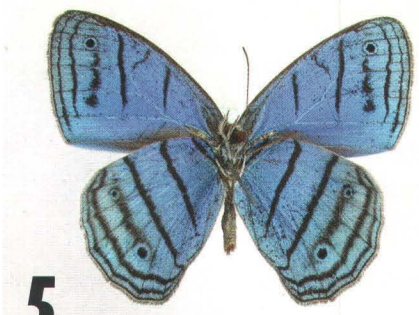
Next years meeting of your Society is being organized by the University of Maryland (College Park) & Smithsonian Instution (Washington, DC) and is sponsored by Systematic Entomology Lab (USDA), Entomology Section (SI), and Department of Entomology (UMD).

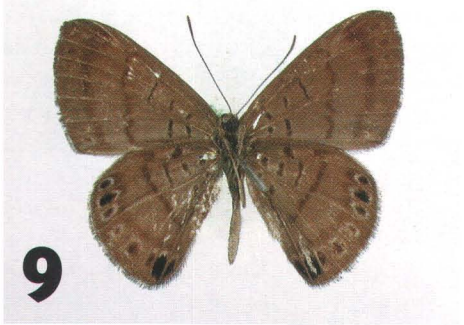
Make plans to attend. Registration information will follow in later issues of the **News** and on the Lepidopterists's Society web site.

The Habitat and Behavior of *Libytheana carienenta.*

1. Habitat of *L. carinenta* in Berea, Kentucky. **2.** Adult drinking water from damp spots on gravel. **3.** Adult on a shoelace. **4.** Adult resting on a dry grass blade. **5.** Adult resting on a stem of a grass. **6.** Adult perched on a branch with its head facing away from the branch tip. **7.** (on front cover) Adult opening its wings briefly after the sun shone. Photos by Akito Kawahara. See the article beginning on pp. 107 of this issue.







Guyana Expeditions...

1. Kaieteur Falls: the Potaro River plunges 226 m in a mighty drop. The escarpments of the Pakaraima Mts. can be seen in the background. **2.** Looking out over the middle Essequibo River lowlands from Turtle Mt. '*Calospila*' *fannia* (see 8 & 9) was taken in the expanse of forest below. **3.** Kaieteur Gorge (Potaro River): A butterfly paradise—7 or 8 *Morpho* sp. including *M. rhetenor* and *M. hecuba*, 5–7 *Parides* sp., *Eurtides dolicaon* and other swordtails, *Mesosemia phace* (see cover), *Menander hebrus*, *Ancyluris*, *Rhetus*, *Helicopis*, *Sarota chrysus* (Riodinids), and more... **4.** *Caeruleuptychia coerulea* (?), male, ups, Iwokrama Mts. **5.** Same as 4, uns. **6.** *Splendeuptychia furina*, male, ups, Iwokrama Mts. **7.** Same as 6, uns. **8.** '*Calospila*' *fannia*, male, ups, captured in seasonally inundated forest near 2. One of two specimens taken, the first captures since the type was taken in British Guiana (Guyana) in 1903. **9.** Same as 8, uns. Photos (including *Mesosemia* sp. shown on front cover) by Steve Fratello, except 3 by R. Hanner. See the article beginning on the next page of this issue.

Guyana Expeditions (January-April 2001)

Steve Fratello

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Under the auspices of the Smithsonian Biological Diversity of the Guianas Program, fieldwork studying the Guyana fauna (see **Lepidoptera News**, 2001 (2): 8-9) has continued. Compared to the large-scale montane expeditions in 1999 and 2000, our field trips in 2001 were on a much smaller scale. Still, there were a number of 'interesting' finds and in the primeval forests we explored: sublimity is boundless.

Tropenbos Ecological Reserve-Demerara River (31 January -12 February)

This small forest reserve (approx. 9 sq. km) is situated close to the middle Demerara River. Though small, the reserve contains a great representation of 'typical' northern Guyana forest types in pristine condition: mora (*Mora excelsa*, Caesalpinioidea) forest on the alluvial flats, mixed forests including rich reefs of greenheart (*Ocotea rodiaei*, Lauraceae) on laterite, and wallaba (*Eperua* sp., Caesalpinioideae) forest on white sand. Other forest types add to the forest diversity: mixed forest dominated by clump wallaba (*Dicymbe* sp., Caesalpinioideae) on brown sand, morabukea (*Mora gonggrijpii*) forest on hill slopes, vine forest on rocky laterite hills and forest scrub on very poor rocky soil. A good system of trails crisscrosses the reserve and a number of creeks, both black and white water, can be used as 'trails' as well.

I spent eight days in this reserve in late January 1990. In those eight days, the sun was out for barely two hours. With constant gray skies and torrential rains, hardly any butterflies were encountered. I believe less than five specimens were captured that trip! This trip, cloudy skies also predominated, but with few heavy rains and adequate periods of good sunshine. Joining me in the collecting effort was Keith David, a University of Guyana student, and Romeo Williams, my right hand man on all our expeditions. Though butterflies in general were scant (an 'off season'), still a decent collection was made: approximately 400 total specimens (including approx. 75 moth specimens), representing 135 butterfly and skipper species. Surprisingly, 47 riodinid species and 18 hairstreak species were taken during this 'off season'. With each of us usually taking only 10-20 specimens a day, it was rewarding to see the variety be augmented with each successive day in the field.

In all groups, butterflies and skippers typical of the northern forests were taken, with some exceptions. The large ithomiines, *Melinaea ludovica* Stoll and *Methona confusa* Butler were caught, the first time I have seen either from the northern forests. Possibly, in northern Guyana, they are found only east of the Essequibo River. I have not been able to check these species Guyana distributions by thoroughly going through museum collections. If *M. ludovica* and *M. confusa* are only found east of the Essequibo River in northern Guyana, then this is a Guyana distribution pattern—restricted to the east bank of the Essequibo in the north, but both east and west of the river in the south—shared with some monkeys (Brown Bearded Saki, Midas Tamarin) and I am sure, numerous other organisms. We also took a form/race of *Heliconius numata* Cramer (Heliconiines) that I only had seen in Guyana's south. It is interesting that this form/race is closest in appearance to *M. ludovica*, from among any of the *Heliconius* silvaniforms (*Heliconius* superficially close to ithomiine genera such as *Melinaea* and *Mechanitis*) I have seen in Guyana.

Perching at the edge of a large tree-fall light gap were a couple of *Marpesia egina* Bates (Nymphalines), a species I had not seen in Guyana. Keith took an uncommon euptychiine, the many ocellied *Erichthodes erichtho* Butler (Satyrine), which I have seen on only three occasions in the Guyana forests. Other catches of note include a few riodinids and hairstreaks (Lycaenids). Among the riodinids, Romeo caught an uncommon, blue *'Calospila' thara* Hewitson, on this specimen the reddish-brown patch on the hindwing upperside is largely restricted to the hindwing anal margin. Romeo also took the rare, small *Emesis brimo progne* Godman, with its strange 'greasy' iridescence on its upperside median areas. During his study at Trobenbos, Yves Basset, a Swiss ecologist, found *E. b. progne* pupae on trysil (*Pentaclathra macroloba*, Mimosoideae). Trysil is a small/medium-sized tree (leguminous with fine pinnate leaves) common in Guyana, and especially abundant in mora forest.

We took a nice series of fresh male *Semomesia capanea* Cramer, some strikingly large. Along with *S. capanea*, were a couple of specimens of an undetermined smaller *Semomesia*, close superficially to *S. capanea* but with apparently distinct differences. In one tree-fall light gap adjoining the bank of the main black water creek, both sexes of *Synargis orestessa* Hubner (= *S. orestes* Cramer) and *Synargis abaris* Cramer were collected, among a number of other butterflies and skippers. The large, brightly colored *S.*

orestessa females perched here in mid-afternoon on a number of days. Romeo caught some 'interesting' hairstreaks also: a couple of the rare *'Thecla' teucria* Hewitson (tentatively determined) and an undetermined *Thereus* species. We also took a number of fresh *Paiwarria telemus* Cramer females, with their lovely, green undersides, probably hitting a fresh emergence, though no males were seen or caught.

In this great little reserve, wildlife was common. Peccary, tapir, brocket deer, agouti, acouchis, Southern River Otter and many monkeys were seen. I saw large troops of Brown Bearded Sakis almost every day.

Kaieteur Falls and Gorge (3-12 March)

I returned to paradise for a short trip, only observations are included here, as collecting was not permitted in this 'national park.' Some butterfly highlights were reported in the December 1999 **Lepidoptera News** from my previous visit (March 1999), when I was joined by AMNH scientist Dr. Robert Hanner. All told, I have spent approximately 70 days in the area, more than half in the gorge, the remainder on the plateau near the falls, which has diverse plant communities in close proximity. In my experience, Kaieteur Gorge is the best butterfly locality in northern Guyana. I will boldly state, there is no more grand arena for observing tropical butterflies than Kaieteur Gorge: a good-sized black water river with large stretches of turbulent rapids bordered by rocky and boulder-strewn shores, white sand beaches, sedge and grass glades along rocky river side channels, riverside Ingas (*Inga* sp., Mimosoideae) that attract myriad butterflies and skippers to their delicate blossoms, and perhaps most spectacularly, the walls of the upper gorge rising 300 m or so above, with untold shades of green from the crowns of the rainforest trees that cover the slopes.

This trip, I was fortunate to witness one of the most sublime spectacles I have seen in numerous Neotropical butterfly explorations. Two small understory trees in the upper gorge (in different spots) were attracting *Parides* (papilionids) in numbers to their clusters of small white flowers (in the gorge away from these two trees, hardly a *Parides* was seen). At times a dozen or more specimens were in the general area: patrolling, sallying, moving from cluster to cluster and feeding in typical papilionid fashion with their forewings in a whir. Most of the individuals were of two species: *P. vertumnas* Cramer and the exquisite *P. chabrias mithras* Grose-Smith. An extra treat was to see a solo *P. aeneas* Linneaus male at the second tree, its large, deep magenta hindwing patches noticeable as it fed at the blossoms. This is my first record of the uncommon *P. aeneas* at Kaieteur, and the same for *P. sesostris* Cramer, a worn male also coming to visit the second tree.

Besides the above four *Parides* species, *P. lysander* Cramer is found in the gorge, probably *P. echemon* Hubner and possibly a seventh species, one of the close relatives of *P. vertumnas*. In addition to the Parides, *Melinaea satevis crameri* Godman and Salvin, *Heliconius xanthocles* Bates (or *H. aeode* Hubner) and a few skippers came to these attractive trees. My notes are blank on the subject, my memory uncertain, but among the mostly male *Parides*, I believe there were a few females (*P. vertumnas*) that visited that second tree. In the morning around the second tree, because of the tree being situated on a rocky creek channel and some small light gaps in the area; *P. vertumnas* especially, and also *P. c. mithras*, would bask on leaves, wings spread, in sun flecks in the understory. Also basking/perching at this incredible spot were 5-10 hesperid species. As grand as this spectacle was, I cannot even imagine the sight of various *Ornithoptera* (papilionids) males swarming around a flowering tree, as my friend Jan Pasternak has seen these larger cousins of *Parides* do on several occasions during his New Guinea explorations.

Added to the list of Kaieteur butterflies is the satyrine *Erichthodes erictho*, as I spied a pair in cupola. Other 'interesting' sightings were among the riodinids. On a previous visit to the gorge, I thought I saw a *Helicopis* flying among the riverine vegetation, but was not positive about identification. This trip I definitely saw a *Helicopis* female (*H. cupido*? Linnaeus) flying slowly along the river edge vegetation. I surmise the larval food plant could be a large terrestrial aroid, with its spiraling spathe, that is found among the sedge glades that line the rocky river side channels in the upper gorge. In other areas in Guyana where I have seen *H. cupido*, the host plant is a very large aquatic aroid that occurs, usually in colonies, along river and creek edges. *Stalachtis phaedusa* Hubner was seen for the first time in the upper gorge. Along with *S. calliope* Linnaeus and *S. euterpe* Linnaeus (one specimen found in an alluvial area farther down river), these three large riodinids would be the *Stalachtis* species found at Kaieteur. *Stalachtis phaedusa* is a clearwing ithomiine look-alike, possibly a mimic? Other riodinid clearwing look-alikes, so far found in the upper gorge are the local *Ithomiola floralis* Felder, much smaller than *S. phaedusa*, and a single *Pheles heliconides* Herrich-Schaeffer.

In my experience, clearwing ithomiines are scarce in the northern Guyana lowlands. *Stalachtis phaedusa*, though local, is usually more common than its supposed models, contradicting classic Batesian mimicry theory. This could lead one to think of convergent evolution as the mechanism for the superficial physical similarities of ithomiine and riodinid. Namely, clearwing butterflies flying in the shaded gloom of the forest understory and difficult for their predators to see and catch, even when flying. Many interesting facts and questions present themselves. Most of the clearwing riodinids have elongated wings, like the clearwing ithomiines and unlike most other riodinids. *Stalachtis phaedusa* and *I. floralis* both behave in flight

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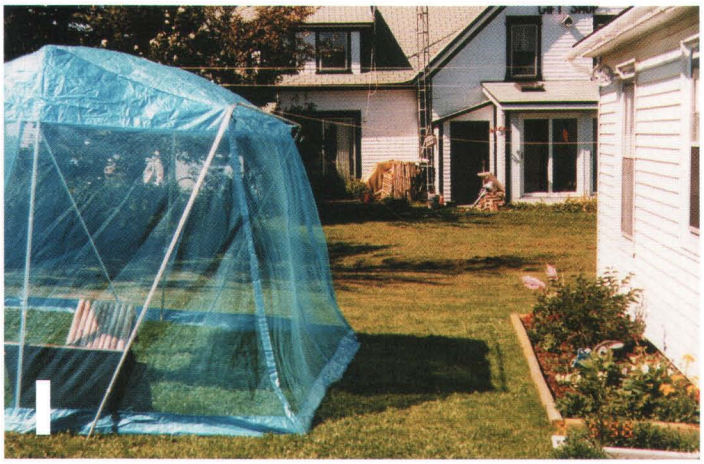
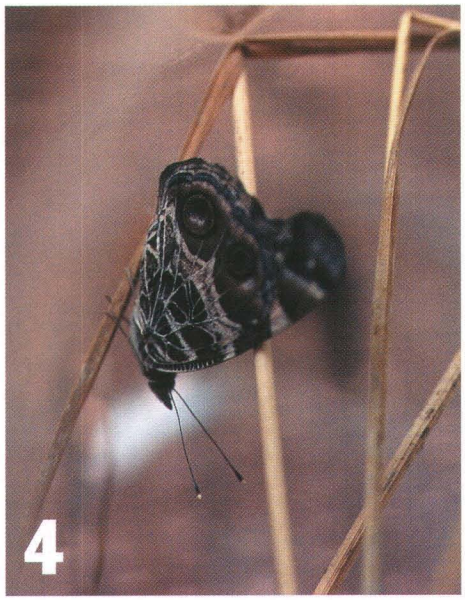


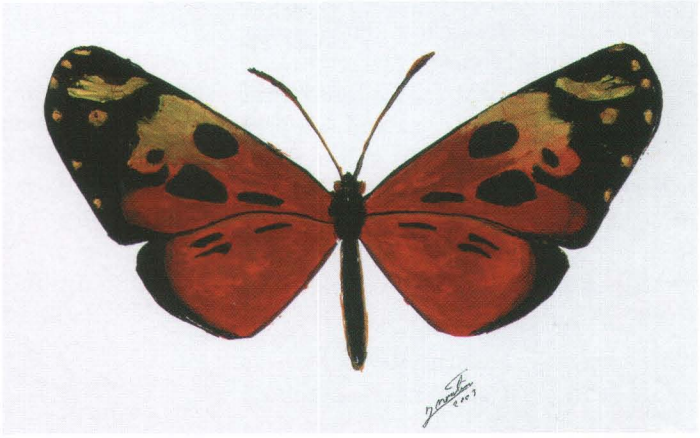


Roosting and Torpor in *Nymphalis* & *Polygonia* butterflies...

