

NEWS

OF THE

LEPIDOPTERISTS' SOCIETY

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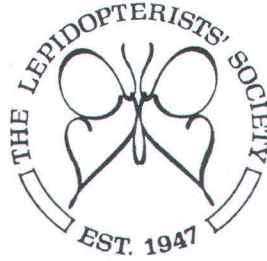
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NEWS OF THE LEPIDOPTERISTS' SOCIETY

Volume 50, No. 1 Spring 2008



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The Lepidopterists' Society is a non-profit educational and scientific organization. The object of the Society, which was formed in May 1947 and formally constituted in December 1950, is "to promote internationally the science of lepidopterology in all its branches; to further the scientifically sound and progressive study of Lepidoptera, to issue periodicals and other publications on Lepidoptera; to facilitate the exchange of specimens and ideas by both the professional worker and the amateur in the field; to compile and distribute information to other organizations and individuals for purposes of education and conservation and appreciation of Lepidoptera; and to secure cooperation in all measures" directed towards these aims. (Article II, Constitution of The Lepidopterists' Society.)

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Front Cover:

Zizina otis, female observed on 16 March 2008 Waikiki, Honolulu, Oahu, Hawaii. Photo by James F. Snyder. See article on pp. 3.

***Zizina otis* (Fabricius, 1787) Becomes Established on Oahu, Hawaii (Lepidoptera: Lycaenidae: Polyommatainae)**

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The Hawaiian Islands are home to just two species of endemic butterflies (*Udara blackburni* (Tuely, 1878), Lycaenidae; *Vanessa tameamea* Escholtz, 1821, Nymphalidae), but a number of species have become naturalized in the archipelago, as detailed by Riotte and Uchida (1979; also see Jamieson and Denny 2001). Some of these non-native species were intentionally introduced in hopes of controlling the spread of Lantana, including *Strymon bazochii bazochii* (Godart, [1824]) and *Tmolus echion* (Linnaeus, 1767) (see Riotte & Uchida 1979), but most of them arrived accidentally through human activities. In the past decade, *Phoebis agarithe agarithe* (Boisduval, 1836) became established on Maui, Hawaii and Oahu (Snyder pers. obs. 2004-2008, Snyder and Kumon 2005, Davenport 2006). Herein, we provide details on another introduced species of butterfly, new to Hawaii and the United States of America, which was detected on Oahu earlier this spring.

On March 15th, 2008, shortly before noon and under sunny but windy conditions, the senior author (Snyder) encountered a mating pair of an unfamiliar blue butterfly in a grass field adjacent to Kapahulu Blvd. and between the Waikiki Library and Ala Wai Golf Course, in Waikiki, Honolulu, Oahu, Hawaii. The pair was observed and photographed for about ten minutes (Fig. 1), and the female was followed for another five minutes after they

separated (Fig. 2). Being familiar with the butterfly fauna of Hawaii (Snyder and Kumon 2005), Snyder suspected a possible new species for the island and archipelago, and sent his images to Mike Stangeland and Kim Davis (and others) that same evening. They subsequently forwarded his message to the second author (Warren). Upon reading news of the unfamiliar blues early on March 16th, Warren immediately wrote Snyder for more information, and alerted Rubinoff of the presence of an unfamiliar polyommataine in Honolulu, urging him to investigate the site. Meanwhile, Snyder had communicated with Takashi Kumon, who suggested that the blue was *Zizina otis* (Fabricius, 1787), commonly known as the Lesser Grass Blue (e.g., Corbet & Pendlebury 1956).

Later on March 16th, Snyder returned to the same location (at about the same time of day and under similarly sunny and windy conditions), located and photographed a female for about five minutes (Fig. 3). On March 18th, Rubinoff searched the site for blues, under sunny but typically windy conditions, and found several individuals flying over a mowed lawn containing *Mimosa pudica* L. (Fabaceae). One male was found crawling on *M. pudica*. He secured three males as voucher specimens, two of which are shown in Figs. 7-10. DNA from legs of each of these specimens has been preserved for a future study.

On a return visit to the site on March 22nd, between about 10:00 and 12:00 hrs. local time (sunny skies, brisk trade winds), Snyder encountered eight males (e.g., Fig. 4) and three females of the blue, and their behavior was noted. Adults flew in an erratic manner near ground level, and once alighting, would often crawl down into vegetation. One female was observed on a *Mimosa* flower (Fig. 5), and another was observed while ovipositing on and near *Mimosa pudica* (Fig. 6). An additional trip to the site on March 29th yielded 5 males. These were followed until the clouds obscured the sun, and no further butterfly activity was noted.

The genus *Zizina* Chapman, 1910 was recently revised by Yago et al. (2008) who considered molecular (mtDNA) and morphological characters. They recognized three species in the genus, *Z. oxleyi* (C. Felder & R. Felder, 1865) [endemic to New Zealand], *Z. emelina* (de l'Orza, 1867) [occurring in Japan (except the Ryukus), South Korea, SW China and northern Myanmar] and *Z. otis*, which is widely distributed in China, Japan (Ryuku Islands), Taiwan, Indochina, India, Pakistan, Sri Lanka, Andaman Islands, Philippines, Palawan, Mariana Islands, Malay Peninsula, Borneo, Sumatra, the Indonesian Archipelago, New Guinea, Micronesia, Melanesia, Polynesia, Australia, New Zealand, Africa, Madagascar, and Mauritius. Yago et al. (2008) considered *Z. otis* to be a

Continued on pp. 6





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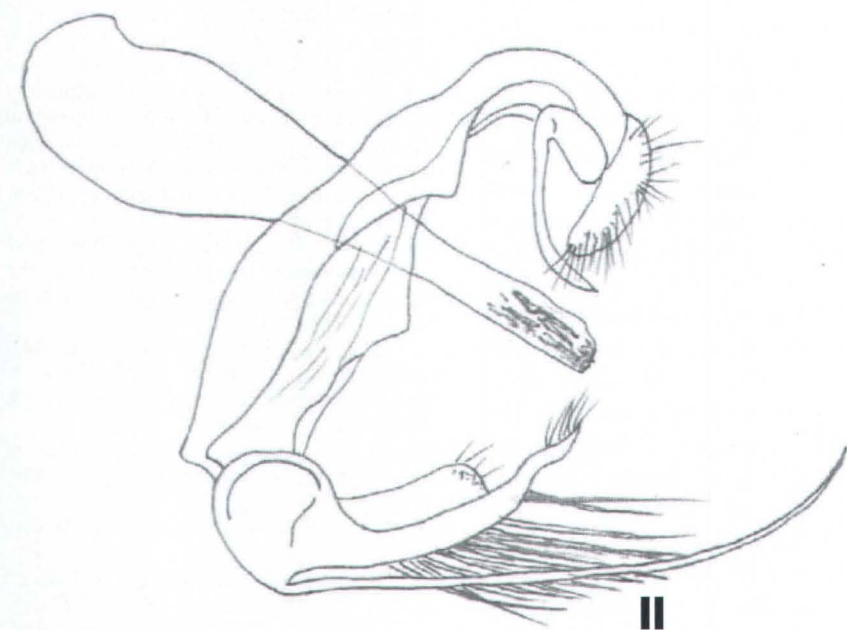
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Figures 1-6. Adults of *Zizina otis* from Waikiki, Honolulu, Oahu, Hawaii, observed between March 15th and 22nd, 2008; photographs by James F. Snyder. **1)** Mating pair representing first individuals observed, 15 March 2008; **2)** same female from figure one, 15 March 2008; **3) Cover photo:** female observed on 16 March 2008; **4)** basking male observed on 22 March 2008; **5)** female on flower of *Mimosa pudica*, the apparent larval foodplant, 22 March 2008; **6)** female ovipositing on (or near?) *Mimosa pudica*, 22 March 2008. **Figures 7-11.** Males of *Zizina otis* collected at Waikiki, Honolulu, Oahu, Hawaii, on 18 March 2008, by Daniel Rubinoff; photographs by Andrew D. Warren. Weakly spotted male in **7)** dorsal and **8)** ventral views; boldly spotted male in **9)** dorsal and **10)** ventral views; **11)** genitalia of boldly spotted male in left lateral view (George T. Austin).

Zizina otis in Hawaii: A new species for the US

polytypic species with multiple (including undescribed) subspecies, but did not elaborate on the distribution or identification of these, and no subspecies-level synonymy was provided.

Detailed examination of the available photos and specimens of *Zizina* from Hawaii, in comparison with series of *Zizina otis* from throughout its range (housed in the McGuire Center for Lepidoptera and Biodiversity, Gainesville, FL) suggest that the Hawaiian species is *Z. otis otis*, as defined by Yago et al. (2008), who apparently consider *Z. otis lampa* (Corbet, 1940), to be a junior synonym of *Z. o. otis* (following Seki et al. 1991). However, a few words of caution regarding this determination seem warranted. As noted by Yago et al. (2008), *Zizina* species are "difficult to classify on morphology alone," and "morphological differences of the male genitalia, which are frequently important as taxonomic characters, are not helpful in the genus." Figures of the male genitalia of *Z. otis*, in varying degrees of detail, were presented by Corbet and Pendlebury (1956), Stempffer (1967), Eliot (1973) and Yago et al. (2008). Genitalia of one of the Hawaiian males are illustrated in Fig. 11. Although these bear a general resemblance to the aforementioned illustrations, there are slight differences, especially in the shape of the valva, and for now male genitalia must be considered inconclusive for the subspecific determination of Hawaiian *Z. otis*.

Hawaiian adults of *Z. otis* examined to date resemble *Z. otis otis* (sensu Yago et al. 2008) more closely than *Z. otis labradus* (Godart, [1824]), the subspecies of *Z. otis* distributed from Melanesia to French Polynesia, which has been considered vagile and suited for over-sea dispersal (Gibbs 1980). These similarities include the expanded black dorsal coloration at the forewing and hindwing apex of males, reduced marginal scaling on the ventral wing surfaces, and in having black ventral spots ringed with pale haloes, not

usually seen in *Z. o. labradus*. Based on this, we believe the presence of *Z. otis* in Hawaii is most likely the result of a human-assisted introduction, and not due to natural dispersal. This is apparently not the first time *Z. otis otis* has been introduced into new regions through human movements, as Larsen (1989) regards the presence of *Z. otis* in the Siwa Oasis in western Egypt to possibly be the result of such an introduction (also see Yago et al. 2008).