1. The screened enclosure in which *Polygonia* and *Nymphalis* butterflies were housed. Butterflies usually roosted near the top on the side walls, especially near the corners and under the log roof of the bird feeder. **2.** A torpid *Nymphalis antiopa* removed from its nocturnal roost lying on its side during a torpor test. Note the retracted head, antennae and legs and the hidden abdomen. **3.** *Nymphalis antiopa* roosting at night in the vertical head down orientation. The posture, except for the extended legs and body orientation, is the same as that seen in 2. **4.** *Vanessa virginiensis* roosting at twilight. This species, like *Polygonia* and *Nymphalis*, roosts vertically with the head down; but unlike *Polygonia* and *Nymphalis,* the head, including the antennae and palpi, is directed forward. *Vanessa virginiensis* also does not show torpor. **5.** A "resting" *N. antiopa*, which had been flying, perched vertically with the head up. Note this butterfly, not roosting, has fully exposed antennae and the head including the palpi are angled away from the forewing costa. All photos by Gerald Einem.

A Rare Ithomiine Butterfly, *Ithomia celemia plaginota*, in Costa Rica

An illustration of a female of this species taken at "Finca El Rodeo," near Ciudad Colón, San José Province on May 23, 1999. This represents a new locality for this species in Costa Rica and is also the northern-most range of the species in the country. Drawing by Jorge R. Montero-Moreno. See the report on pp. 115.



Roosting and Torpor in Anglewing and Tortoiseshell Butterflies (Nymphalidae)

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According to Opler (1984, 1998, 1999) each species of butterfly has a characteristic roosting location and posture that they use at night or during inclement weather. Roosting butterflies are inactive, often with their wings closed, and in some species have the antennae concealed between the wings (Tweedie and Emmet 1991) although butterflies such as metalmarks (Riodinidae) and some skippers (Hesperiidae) roost with their wings open (Opler 1984, Tweedie & Emmet 1991). Most butterflies roost alone, however, some Limenitidinae (Benson & Emmel 1973) Heliconiinae (Crane 1957, Young & Thomason 1980) and Danainae (Urquhart 1960) roost communally.

For many butterfly species there is little detailed information about roosting, especially for those that roost alone. Black Swallowtails, *Papilio polyxenes* F. roost singly, selecting sites where it can dorsal bask as long as possible before sunset. Without leaving the basking site, *P. polyxenes* assume a roosting posture with the wings dorsally appressed, the forewings moved back, the abdomen lowered and the antennae forward in a v-shape (Rawlins & Lederhouse 1978). This roosting behavior is strikingly different from the anglewing (Polygonia) and tortoiseshell (Nymphalis) butterflies I have observed.

In this report I describe the roosting orientation and posture of five closely related Nymphalinae: the Satyr Comma, *Polygonia satyrus* (W. H. Edwards); Question mark, *Polygonia interrogationis* (F.); Eastern Comma, *Polygonia comma* (Harris); Mourning Cloak, *Nymphalis antiopa* (L.) and Milbert's Tortoiseshell, *Nymphalis milberti milberti* (Godart). Moreover, each of these species was tested for torpor ("playing dead") defined here as a period of complete inactivity following removal of a roosting butterfly from its perch. My observations suggest that a similar, possibly unique, combination of roosting characteristics and torpor, shown by the *Nymphalis* and some *Polygonia* subjects of this study, are adaptations that reduce mortality or injury by predators.

Methods

Adult butterflies were housed in a large (base 3.3 x 3.3m, height 2.0 m) blue nylon screened enclosure (Fig. 1; opposite) with a grass/herb floor in Tiverton, Digby County, Nova Scotia, Canada. Within the enclosure I provided a wooden bird feeding shelter for additional roosting areas. Butterflies were reared from local or other eastern Canadian populations and were fed on a variety of ripe fruit. Roosting behavior at nighttime and during the day was observed daily during late July and August during two summers.

Torpor was quantified by removing the butterfly from its roost (grasping the wings with thumb and forefinger) and quickly placing it on its side on a flat horizontal surface. The length of torpor was measured with a stopwatch beginning when the subject was placed on its side (Fig. 2) and ending when it extended its legs and assumed an erect position with its wings dorsally appressed.

Results

Roosting Posture and Orientation

When roosting at night, all five species observed had nearly identical postural characteristics: 1) the wings were closed, 2) the hindwings concealed the abdomen, 3) the antennae were concealed between the forewings, and 4) the head, including the palpi, were aligned with and adjacent to the forewing costae (Fig. 3). Moreover each of the five species roosted both vertically with the head down or horizontally upside down. A few other butterflies had exposed antennae at the distal end. For comparison see the roosting American Lady, *Vanessa virginiensis* (Drury) (Fig.4).

The initiation of roosting was observed at sunset (23 Aug. 19:07h) when three *N. milberti* which had been flying, suddenly perched head down with their

Table 1. Duration of torpor following disturbance of roosting *Nymphalis* and *Polygonia* butterflies at Tiverton, Nova Scotia, Canada. N denotes the number of butterflies that displayed torpor while N* denotes the number lacking torpor.

Species	Testing Time	N	Duration of Torpor Mean (SD) (min:sec)	N*	Date/Time of Tests
Nymphalis antiopa	Night	7	20:08 (43:58)	0	16Aug./22:10h
	Twilight	7	1:24 (1:29)	1	26Aug./19:00h
	Day[1]	0	0:00	7	26Aug./10:30h
N. milberti	Night	3	3:22 (0:54)	2	2 Aug./22:45h
Polygonia satyrus	Night	3	1:18 (0:08)	2	7 Aug./22:50h
P. comma	Night	0	0:00	3	29 July/22:21h
P. interrogationis	Night	0	0:00	3	26 July/22:10h

Note: [1] Tested on a sunny day, butterflies not roosting.

wings closed. They then slowly moved their antennae (which had been forward in a V-shape) together and withdrew them between the forewings where they remained out of sight, lying ca. 2 mm behind the forewing costae.

In warm weather at low light levels, as on overcast, rainy or foggy days or just before sunset some *Polygonia* and *Nymphalis* fed, flew or rested, often perched vertically with the head up (Fig. 5). However, others roosted using the same posture and orientation seen during nocturnal roosting. Moreover, roosting butterflies perched in the darker, often secluded, areas of the enclosure as seen during nocturnal roosting.

Torpor

When tested at night both *N. antiopa* (Fig. 2) and *N. milberti* demonstrated torpor; however, among the *Polygonia* species only *P. satyrus* showed torpor, *P. comma* and P. *interrogationis* failed to exhibit torpor (Table 1). The length of torpor of seven *N. antiopa* while roosting at night ranged from 2 min. 8 sec. to an exceptional 99 min; however, eight *N. antiopa* tested at twilight ranged from 2 sec. to 3 min. 45 sec. and one failed to show torpor (Table 1). Torpor tests of *N. antiopa* on warm sunny days were negative except, rarely, a roosting butterfly in a shaded area would test positively. Among the *Polygonia* tested at night, three of five *P. satyrus* exhibited torpor, ranging in time from 2 min. 60 sec. to 4 min. 37 sec. By comparison three *P. comma* and three *P. interrogationis* lacked torpor since when removed from a roost and placed on their side they immediately stood erect.

Nymphalis antiopa that are forcibly removed from a nocturnal roost, causing them to drop to the ground, usually remain in torpor. When lying on the ground on their side, even repeated probing often fails to terminate torpor.

Discussion

The perching orientation and postural characteristics of roosting *Polygonia* and *Nymphalis* were remarkably similar. Moreover, other *Polygonia*, including *P. progne* (Cramer), *P. gracilis* (Grote & Robinson) and *P. faunus* (W. H. Edwards) also roost with hidden antennae (Scott 1986). The combination of roosting characteristics described in this report (except torpor which may be absent in some *Polygonia*) may be a distinguishing characteristic of these genera. My observations of many butterfly species in all North American butterfly families have, so far, failed to find the combination of roosting characteristics observed in *Polygonia* and *Nymphalis* species (unpubl. data); however, the leafwinged butterflies (*Charaxinae*) need further study.

The roosting characteristics (including torpor) of *Nymphalis* and *Polygonia* butterflies suggest that they are adaptations for crypsis or provide a mimetic resemblance to an inedible object, perhaps a dead leaf. Closed wings exposing the most cryptic surface, the irregular wing edges, the head and palpi in close juxtaposition to the costae, and keeping the antennae and abdomen hidden between the wings may be adaptations that make it difficult for a predator to distinguish or determine if a butterfly is suitable prey. Moreover the cryptic and mimetic traits may be enhanced by the low levels of light that induce roosting and torpor by further reducing the ability of a predator to distinguish its prey.

The perching orientation of *Polygonia* and *Nymphalis,* when roosting vertically with the head down, may serve to confuse a predator's search image; since on sunny days when not roosting, they frequently "rest" vertically with the head up (Fig. 5). Many, perhaps most, North American butterflies other than *Polygonia, Nymphalis* and *Vanessa* roost vertically with the head up and not with the head down (unpubl. data).

Low levels of light appear to induce torpor. *Nymphalis antiopa* rarely show torpor on warm sunny days but begin to test positively for torpor at twilight and after dark when all of the butterflies may exhibit torpor. Further, the duration and frequency of torpor increases between twilight and night with torpor usually appearing soon after a butterfly assumes the roosting orientation and posture.

The forced manual removal of butterflies from a roost and the subsequent probing of these seemingly "lifeless" butterflies fallen to the ground may simulate a butterfly's interaction with a predator. The long period of inactivity and insensitivity to tactile stimulation suggest that torpor may be an adaptation that protects *N. antiopa* from injury or predation, as a result of mimetic resemblance to an inanimate object such as a dead leaf.

Butterflies in the genera *Polygonia* and *Nymphalis* have long life spans with all North American species overwintering as adults while in hibernal diapause (Scott, 1979). Most species live eight months or more with hibernating adults becoming sexually mature the second year (Layberry et al. 1998). As a consequence, the amount of time spent roosting over a butterfly's lifetime greatly exceeds that of most other kinds of butterflies except perhaps the Heliconiinae which are also long lived. Assuming that mortality or injury, due to predators, is a function of the time spent in the imago stage and that much of that time is spent roosting suggests that survival, as a result of reduced predation, is achieved by selection for colors, patterns and behaviors (orientation, posture, torpor and roosting site selection) that enhance crypsis and camouflage during roosting.

Acknowledgement

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A New Locality for a Rare Ithomiine Butterfly, *Ithomia celemia plaginota*, in Costa Rica

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The fauna of Ithomiine butterflies in Costa Rica comprises 22 genera and 61 species that, with a few exceptions, are forest dwelling (DeVries, 1987), with the greatest diversity occurring in Transitional forest between 600-1500 m above sea level. The genus *Ithomia* Hubner 1816, ranges from Mexico to South America, and reaches its greatest diversity in the Amazon Basin. In Costa Rica the genus is represented by 7 species that are primarily forest dwelling but occur in virtually all habitats at different times of year.

Ithomia celemia ranges from Costa Rica to Venezuela with the subspecies *plaginota* Butler and Druce, 1872 restricted to Costa Rica and Panama. They occur from sea level to 900 m only on the Pacific slope of Costa Rica where it has been reported only in the forest remnants of Quepos and the Osa Peninsula (Province of Puntarenas).

I took a female of this species at "Finca El Rodeo," near Ciudad Colón, San José Province on May 23, 1999. The specimen (see dwg. on pp. 112) is in moderate condition and is housed in the Montero-Moreno collection, Pavas. It was taken on the trail that winds down to Quebrada Honda River on a cloudy day while it flew at the forest edge. It represents a new locality for this species in Costa Rica and is also the northern-most range of the species in the country.

This species is considered uncommon in DeVries (1987). A recently published study (Vega & Gloor, 2001) does not record the species in this locale. Similarly, Cascante & Estrada (1999) do not report the hostplant, *Wintheringia riparia* (Solanaceae), in this local but do report *Wintheringia solanacea*, possibly an alternative host. The locality is transitional mid-elevation forest where over 340 sp. of butterflies are known (Zona Protectora "El Rodeo").

Acknowledgements

I dedicate this note to the memory of the late Olaf Pagels, a former member of the Lepidopterists' Society, who worked extensively in the study area. His superb collection (more than 5000 sp.) is now housed in Museo La Salle de Ciencias Naturales in San José.

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Citheronea phoronea (Cramer) (Lepidoptera: Saturniidae), new to the United States.

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A worn male of *Citheronea phoronea* (Cramer, 1779) was collected by Donald E. Bowman on September 7, 1997 at Fronton, Starr County, Texas. The species was identified by reference to the plates in Draudt (1940) and Lemaire (1988). The specimen was a good match for the illustrations in both sources. It was not dissected. The type locality of *C. phoronea* is Surinam, and its distribution is Brazil north to Panama. Most records are from Brazil and Venezuela. How this moth found its way to south Texas is likely explained by the likelihood that it was picked up by a frontal movement, perhaps hurricane-associated and deposited near where it was found. The specimen is deposited in the collection of the senior author.

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Guyana...*continued from pp. 111*

manner like clearwing ithomiines. Would these two facts point more to Batesian mimicry rather than convergent evolution? *Stalachtis calliope*, with its orange and black tiger-stripe livery, elongated wings, and flight manner, certainly seems a very good Batesian mimic of the tiger-stripe ithomiine/heliconiine complex. And there is the strong possibility that *Stalachtis* are distasteful themselves and therefore Mullerian mimics, a view I lean towards. As for the clearwing ithomiines, the supposed models of others and Mullerian mimics among themselves, why do they hide from predators and not advertise their presence, as is expected of unpalatable butterflies? It seems much more complex natural processes are in effect, that cannot be reduced to simple mimicry theory.

The genus *Mesosemia* has a rich fauna at Kaieteur, especially in the gorge, about a dozen species recorded so far. This visit, species observed were: the incomparable *M. phace* Godman, a male and what I believe to be the female, *M. philocles* Linnaeus, *M. ulrica* Cramer and *M. nina* Herbst, three spectacular species with blue on their uppersides, as well as *M. machaera* Hewitson and the little, dark *M. ibycus* Hewitson, and possibly *M. cippus* Hewitson and *M. methion* Hewitson. Other species found in the gorge are *M. melaene* Hewitson, *M. magete* Hewitson, *M. maera* (?) Hewitson and a few others. The possible sighting of *M. methion* is most interesting, as what I believe to be the female of *M. phace*, looks like this taxon. Only further collecting will solve this mystery.

Right now and for some time past, no collecting has been allowed at Kaieteur, even limited scientific collecting. While this policy has been in effect, destructive mining activity has continued up to the present moment in this paradisaical place, with no determined effort to halt it. One can only describe the situation as insane. For a brief glimpse into the natural history of this fantastic area, see my article in **Natural History** magazine (12/01-1/02).

Iwokrama Rain Forest Reserve (20 March-2 April)

The Iwokrama Rain Forest Reserve is a large reserve on the middle Essequibo River, most of it primeval forest. A solo collecting trip for me, I was drawn here mainly for two reasons; to explore the Turtle Mountain ridge (ca. 270 m) with the hope of getting some hilltopping species one normally doesn't see in the lowlands; and to explore the high ridges (ca. 1,000m) of the Iwokrama Mts. and another sampling of Guyana's montane fauna. Overall, collecting was very good, if only my collecting partners would have been here to add to the effort.

Turtle Mt. (20-26 March)

The Turtle Mt. ridge yielded a limited amount of interesting catches: *Comphotis sophistes* Hewitson and *Synargis soranis* Stoll (or *S. orestessa*) males (riodinids), a large skipper seen on other ridge tops (Kanukus and Acarais), and my prize catch, *Lamprospilus genius* Hubner (Lycaenids), a smallish hairstreak with fenestrated patches on both fore and hindwings. The only time I have seen or caught *L. genius*, it flew into a light gap I was watching around midday and landed on a sun lit shrub several feet above the ground.

The most pleasant surprise of this whole expedition was the collecting in the seasonally inundated forest surrounding a lake (or river inlet?) on the Essequibo flood plain below Turtle Mt. This open swamp forest of short stature was a forest type I had not experienced yet in Guyana. In places the understory was composed almost entirely of a small bambusoid (?) that grew to about three feet tall. In this forest or its transition to the slightly higher mora forest, I caught four riodinid species I had never seen before plus one species with only one previous encounter: *Mesosemia antaerice* (?) Hewitson, *Pirascca crocostigma* Bates, *'Calospila' fannia* Godman, *Mesene epaphus* Stoll and *Theope lycaenina* Bates. Two *M. antaerice* (?) males were taken, both perched close to the ground, on the upperside of leaves. It is an exquisite species with its upperside pattern of alternating narrow bands of dark, shining blue and black. Previously, I had taken one male on a high ridge (ca. 900 m) in the Acarais.

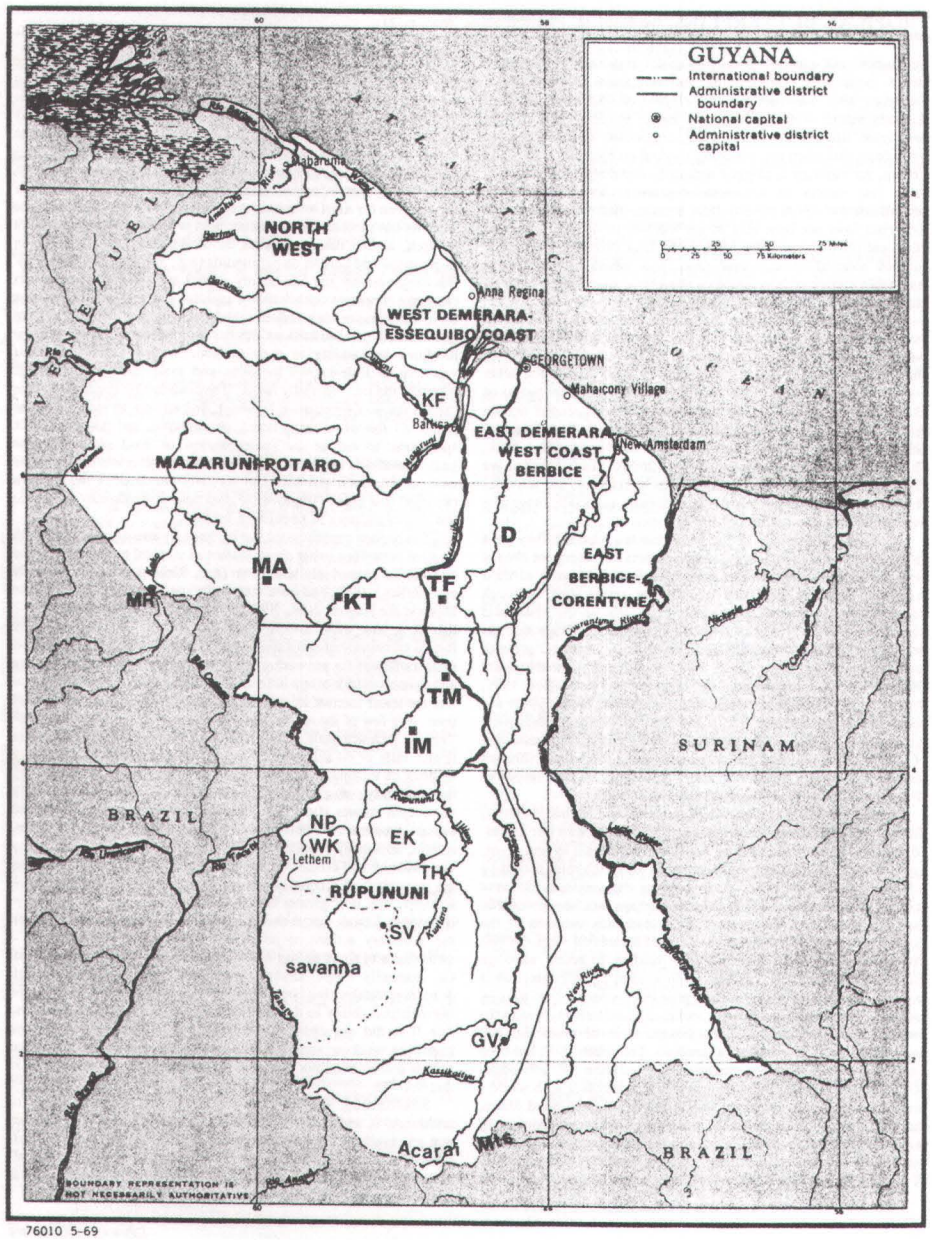
The small *P. crocostigma*, velvety black on the upperside with a bright orange hindwing spot, unmarked velvety blue-black on the underside, is new for the Smithsonian collection and possibly a new Guyana record. It was captured on the edge of a very small clearing, perched approximately one and one half meters up on a shrub/small tree leaf, uncertain memory tells me the wings were spread open. I had seen this or a phenotypically similar species (memory tells me that one had a red hindwing patch) around this same clearing a few days earlier. Perseverance paid off, as I returned to this spot over and over again, when I was in the general area on subsequent days.

There is little uncertain about my memory in the taking of two male *'Calospila' fannia* specimens, one in good condition, the other very fresh. Both times, I disturbed a butterfly in the low understory, which subsequently flew a short distance and perched under a leaf, wings closed (?), within a half meter of the ground. I knew I had taken a rare butterfly, but had no idea how rare. That became apparent when I showed the riodinid material from our expeditions to Dr. Jason Hall at the Smithsonian. Jason was ecstatic on seeing *'Calospila' fannia*; actually more so, than after seeing our few new riodinid species from other expeditions in the past. *'Calospila' fannia* had been known by a single male taken in 1903. That specimen, in the British Museum of Natural History from British Guiana (Guyana), has a general locality label of Rio Essequibo. Now, after almost one hundred years, a couple of specimens were to corroborate that record. And now, also an exact locality, plus, at least one forest type it occurs in: seasonally inundated alluvial swamp forest, dwelling in the low understory.

Two *Theope lycaenina* were taken and a few others seen in the afternoon. They frequented thickets of vegetation in one area and perched approximately

one and one half meters up, under leaves, wings closed. Near this area, I saw another *Theope* species, one with a golden underside. I first ignored the capture, believing it to be the fairly common *Euselasia gelanor* Stoll. This was to be my best shot at the elusive creature. In my Guyana experience, *Theope* are rare (except for the *T. nycteis* Westwood group) and hard to come by, so my realization of a *Theope* and not *E. gelanor* initiated a determined effort to capture it, after passing up an easy catch. Several encounters subsequently all led to the same frustrating result; periods of dancing erratic flight where I was loath to take a shot, followed by either a disappearance or protected position on alighting.

Riodina lysippus Linnaeus males patrolled and perched on shrubs around the 'lake' edge in the morning. On our previous Acarai Mountain expedition, they were common along the Sipu River as they frequented riverside vegetation. This water/forest edge seems to be its preferred habitat. In a few areas of the seasonally inundated forest, the jewel-like *Nymphidium mantus* Cramer (riodinid), most spectacular of the *Nymphidium*, was very common, more so than anywhere else I have seen it. The same goes for *Stalachtis euterpe* and *Stalachtis calliope*, they were abundant in a large, local section of this forest. I took a number and could easily have captured scores of both species, *S. euterpe* being especially abundant.



Guyana. *Locations in text include* **D** *(Demerara River),* **EK** *(East Kanukus),* **IM** *(Iwokrama Mtns),* **KT** *(Kaieteur Falls & Gorge),* **MA** *(Mt. Ayanganma, 2050 m),* **MR** *(Mt. Roraima, 2772 m),* **TF** *(Tropenbos Forest),* **TM** *(Turtle Mt.), and* **WK** *(West Kanukus). GV, KF, NP, SV, and TH are locations from previous expeditions (see* ***Lepidoptera News****, June 2001, No. 2). Map modified from Defense Intelligence Agency map.*

Referring back to what was said earlier about *Stalachtis*, this certainly goes against classic Batesian mimicry theory of common model and rare mimic. In another region (Sipu River) that we took *S. euterpe*, it was very local, but again, common at the locality. And as for *S. euterpe*, after having spent hundreds of days in the Guyana lowlands, I am stumped as to what its model may be in this region. Most of the *S. calliope* were females (same for *S. euterpe*?). I imagine their hostplants were common in this '*Stalachtis* spot' and I wonder if they are the same for these two species? On alighting on the underside of leaves, perching at the tip, with their wings spread, a number of the females placed their abdomens straight down, at right angles to their plane. I saw this behavior with *S. phaedusa* females in other parts of the forest here at Iwokrama and at other locales previously. I guess this to be a sexual mechanism?

A single *Splendeuptychia itonis* Hewitson (satyrine) was taken in this forest, the only time I have seen the species in Guyana. Is their hostplant the bambusoid (?) that is so common in the understory here? This bambusoid (?) looks closely related to one common on the slopes and ridges in the Guyana Mountains (usually 500-1,000 m approx.), and where one finds *S. furina* Hewitson and *S. junonia* Butler. A question arises: when the seasonally inundated forest is flooded (as some other tropical rain forests are, e.g. varzea forest along the Amazon), where

are all the eggs, larvae and pupae? These floods can last for months: do all these stages exist only above the flood stage level of the forest?

As if all this interesting butterfly activity was not excitement enough, great bird watching was afforded by certain vantage points along the 'lake'. Here at dawn or in the late afternoon, I reveled in a Neotropical avian spectacle day after day: macaws, numerous amazons, Golden-Winged Parakeets, other parrots, Muscovy Duck, Green and Crested Oropendelas, Pygmy, Ringed and Green-and-Rufous Kingfishers, Yellow-Rumped Caciques, Black-Necked Aracaris, Channel-Billed and Red-Billed Toucans, Swallow-Wings, Sunbitterns, Anhinga, White-Necked Heron, Agami Heron, Band-Rumped Swifts, White-Winged Swallows, Swallow-Tailed Kites, and the large Nacunda (?) Nighthawk, and winging wild over the lake just before dusk on two successive evenings, a solitary, striking Large-Billed Tern.