As noted by Snyder and Rubinoff (pers. obs. 2008) during visits to the site at Waikiki, adults of *Z. otis* appear to be utilizing *Mimosa pudica* as the larval foodplant, and adults were found only in close association with this plant. This plant, commonly known as sensitive plant, has been reported as a larval foodplant for *Z. otis* on the Malay Peninsula (Corbet & Pendlebury 1956). *Mimosa pudica* is native to South America, and was first reported in Hawaii on Oahu in 1864 or 1865. It is now known to occur on Kauai, Oahu, Lanai, Maui, and Hawaii, and is common in lawns roadsides and pastures (Motooka et al. 2003). Thus, we would not be surprised to see *Z. otis* expand its range on Oahu and to other Hawaiian Islands.

As summarized by Riotte and Uchida (1979), the history of recent colonization of butterfly species in the Hawaiian Islands can largely be traced to airplane introductions from the west (mostly from Okinawa and Guam) and east (presumably from southern California), or introductions resulting from boat traffic. Other species first recorded in Hawaii in the Honolulu area on Oahu, and therefore presumably introduced at Hickam Air Force Base, Honolulu International Airport, or the Port of Honolulu (a major port for international boat traffic) include *Erionota thrax* (Linnaeus, 1767), *Hylephila phyleus phyleus* (Drury, 1773), *Papilio xuthus* Linnaeus, 1767, *Agraulis vanillae incarnata* (N. Riley, 1926) and *Brephidium exilis exilis* (Boisduval, 1852). Thus, with the addition of *Zizina otis*, three of these recent introductions arrived from North

America, and three from southeast Asia. We plan a detailed genetic study to determine the provenance of the *Zizina* population now apparently established on Oahu.

Acknowledgments:

We thank Takashi Kumon for help identifying *Zizina otis*, and Mike Stangeland and Kim Davis for putting the first and second authors in touch. Thanks to Roger Vila for information on *Z. otis* and for discussions. We also thank Masaya Yago for sending a copy of his recent collaborative study on *Z. otis*. Warren thanks DGAPA-UNAM (Mexico City) for funding.

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Unusual Butterfly Sightings in Northwest Louisiana in 2007

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Late summer and autumn are the times when populations of many North American butterfly species peak and individual butterflies begin moving about in earnest. Some species like the cloudless sulphur (*Phoebis sennae*), painted lady (*Vanessa cardui*), and the iconic monarch (*Danaus plexippus*) often engage in large population movements to environments that lack severe winter cold. On the other hand, some subtropical and tropical species (as well as an assortment of other invertebrates) are noted to venture northward into more temperate venues by taking advantage of prevailing southerly winds. The Mexican yellow (*Eurema mexicana*), for instance, has been documented as far north as Manitoba, Canada. (Now that is some traveling!) These exotics, however, are normally prevented from establishing viable and sustainable populations by subfreezing winter temperatures. And because these non-colonists die instead of returning to their southern breeding grounds, the butterflies are codified as vagrants, strays, emigrants/immigrants—not true migrants, as is the case with the monarch.

Louisiana shares its western border with Texas. In addition, the northwestern sector of the state often experiences strong air currents from the southwest during the months of autumn. These conditions predispose this region of “The Bayou State” for visitations from winged invertebrates such as butterflies whose homes are farther to the southwest. Consider: when researching to upgrade the original Louisiana list of butterflies published by Lambremont (1954), I became aware of a private collection made in the late 1950s from northwestern Louisiana (Shreveport/Bossier City area) that contained

several species previously unrecorded or considered rare in Louisiana, but common residents in the Rio Grande Valley of south Texas and points south (see Ross and Lambremont 1963, Lambremont and Ross 1965).

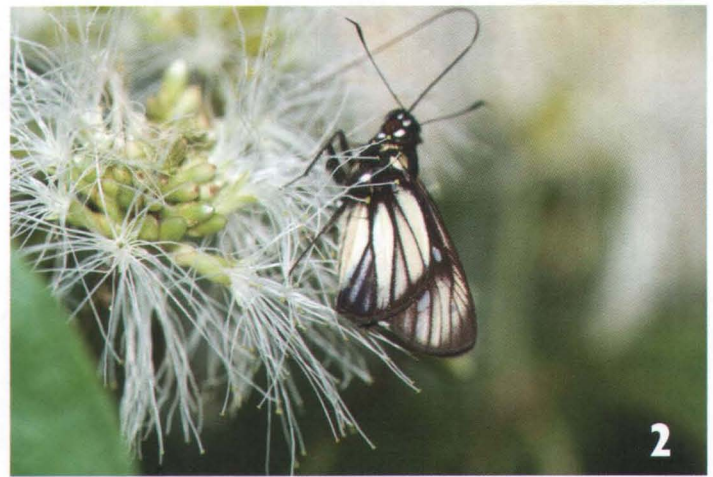
During the subsequent four plus decades most butterfly enthusiasts in Louisiana concentrated their efforts in the more heavily populated sectors of the south. But near the cusp of the new millennium, that changed. Three parishes (= counties) in the extreme northwest corner of Louisiana began to receive attention. These were: Caddo (Shreveport, major city), Bossier (Bossier City, major city), and Claiborne (Homer, major city)—all heavily invested in agriculture and forestry. I think explanations for this resurgence in interest can be credited to: (1) the public’s heightening interest in programs of the North American Butterfly Association (NABA), specifically gardening programs and a formal butterfly count in the Shreveport/Bossier City area in 2001; (2) the expanding amount of data regarding butterflies and their distributions available on the Internet; (3) the establishment of an annual butterfly festival in Haynesville (Claiborne Parish), now advertised as “The Butterfly Capital of Louisiana.” Then during the autumn months of 2006, three observers noted a lyside sulphur (*Kricogonia lyside*) in Bossier Parish, two marine blues (*Leptotes marina*) and a large orange sulphur (*Phoebis agarithe*) in Caddo Parish, and a white-striped longtail (*Chioides albofasciatus*) in Vernon Parish (three parishes south of Caddo). The lyside sulphur, marine blue, and white-striped longtail constituted new state records whereas the large orange sulphur was recorded previously only from south

Louisiana; all species, however, are still considered non-colonizing immigrants from established populations in tropical Texas and/or northern Mexico. Records were published in the “2006 Season Summary” of the NEWS (see Tuttle 2007).

These unique sightings sparked a cadre of butterfly watchers and gardeners residing in the Shreveport-Bossier City area to spend more time in the field, particularly during the months of autumn. The efforts have paid off. For example, between October and December of 2007, the following unusual records were logged from Bossier or Caddo parishes, or both: Mexican yellow (*Eurema mexicana*), orange-barred sulphur, Reakirt’s blue (*Echinargus isola*), mallow scrub-hairstreak (*Strymon istapa*) (new state record from both Bossier and Caddo parishes), Texan crescent (*Phyciodes texana texana*), common mestra (*Mestra amymone*), queen (*Danaus gillippus*), white-striped longtail, and Dorantes longtail (*Urbanus dorantes*). Tellingly, most of these records were on days experiencing strong southwest winds. [During this same period, a white-striped longtail was identified during an official NABA count in the Kisatchie National Forest in Natchitoches Parish. As mentioned previously, this species was first recorded in 2006 from Vernon Parish, immediately south of Natchitoches. Additionally, several bordered patches (*Chlosyne lacinia*), while still unknown from Louisiana, were identified north of Bossier and Caddo in extreme western Arkansas, i.e., Hempstead, Newton, and Polk counties.]

Interpretations for this recent rash of sightings remain conjectural.

Continued on pp. 15



1) *Carystus* undescribed species, Madre de Dios, Peru. 2) *Carystus* undescribed species, same individual as Fig. 1. 3) Rio Tambopata, Madre de Dios Peru, near the site where the undescribed *Carystus* was photographed. 4) *Alera manu*, Madre de Dios, Peru. All photos: Richard B. Cech.

A Mexican Beauty: *Callophrys estella*



MEXICO: CHIHUAHUA: Madera, VI-1966, T. Escalante. Photo copyright Andrew D. Warren See article pp. 12

An Undescribed Species of *Carystus* (Hesperiidae) occurs in Peru

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The neotropics harbors numerous newly described butterflies, including species of skippers (Hesperiidae). These may be relatively obvious (*e.g.*, Austin 1995, Austin *et al.* 1997) or more cryptic requiring careful comparisons of wings and genitalia (*e.g.*, Austin and Mielke 1997, 2000) or information on early stages and DNA (*e.g.*, Hebert *et al.* 2004, Burns and Janzen 2005). The genus *Carystus* Hübner, [1819] (Hesperiidae) is no exception with two new species recently described from Rondônia, Brazil (Austin and Mielke 2007). The eleven species of this distinctly marked genus (Mielke 2005, Austin and Mielke 2007), occurring from Mexico to Argentina (Hayward 1950, Evans 1955, Warren 2000), are often rarely encountered (Austin and Mielke 2007).

At midday on 3 September 2006, the senior author photographed a male *Carystus* at Malinowski Checkpoint, Rio Tambopata, Reservada de Tambopata-Candamo, Madre de Dios, Peru, that resembles no described species (Figs. 1, 2, pp. 8). The habitat where the *Carystus* was photographed is várzea forest adjacent to Rio Tambopata (Fig. 3). A small flowering tree (undoubtedly a species of *Inga*, Mimosaceae; see Figs. 1, 2, 4) occurs intermittently along the river bank. Its flowers attract a large variety of butterflies, among them the *Carystus* and *Alera manu* (Hesperiidae: Hesperinae) (Fig. 4), recently described by Mielke and Casagrande (2004). Both hesperiids were very wary, stopping to feed before quickly disappearing.

The ventral surface of the undescribed *Carystus* is largely white marked with black veins on the hindwing and towards the apex of the forewing. The outer margin of the hindwing is narrowly black. The forewing has a broadly black apex and a narrowly black costa. On the ventral forewing, there is a white macule at the base of the costa and prominent white mid-costal streak just caudad of the black margin. The forewing has a visible oval macule near the distal end of the discal cell, a round subapical macule in cell R₅-M₁, a yet smaller one in cell R₄-R₅, and a parallelogram-shaped discal macule in cell M₃-CuA₁. All four of these macules appear to be translucent. The proximal costa of the dorsal forewing is pale orange. The visible fringes are black except caudad of vein CuA₂ on the forewing. The visible portion of the dorsal thorax is black with pale yellow near the base of the forewing. The head is black with white macules around a red eye; the palpi appear white in front.

Four described species of *Carystus* have red eyes (Evans 1955): *Carystus ploetzi* Mielke & Casagrande, 2002; *Carystus junior* Evans, 1955; *Carystus phorcus* (Cramer, 1777); and apparently *Carystus diores* (Plötz, 1882). Of these, *C. ploetzi* and *C. junior* have uniformly colored hindwings, but this wing is grayish blue (see figures of *C. ploetzi* in Mielke and Casagrande 2002 and Austin and Mielke 2007). Neither species has a white streak near the costa of the forewing (Evans 1955). The male of *Carystus jolus* (Stoll, 1782), with brown eyes, also has prominently white palpi, but has a largely dull pale

yellowish gray ventral hindwing with an irregular dark margin that broadens caudad (*e.g.*, see figure in Lewis 1973), no orange at the base of the costa of the dorsal forewing, and dull olive-orange (rather than pale yellow) on the dorsal thorax. The photographed individual, therefore, resembles no known species and it is concluded that an undescribed *Carystus* lives in the tropical forests of southeastern Peru.

Acknowledgements

The junior authors thank Mike Stangeland, Kim Davis, and Kim Garwood for bringing the images of the *Carystus* to their attention. Gerardo Lamas is thanked for suggesting the identification of the plant used for nectar.

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Membership Update...

Julian Donahue

This update includes all changes received by 10 April 2008.

"Lost" Members

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

Slobodan Davkov (Republic of Macedonia)

Additions/Corrections to entries made in 2006 Membership Directory

Babson, Jeffery: first name misspelled in Directory
Rusch-Fischer, Karen: new ZIP code is 85392-5475

New and Reinstated Members:

members who have joined/renewed/ been found/or rescinded their request to be omitted since publication of the 2006 Membership Directory (not included in the 2006 Membership Directory; all in U.S.A. unless noted otherwise)

Ashcraft, Richard L.: 44796 Malow Avenue, Sterling Heights, MI 48314-1545.

Barron, Alan D.: 1093 US Highway 101 North, Space 18, Crescent City, CA 95531-8384.

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Boyd, Laurence S. (Ph.D.): 508 Heard Street, McKinney, TX 75069-2749.

Bundy, Jennifer L.: 1159 East Hacienda Drive, Yuma, AZ 85365-2907.

Bonebrake, Timothy: 371 Serra Mall, Stanford, CA 94305-5020.

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Carlson, John Clifford (Ph.D.): [address omitted by request]

Chesney, John W. (M.D.): 3010 West 14th Street, Joplin, MO 64801-3511.

Cuthrell, David: 12211 Upton Road, Bath, MI 48808-9488.

Day, Richard: 6382 Charleston Road, Alma, IL 62807-2026.

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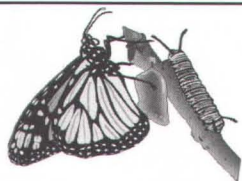
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Continued on pp. 23



Metamorphosis...

The Society has learned of the death of the following members. Our condolences to their families.

Cadiou, Jean-Marie (Ph.D.) of Brussels, Belgium, on 29 May 2007. Cadiou received his Ph.D. in information science at Stanford University in 1972, and worked in the IBM research laboratory in San Jose, California in the 1970s, at one time the head of Programming Technology Research, with a break to be director of the IBM research center in Paris. In the 1980s he left IBM and until his death held a number of important positions in information technology and the environment in several European countries. He is best known, however, as an enthusiastic and energetic authority on the hawk moths (Sphingidae) of the world. In his numerous papers he described, often with co-authors, at least 66 new species and subspecies of Sphingidae. His most important and best known work is the monumental book, *Hawkmoths of the World: An Annotated and Illustrated Revisionary Checklist (Lepidoptera: Sphingidae)*, by Ian J. Kitching and Jean-Marie Cadiou (2000). [based largely on information extracted from a more complete obituary published in *The European Entomologist*, Vol. 1, No. 1]

Homer, T.J.G. (Theo) of Maidenhead, Berks, England, on 17 January 2008, at the age of 94. Theo was principally a moth man and had been a member of the Society since 1972, becoming a Life Member in 1975. He had been a member of the British Entomological & Natural History Society since 1956, which will be publishing an obituary in its journal. He is survived by his wife, Mrs. Joy Homer, of Henley-on-Thames, Oxon, England. [Information kindly supplied by Wing Commander Rob Parker, RAF (Ret'd), President of the British Entomological & Natural History Society.]

Miller, Lee D. (Ph.D.) of Gainesville, Florida, on 5 April 2008, at the age of 72. Lee, a specialist in the taxonomy of skippers and satyrs, in 1968 became the first curator of the

Allyn Museum of Entomology, a position he held until that collection merged into what is now the McGuire Center for Lepidoptera and Biodiversity at the Florida Museum of Natural History, Gainesville. Among his numerous publications he authored the *Hesperiidae* section of the butterflies of Liberia (1965), monographed the higher classification of the *Satyridae* (1968), and in 1981 (with F. Martin Brown) published the Society's *Memoir No. 2*, the comprehensive and authoritative "A Catalogue/Checklist of the Butterflies of America North of Mexico." Lee has served as President of the Society, 1983-84, and, most notably, as a very effective Secretary from 1971-1976. He also served on the Nominating Committee (1980, 1986, 1990, 1994), Editorial Committee of the *News* (1961-69), Regional Coordinator for the Annual Season Summary (1964-68), and in the 1970s was Editor of the *Supplements* series and on the Editorial Committee of the *Journal*. Lee is survived by his wife of 40 years, Dr. Jacqueline Y. Miller, a fellow Lepidoptera taxonomist, who reports that, at Lee's request, memorial services will be private, adding that memorial donations in Lee's name may be made to The Lepidopterists' Society or to the McGuire Center for Lepidoptera and Biodiversity to support undergraduate students.

Frank P. Sala of Carmel, California, in February 2007. Frank was a specialist in moth rearing and taxonomy. He had been a member of the Society since 1979, with a couple of lapses totaling four years. He is survived by his wife Vivian Sala, who notified us of his death.

Stephen R. Steinhäuser of Bradenton, Florida, on 11 August 2007. Steve, a specialist in the taxonomy of Neotropical *Hesperiidae*, was a Life Member of the Society. He first joined in 1964.

Entomological Ramblings in Mexico Revisited after Fifty Years

Richard Holland

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This note enumerates species we collected in the Mexican states of Sinaloa and Durango, between Copala, Sin., and Durango, Dgo., plus an excursion north of the city of Durango, in 1970, 1971, 1981 and 1985. For the first time, a color image of *Callophrys (Mitoura) estela* (Lycaenidae: Theclinae) is illustrated, showing a proposed neotype.

When I was a child, air was clean and sex was dirty. Then came the 60s when sex was clean and air was dirty. Now, both are dirty, but technically, under the protection of the Lacey Act, you need a permit that takes about two years to get if you want legally to bring your car back into the United States with dead insects splattered on the windshield—and your permit needs to state which species of bugs your windshield will have collected (Herrick 1995). (Wow, I never actually needed to use the future perfect tense before in my life outside of Latin class.) In most states, license plates are made at the state prison. But it is a major crime to bring anything into the USA made with convict or slave labor. Yup, if you are on some bureaucrat's list, your license plate could get you and your family sent away. The original version (Howden 1966) of this article greatly influenced the course of my life for the better. Here is a minor illustration.

Baja California, Before the Road

My secretary and I departed JPL and Pasadena on 10 Sept 70, and headed the battered green Toyota Land Cruiser with 8000 pound power-take-off winch south into Baja. We were experienced Baja travelers, spoke survival Spanish, had two spare tires and five extra jerry cans of gas. We had food for six weeks, a huge tool chest, and even a head gasket taped between two 1 by 12's. Quite literally we were prepared for

anything—which was well, as over 1000 miles of old-time unpaved Baja roads faced us. Two of our Mexican friends, Estela and Graciela, had recently been deported from Pasadena to Durango—we had their possessions on board as well—even their Mexican sewing machine. We made Meling Ranch on the 12th, El Rosario on the 13th, collected out of there through the 17th, hit Rancho Chapala and Santa Ynez on the 18th, Bahia de Los Angeles on the 19th and 20th, crossed over into the BCS Territory and proceeded to San Ignacio on the 21st, collected there on the 22nd, made Santa Rosalia on the 23rd, Mulege on the 24th, Bahia Concepcion on the 25th, and reached the paved southern Baja road on the 26th—a transit of 14 days. We looked over the then rustic Cape region south of La Paz until the 29th, took the ferry to Mazatlan on the 30th, and collected around Mazatlan until Oct. 4th. On that day, we drove up to Durango to see our friends, and operated out of their village (poblado) until the 9th. During our transit of Baja, we recorded about 50 species of butterflies, which have now been donated to the Colorado State University museum system. A vast assemblage of papered moth specimens was donated to the AMNH. One night at a mountain top microwave relay near San Bartolo, BCS, my 8 watt New Jersey standard black light trap was entirely filled with 8 quarts, largely of things nobody ever saw before. We did not finish papering this treasure until 1600 the following afternoon. (Refer to <http://www.maps-of-mexico.com/> to locate places mentioned here.)