Back in the forest, at the base of the Turtle Mountain ridge, great activity of a different sort was at play. There, the fallen fruits of a forest tree were attracting a host of butterflies, mostly satyrines. Found here or in the nearby forest were, among others: *Pierella* species, *Chloreuptychia herse* Cramer (or nr. *herse*), *Magneuptychia tricolor* Hewitson, *Magneuptychia batesii* Butler and a half dozen *Taygetis* species: *T. virgilia* Cramer, *T. echo* Cramer, *T. xenana* (?) Butler, *T. penelea* Cramer, *T. celia* Cramer, and one or two species in the *T. valentina* Cramer/*marpessa* Hewitson complex. Joining the satyrines in these wonderful forest floor congregations were the common small brassoline, *Bia actorion* Linnaeus and two morphiine species: a solitary *Morpho achilles* Linnaeus (or *helenor* Cramer) that returned on subsequent days (probably same individual) and a few *Antirrhea philocletes* Linnaeus, including a female. One day I came upon a *Tayra*, a large, partly arboreal neotropical mustelid. I imagine this omnivore was in the area for the fruits also, but as opposed to our forest floor feeding butterflies, it was in the upper forest levels. It stayed at least an hour, mostly going from spot to spot among the branches and peering down at me; a great delight at least for one of us.

From this spot, it was on to the slopes and then to the Turtle Mt. ridge. In the very beautiful hill forest on the slopes, I took a number of riodinids including a male *Euselasia* in the *E. arbas* Stoll complex and a male *Setabis lagus* Cramer. The second time I have seen and captured *S. lagus* males on the Guyana hills, both times they flew within a few feet of the ground and for short duration, subsequently perching on the underside of leaves, wings closed. A most striking butterfly, *S. lagus* males are a rich purplish blue on the upperside, the underside mostly sheeny whitish with the veins outlined in dark brown. Another highlight on the slopes, besides the constant majesty of the forest itself, were a few large, spectacular skippers active in the low understory and on the forest floor near an army ant swarm (two of three captured).

Iwokrama Mts. (27 March - 2 April)

From the Iwokrama Field Station, it was an approximately 30 mile ride for my guide Dexter and me, to our drop off point on the road to Lethem. From there we walked approximately five miles to our camp at the foot of one of the highest ridges in the Iwokrama Mts. (ca. 1,000 m). The trail is fantastic, with great forest diversity along the way. Starting in white sand scrub, the trail proceeds through wallaba forest on white sand before a long stretch of mora forest, palm swamp, and vine forest depending on the local condition. These first few miles are very flat, very slight rises of relief account for small patches of mixed forest. Now in the dry season, the swamps and small creek beds were bone dry. An easy walk now, it would be somewhat of an ordeal in the flooded forest conditions of the rainy season. After approximately 3.5 miles, we reached a gorgeous, large, rocky creek. Here was the first set up camp, but we were to proceed another mile or so up the creek, where we would camp at the base of the trail that goes up the mountain. On the alluvial flats along the creek were many huge, great-buttressed mora trees, and here and there the magnificent, straight boles of a *Cedrela* species (Meliaceae), its reddish-brown bark distinctly fissured into small plates. The further up the creek, the wilder it became, until the hill slopes fell steeply to the creek, we were in 'the gorge'.

Navigating slippery, mossy rocks and boulders in the gorge, scrambling up steep slopes under the weight of a 60 lb. pack, the first 3.5 miles had been a breeze, now I was truly exhausted. I looked with envy at Dexter, who, in Amer-Indian style, was hardly carrying a thing, only his mini-cutlass and a small daypack. It would later be discovered what good fortune for both of us that I was carrying my tent in that 60 lbs. Later that night, there were some heavy rains, and Dexter, who was sleeping out in the open in his hammock, would join me in the tent. Dexter is a great guy and guide, I was fortunate to have him along.

After setting up camp, we explored up the creek a bit, the creek smaller now due to its split not far below our camp. A couple of beautiful medium-sized skippers, *Phanes almoda* (?) Hewitson and *Vettius* (?) species, started off our catch in this wild, primeval place. Back at camp, at dusk, scintillating Crimson Topaz hummingbirds perched and involved themselves in territorial battles. They would be there the six nights I was at this camp. Not to complain, the only thing missing was some sunlight to make their incomparable plumage explode with brilliance.

The next day, Dexter took me up the trail to the top of the Iwokrama Mts. While butterflies were scant, the hill slopes were covered with magnificent forest. Not far above camp were groves of large greenheart, the golden-cream color of their bark extraordinary—especially when wet—and a hallmark of Guyana's northern mixed forests. Somewhat above the greenheart and to the left of

the trail, is a great cylindrical bole of a balata or bulletwood tree, *Manilkara bidentata* (Sapotaceae), its dark, brown bark prominently fissured. Then just up the slopes and to the right, a huge *Cedrela*, its buttress-less, cylindrical, reddish-brown trunk, both in harmony and contrast with its much smaller surrounding neighbors, and carrying its crown above the canopy. Above this giant and right along the trail, was a majestic mora with great spreading crown—obviously it had found some better soil on these lower slopes. I could easily have tarried among these sublime silent sentinels, but the summit ridge and its exploration beckoned. Dexter and I proceeded rapidly up the steep slope, accompanied by numerous slips on my part due to the wet forest floor from the previous night's rain. A pattern was set, one that I could have done without: I slipped and Dexter laughed.

After a couple of hours we gained the ridge, approximately 700 m above our 250 m elevation camp. A couple of hundred feet below the ridge top, the trail skirts a large, rocky outcrop, largely covered with thick vegetation (lots of large sedges and the bambusoid?) and the occasional small tree. This was a good butterfly spot in the morning, especially for satyrines, as the sun's rays illuminated the understory in a number of places. Very common here was a small *Euptychia*, close to *E. picea* Butler and I believe a new or undescribed species. On this high Iwokrama hill, it was found from this spot to the summit ridge, the same high ridge restriction we have seen with the species in the Kanukus and Acarais. On Mt. Ayanganna, it was found at 1,000 m in plateau forest. In the morning, the males perch from one to two meters up in sunny forest openings, often with their wings spread, probably basking.

Also common at this spot, up the summit ridge, and down the slopes, was the gorgeous *Splendeuptychia furina*. This species is an indicator species to the higher hill slope (usually above 500 m) fauna of Guyana's mountains and found on all our mountain explorations except on Mt. Ayanganna. Joining *E. picea* cousin and *S. furina* on this high ridge were the large white *'Euptychia' calpurnia* Felder (= *E. lydia* Cramer), a north S. American endemic, and the lovely blue *Caeruleuptychia coerulea* (?) Butler. *'Euptychia' calpurnia* is not restricted to the mountains in Guyana, but is most common there, and was especially common in the light gaps on this summit ridge of the Iwokrama Mountains. *Caeruleuptychia coerulea*(?) was not uncommon on the summit ridge and just below. We have only found it on the high ridges of the Kanukus, Acarais, and now the Iwokrama Mountains; but here I took our first male, a freshly emerged brilliant, iridescent blue satyrine.

Just after gaining the summit, there was a tree-fall light gap that was a great butterfly spot. Besides the aforementioned and other satyrines, flying about were a variety of nymphalines and charaxines, a number of skippers, *Symmachia probetor* Stoll and *Emesis lucinda* Cramer complex (riodinids), a nice hairstreak and others. The nymphalines and charaxines were whirring around and perching mostly out of reach in the upper forest levels; here on the summit ridge the canopy being only approximately10-15 m. An exception being the small *Adelpha cocala* Cramer—a few were taken here perching lower. This *Adelpha* species has been collected on nearly all the high ridges of Guyana's southern mountains so far explored. The same is true for the beautiful little *S. probetor*, our most common *Symmachia* so far and only taken on the high ridges. I do not believe we have collected any females of this wide ranging (Mexico to Brazil) species. Riodinids were not common in this light gap or anywhere along the summit ridge I explored. At the right time of year, I am certain it would be a different story.

While in this light gap on the high ridge that first day, I spied a strange animal moving through the trees towards the edge of the gap. When it reached the edge, I recognized the strange form of the White-Faced Saki, a monkey I had seen only once before, though it is not uncommon in the Guianan forests. What happened next was utterly amazing. After seeing me, the monkey literally rocketed through the air and down the slope through the trees. Dexter, who was in a light gap just below the summit ridge, was witness to the tail end of the same event. My friend Romeo, with all his bush experience, had told me the White-Faced Saki was by far, Guyana's fastest monkey species. I did not believe him, thinking it could not be faster than the incredibly agile Black Spider Monkey. I now believed. Magnificent hill forest, sublime trees, some great butterflies, a White-Faced Saki, Dexter's company—this second day in the Iwokrama Mountains was not one to forget.

Dexter left on the third day; my next two trips up to the high ridge would be solo. I would now be alone for four days, before another guide would meet me on my way out. I felt very remote, probably the most remote place I have been in the jungle by myself. The Iwokrama field station and a neighboring Indian village were approx. 30 miles away in one direction, and going on the road in the opposite direction towards the north Rupununi savannah, again the nearest Indian village was approximately 30 miles. I could not feel too alone: I was camped along a paradisiacal creek surrounded by a sublime Guianan hill forest with butterfly explorations to be done.

Beyond the sublimity of it all, there was nothing exceptionally noteworthy butterfly-wise, the second and third time up the high ridge. On the ridge top, the fauna was pretty much what I had seen the first day with Dexter. A nice colony of *Artines atizies* (?) Godman & Salvin (hesperids) were active in one large tree fall light gap just below the ridge top. The bejeweled orange apostrophe on the hindwing underside, complete with pattern and hue apart from this exquisite design, makes them one of the most spectacular of the Neotropical small skippers. Flashes of silvery light coming from their adornment can be seen as they whir around the light gaps in the understory.

With a steady purposeful climb to the ridge top and a fairly late departure to maximize time up there, there was not much time left to explore the slopes. Besides the aforementioned euptychiines on the high slopes and a few other satyrines seen, I only saw and caught a few butterflies on the way up or down the slopes. A few tiny *Theope* in the *T. nycteis* group were seen dancing in the understory close to tree trunks on the high slopes. A *Euselasia* female in the *E. arbas* group was taken in the morning and an *Alesa* male was taken while perching on the edge of a light gap in mid-afternoon. A spectacular sight on the slopes was a small flock of very colorful Guianan Toucanets, mostly females, who noisily assembled in the canopy above me as I ascended the hill one morning.

When Dexter left the third day, I walked with him back to the first set up camp where the trail first intersects the rocky creek. After our farewell, I explored this beautiful rocky creek downstream some, and then back to camp, alternating between the trail and sections of the creek. Bright sunny days of the small dry season brought a steady stream of *Aphrissa statira* Cramer and the occasional *Phoebis argante* Fabricius (pierids) coursing along the creek corridor. Tiny, white *Leucidia brephos* Hubner (pierid) were common, rocky creek corridors and their attendant streamside vegetation, being one of their favorite haunts. Hardly a morpho was seen. In season, I would love to see the parade of varied species along the creek in this exceptional arena. This creek corridor and valley looked like *Mesosemia* territory. They were somewhat common in one part of the gorge, and all told, a handful of species were seen (a couple captured) along the entire length of the creek I explored, including *M. philocles*, *M. melaene* and *M. nina*. Amongst the boulders, moss and luxuriant vegetation in one area of the upper gorge, ithomiines of varied species were common, though they were hardly seen elsewhere. Was this local abundance due to hostplant abundance, adult food sources, a combination of the two or some other factor? Ithomiines captured here were *Mechanitis*, *Hypothyris*, *Napeogenes*, two or three clearwing species and the minute *Scada*. I believe this is the only place I have seen or taken *Scada* in Guyana.

After one of my solo sorties up to the high ridge, I returned to the creek corridor the next day for more exploration. I stayed in the gorge this time, many hours being spent at a spectacular natural amphitheater. Here the wide creek bed was separated into two channels by intervening small islands of vegetation. One of these islands, a huge boulder topped with verdure, was a perching spot for at least four species of hairstreaks, among other butterflies. A couple of *Theritas lisus* Stoll males and a few *'Thecla' tarena* Hewitson males were collected here. In mid-afternoon, small colonies of *T. tarena* were active in at least two other spots in the amphitheater. *'Thecla' tarena* is one of the more common Guyana hairstreaks, and its small local colonies are usually found along rocky creeks in the afternoon. Unfortunately, a small hairstreak with a very unique underside pattern eluded capture near one of the islands. I most wanted to catch this species that I had never seen before. Some of the other butterflies active in the area were a *Lemonias* male (riodinid), a *Synargis* female, a number of hesperids, and a few nymphalines including *Marpesia*. I would love to be at this incredibly lovely spot in high butterfly season.

The night before I was to depart, the rain I hoped would not come, came. The gorge, with its many mossy rocks, would be as slippery as when I came in with Dexter. Carrying a backpack, though lighter now, I was not looking forward to this prospect. Heavy rains proceeded into the morning. I feared I would have to break camp and walk out in the rain. Finally, mid-morning, the rain broke. Though I was confident I could follow the small trail all the way out, I was looking forward to meeting the guide who was to accompany me out. Somewhere near the beautiful amphitheater, Bradford and I met, and we had a great day together. Ithomiines abounded at spots in the gorge, many butterflies were seen the entire walk out and Bradford enthusiastically tried to increase our catch. In the mora forest and other swamp forests, small *Calycopis* hairstreaks were very common in light gaps and on the trail. Here in the flat lands, the forest was bone dry. Orographic lifting of the humid air had caused the heavy showers I experienced earlier in the mountains. As for collecting, I paid little heed to the *Calycopis*. Such was not the case when we saw a large riodinid near trail's end. *Setabis epitus* Cramer, when disturbed, will fly strongly for short durations, and then perch approximately two meters up, under leaves, wings closed. The first time I have seen the species, *S. epitus* completed a great trip. But, as Bradford and I tarried in the forest close to the road looking for butterflies, our ride missed us. At dusk, after a few anxious hours, our second ride appeared and a great trip came to a close.

Notes on Previous Expeditions

In **Lepidoptera News** No. 2, June 2001, a cursory report was given for our important, very successful, large-scale Guyana mountain expeditions in 2000: East Kanukus (13 September-8 October) and Acarai Mts. (20 October-18 November). When the material is spread and available at the Smithsonian, hopefully later this year, I will write much more detailed reports. Hopefully, sometime after that, photos of Guyana montane habitats and butterflies, including new species, will come forth in an article.