Mazatlan to Durango, After the Road

The Baja butterfly records were published in 1972 (Holland 1972), and we took nothing remarkable around

Mazatlan, but the portion of our adventure from Mazatlan to Durango was a different matter. This is the main technical reason for the present article. The entire Baja experience was not marred by a single confrontation or dispute with anyone or anything. I would, however, like to suggest that our Durango friends' visit to the USA cannot be similarly categorized. If your gardener gets deported, I think you might get in your jeep and spend a month taking him his or her things—and then name a butterfly after him or her—this is the origin of the name *Mitoura estela*. Every time I read about what we have become, I feel a little better personally, knowing that somewhere high up in the Sierra Madre of the State of Durango there is an aging, 60ish, probably toothless, peasant woman who has no idea that perhaps the most beautiful butterfly in all Durango bears her name. I am greatly delighted now to show *Mitoura estela* in color for the first time; (see pp 28). A summary of what we recorded, in 1970 and on three succeeding visits, on Mexico Hwy 40 above the thorn forest, from Copala to Durango appears in Table 1. Taxonomy is styled after Opler (Opler 1999), except a few trinomials are retained, where the subspecies is strikingly distinct—for example where the subspecies referred to is white fringed, but all other subspecies are black fringed. It is many years since I have been over this road now, but in my opinion, unless it has been spoiled, it is the most wonderfully scenic drive in all of Mexico. During the days we collected on the Durango Highway, thunderstorm activity would commence as early as 900, and by 1030 or 1100, the collecting day would be over. We constantly wondered what would happen in the way of collecting delights, should the

clouds fail to form. On October 9, 1970, the rainy season came to a brick wall sort of abrupt end, and the day was absolutely cloudless. That night, the temperature, which had not dropped below 10 C even at El Salto on all previous nights, because of the cloud cover, suddenly plunged to -10 C, killing all the butterflies and flowers above 6500'. This marked the end of the great adventure, and the next day we began the long, long trip back home to reality. I cannot resist the observation of taking care for what you wish—it may not be what you want. On the other hand, this one full day of cloudless collecting yielded the one entity I had really been seeking—blue females of *Speyeria nokomis coerulescens*. The *Mitoura estela* were also taken only on that last fine day—they were nectaring on the thistles with the *S. nokomis*. I do wonder why fresh females of *S. nokomis* were still on the wing the day the world of butterflies ended—this seems dreadfully wasteful of reproductive potential. Perhaps it is a niche where suicide is a rule for all, and given that universal cost, *S. n. coerulescens* and *M. estela* absorb the

cost with relative superiority. It would be an odd, but singularly effective, way of decimating parasitic predators, for instance.

Postscript

Eventually a few exotic looking butterflies I could not determine were sent to Harry Clench at the Carnegie Museum. Harry immediately reported a series of four *Mitoura* as undescribed, and proceeded to include their description in a larger publication of his (Clench 1981). Sadly, Harry died suddenly in 1979 with the publication not quite complete, and it lingered for several years before Lee Miller rescued the work.

The next time I passed the rancho where Estela and Graciela had lived—in 1978—the entire poblado was abandoned—an occurrence of ultimate rarity in overpopulated rural Mexico. I never saw my friends again.

Acknowledgement

Thanks to Andrew Warren for supplying the photo of the female *Callophrys* (*Mitoura*) *estela* from the McGuire Center. Also, as I was using the Internet to check my spelling of some taxa and generally finalize this paper, I happened upon a site entitled "Durango Highway,"

members.cox.net/hbrodkin/Durango_Highway.html describing how much of this wonderful road had been revisited in 2003 by Priscilla and Hank Brodtkin, authors of *Butterflies of Arizona* (Stewart, Brodtkin and Brodtkin 2001).

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Table 1. Butterflies Recorded along Mexico Hwy. 40 between Durango, Dgo. and Copala, Sin.

Pyrrhopyginae

Pyrrhopyge chalybea chloris Evans 5 mi E of Copala, Sin., 2500', 6-x-70

Pyrginae

Polygonus manueli Bell & W. P. Comstock Copala, Sin., 1500', 6-x-70

Aguna asunder (Hewitson) 5 mi E of Copala, Sin., 2500', 6-x-70 canyon below El Palmito, Sin., 5500', 7-x-70

Codatractus arizonensis (Skinner) 10 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 7000', 6-viii-81

Urbanus teleus (Hübner) Copala, Sin., 1500', 5-x-70

Achlyodes thraso (Hübner) Copala, Sin., 1500', 6-x-70

Phocides urania Westwood Palisades, Dgo., 6500', 4-x-70 5 mi E of Copala, Sin., 2500', 6-x-70

Autochton cellus (Boisduval & Leconte) 15 mi N of Durango, Dgo., on Mex 45, 5800', 28-vii-71 10 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 7000', 6-viii-81

Autochton pseudocellus (Coolidge & Clemence) 21 mi E of El Salto, Dgo. (7 mi E of Llano Grande), 8600', 10-vii-81 5 mi E of El Salto, Dgo., 8300', 10-vii-81

Autochton cinctus (Plötz) canyon below El Palmito, Sin., 5500', 7-x-70

Thorybes pylades (Scudder) 21 mi E of El Salto, Dgo. (7 mi E of Llano Grande), 8600', 10-vii-81

Thorybes mexicanus (Herrich-Schäffer) 28½ mi E of El Salto, Dgo., 8300', 11-vii-81 10 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 7000', 6-viii-81 28 mi E of El Salto, Dgo., 8300', 5-viii-81

Thorybes drusus (W. H. Edwards) 3 mi SE of Villa Insurgentes, Sin., 8200', 4-viii-81

Cogia hippalus (W. H. Edwards) canyon below El Palmito, Sin., 5500', 7-x-70

Staphylus mazans (Reakirt) Copala, Sin., 1500', 6-x-70

Staphylus ceos (W.H. Edwards) 10 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 7000', 6-viii-81

Erynnis brizo mülleri (Draudt) 3 mi SE of Villa Insurgentes, Sin., 8200', 4-viii-81

Erynnis juvenalis clitus (W. H. Edwards) 28½ mi E of El Salto, Dgo., 8300', 11-vii-81

Erynnis scudderi (Skinner) 10 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 7000', 6-viii-81 3 mi SE of Villa Insurgentes, Sin., 8200', 4-viii-81

Erynnis tristis (Boisduval) 3 mi SE of Villa Insurgentes, Sin., 8200', 4-viii-81

Erynnis pacuvius (Lintner) 28 mi E of El Salto, Dgo., 8300', 5-viii-81

Erynnis funeralis (Scudder & Burgess) 19 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 8000', 12-vii-81

Erynnis afranius (Lintner) 21 mi E of El Salto, Dgo. (7 mi E of Llano Grande), 8600', 10-vii-81 28½ mi E of El Salto, Dgo., 8300', 11-vii-81

- Pyrgus communis* (Grote) 6½ mi E of El Salto, Dgo., 8000', 10-vii-81
28½ mi E of El Salto, Dgo., 8300', 11-vii-81 & 15-vii-81 3 mi SE of Villa Insurgentes, Sin., 8200', 4-viii-81
- Pyrgus oileus* (Linnaeus) 5 mi E of Copala, Sin., 2500', 6-x-70
- Heteropterinae**
- Piruna polingi* (Barnes) El Salto, Dgo., 8200', 22-viii-71
- Piruna gyrans* (Plötz) 15 mi N of Durango, Dgo., on Mex 45, 5800', 28-vii-71 3 mi SE of Villa Insurgentes, Sin., 8200', 4-viii-81
- Hesperiinae**
- Nastrajulia* (H. A. Freeman) 28 mi E of El Salto, Dgo., 8300', 15-vii-81
- Oarisma garita* (Reakirt) 28½ mi E of El Salto, Dgo., 8300', 11-vii-81
- Oarisma* sp 28½ mi E of El Salto, Dgo., 8300', 11-vii-81
- Copaeodes minima* (W. H. Edwards) 15 mi N of Durango, Dgo., on Mex 45, 5800', 28-vii-71
- Copaeodes aurantiaca* (Hewitson) 10 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 7000', 6-viii-81
- Adopaeoides prittwitzi* (Plötz) 28 mi E of El Salto, Dgo., 8300', 28-vii-81 & 5-viii-81 & 11-vii-81
- Hesperia pahaska* (Leussler) 10 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 7000', 6-viii-81
- Poanes taxiles* (W. H. Edwards) 21 mi E of El Salto, Dgo. (7 mi E of Llano Grande), 8600', 10-vii-81 28½ mi E of El Salto, Dgo., 8300', 15-vii-81
- Paratrytone snowi* (W. H. Edwards) El Salto, Dgo., 8200', 22-viii-71 10 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 7000', 6-viii-81 28 mi E of El Salto, Dgo., 8300', 5-viii-81
- Atrytonopsis ovinia* (Hewitson) canyon below El Palmito, Sin., 5500', 7-x-70
- Amblyscirtes cassus* W. H. Edwards 10 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 7000', 6-viii-81
- Amblyscirtes phylace* (W. H. Edwards) 28 mi E of El Salto, Dgo., 8300', 11-vii-81
- Lerodea eufala* (W. H. Edwards) 10 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 7000', 6-viii-81
- Dalla faula* Godman 5 mi E of Copala, Sin., 2500', 6-x-70
- Papilionidae**
- Battus belus* (Cramer) Copala, Sin., 1500', 6-x-70
- Papilio polyxenes* Fabricius 22 mi E of El Salto, Dgo., 7500', 22-viii-71 3 mi SE of Villa Insurgentes, Sin., 8200', 4-viii-81
- Papilio photinus* Doubleday Copala, Sin., 1500', 6-x-70
- Papilio pharnaces* Doubleday Copala, Sin., 1500', 6-x-70
- Pieridae**
- Catasticta flisa* (Herrich-Schäffer) Palisades, Dgo., 6500', 4-x-70 2 mi E of El Palmito, Sin. (in Dgo.), 6500', 7-x-70
- Neophasia terlootii* Behr 2 mi E of El Palmito, Sin. (in Dgo.), 6500', 7-x-70. This is where Baron Terloot took the types of this species.
- Pontia protodice* (Boisduval & Leconte) 28 mi E of El Salto, Dgo., 8300', 5-viii-81
- Colias philodice* Godart 28 mi E of El Salto, Dgo., 8300', 5-viii-81
- Anteos clorinde* (Godart) 10 mi E of El Salto, Dgo., 7500', 22-viii-71
- Eucheira socialis* Westwood 21 mi E of El Salto, Dgo. (7 mi E of Llano Grande), 8600', 10-vii-81
- Eurema daira* (Godart) 28 mi E of El Salto, Dgo., 8300', 5-viii-81
- Anthocharis limonea* Butler 58 mi W of Dgo. Hwy 39 on Dgo. Hwy 26, 7700', 13-vii-81
- Theclinae**
- Atlides halesus* (Cramer) 3 mi E of La Ciudad, Dgo., 8500', 8-x-70 Puerto Buenos Aires, Dgo., 8500', 8-x-70 10 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 7000', 6-viii-81
- Callophrys (Mitoura) estela* Clench 1.5 mi W of El Salto, Dgo., 8200', 9-x-70
- Callophrys affinis chapmani* Gorelick 13 mi E of El Salto, Dgo., 8000', collected and reared ex ovum by Glenn Gorelick, adults 28-viii-85 (Gorelick 2005)
- Rekoa palegon* (Stoll) 5 mi E of Copala, Sin., 2500', 6-x-70
- Ocaria ocrisia* (Hewitson) 2 mi E of Puerto Buenos Aires, Dgo., 8700', 8-x-70
- Laotus erybathis* (Hewitson) La Ciudad, Dgo., 8700', 8-x-70
- Parrhasius m-album* (Boisduval & Leconte) 1.5 mi W of El Salto, Dgo., 8200', 9-x-70
- Strymon melinus* Hübner 10 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 7000', 6-viii-81
- Strymon cestri* (Reakirt) 10 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 7000', 6-viii-81
- Erora quaderna* (Hewitson) 28½ mi E of El Salto, Dgo., 8300', 11-vii-81 & 15-vii-81 (larvae on Ceanothus bloom, found and reared by Glenn Gorelick) 10 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 7000', 6-viii-81
- Polyommatae**
- Leptotes marina* (Reakirt) Copala, Sin., 1500', 6-x-70
- Celastrina gozora* (Boisduval) 21 mi E of El Salto, Dgo. (7 mi E of Llano Grande), 8600', 10-vii-81 5 mi E of El Salto, Dgo., 8300', 10-vii-81 6½ mi E of El Salto, Dgo., 8000', 10-vii-81 10 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 7000', 6-viii-81
- Hemiargus isola* (Reakirt) 15 mi N of Durango, Dgo., on Mex 45, 5800', 28-vii-71 1.5 mi W of El Salto, Dgo., 8200', 9-x-70 5 mi E of El Salto, Dgo., 8300', 10-vii-81 28½ mi E of El Salto, Dgo., 8300', 11-vii-81 6½ mi E of El Salto, Dgo., 8000', 10-vii-81 3 mi SE of Villa Insurgentes, Sin., 8200', 4-viii-81
- Icaricia lupini* (Boisduval) 21 mi E of El Salto, Dgo. (7 mi E of Llano Grande), 8600', 10-vii-81
- Riodinidae**
- Calephelis nemesis* (W. H. Edwards) 2 mi E of Santa Lucia, Sin., 4000', 6-x-70 Copala, Sin., 1500', 6-x-70 10 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 7000', 6-viii-81
- Emesis zela* Butler Palisades, Dgo., 6500', 4-x-70 Hwy 39 on Dgo. Hwy 26, 8000', 12-vii-81 21 mi E of El Salto, Dgo. (7 mi E of Llano Grande), 8600', 10-vii-81 28 mi E of El Salto, Dgo., 8300', 5-viii-81
- Apodemia nais* (W. H. Edwards) 28½ mi E of El Salto, Dgo., 8300', 11-vii-81 & 15-vii-81
- Apodemia walkeri* Godman & Salvin 5 mi E of Copala, Sin., 2500', 6-x-70
- Nymphalidae—Heliconiinae**
- Heliconius charithonius* (Linnaeus) 2 mi E of Santa Lucia, Sin., 4000', 6-x-70
- Dione moeneta* (Hübner) Puerto Buenos Aires, Dgo., 8500', 8-x-70
- Speyeria nokomis coerulescens* (W. J. Holland) 10 mi E of El Salto, Dgo., 7800', 9-x-70 1.5 mi W of El Salto, Dgo., 8200', 9-x-70

Nymphalidae-Nymphalinae

Thessalia theona Ménétériés 2 mi E of Santa Lucia, Sin., 4000', 6-x-70 10 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 7000', 6-viii-81

Thessalia cyneas (Godman & Salvin) 19 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 8000', 12-vii-81 10 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 7000', 6-viii-81

Chlosyne eumeda (Godman & Salvin) 5 mi E of Copala, Sin., 2500', 6-x-70

Chlosyne lacinia (Geyer) 36 mi E of El Salto in Rio Mimbres, Dgo., 7600', 11-vii-81 28 mi E of El Salto, Dgo., 8300', 5-viii-81 3 mi SE of Villa Insurgentes, Sin., 8200', 4-viii-81

Dymasias dymas (W. H. Edwards) Copala, Sin., 1500', 6-x-70

Phyciodes texana (W. H. Edwards) 2 mi E of Santa Lucia, Sin., 4000', 6-x-70 Puerto Buenos Aires, Dgo., 8500', 8-x-70 10 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 7000', 6-viii-81

Phyciodes mylitta (W. H. Edwards) Puerto Buenos Aires, Dgo., 8500', 8-x-70 21 mi E of El Salto, Dgo. (7 mi E of Llano Grande), 8600', 10-vii-81

Phyciodes vesta (W. H. Edwards) 20 km N of Mex. 45 on Dgo. Hwy 39, 6400', 12-vii-81 10 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 7000', 6-viii-81

Junonia coenia Hübner 10 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 7000', 6-viii-81 (typical and nigrosuffusa Barnes & McDunnough) 28 mi E of El Salto, Dgo., 8300', 5-viii-81

Vanessa virginiensis (Drury) Puerto Buenos Aires, Dgo., 8500', 8-x-70 58 mi W of Dgo. Hwy 39 on Dgo. Hwy 26, 7700', 13-vii-81

Vanessa cardui (Linnaeus) 21 mi E of El Salto, Dgo. (7 mi E of

Llano Grande), 8600', 10-vii-81 28 mi E of El Salto, Dgo., 8300', 5-viii-81

Nymphalidae-Limenitidinae

Adelpha iphichus (Linnaeus) 5 mi E of Copala, Sin., 2500', 6-x-70

Adelpha serpa Boisduval 5 mi E of Copala, Sin., 2500', 6-x-70

Adelpha bredowii Geyer Palisades, Dgo., 6500', 4-x-70 2 mi E of El Palmito, Sin. (in Dgo.), 6500', 7-x-70 10 km W of Dgo. Hwy 39 on Dgo. Hwy 26, 7000', 6-viii-81 3 mi SE of Villa Insurgentes, Sin., 8200', 4-viii-81

Cyclogramma bacchis Doubleday 2 mi E of Santa Lucia, Sin., 4000', 6-x-70

Epiphile adrasta (Hewitson) 2 mi E of Santa Lucia, Sin., 4000', 6-x-70

Nymphalidae-Charaxinae

Anaea troglodyta (Fabricius) 10 mi E of El Salto, Dgo., 7500', 22-viii-71 La Ciudad, Dgo., 8500', 7-x-70

Anaea euripile confusa Hall 5 mi E of Copala, Sin., 2500', 6-x-70

Nymphalidae-Morphinae

Morpho polyphemus Doubleday and Hewitson Copala, Sin., 1500', 6-x-70 5 mi E of Copala, Sin., 2500', 6-x-70

Nymphalidae-Satyrinae

Cyllopsis pertepida (Dyar) 21 mi E of El Salto, Dgo. (7 mi E of Llano Grande), 8600', 10-vii-81

Cissia pellonia (Druce) 3 mi SE of Villa Insurgentes, Sin., 8200', 4-viii-81 28 mi E of El Salto, Dgo., 8300', 5-viii-81

Gyrocheilus patrobas (Hewitson) Palisades, Dgo., 6500', 4-x-70 2 mi E of El Palmito, Sin. (in Dgo.), 6500', 7-x-70

A Note on What We Missed

The data presented here show 59 species taken once, 26 taken twice, 8 thrice, and 2 four times. This sequence is in close representation of a Poisson series with $\hat{\lambda} = .88$ (Sokolnikoff and Redheffer 1958). The corresponding zero member of this series is 67, which may give some crude estimate of the number of species missed. The accuracy of the Poisson model for missed species depends on the absence of bias from the data—a requirement that is usually violated in many ways. Examples of bias are mixing of data from wet and dry years, from wet and dry seasons, from unequal surveying effort, from unequal surveying skills, from providing unequal access, and from assuming all species are equally easy to see and identify. In every case, the use of biased data tends to underestimate the number of missed species, so the number of species overlooked will realistically be considerably greater than 67.

Unusual Louisiana Sightings

Continued from pp. 7

Nevertheless, I think the following are important considerations: (1) an additional number of observers in northwest Louisiana in recent years has initiating more extensive field work there; (2) unusual short-term weather conditions in southern Texas/northern Mexico led to larger populations of butterflies, which in turn prompted above average dispersal (emigration); (3) unusually strong south to southwest wind currents during autumn in Texas both facilitated and directed some butterflies that were experiencing annual peaks in population and already beginning to disperse, to establish a

flight path that intersected northwest Louisiana and western Arkansas; and (4) climatic changes in general are prompting a northern extension of the breeding range of assorted species typically found in south Texas/northern Mexico, ergo, these species can now invade more northern latitudes heretofore inaccessible.