One note of significance for the Acarai Mt. expedition; it looks fairly certain that a *Lamprospilus* (lycaenid) species taken by Silas, one of our Amer-Indian workers, is new to science. Of the few hairstreak species with hyaline patches, I believe this new species to have the largest and most transparent hyaline patches. I was with Silas when he captured it. The hairstreak was perched at the edge of a light gap in mid-afternoon, at approximately five meters

on a 900 m ridge. Also of note from the Acarais is a small euptychiine that could be a new species. With slightly elongate wings, its underside wing markings seem to relate it to the *Euptychia picea* group. What is most striking is a sex brand (hair pencil?) on the hindwing upperside, mid-costa. If this butterfly does belong to *Euptychia*, I believe this secondary sexual characteristic is unique to it among members of that genus.

While I was at Kaieteur and Iwokrama, my friend and partner from previous expeditions, Romeo Williams, collected a small number of butterfly specimens on a Mt. Roraima (2772 m) ornithology expedition. The limited catch was more than made up for by some outstanding records. Foremost are a fresh male and female *Oxeoschistus* sp., the first pronophiline satyrine from any of our expeditions and probably the first record of this genus in the entire tepui region. Also taken is what appears to be yet another new species in *Euptychia* (?), aa species has reduced ocelli on the hindwing underside. Also of note are a hairstreak and half a dozen specimens of *Antirrhea ulei* Strand, an *Antirrhea* species endemic (so far) to the Guianan and Venezuelan tepuis. These specimens and others will be studied more fully with regard to systematics and biogeography, the knowledge disseminated down the road.

Subsequent expeditions to the Guyana mountains to continue this, so far, very successful work are planned. Any individual or institution that wishes to help fund or participate in an expedition, please contact the author.

Acknowledgements

Funding for the Tropenbos Ecological Reserve and Iwokrama trips was provided by the Smithsonian Biological Diversity of the Guianas Program. Two botanists, Dr. Vickie Funk and Carol Kelloff, have been the impetus for this funding on these and our previous expeditions. Thanks to my partners Romeo Williams and University of Guyana student Keith David for another great effort while at the Tropenbos Reserve. Roderick Zagt, Tropenbos Programme Team Leader, and his friendly staff greatly facilitated our stay there. The same is true of the Iworkrama staff, their help and cordiality was greatly appreciated. Foremost, my two guides, Dexter and Bradford were great companions. Dr. Jason Hall and Dr. Bob Robbins (National Museum of Natural History, Smithsonian Institution), with their wealth of knowledge, helped with some identifications and some discussion of the riodinids and hairstreaks respectively, and also at the Smithsonian NMNH, Dr. Patricia Gentili-Poole took the digital photos of the specimens included in this article with Dr. Don Harvey setting up the computer for this work. Much thanks to my good friend, Barbara Derrenbacher for typing this report. For great helpers and companions, sublime butterflies and Neotropical rain forests, the incomparable Kaieteur, for all things Great, physical and metaphysical, I thank the Ultimate Source, our Omniscient, Omnipresent and Omnipotent Creator. I Thank You for Your Great Glory!

Ballot Notice:

R. W. Hodges Proposed for Honarary Life Membership

Ernest Williams, Secretary

We want to alert the membership that the Society's annual ballot, being mailed in November, will include a vote to award honorary life membership to Ronald W. Hodges. Ron is well-known to most of you. He was with the Systematic Entomology Laboratory of U.S.D.A. from 1962-1997, has published many articles on moths, served as the President of the Society (1975-76), received the Karl Jordan medal (1997), and continues as Editor-in-Chief of the ambitious MONA series (*The Moths of America North of Mexico*). The Constitution allows the Society to elect several individuals as honorary life members, and we currently have eight; they are listed inside the front cover of each issue of the Journal.

Announcement...

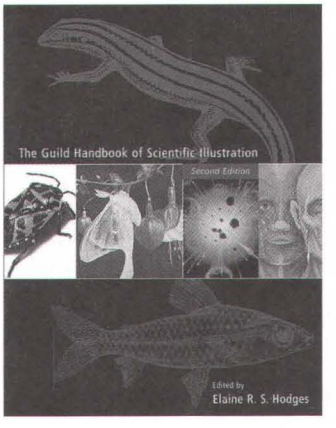
New Book on Scientific Illustration

The Guild Handbook of Scientific Illustration, Second Edition, Elaine R.S. Hodges, Editor, 2003. N.Y.: John Wiley & Sons, Inc. 624 pp, 621 b/w and 44 color illustrations. $150.00

The second edition of this landmark book has 35 chapters, including two digital ones: "Introduction to Computer Graphics" and "2D to 3D." Other new chapters cover murals; model building; the illustration of molecules, earth sciences, and astronomy. Many chapters have been extensively rewritten and revised and updated to include digital information as well as other new aspects of their subject matter.

Contributing to this book were 55 authors and three editors on the Board of Editors, 212 artists who provided 621 illustrations, and well over 150 peer reviewers. The sixteen color plates (with 44 illustrations) represent an increase of four color plates over the First Edition. To reduce the size of the book, the Appendix and "Recommended Reading" will be on the GNSI (Guild of Natural Science Illustrators) web page at ***www.gnsi.org***, where they can be regularly updated.

The cover is pre-printed but with a book jacket slightly larger than 8½ × 11 inches (22 x 28 cm). This Second Edition is priced the same as the First Edition, which went through at least eight printings. More information can be found at ***www.gnsi.org***.



Notice:

Oregon State Arthropod Collection Receives Shepard Collection

Despite the closure of Oregon State Universty's Entomology Department, the Oregon State Arthropod Collection is still going strong. The collection is directed by Prof. Darlene Judd, who along with Prof. Andy Brower (curator of Lepidoptera) recently transferred to OSU's Department of Zoology.

We are pleased to announce that Dr. Jon and Sigrid Shepard donated their large and scientifically valuable collection of butterflies to OSAC in 2002. The first part of the collection was received in 2002 and consists of some 32,000 specimens of butterflies [including 102 paratypes], except a retained synoptic collection and certain research interest groups. The moths and remaining butterflies will be donated at a later time.

The collection began in 1955 when Jon Shepard began collecting in the Tri-Cities area of Washington. In 1960 Sigrid began collecting when they met at Columbia Basin College, Pasco, Washington. The Shepard's have collected extensively in western North America, from central Colorado and northern Baja California north to Purdoe Bay, Alaska and north, central Yukon. The collection is strongest in material from British Columbia, western Alberta, Yukon, and Washington and the genera *Boloria*, *Clossiana*, *Oeneis*, *Erebia*, *Colias* and the family Lycaenidae are especially well represented. This reflects the Shepard's research interests centered around arctic/alpine and boreal species and lycaenids.

The Shepard's have, since the beginning, been concerned with the conservation of Lepidoptera. They inventoried several areas along the Columbia River in both Washington and British Columbia immediately before those areas were flooded by dams.

In addition to material collected by the Shepard's, several collectors have donated all or a significant portion of their collections to the Shepard's with the understanding that the whole collection would eventually be donated to a museum in the Pacific Northwest.

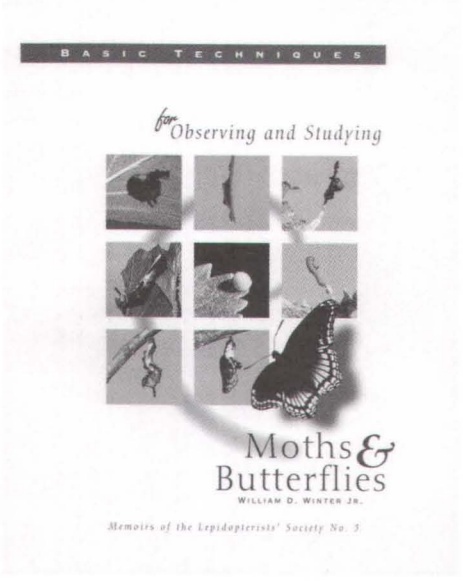
These collections include: the duplicate material of R. E. Miller [Dayton, Washington] who collected all Macrolepidoptera groups except Geometridae [3000 specimens]; the butterfly collection of Thomas Rogers of Spokane Co., Washington [1000 specimens]; the Douglas Knight collection of Lepidoptera from the Creston, BC area [5,000 specimens]; the A. C. Jenkins collection of butterflies from Trail and North Vancouver, BC [1000 specimens]; the Peter Hughan collection of Macrolepidoptera from the north coast region of BC [500 specimens]; duplicate voucher material from David Threatful of Vernon and Revelstoke, BC [1000 specimens]; and the collections of Gerald Shepard and Don Rolfs [pre 1990's]who collected with Jon Shepard in high school. In addition Jon Shepard knew J. C. Hopfinger and purchased much early California material. A large number of Palearctic Lycaenidae were obtained from Curt Eisner.

The following persons have used material in the Shepard collection for either their thesis research or other publications: F. S. Chew [*Pieris occidentalis/protodice*], T. W. Davies [*Polygonia*], Curt Eisner [*Parnassius*], T. C. Emmel [*Cercyonis*], Carl Goodpasture [*Icaricia acmon* complex], G. A. Gorelick [*Callophyrs*], Paul Grey [*Speyeria*], G. J. Hilchie [*Erebia magdalena*], N. G. Kondla [*Speyeria atlantis* complex], C. D. McNeil [*Hesperia* & *Polites*], P. A. Opler [*Euchloe*], J. P. Pelham [*Euphydryas*], J.A. Scott [*Speyeria atlantis* complex], Oakley Shields [Lycaenidae], F.A.H. Sperling [*Papilio machaon* complex], W.F. Wehling [*Papilio zelicaon* complex].

The Oregon State Arthropod Collection is the largest collection in the region with significant holdings of all orders from around the world. We are interested in receiving donations of significant collections of Lepidoptera and other orders from the Pacific northwest and elsewhere. Potential donors should consult the OSAC web pages at ***www.science.oregonstate.edu/systematics/osac/guidelin.htm***.

Announcement...

Basic Techniques for Observing and Studying Moths & Butterflies



by William D. Winter.

Lep. Soc. Memoir #5 is a 350-page book (with 82 pages of Appendices) packed with information for study of Lepidoptera. Both beginners and experienced students of Lepidoptera will find this book to be a valuable reference.

To get your copy, send check or Money Order for $29.00 (Members), $44.00 (Non-members), postpaid (Canada add $6.00; other countries add $10.00), made payable to "The Lepidopterists' Society," to:

Ken Bliss, Publications Mgr.
28 DuPont Ave. Piscataway, NJ 08854

The Marketplace

***IMPORTANT NOTICE TO ADVERTISERS:* If the number following your advertisement is "452" then *you must renew your advertisement* before the next issue! Remember that all revisions are required in writing.**

Books/Videos

MINT 95%—1st edition of D'Abrera **Butterflies of the Afrotropical Region**. All in one book and quite rare in pristine condition (never used). I have most of the other ones also. Make me an offer. Contact John G Filiatrault, 13225 101st Street lot 140, Largo, Fl 33773, 727-585-2143, ***beaufil37@aol.com*** 454

For Sale: Contributions of the C.P. Gillette Museum of Arthropod Diversity. Most recent numbers are **Butterflies of Kern and Tulare Counties, California** by Ken Davenport ($14) and **Scientific Names of North American Butterfly Species** by P. Opler & A. Warren ($18). Write for price list or send remittance made to Gillette Publications to Dr. Paul Opler, Department of Bioagricultural Sciences, Colorado State University, Ft. Collins, CO 80523 454

For Sale: **Insects of the World, Vol. 4**: North, South & Central America II, in slip cover, 1983, K. Sakagnti. **Insects of the World, Vol. 6**: Africa, in slip cover, 1982, K. Sakagnti. **Swallowtail Butterflies of the Americas** by Tyler, Brown & Wilson, brand new, signed by authors. All in perfect condition. Best offer plus shipping. Other titles available. Contact Rick Rozycki, 5830 S. McVicker Ave, Chicago, IL 60638. 454

Livestock

For Sale (US only): cocoons/ova of *Hyalophora cecropia*. Contact: Alan M. Vosefski, 3320 Kirkwood, Dr., Virginia Beach, VA 23452, 757-498-3168, ***alanv@peoplepc.com*** 454

Eggs of various *Catocala* species from Prince Edward Island, Canada, available fall and winter of 2003. Visit ***www.silkmoths.bizland.com/catPEI.htm*** to see what may be available. Contact Bill Oehlke, Box 476, 155 Peardon Road, Montague, Prince Edward Island, Canada C0A 1R0, 902-439-2462, ***oehlkew@islandtelecom.com***. 453

Overwintering cocoons of many Saturniidae species from Northeastern North America available fall and winter: *Actias luna*, *Antheraea polyphmeus*, *Automeris io*, *Callosamia promethea*, *Hyalophora cecropia*, *Hyalophora columbia*, *Samia cynthia*. Price list at ***www3.islandtelecom.com/~oehlkew/supplies.htm*** or contact Bill Oehlke, Box 476, 155 Peardon Road, Montague, Prince Edward Island, Canada C0A 1R0, 902-439-2462, ***oehlkew@islandtelecom.com***. Foodplants, rearing instructions, overwintering instructions, online help available at ***www3.islandtelecom.com/~oehlkew*** 453

For Sale (USA only): cocoons of *Antheraea polyphmeus*, *Callosamia promethea* and *Hyalophora cecropia*. Ova available in spring. SASE to Karl Ploran, 110

The aim of the Marketplace in the **News of the Lepidopterists' Society** is to be consistent with the goals of the Society: "to promote the science of lepidopterology...to facilitate the exchange of specimens and ideas by both the professional worker and the amateur in the field,..." Therefore, the Editor will print notices which are deemed to meet the above criteria, *without quoting prices*, except for those of publications or lists.

No mention may be made in any advertisement in the **News** of any species on any federal threatened or endangered species list. For species listed under CITES, advertisers must provide a copy of the export permit from the country of origin to buyers. **Buyers must beware and be aware.** Advertisements for credit, debit, charge cards or similar financial instruments or accounts, insurance policies and those for travel or travel arrangements cannot be accepted because they jeopardize our nonprofit status.

Only members in good standing may place ads. All advertisements are accepted, in writing, for two (2) issues unless a single issue is specifically requested and must be renewed before the deadline of the following issue to remain in place. All ads contain a code in the lower right corner (eg. 386, 391) which denote the volume and number of the **News** in which the ad. first appeared.

Advertisements must be under 100 words in length, or **they will be returned for editing**. Ads for Lepidoptera or plants must include full latin binomials for all taxa listed in your advertisement.

Send all advertisements to the Editor of the News.