Time will tell. Meanwhile, we Cajun butterfly aficionados are relishing Louisiana's exotic lagniappe!

Acknowledgements

I would like to thank the following for their on-going interest in butterflies and for sharing their observations and data with me: Terry Davis, Vicki LeFevers, Craig Marks, Ron Martin, Rosemary Seidler, Jean Trahan, and

Jeff Trahan.

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2008 Meeting of the Lepidopterists' Society

News and Updates

Additional Guest Housing

Herbert Hall will be available on a "first come – first serve, make your own reservation" basis. Rates are \$30/single and \$35/double for second floor (no elevator) and \$35/single and \$40/double for first floor. Each room has two single beds with linens, phone with voice mail, cable TV with HBO, MicroFridge (combination refrigerator, freezer, microwave), and high-speed internet connection. There are no private bathrooms. More information on Herbert Hall is available at <http://www.housing.msstate.edu/guest/> or from Lari Wright at 662-325-2867. Reservations should be made directly to this phone number or to . Herbert Hall is about ½ mile from the meeting venue in Bost Extension Center.

Payment for Dormitory Rooms

A block of dormitory rooms have been

reserved until June 1, although these may be in more than one dorm, all of which are 1/3-1/2 mile from the meeting venue. Rooms have been reserved for June 23 through June 27 (checkout before noon on June 28). We have requested the newer dorms that have private bathrooms. Indicate on the registration form if you want to reserve a single or double room (rates have increased to \$35 single/45 double) and the dates you will be staying. Payment by credit card or check for dorm rooms will be separate from advance registration fee and must be paid to the Department of Entomology at the registration desk (Entomology Building on June 23-24 and Bost Extension Center on June 25) where room keys will be provided.

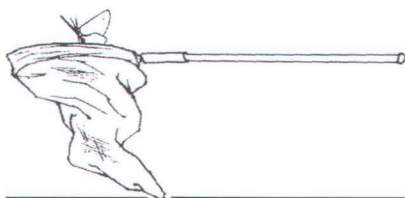
T-shirts

The T-shirt design can be viewed at the Museum's website (<http://mississippi>

entomologicalmuseum.org.msstate.edu/ A choice of white or stonewash green T-shirts (Beefy-T, 100% cotton) with six-color printing (see for samples) will be available at a cost of \$7 for white and \$8 for stonewash green (add \$1.50 for XXL size). Shirts must be pre-ordered before May 20 from Joe MacGown, jmacgown@entomology.msstate.edu or 662-325-9551. Please indicate size (see fishhead for available sizes) and color preference of shirt in your order. Checks made to "Department of Entomology" or cash payment are accepted with the pre-order or when the shirt is obtained at the registration desk.

Future up-dates

See the Mississippi Entomological Museum website <http://mississippientomologicalmuseum.org.msstate.edu/> for future updates.



Mailbag...

January 16, 2008

Editor:

I recently chanced upon the following passage from the writings of a pioneer American entomologist (actually a naturalized Brit). I suspect I am not alone among my contemporaries in sharing his feelings: "To my mind the naturalist who rakes out of the dust of old libraries some long-forgotten name and demands that it shall take the place of a name of universal acceptance, ought to be indicted before the High Court of Science as a public nuisance, and on conviction sent to a Scientific Penitentiary, and fed there for the whole remaining term of his scientific life upon a diet of chinch bugs and formic

acid." Benjamin Walsh, the first US Federal entomologist

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Editor:

I think that our readers might wish to learn that the McGuire Center for Lepidoptera and Biodiversity (Florida Museum of Natural History, University of Florida, Gainesville) is currently featuring in its Hall of Culture and Science a new exhibit titled "Butterflies and Moths in Contemporary Zuni Art." (Zuni are Native Americans who live in Zuni Pueblo located in the high desert of northwestern New Mexico.) The 85

pieces in the exhibit highlight the role of Lepidoptera in the belief system and art of contemporary Zuni culture. Objects include kachinas (doll-like representations of deities), fetishes (small carvings of animals that have spiritual powers), paintings, jewelry, and miscellaneous crafts—all on loan from my personal collection secured during the summer of 2006 in Zuni. The unique exhibit will run at least through 2008 (the museum is closed on Thanksgiving and Christmas). For a visual sample, access the following web site: www.flmnh.ufl.edu/exhibits.

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Conservation Matters:
Contributions from the Conservation Committee

NatureServe and the Natural Heritage Program Network

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NatureServe and state and provincial Natural Heritage Programs have a huge positive impact on lepidopteran conservation in the Western Hemisphere. Yet lepidopterists are largely unaware how these two intertwined entities operate, nor do most of us appreciate the immense impact they have on Lepidoptera conservation in North America and much of Latin America. Every state and province in northern North America has a Natural Heritage Program embedded in government or a university, and together they inventory, catalogue, and support conservation of the rarest species and the most outstanding elements of the natural diversity in their state or province. This applies to entire countries in Latin America. These elements of natural diversity include all the natural communities native to a region as well as those plants and animals which are so rare that they need special conservation attention.

Natural Heritage Programs follow methodology developed by The Nature Conservancy (TNC) which helped to establish the first state Natural Heritage Program in 1974. Over the next two decades, The Nature Conservancy and a collection of public and private partners built a network of Heritage Programs in the United States to collect and manage data about the status and distribution of species and ecosystems of conservation concern. As originally envisioned, Heritage Programs were designed to identify where the best examples of habitats that occurred in a region, as well as the best sites for conserving rare species – the

“last of the least and best of the rest” approach. The data were used to guide conservation actions, and Heritage Program data served as the underpinnings of many state nature preserve systems and TNC’s global acquisition and stewardship efforts. As this network expanded to include Canada and Latin America, natural heritage programs became the recognized source for comprehensive and detailed information on rare and endangered species and threatened ecosystems, relied upon by government agencies, corporations, and the conservation community alike. No environmental impact statement is complete without a Heritage data review. TNC, which had provided scientific and technical support to the network, transferred this role to NatureServe in 1994, along with professional staff, databases, and responsibility for the scientific standards and procedures under which the network operates.

NatureServe (www.NatureServe.org), a non-profit membership-based organization, represents an international network of biological inventories—known as Natural Heritage Programs or Conservation Data Centers—operating in all 50 U.S. states, Canada, Latin America and the Caribbean. Although every Heritage Program is unique, operating within a defined geographic area and variously housed within some institutional setting, they are focused on gathering the information required to protect natural resources in their region. That work goes beyond collecting and managing detailed local information on plants,

animals, and ecosystems, and includes the development of information products, data management tools, and conservation services to help meet local, national, and global conservation needs. NatureServe coordinates the basic framework that guides this activity, ensuring that there is global data quality and proper interpretation. This results in objective scientific information about species and ecosystems that is used by all sectors of society—conservation groups, government agencies, corporations, academia, and the public—to make informed decisions about managing our natural resources.

How does this all relate to Lepidoptera conservation? The underlying Heritage methodology was designed from the start to support a “coarse filter / fine filter” approach to building a complimentary system of conservation reserves. Coarse filters are intact ecological systems that, if effectively conserved, protect the majority of species in the system. The coarse filter idea is simple – conserve the best examples of ALL ecological systems in a region, and you are likely to conserve the majority of all species on a regional basis as well. Heritage data doesn’t just tell us the names of the communities and where they are, but also includes detailed assessments of each site’s ecological integrity and long-term viability, ensuring that sites with the best chances of maintaining their complete communities, moths and butterflies included, are priorities for conservation. A complementary system of reserves (a reserve system that

protects multiple examples of all ecological systems in a region) plays an obvious and intuitive role in conserving Lepidoptera species, both common and rare.

There are, however, species that slip through the coarse conservation net. In the US and Canada, Heritage Programs track these species as well. These rare species form the "fine filter" of conservation. In North America, these species can be found in almost every taxonomically well known group, but in Latin America and the Caribbean it is primarily focused on vertebrates – a reflection of the immense species diversity present in tropical systems, resources, capacity of staff, and status of knowledge. Although most rare Lepidoptera use rare ecological communities and are likely to be picked up in sites identified as coarse filters, there are exceptions. In the Midwest, Mitchell's satyr is a good example – it uses a fairly uncommon habitat type, wetland system known technically as *North-Central Interior Shrub-Graminoid Alkaline Fen*, but presence of the butterfly is not necessarily correlated with botanical composition or obvious measures of botanical habitat quality. Conservation efforts that focused exclusively on the best examples of this wetland type would conserve some amazing habitat, but just a few populations of Mitchell's satyr. More importantly, we would miss some of the best opportunities to protect populations of the satyr, which often occur in mundane wetlands.

To accommodate this potential oversight, heritage programs track individual species which are thought to be globally rare, and state programs usually track state rare species as well. Again, these data go beyond simple dots on maps and usually include some assessment of population health if known. NatureServe has developed extensive guidance for assessing populations of species or guilds of species, as well as an overview of the conservation issues surrounding the species – most of this text for the Lepidoptera was written by

Lepidopterists' Society members Dale Schweitzer and Paul Opler. Go to NatureServe.org and take a look at a federally listed species abstract and you will almost certainly be surprised at the depth of the conservation text provided.

It's also worth noting something that the NatureServe data are not – a complete record of occurrence data for all species of plants and animals. The magnitude of such a database would be overwhelming. NatureServe data are limited to species of conservation concern, those ranked G1-G3 and in the states where they are imperiled, species ranked S1-S3 as well (see side bar for an explanation of G- and S- ranks).

Where Heritage Programs exist, they often play a quintessential role in conservation. For example, the Indiana Department of Natural Resources manages a system of 210 State Nature Preserves that is explicitly designed to protect representative examples of all terrestrial community types across the state. A few years ago, I assessed how well this system performs relative to conserving state-rare butterflies – and it does exceptionally well (Shuey, 2005,

American Midland Naturalist 153:117-127).

Planning in the Central Tallgrass Prairie Ecoregion is similar to ecoregional planning efforts across the entire US, relied on Heritage data from six Midwestern states to identify the best opportunities for conserving the finest examples of ecological communities in this agriculturally dominated region. Just as importantly, Heritage data were used to identify clusters of sites where restoration would have the greatest impact for conserving imperiled prairie systems and species. At one of those sites, Kankakee Sands in Illinois and Indiana, almost 12 square miles of sand prairie restoration is designed to heal a landscape that spans over 30,000 acres. The site supports an intact prairie and savanna lepidopteran community, including the eastern most prairie-inhabiting *Speyeria idalia* population.

In Latin America, national strategies for conservation have often been underpinned by Heritage data. For example, heritage data was used in

Interpreting NatureServe Conservation Status Ranks

(extracted directly from the NatureServe Web Page - <http://www.natureserve.org/explorer/ranking.htm#interpret>)

The conservation status of a species or community is designated by a number from 1 to 5, preceded by a letter reflecting the appropriate geographic scale of the assessment (G = Global, N = National, and S = Subnational). The numbers have the following meaning:

- 1 = critically imperiled
- 2 = imperiled
- 3 = vulnerable to extirpation or extinction
- 4 = apparently secure
- 5 = demonstrably widespread, abundant, and secure.

For example, G1 would indicate that a species is critically imperiled across its entire range (i.e., globally). In this sense the species as a whole is regarded as being at very high risk of extinction. A rank of S3 would indicate the species is vulnerable and at moderate risk within a particular state or province, even though it may be more secure elsewhere.

Extinct or missing species and ecological communities are designated with either an "X" (presumed extinct or extirpated) if there is no expectation that they still survive, or an "H" (possibly extinct or extirpated) if they are known only from historical records but there is a chance they may still exist.

Columbia to identify sites that, if conserved, would protect ecological systems and species that were poorly represented on conservation lands. In response, Columbia created two new protected areas in 2007, Complejo Doña Juana y Cascabel National Park (240,000 acres) and Serranía de Churumbelos National Park (287,000 acres). These two parks protect 825 square miles of moist and tropical cloud forests in the Columbian Andes—habitat that is home to rare and endangered species such as the spectacled bear, the mountain tapir, the Andean condor, and the puma, as well as 461 species of birds. No doubt both parks are home to amazing assemblages of Neotropical butterflies, moths, and other wildlife.

We, the members of the Lepidopterists' Society, can help the network to be more effective in conserving insects and other invertebrates that we find dear. Most Heritage biologists are plant ecologists, botanists or vertebrate biologists. It's a rare program that has a staff member dedicated to insects, or even staff with appreciable knowledge of invertebrate biology. Hence the data for global and state imperiled Lepidoptera is thin, usually biased

toward more charismatic species or Federally Endangered species (a designation which inevitably results in federal funding for inventory work). State-level rankings for Lepidoptera are often based on best guesses with variable accuracy that is refined only as new data emerge. Population trends, especially slow and steady changes, usually go unobserved by Heritage staff until the situation is obvious. For example *Cyllopsis gemma* in Indiana is on the increase and spreading northward – its S2 rank probably needs to be amended to reflect this improvement in fortune for the species. Similarly, no one has seen *Chlosyne harrisii* in Indiana in decades, it may well be extirpated despite its S2 ranking.

Our members are in the field constantly, looking for unusual species and sampling interesting habitats. Every heritage program in Canada and the US would love to know what we collectively know about global and state ranked species. And it is pretty easy to move that knowledge to them - a simple phone call or email to your local heritage program is likely all it takes to get the ball moving (find contact information at <http://>

www.natureserve.org/visitLocal/index.jsp). Most state programs have (on-line) data forms that can be printed and submitted. While the data fields are a bit overwhelming, I always keep the information I provide lean but accurate. Once incorporated into the geographically referenced heritage database, your contributions are then available for use in conservation planning, environmental impact assessments and formulating habitat management decisions.

The alternative – not sharing our collective knowledge – is tantamount to helping those who would destroy or develop high-quality habitats. I've always argued that our membership has a major role to play in conservation – that our collective experience and knowledge has more value than reductionist dot-maps in field guides. If we ever expect to leverage our insights to exert some measure of influence with conservation organizations, then we need to engage. The primary threat to Lepidoptera diversity is habitat loss, and we, the members of the Lepidopterists' Society, can actually do something about it.

An Undescribed Species of *Carystus*

Continued from pp. 9

Burns, J. M. and D. H. Janzen. 2005. Pan-neotropical genus *Venada* (Hesperiidae: Pyrginae) is not monotypic: four new species occur on one volcano in the Area de Conservación Guanacaste, Costa Rica. *Journal of the Lepidopterists' Society* 59:19-34.

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Pelham Catalogue

The long-awaited *Catalogue of the Butterflies of the United States and Canada*, by Jonathan P. Pelham was published in March, 2008. Published as Volume 40 of the *Journal of Research on the Lepidoptera*, this incredible resource can be ordered from BioQuip for \$25.00.

The catalogue is 648 pages long and lists all the taxa and their synonyms of all butterfly species found in North America north of Mexico.



Notes on *Metrea ostreonalis* Grote

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Metrea ostreonalis Grote is a large, unusual crambid of sporadic occurrence in eastern North America; this note updates its taxonomy, biology, and distribution. Adults span 33 – 37 mm and are white with bluish gray patches (fig. 1, pp. 25). They fly from mid-May (AL) to late August (OH), peaking mid-June to mid-July everywhere. The larvae are bluish gray with black tubercles and orange dorsal and lateral stripes, and they feed July – September and overwinter as pupae (McDunnough 1931).

The male genitalia have “squamiform” and “lamelliform” structures on the vinculum and eighth sternite (fig. 2, pp. 25), so the species belongs to the Eurrhyni (Odontiinae) (Leraut & Luquet 1982), not to Dichogamini. Cladistic analysis (Hayden, in prep.) supports Munroe’s assertion that *Metrea* is related to the Neotropical *Cliniodes* Guenée (1961, 1995). Like a pair of washboards and scrapers, the eurrhynine squamiform-lamelliform apparatus stridulates in ultrasound as the males extrude their hair pencils. However, only one Australian eurrhynine has been recorded (Gwynne & Edwards 1986), so observation of Nearctic species such as *Metrea*, *Mimoschinia* Mun., and *Pseudoschinia* Mun. should be fruitful.

Two host records are published for *Metrea*: once each on *Rhamnus frangula* L. (McDunnough 1931) and *Dirca palustris* L. (Munroe 1961). *Dirca* or leatherwood (Thymelaeaceae) is native to most eastern US states and Canadian provinces, and its identity as the original host is supported by more records and relatives’ confamilial host preferences. *Metrea* larvae were collected on *Dirca* in Oneida Co., Wisconsin in 1974 and 1976 (S. Krauth, U. Wisconsin, pers. comm.). *Cliniodes* feed on *Daphnopsis* in Costa Rica

(Janzen 2005); *Heortia* Led. (the sister genus of *Cliniodes*+*Metrea*) defoliates *Aquilaria* and other Thymelaeaceae in SE Asia (Munroe 1977; Singh et al. 2000), and *Hemiscopis* spp. feed on *Wikstroemia* in Australia and Japan (Turner 1908; Tominaga 1999). This is the largest radiation of moths on a plant family known for unusual chemical defenses (Robinson et al. 2008). *Dirca*’s patchy occurrence mirrors that of the moth, although the record from *Rhamnus* must be accounted for.

Weak phototropism can also explain its rarity. Even in outbreaks, tropical eurrhynine pests *Dicepolia* Sn., *Heortia*, and *Deanolis* Sn. do not fly readily to light (de Oliveira 1941; Singh et al. 2000; Waterhouse 1998). Nevertheless they all respond to some degree, and aridland eurrhynines are often found at lights.

This being so, inspection of records not surprisingly reveals a wider distribution than that reported in Munroe (1975) (fig. 3). The most frequent records still come from southern Quebec and Ontario, such as recent records in Algonquin Prov. Park (Season Summary 2005) and Dunrobin, ON (Scott, 2006). It is common on Manitoulin Island (J. Morton, pers. comm.) However, the species occurs in montane Jackson Co., AL (H. Grisham) and in the Ohio River basin: Beaver Co., PA; Greenbrier Co., southern WV and Gilmer Co., central WV (J. Glaser); Claremont Co., OH (A. Braun); Menifee Co., eastern KY (L. Gibson). There are old and new records from the Potomac River: Washington D.C. (USNM) and Montgomery Co., MD (USNM; J. Glaser).

Besides Washtenaw Co., MI (CNC, UMMZ), the moth occurs as far west as Oneida and Vilas Counties, WI (S.

Krauth, U. WI) and as far north as Matachewan, ON (L. Taman: 1995 Season Summary). In the northeast US, it inhabits the Hudson and Champlain Lowlands and adjacent areas: the Albany Pine Bush, NY (T. McCabe, NY State Mus.); Litchfield Co., CT (D. Wagner); Clinton Co., NY (Forbes 1923); Grand Isle, VT (S. Griggs, U. VT); and a specimen from “Bear Mts.,” NY (USNM), which probably refers to a locality in northeast NY. The type locality is Amherst, Hampshire Co., MA, and Forbes mentions it elsewhere in CT without specification (1923). Maine localities are in Aroostook, Franklin, Kennebec, Penobscot (Bangor) and Waldo Counties (USNM; Fernald 1894). Many sites have *Dirca* or the calcareous soil that the plant prefers. Pupal cases in the USNM from San Antonio, TX are probably erroneous.