The Lepidopterists' Society and the Editor take no responsibility whatsoever for the integrity and legality of any advertiser or advertisement. Disputes arising from such notices must be resolved by the parties involved, outside of the structure of The Lepidopterists' Society. Aggrieved members may request information from the Secretary regarding steps which they may take in the event of alleged unsatisfactory business transactions. A member may be expelled from The Lepidopterists' Society, given adequate indication of dishonest activity.

Buyers, sellers, and traders are advised to contact your state department of agriculture and/or PPQAPHIS, Hyattsville, Maryland, regarding US Department of Agriculture or other permits required for transport of live insects or plants. Buyers are responsible for being aware that many countries have laws restricting the possession, collection, import, and export of some insect and plant species. Plant Traders: Check with USDA and local agencies for permits to transport plants. Shipping of agricultural weeds across borders is often restricted.

Route 20, Chester, MA 01011-9642, 413-354-7852 (6-9 pm, eastern time). 453

For Sale: pupae of *Eacles imperialis* or will trade for *Hyalophora gloveri* pupae. Leroy Simon, 5975 SE 122 Pl., Belleview, FL 34420, 352-245-8351. 453

For Sale: captive-bred Philippine butterfly pupae, year round. Imogene L. Rillo, P.O. Box 2226, Manilla 1099, Philippines, (fax) 632-824-0222, ***clasinse@mindgate.net*** 453

Specimens

Collection Available. One of the best private collections of North American butterflies, including 145,269 adults (37,164 mounted, 108,105 papered, including 1000+ paratypes), most from North America but some from Colombia, Africa, Europe, plus 2862 vials of pickled eggs, larvae, & pupae, 8938 slides of eggs, larvae, pupae, & adults, 2000 pressed plants, 414 Cal. Academy drawers, 77 cabinets, 96 envelope boxes, 123 Schmitt boxes. Proposals wanted. Foreigners welcome. James A. Scott, 60 Estes St., Lakewood, Colorado 80226-1254 454

Wanted: The less common species, subspecies and forms of *Heliconius* and *Eueides*. Willing to trade or purchase. Contact me for list of the forms I need. Ronald Flaspohler, 504 Glendale, Parchment, MI. 49004, (269) 345-4653, ***flaspohler@wmich.edu*** 452

Butterflies from the Neotropics and Holarctic, later from Africa and Asia. Very large selection of hard to obtain butterflies. Please visit ***www.theinsectcollector.com*** or ***www.insectcollector.com***. Want to trade all American *Papilio*, mainly ssp's of *P. indra*. Robert Westphal, Calle Llimoner 6, E-43892 Miami Playa (Tarragona) Spain, Tel/Fax: ++34-977-810787 452

Miscellaneous

Experienced Curatorial Assistant available for hire. Worked in a major museum for over 18 years but due to budget problems a number of layoffs occurred in June. My skills include sorting, identifying, labeling, preparation, loans and tours. My personal interests are worldwide butterflies, esp. neotropical, and beetles. I also do specimen preparation for private collectors for a reasonable fee. Brian Harris, 901 North Alfred St, Apt. B, Los Angeles, CA 90069, ***bharris@nhm.org***. Please contact me for more information. 454

Help Wanted

I am conducting a survey of past and present members of the Society. A 2-page *Lepidopterists' Opinion Survey* will be sent to any member willing to participate. It is easily completed and will provide every member an opportunity to express their opinions and views on a variety of topics regarding the Society. Hopefully, this information will be used for the benefit of the general membership of the society. Note that the Society has neither authorized or sanctioned my survey. John H. Masters, 26503 Hillsfall Court, Newhall, CA 91321, ***John@ButterflyTrips.com*** 454

Membership Update...

Julian Donahue

This update includes all changes received by 7 Nov. 2003.

"Lost" Members

(publications returned: "temporarily away," "moved," "left no address," or "addressee unknown"):

Bernhardt, Roger K. (Sebastopol, California)
Gallusser, Stephanie (Tarapoto, **Peru**)
Kramp, Joshua L. (Marion, Ohio)

New and Reinstated Members:

members who have joined/renewed/ been found/or rescinded their request to be omitted since publication of the 2002 Membership Directory (not included in the 2000 Membership Directory; all in U.S.A. unless noted otherwise)

Angel, Leslie M.: 4511 Huckleberry Court, Hilliard, OH 43026-9155.
Glaeske, Naomi: Box 63, St. Victor, Saskatchewan S0H 3T0, **Canada.**
Goldstein, Paul Z. (Ph.D.): Division of Insects, Field Museum of Natural History, 1400 South Lake Shore Drive, Chicago, IL 60605-2496.
Hanson, David J.: [address omitted by request]
Laino, Mark: 156 East Ridge Road, Warwick, NY 10990-3039.
Mery, Benoit: 3 Cours Albert Manuel, F-14600 Honfleur, **France.**
Oboyski, Peter: 201 Wellman Hall, MC3112, University of California, Berkeley, CA 94708-3112.
Taylor-Laino, Barbara: 156 East Ridge Road, Warwick, NY 10990-3039.
Thunelius, Bob: [address omitted by request]
Yanisko, Sandi (Ms.): 137 Robin Drive, Barto, PA 19504-9371.

Address Changes

(all U.S.A. unless noted otherwise)

Cannon, Marvin S. (Dr.): 5007 Fairfield Court, Bryan, TX 77802-5864.
Heffernan, Emily: 307 NW 14th Street, Gainesville, FL 32603-1919.
Lutman, Richard: 42 Old Forge Road, East Greenwich, RI 02818-4603.
Manton, Paul: 283 Plainview Road, Hicksville, NY 11801-4341.
McNamara, Joyce C. (Mrs.): 2003 81st Street NW, Bradenton, FL 34209-9565.
Moore, Tony: 379 Lake Innes Drive, Wauchope, New South Wales 2446, **Australia.**
Murray, Debra: Department of Entomology, S-227 Agric. Sci. N, University of Kentucky, Lexington, KY 40546-0091.
Osborne, Ken H.: 6675 Avenue Juan Diaz, Riverside, CA 92509-6242.
O'Brien, Liam E.: 786 9th Avenue, #14, San Francisco, CA 94118-3708.
Reilly, James R.: 48 Main Street, Freeville, NY 13068-9764.
Sosa, Francisco: Complejo Urbanistico Almariera, Quintas el Trigal, Apdo. Postal 400, Manzana 4A, Casa N 4A-18, Los Rastrojos-Cabudare, Est. Lara, Z.P. 3023, **Venezuela.**

I am developing an historical checklist of moth species observed and/or collected in South Carolina. If you have specific and detailed information on specimens, especially those neither reported to the Season Summary or deposited in museum collections, please contact me. If your specimens are in a museum collection, knowing about them is also valuable to me. Contact Dr. John Snyder, Dept. of Biology, Furman University, Greenville, SC 29613, ***john.snyder@furman.edu*** 454

Wanted: Donation of papered Ithomiinae, particularly South American sp., singles or series welcome, undetermined or not but with full data please. I am building a major reference collection as part of my research work. I may be able to help with postage but due to limited funds donations of postage would also be appreciated. I am also interested in bibliographic citations on determination of Ithomiinae. Please contact Jorge R. Montero-Moreno, P.O. Box 1913-1000, San José, Costa Rica. 454

Errata...

A few embarassing errors crept into Gary Noel Ross's *What's for Dinner?* article from the Fall issue (vol. 45, no. 3). Corrections are as follows:

The table on pp. 85 was actually from J. B. Harborne (1988), Introduction to Ecological Biochemistry, 3rd Ed., Academic Press, London, U.K., *not* Nahrstedt, 1994 as shown. This citation was also missing from the Selected References on pp. 89.

The photo numbers for the color plate on pp. 100 were also incorrect. The two photos at the top of the right hand column should have been numbers 2 and 3, not 1 and 2 as shown.

Finally, the caption for the back outside cover shot should have included the Silver-spotted Skippers.

Mea culpa. My apologies to Dr. Ross.

Pterourous appalachiensis in Old Lepidoptera Books

George O. Krizek

2111 Bancroft Place,N.W., Washington,D.C. 20008

Those interested to see old black & white photos of *Pterourus appalachiensis* Pavulaan & Write, should open "The Butterflies of the District of Columbia and Vicinity" by Austin H. Clark, curator of echinoderms, United States National Museum (Smithsonian Institution, United States National Museum, Bulletin 157, United States Government Printing Office, Washington, 1932).

In this 256 page book with 64 black and white photographic plates, we see a typical *P. appalachiensis* male, both dorsal and ventral pictures, on plate 34 (see photo). The caption says: *Papilio glaucus*, male, upper (1) and under (2) sides, Essex, Mass., July 13, 1925. On plate 33 is a typical male of *P. glaucus*, taken at Cabin John, Montgomery Co., Maryland, August 22, 1926. The author comments in the text that the size of the butterflies on plate 34 is the same as on plate 33. On pages 184-190, he further discusses his opinion regarding the different coloration seen on *P. glaucus* from Washington, D.C. area and those from Boston, Mass, vicinity. Here are some of his observations:

"Spring forms (*i.e. P. glaucus* from the Washington,D.C. area): The earliest (early April) spring males are very small with the fore wings from 42 mm to 45 mm in length. The hair on the thorax and abdomen is very long, and there is a conspicuous tuft of long hair on the frons...On the lower surface the dark margin is markedly narrower than it is in the summer form, and its inner border is a straight instead of a scalloped line; it is much more heavily suffused with light scales than it is in the summer form, and the submarginal crescentic spots are very much larger. On the underside of the fore wings the submarginal yellow spots in the black border are larger than in the summer form and are usually confluent, forming a rather broad yellow band with a gently scalloped inner border, though they may be separated at the veins...Most of the early-spring males resemble very closely in color males taken in summer in the vicinity of Boston, but many show an even closer approach to the northern *P. g. canadensis*...

Systematic status of the spring form: If their origin were unknown, many of the small very early spring males of local *Papilio glaucus* would unhesitatingly be referred to *Papilio glaucus canadensis*, from which there is no way of distinguishing them. If we are to follow the facts as they are brought out by the actual specimens, the range and status of the form known as *Papilo glaucus canadensis* would be as follows: Alaska and Northern British Columbia to Anticosti, New-

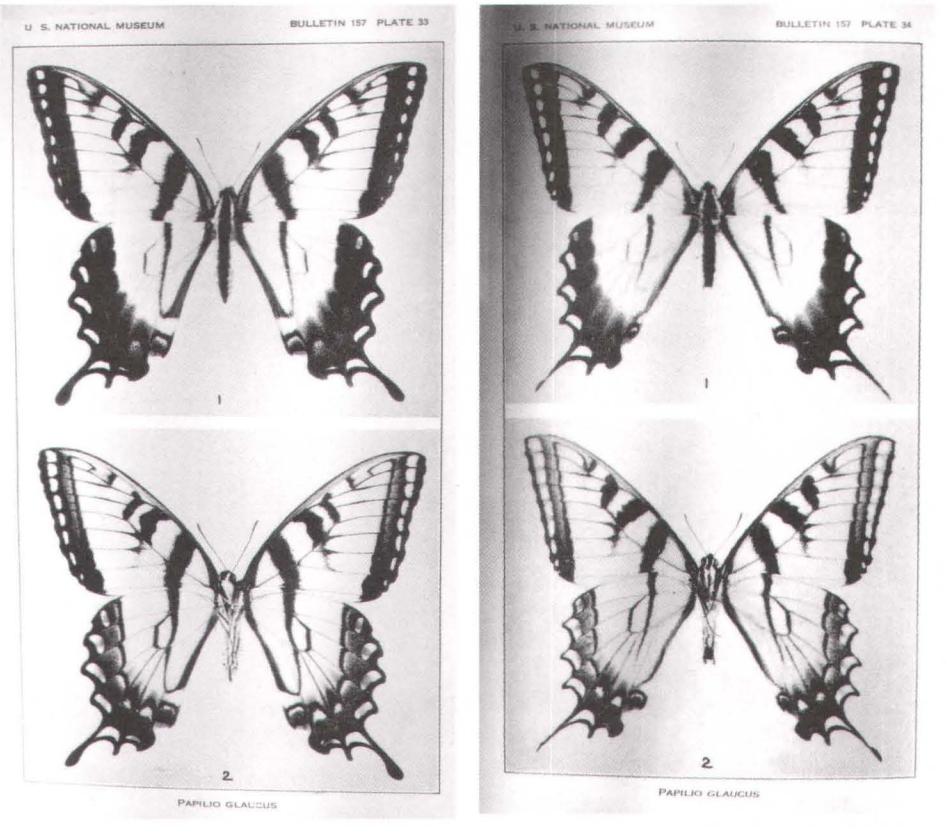


Plate 33 (left) and Plate 34 (right) from A. H. Clark's **Butterflies of the District of Columbia and Vicinity**. Plate 33 shows a typical male of *P. glaucus* from Maryland while Plate 34 shows another "*P. glaucus*" (i.e. *P. appalachiensis*) from Massachusetts. See text for further explanation. Photos by George Krizek.

foundland, and New Brunswick, and as a progressively earlier spring form (followed later in spring by intermediates and by *P. g. glaucus* (at length consisting of males only), southward to the mountains of North Carolina. According to this interpretation *P. g. canadensis* represents the species exclusively in Canada, but south of Canada occurs only as a spring form.

Comparisons: In eastern Massachusetts in the vicinity of Boston the local summer form of the yellow swallowtail is intermediate between the southern (*glaucus*) and the northern (*canadensis*) type. The males(p1.34,figs 1,2) are light, clear yellow, and are of the same size as the great majority of the males from the vicinity of Washington (pl. 33, figs. 1,2) being therefore larger than the males of typical *canadensis*...On the underside of the fore wings the males from Boston (pl. 34, fig. 2) frequently have the submargimal yellow spots united in a continuous band with straight edges, which is as wide as the black-margined olive-gray band. just within it...Summing up the characters of the males from Boston and from Washington, there is an appreciable average difference in color, with however, broad overlapping. The ochreous females from Boston are usually considerably larger than the males and the light-yellow females. The black markings are very heavy. The submarginal band on the undersurface of the fore wings is usually of the canadensis type, and they usually agree with *canadensis* rather than with *glaucus* in the characters of the limbal area on the undersurface of the hind wings."

Notice:

Caterpillars Too!

Caterpillars Too! is a new Butterfly membership website emphasizing the depiction, ranges and foodplants of Canadian and United States butterfly **caterpillars**. Adults are also depicted; rearing instructions and online help are available. Visit ***www.silkmoths.bizland.com/ButterflyIntro.htm***

A Special Thank You for a...

A Stunningly Successful Fund Drive!

The Lepidopterists' Society gratefully acknowledges all of the donations we have received over the last six months. We have raised more than $10,000 to date, and given the number of responses that arrived in the month of September, Kelly Richers expects that more contributions will come in before year's end. The membership's unexpectedly generous response will provide an important and timely boost to the Society. It is our hope that the Executive Council will choose to divide the money between the Society's endowment and general fund.

This was a stunning successfully fund drive. Please keep the Lepidopterists' Society in your long term plans. Here is the list of Donors as of November 17, 2003:

Donald Adams, Valeriu Albu, Richard Arnold, Sonia Altizer, Norris Bloomfield, M. Deane Bowers, Lincoln Brower, Richard L. Brown, Robert Brown, Robert Butler, Ring Carde, Nicholas Carter, Steven Cary, William Cassel, Richard Cech, Frances Chew, Ralph Clark, William Conner, Charlie Covell, Robert Dana, David Davidson, Christopher Davis, Ken Deaver, Victor Demasi, Robert Dewitt, Matthew Douglas, L.F. Boker Doyle, Jerome C. Draper, Jr., Paul Ehrlich, Robert Eisele, John Emmel, Louise Fall, David Faulkner, Joseph Floyd, Joseph Gall, Larry Gall, Daniel Glaeske, John Glaser, Stephan Goldstein, Richard Gunning, Tor Han-sen, William Hark, Ronald and Elaine Hodges, John Hyatt, Daniel Janzen, Michelle Johnson, M. Virginia John-son, Peter Jump, Joann Karges, Ed Knudson, William Leach, C. Don Mac-Neill, J. Steve McElfresh, Eric H. Metzler, William Miller, Paul Milner, John Morris, Steve Mueller, Ray Nagle, Thomas Neal, David Newcomer, S.S. Nicolay, Mogens C. Nielsen, Dave Norris, James Parkinson, Stephen Parshall, Ricky Patterson, John Pea-cock, Floyd and June Preston, Michael Quinn, Duncan Robertson, Frederick Rindge, Michael Roberts, Ronald Roscioli, Jane Ruffin, Frederick Ruggles, Ronald Rutkowski, Paul Schaefer, Brian Scholtens, J. Mark Scriber, William Shibe, Mack Shotts, Michael Singer, Suzette Slocomb, Jeffrey Slotten, Michael J. Smith, Richard Soboyna, M. Alma Solis, Frederick Stehr, Robert Stevens, J. Bolling Sullivan, Theodore Taft, Orley Taylor, Jr., Paul Teti, Michael Tramp, Edward Voss, Dave Wagner, J. Bruce Walsh, Reed Watkins, Frances Weldon, Raymond White, Benjamin D. Williams III, David Wright, Michael Young, Harry Zirlin, Butterfly World, Ecolsciences, Butterfly Place.

Thank you all.

Dave Wagner, Larry Gall, Kelly Richers and Charles Remington

Snouts...*continued from pp. 107*

Neck, R. W. 1983. Causal analysis of a migration of the snout butterfly, *Libytheana bachmanii larvata* (Strecker) (Libytheidae). J. Lepid. Soc. 37: 121-128.

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Notice:

Saturniidae Club

The World's Largest Saturniidae Site Membership Club continues to grow. State and County checklists; Country checklists; beautiful images of worldwide Saturniidae species (some not even depicted in books yet); foodplant lists; rearing articles by various authors, etc. Details and sample files at ***www.silkmoths.bizland.com/indexos.htm***

Achlyodes pallida (Hesperiidae): A New Record for the United States

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Achlyodes pallida (R. Felder, 1869), a large Neotropical skipper, was observed in the lower Rio Grande Valley of Texas in late October and mid November, 2003. The encounters reported herein, in Hidalgo and Starr Counties, document the occurrence of this species in the United States for the first time.

The first confirmed encounter with *A. pallida* was made by David Hanson, on October 23, 2003, in a stand of *Eupatorium odoratum* L. along highway FM 1015, just north of "12 mile line" (Rd. 12N), which is officially Route #1, Mercedes, Texas (but is closer to Weslaco).

The location was first spotted and visited by Charlie Sassine. Sassine posted about the site to the TX-Butterfly listserv on October 22nd, from which he reported both Ruddy [*Marpesia petreus* (Cr.)] and Many-banded [*M. chiron* (Fab.)] Daggerwings. It was those species that Hanson hoped to see and photograph when he arrived the afternoon of the following day. Fate had something else in mind.

While looking for and failing to find the Daggerwings, 40 butterfly species were recorded at the site, which from any angle would have made this site a winner. Most abundant were the Cloudless Sulphur [*Phoebis sennae* (L.)], Queen [*Danaus gilippus* (Cr.)], Sickle-winged Skipper [*Eantis tamenund* (W. H. Edw.)], Pixie (*Melanis pixe* (Boisduval)], Tailed Orange [*Pyrisitia proteripa* (Fab.)], Painted Lady [*Vanessa cardui* (L.)], Clouded Skipper [*Lerema accius* (J. E. Smith)], Ocola Skipper [*Panoquina ocola* (W. H. Edwards)], Brown Longtail [*Urbanus procne* (Plötz)], Bordered Patch [*Chlosyne lacinia* (Geyer)] and Large Orange Sulphur [*Phoebis agarithe* (Boisduval)]. A single Brown-banded Skipper [*Timochares ruptifasciata* (Plötz)] was also seen. Turning back for one more look before crossing the road to leave, at about 13:45 hrs., Hanson spotted what at first seemed to be an *Eantis tamenund* that just didn't look right, feeding under cover of the outer *E. odoratum* flowers, about 5 feet above the ground. It was about 20% larger than the other *E. tamenund* in the area, and had a pale olive ground color with darker olive markings. Hanson proceeded to take photos, taking care to get clear dorsal and ventral shots (see photos opposite).

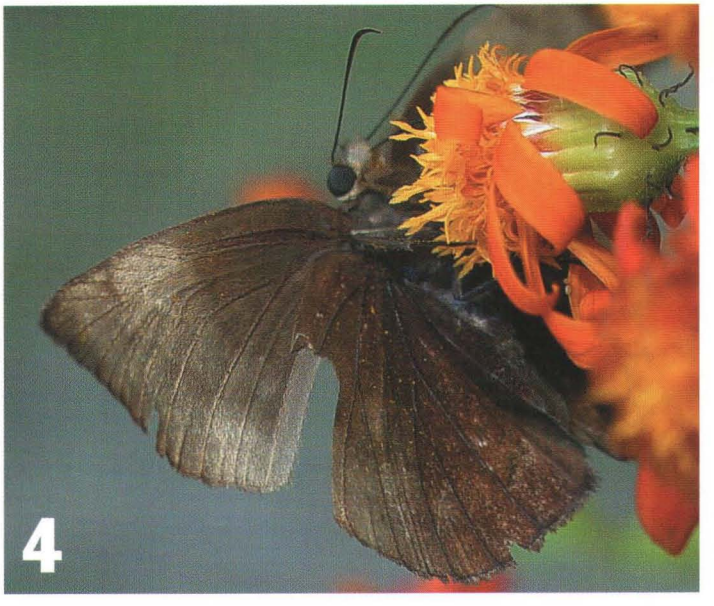
After verifying the digital photos on the LCD screen, Hanson called his friend Lizee Cavazos, who lived nearby. Unable to get away at the moment, Lizee asked her butterfly/birding partner Andrea Villareal to join Hanson in the field. When Andrea arrived at the site, she verified the sighting and set about taking quite a few digital photos of the skipper. After about a half-hour of picture taking and "woo-hoo'ing," Hanson and Villareal left the site, at 14:50 hrs., with the skipper still feeding.

Upon returning home on the 23rd, Hanson called and e-mailed several people, including the senior author, who was able to identify the photo with certainty, as a female *A. pallida*. Warren subsequently posted a notice to TX-Butterfly with information about the determination, along with some biological notes on the species. In the following days, several people, including Hanson, went back to the site, but *A. pallida* was not seen there again. Bordelon and Knudson observed what may have been this species, at Bentsen State Park during the same time period, but were unable to prove its occurrence for lack of a photo or voucher.

The second confirmed encounter of *A. pallida* was by Dale Clark, of Dallas, who collected a specimen in Fronton, Starr Co., on November 12th. He collected one somewhat damaged female specimen, and sent photos of it to Bordelon. The third confirmed encounter of *A. pallida* occurred just as this note went to press, and was by Jan Dauphin in Mission, Hidalgo Co., in her yard on November 14th. She photographed a somewhat damaged individual (see photos opposite); due to the angles of the photos, the skipper could not be determined to sex.

Taxonomy and Systematics of *A. pallida*

The taxonomic status of *A. pallida* (Type Locality of "Mexico") has been in a state of confusion since Evans (1953) described *Achlyodes selva* (Type Locality of Jalapa, [Veracruz] Mexico) as a new species. Supposed differences between the largely sympatric *pallida* and *selva* were to include details in the alignment of macules on the forewing, and details of the male valvae. Austin et al. (1998) suggested that *A. selva* might be synonymous with *A. pallida*, being the first to challenge the status of *A. selva*. Austin & Warren (2002) elaborated on this, and formally synonymized *A. selva* under *A. pallida*, based on considerable variation in the alignment of forewing macules and in the details of the male valvae, among material examined. Currently, there are two species in the genus *Achlyodes*, *A.*



Achlyodes pallida (Hesperiidae), New to Texas and the US

1: *Achlyodes pallida*, Texas, Hidalgo Co., Mercedes, 23 Oct. 2003, D. Hanson. **2:** *A. pallida*, same as 1, same specimen, underside . **3:** *Achlyodes pallida*, Texas, Hidalgo Co., Mission, 14 Nov. 2003, J. Dauphin. **4:** *A. pallida*, same as 3, same specimen, underside. **5:** *A. pallida*, female, dorsal, Mexico, Oax., Candelaria Loxicha, 3-IX-84. **6:** *A. pallida*, same specimen, ventral. **7:** *A. busirus*, male, dorsal, Mexico, Ver., Dos Amates, 2-IX-75. **8:** *A. busirus*, same specimen, ventral. **9:** *Eantis tamenund*, female, dorsal, Texas, Starr Co., Rio Grande City, 11-XI-02. **10:** *E. tamenund*, same specimen, ventral. All specimen photos by Ed. Knudson.

pallida and *A. busirus* (Cr.) (see Evans 1953, Warren 1996, Austin & Warren 2002).

Distribution and Biology of *A. pallida*

Achlyodes pallida is widely distributed, from extreme south Texas (perhaps only as a rare stray), south through montane Mexico, Guatemala, Honduras, Nicaragua, El Salvador, Costa Rica, Panama, Colombia, Venezuela, Ecuador, Peru, Bolivia and apparently into Brazil (Evans 1953). Within Mexico, the senior author has recorded *A. pallida*, either directly or through literature reports, from 20 states, including Aguascalientes, Chiapas, Colima, Distrito Federal, Guanajuato, Guerrero, Hidalgo, Jalisco, México, Michoacán, Morelos, Nayarit, Nuevo Leon, Oaxaca, Puebla, San Luis Potosí, Sinaloa, Tabasco, Tamaulipas and Veracruz.

All reported foodplants for *A. pallida* are in the Rutaceae. Beutelspacher (1975) reported "limón y naranjo," or lime and orange trees, *Citrus* L. spp., as foodplants around Las Minas, Veracruz, Mexico. Kendall & McGuire (1975) reported *A. pallida* (as *A. selva*) from Nuevo Leon, Mexico, feeding on *Sargentia greggii* S. Wats. Larvae found feeding on *S. greggii* completed development in Kendall's lab on *Ptelea trifoliata* L. Kendall and McGuire also reported finding larvae near Ciudad Mante, Tamaulipas, Mexico, on *Citrus aurantifolia* (Christm.) Swingle. De la Maza (1976) reported *A. pallida* from "naranjo (*Citrus*)" at Tepoztlán, Morelos, Mexico. Young (1994) provided very detailed notes on the life history of *A. pallida* (as *A. selva*) from immatures found on a *Citrus* bush on the campus of the University of Costa Rica, in San Jose, Costa Rica, complete with photos of the larvae, a larval shelter, a pupal shell, and reared adults. As noted by Young, native foodplants of *A. pallida* are likely to include *Zanthoxylum* in addition to *Sargentia* and *Ptelea*; related species of *Eantis* skippers are known to utilize several genera of Rutaceae including *Zanthoxylum* (Moss 1949, Kendall 1965, Warren 1996, Greeney & Warren 2003).

Throughout its distribution, *A. pallida* is usually found in mid- to high-elevation habitats. In western San Luis Potosí State, de la Maza (1988) reported *A. pallida* from 1760-1850 m., in humid areas; further east in San Luis Potosí, de la Maza & White (1990) reported *A. pallida* (as *A. selva*) as being found from 800 to at least 1800 m, in association with somewhat disturbed habitats. In Michoacán near Uruapan, *A. pallida* is frequently encountered in disturbed habitats at around 1600 m.(Warren, unpublished). Based on this, the appearance of this species in the lower Rio Grande Valley of Texas is rather surprising, though its appearance in somewhat disturbed habitats is appropriate.

Available literature and specimen records seem to indicate that *A. pallida* adults are found during all months of the year, but most commonly during the humid months. In El Salvador, Steinhauser (1975) reported *A. pallida* (as *A. selva*) from all 12 months. In Mexico, Beutelspacher (1975) reported *A. pallida* from July to November at Las Minas, Veracruz; Guzmán (1975) reported *A. pallida* from January to March in the Valley of México; de la Maza (1976) reported it from May to October at Tepoztlán, Morelos; de la Maza (1988) reported it from May to October (being most abundant in May, August and September) in western San Luis Potosí State; Balcázar (1993) reported it from November at Pedernales, Michoacán; near Uruapan, also in Michoacán, *A. pallida* is most common in October and November (Warren, unpublished). Vargas et al. (1996) reported *A. pallida* (as *A. selva*) from January to May in Jalisco, Mexico, and Warren et al. (1998) reported *A. pallida* (as *A. selva*) from May, June, July, October and December in Colima State, Mexico.

Related Species

Achlyodes pallida is not likely to be confused with any of its most closely related species, *Achlyodes busirus* (Figs 5-6), or the various *Eantis* species (see Warren 1996), which in Texas and most of Mexico include only *E. tamenund* (Figs. 7-8). *Achlyodes busirus* (which could eventually be found in south Texas) is distinctly larger than *A. pallida*, and has a much darker dorsal and ventral ground color, in addition to a more irregular wing shape. Many specimens of *A. busirus* (especially from Mexico and Central America) have a well-developed yellow or brownish patch on the tornal area of the ventral hindwing. *Eantis tamenund* is distinctly smaller than *A. pallida*, and also has a darker ground color, with less well-developed banding and spotting on the forewing and hindwing. Some large, faded females of *E. tamenund*, however, can be mistaken for *A. pallida*, since they have somewhat enlarged spot bands, compared to males; however even these faded *E. tamenund* individuals will have a duskier ground color than *A. pallida*. Additionally, *Grais stigmaticus* (Mabille) could be confused with *A. pallida*, but *G. stigmaticus* has more pointed forewings, a darker ground color, less distinct banding patterns on the dorsal wing surfaces, and females have hyaline forewing apical spots.

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Eumorpha fasciata, the Banded Sphinx

Leroy Simon

5974 SE 122 Place, Belleview, FL 34420

This sphinx is common in central and southern Florida. Near Belleview, FL, I can find the larva in September and October. Further south they occur through December. The larvae feed on primrose willow and other plants in the genus *Ludwigia*. These large shrub-like plants are common along wet ditches and the margins of ponds and lakes. Larvae are usual found by observing damage to the food plant. Ova are laid singularly.

Eumorpha fasciata has interesting caterpillars that lack the usual horn and have instead a small hump at the rear. They have several color forms including one that stays green throughout its growth, however, I have found a couple of early instars that are pink but later may be yellow and rust or green and rust as illustrated (see pp. 133). The moths are handsome but difficult to photograph with open wings to show off their colorful hindwings.

A Mosaic Bilateral Gynandromorph of *Automeris io*

Rick Rozycki

5830 S. McVicker Ave., Chicago, IL 60638

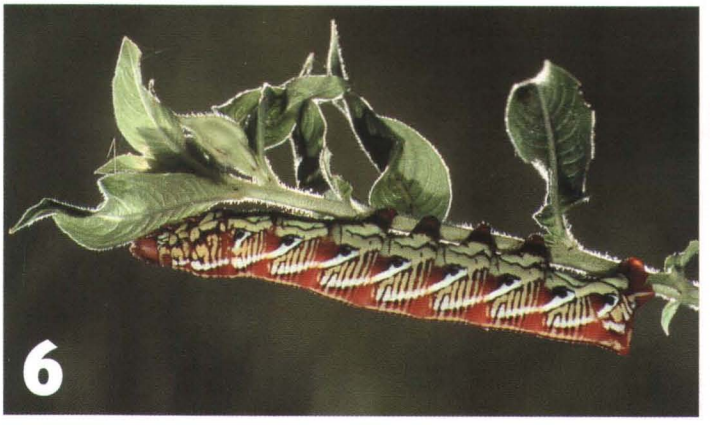
This summer I reared a batch of *Automeris io* from ova received from Ohio in June 2003. This particular adult emerged August 20, 2003. It is a perfect bilateral gynandromorph with male wing shape and coloration, antennae, body color and clasper on left side and female on the right side. It has streaks of male yellow coloration on the right dorsal forewing. The ventral surface of the right side is totally female. Leg coloration is also split with the left side being yellow and the right side brown. The photos (see pp. 133) show a normal male and female along with this specimen.

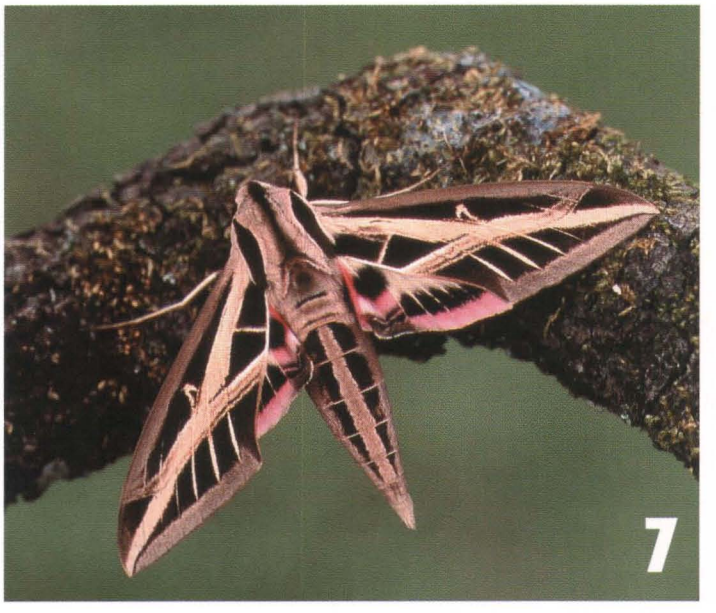
A Melanic *Parides photinus*

Rick Rozycki

5830 S. McVicker Ave., Chicago, IL 60638

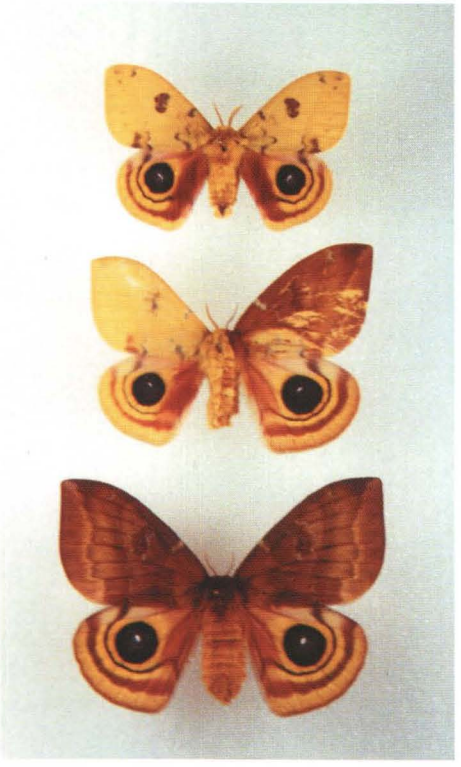
In 1989, I was able to view a friend's collection when I came across a very interesting *Parides*. The specimen seemed to be a *Parides photinus* but was very dark in appearance. It was, in fact, a male *Parides photinus* that had been taken in July 1978 at Catemaco, Veracruz. The forewings are normal for this species, but the hind wings both upper and under surfaces are quite different. On the upper side, the red submarginal and post discal band is present but totally clouded over with black scales. The blue sheen on the hind wing, which is normally present in this species, is also quite pronounced. On the under side the normal red color of the spot bands is black and the wings have a greenish brown appearance. I was able to secure the specimen and it is illustrated (see pp. 133) here.

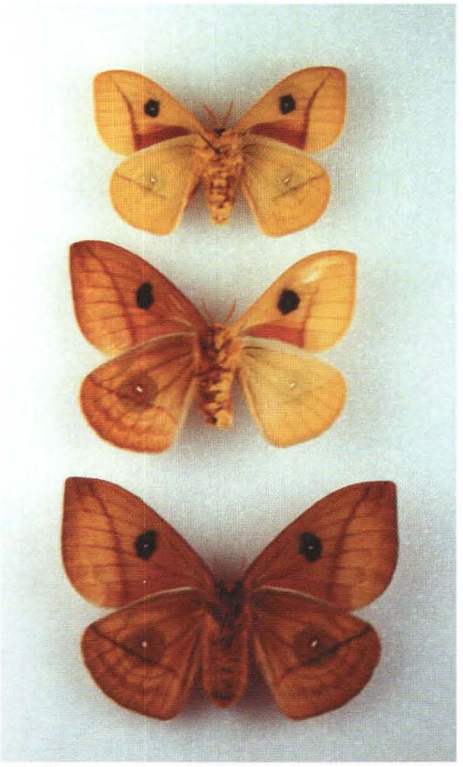


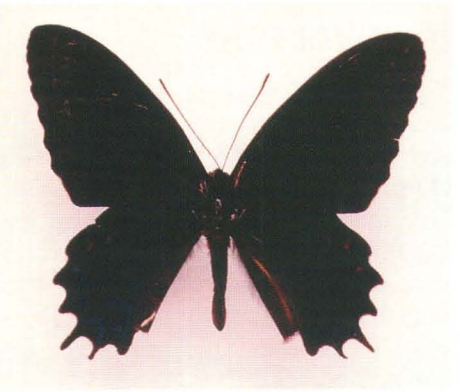


Eumorpha fasciata, the Banded Sphinx

1. Ovum. **2.** Green and pink color forms of early instar larvae. **3.** Pupa **4/5/6.** Color forms of late instar larvae. **7.** Moth with partial view of hind wing. **8.** Yellow with rust color form. Photos by Leroy Simon.







A Melanic *Parides photinus*

See the article on pp. 131. Photo by Rick Rozycki.

Bilateral Mosaic Gynandromorph of *Automeris io*

Far Left (upperside): Top male. Center Gynandromorph. Bottom female. Left (underside): Top male. Center Gynandromorph. Bottom female. Photos by Rick Rozycki.

Another page from Liam O'Brien's notebook, this time for Sonoma Co. Liam writes that he is hoping to do all 59 California counties for his book, tentatively titled "The Flying Pansy." He says he's only 1/3 of the way there but is enjoying the experience and that the encouragement of the Lepidopterists' Society fuels him on. Here's some more fuel, Liam...

Membership

The Lepidopterists' Society is open to membership from anyone interested in any aspect of lepidopterology. The only criterion for membership is that you appreciate butterflies or moths! To become a member, please send full dues for the current year, together with your current mailing address and a note about your particular areas of interest in Lepidoptera, to:

Kelly Richers,
Assistant Treasurer,
The Lepidopterists' Society
9417 Carvalho Court
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Change of Address?

Please send permanent changes of address, telephone numbers, areas of interest, or e-mail addresses to:

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Los Angeles, CA 90007-4057.
Julian@donahue.net

Our Mailing List?

Contact Julian Donahue for information on mailing list rental.

Missed or Defective Issue?

Requests for missed or defective issues should be directed to: Ron Leuschner (1900 John Street, Manhattan Beach, CA 90266-2608, (310) 545-9415, ***ronleusch@aol.com***). Please be certain that you've really missed an issue by waiting for a subsequent issue to arrive.

Memoirs

Requests for Memoirs of the Society should be sent to Publications Manager, Ken Bliss (address opposite).

Journal of the Lepidopterists' Society

Send inquiries to:

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Book Reviews

Send book reviews or new book releases for review, for either the **Journal** or the **News**, to:

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Submission Guidelines for the News

Submissions are always welcome! Preference is given to articles written for a non-technical but knowledgable audience, illustrated and succinct (under 1,000 words). Please submit in one of the following formats (in order of preference):

1. Electronically transmitted file and graphics—in some acceptable format —*via* e-mail.

2. Article (and graphics) on diskette, CD or Zip disk in any of the popular formats/platforms. Indicate what format(s) your disk/article/graphics are in, and call or email if in doubt. Include printed hardcopies of both articles and graphics, a copy of the article file in ASCII or RTF (just in case), and alternate graphics formats. Media will be returned on request.

3. Color and B+W graphics should be good quality photos or slides suitable for scanning or—preferably—electronic files in TIFF or JPEG format at least 1200 x 1500 pixels for interior use, 1800 x 2100 for covers. Photos or slides will be returned.

4. Typed copy, double-spaced suitable for scanning aand optical character recognition. Original artwork/maps should be line drawings in pen and ink or good, clean photocopies. Color originals are preferred.

Submission Deadlines

Material for Volume **46** must reach the Editor by the following dates:

Issue	Date Due
1 Spring	**Jan. 30, 2004**
2 Summer	April 30, 2004
3 Autumn	August 13, 2004
4 Winter	Oct. 29, 2004

Reports for Supplement S1, the Season Summary, must reach the respective Zone Coordinator (see most recent Season Summary for your Zone) by Dec. 15. See inside back cover for Zone Coordinator information.

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Refer to Season Summary for Zone coverage details.

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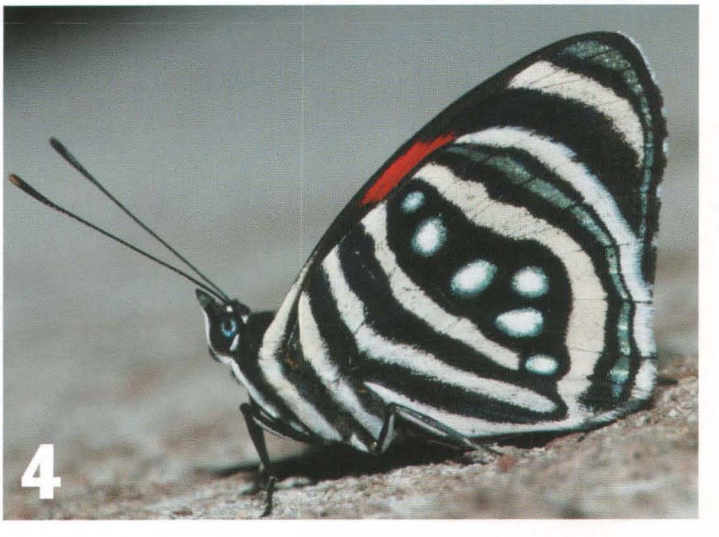

A Cornucopia of *Callicore*...and a *Diaethria* for good measure!

1. *Callicore cynosura*, **2.** *Callicore cyllene*, **3.** *Diaethria clymena*, **4.** *Callicore hesperis*. Photos from Yasuni, Ecuador taken in early September 2002 by Steve Graser. Steve also wrote to thank everyone for identifying *Dynamine persis* in News 45(2), pp. 65. Contact Steve at ***segraser@pacbell.net***.