Despite having visited several sites, I have not yet seen the insect alive. Many recent records over a wide area give

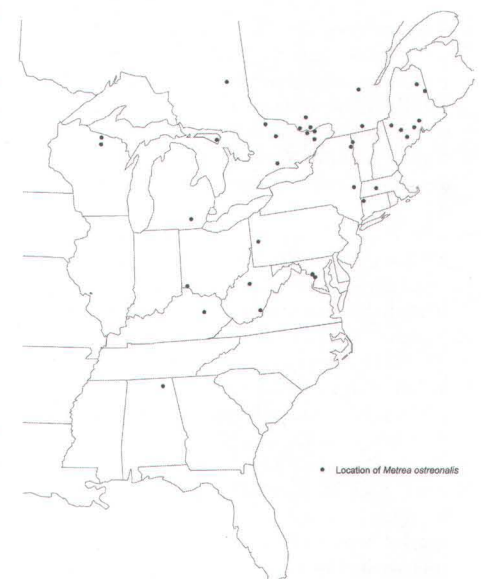


Fig. 3: Distribution of *M. ostreonalis* in the US and Canada; see text for details.

reason to expect more encounters, and there are many collections that I have not yet visited. One DNA "barcode" sequence has been obtained from a Manitoulin specimen (J. Morton, *pers. comm.*). Interested parties should contact the above collectors or me for more information.

I thank those who have given me records, information, access and help; besides those listed above, James Adams, Richard Brown, Jason Dombroskie, Lynn Scott, Jayne Yack, and to personnel of the Academy of Nat. Sci. (Philadelphia), Canadian National Coll., Carnegie Mus. of Nat. Hist., the USNM, the Natural Hist. Mus. (London), U. of Mich. Mus. of Zoology, TNC of Michigan, and Algonquin Prov. Park, ON. Support of the Rawlins Endowment (Cornell U.) enabled my travel.

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***Psilopleura polia minax* Draudt, 1915: (Arctiidae: Ctenuchinae) a New United States Record from the Lower Rio Grande Valley, Texas**

Ed Knudson and Charles Bordelon

Texas Lepidoptera Survey, 8517 Burkhardt Rd. Houston, TX, 77055

This article is to illustrate and document the occurrence in the United States of *Psilopleura polia minax*, a Neotropical ctenuchine arctiid moth.

One male specimen (fig.1, pp. 25) was collected at blacklight by Charles Bordelon in Hidalgo Co., TX, Mission on 18-XI-07. Although noting a resemblance to *Psilopleura vittata* (Walker, 1865), we thought that this was possibly a different species in the same genus. A photo of the mounted specimen was sent to Julian Donahue,

who compared this to series of *Psilopleura* at the Los Angeles County Museum and made the definitive determination, with the proviso that the subspecies designation is open to question, in that *minax* may prove to be a good species. Both species occur from Mexico into Central America; nominate *P. polia* is from South America.

Psilopleura vittata has been collected several times in Texas. The first record is not known to us, but may have been a male specimen collected by Andre

Blanchard in Jackson Co., TX, Deutschburg, on 18-IX-73. Another specimen was collected by Greg Muise in Uvalde Co., TX, Concan on 14-X-02. A Mexican specimen of *P. vittata* is illustrated for comparison (Fig. 2, pp. 25).

Acknowledgments

We wish to thank Julian Donahue for providing the determination of this new record.

The Marketplace

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For sale: Book by David W. MacDougall A Field Guide to the Karner Blue Butterfly. 2007. \$8 postpaid in US Send checks to: ECOS, PO Box 9118, Niskayuna, NY 12309. Signed copies available on request, no charge. 503

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Contact: Alvin Ludtke, 916-344-1626, aludtke@earthlink.net 503

Wanted: 1988 *Annotations on the Catalogue of Papilionidae and Pieridae*, 1:4 pp. Ch. Bridges, publisher, 502 W. Main, 120., Urbana, Illinois 61801, USA [Comprises addenda and corrigenda in the section on Atroplanur and relevant libraries] Kent H. Wilson P.O. Box 1097 Edmond, Oklahoma, USA 73083-1097. 493

For Sale: A small selection of books in very good to mint condition dealing with the Saturniidae and Papilionidae. Please write or email for a list with prices. Stephen Miller, 7277 Oat Hills Lane, Browns Valley, CA 95918-9603; westernlm@syix.com

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Wanted: A culture of the Buckeye butterfly, *Junonia coenia*. Contact: Carlos White, P. O. Box 1535, Shafter, CA 93263 white.c2@gmail.com 494

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.

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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.

Wanted: Contact with someone who knows how I can get artificial hosts for caterpillars out of the normal breeding season, such as Saturnids that emerge during the cold season. Ken Knight 1022 Widdicomb N. W., Grand Rapids, MI 49504 or call 616-459-4598. 493

For Sale (USA only): Cocoons/ova of *Antheraea polyphemus*, *Callosamia promethea*, *Hyalophora cecropia*, *Paonias myops*. Karl W. Ploran, 110 Route 20, Chester, MA 01011-9642; karlmir@verizon.net 493

Equipment

Light Traps: 12 VDC or 120 VAC with 18 inch vanes (15 & 32 Watt) and 24 inch (40 Watt). Rigid vanes of Stainless Steel, Aluminum, or Plexiglass. Rain Drains and beetle screens to protect specimens from damage. **Collecting Light:** Fluorescent UV 15, 32 & 40 Watt. Units are designed with the ballast enclosed in a weather tight cast aluminum enclosure. Mercury Vapor: 160 & 250 Watt self ballast mercury vapor with medium base mounts. Light weight and ideal for trips out of the country. **Bait Traps:** 15 inch diameter and 36 inches in height with a rain cloth top, nylon coated fiberglass screen, and supported with 3/16 inch steel rings. A plywood platform is suspended with eye bolts and S hooks. Flat bottom has a 3/16 inch thick plastic bottom that will not wrap or crack. Bait container is held in place by a retainer. For more information, visit our web site at: www.leptraps.com, or contact Leroy C. Koehn, Leptraps LLC, 802 South Third Street, Watseka, IL 60970-1607: Tel: 815-515-4060 493

For Sale: Bioquip Tropical Net in canvas bag. Reasonable offers accepted. P.F. Milner (828)877-5953 pamilner@citcom.net 493

Specimens

Wanted: Will pay cash for *Dynastes hercules* (17-18cm) *Titanus giganteus* (17-18cm) *Goliathus* (11-12 cm). Yoshiaki Furumi, 97-71 Komizo, Iwatsuki-Shi, Saitama-Ken 339-0003 Japan 503

Research

Research assistance needed - Drepanoidea

We are conducting a molecular phylogenetic analysis of Hook-Tip Moths and relatives (Drepanoidea) in order to understand the evolution of acoustic communication in drepanoid larvae. We are urgently needing live eggs or larvae of any species of Drepanidae (Drepaninae, Cyclidinae, Thyatirinae) or Epicopeiidae, but we are especially interested in obtaining larvae of Thyatirinae. Larval or adult specimens preserved in alcohol will also be appreciated. Tubes containing 100% ethanol will be provided if necessary. A small honorarium may be provided to anyone who can make a substantial contribution to the project. Please contact me (Jayne Yack) for additional questions.

Dr. Jayne Yack (Department of Biology, Carleton University, 1125 Colonel By Drive, Ottawa, Ontario, Canada K1S 5B6, jyack@connect.carleton.ca)

Akito Kawahara (Department of Entomology, University of Maryland, 4112 Plant Sciences, College Park, MD 20742, kawahara@umd.edu) 493

Delano S. Lewis (PhD candidate) and Dr. Charles V. Covell Jr. seek to borrow, purchase or exchange for specimens of yellow-and-black, diurnal, neotropical geometrid moths (Sterrhinae, Cyllopodini) for revisionary study. These mimetic moths are often mixed with similarly colored members of other moth families in collections, such as Notodontidae (Dioptinae) and Arctiidae. Many thanks. Please contact us at dlewis@ufl.edu or covell@louisville.edu McGuire Center for Lepidoptera and Biodiversity, FLMNH, Hull Rd. at SW 34th St., Gainesville, FL, 32611-2710. 503

Ken Strothkamp, a biochemist at Lewis & Clark College in Portland, Oregon currently conducting a research project on *Lophocampa maculata*, the spotted tussock moth. Working on a series of comparative studies between the

individual I have from Oregon and individuals from Eastern Canada or the Northeastern U.S. Looking for someone who can supply me with either eggs or first instar larvae this summer from a location in Northeastern North America. All shipping expenses would be reimbursed. Ken Strothkamp, kgs@lclark.edu 503

Announcement

2008 Meeting of the Pacific Slope Section of the Lepidopterists' Society

The 2008 Pacific Slope Section meeting of the Lepidopterists' Society will be held at Alturas in northeastern California, Modoc County. The meeting will be held from Friday PM, 11 July through Sunday AM, 13 July 2008.

Papers submitted on any aspect of Lepidoptera will be accepted by Dr. Jerry Powell (powellj@nature.berkeley.edu) who is coordinating the presentations for the meeting.

Good collecting and observing of both moths and butterflies should be expected as this area. It is adjacent to the Warner Mountains, near the western edge of the Great Basin and includes the Modoc Plateau. Additional information about the area can be found at www.alturaschamber.org and at www.fs.fed.us/r5/modoc.

Interested members can contact Laurence Crabtree, P.O. Box 213, Bieber, CA 96009; by phone at 530.294.5366 or email lcrabtree@fs.fed.us or Liam OBrian at liammial56@yahoo.com or by phone at 415.863.1212 for additional meeting information as it emerges.

Membership

Update (cont. from pp. 11)

Shaw, Lawrence H.: P.O. Box 10183, Santa Ana, CA 92711-0183.

Stead, Ken: Box 168, Scotland, Ontario N0E 1V0, Canada.

Wysocki, Paul F.: 2211 Whitney Court, Blacksburg, VA 24060-6489.

Agaraea semivitrea Rothschild, 1909 (Arctiidae: Arctiinae: Phaegopterini), a new United States Record from Southern Texas

Ed Knudson¹, Charles Bordelon², John and Gloria Tveten³

Texas Lepidoptera Survey, 8517 Burkhart Rd. Houston, TX 77055^{1,2}
512 Inwood Drive, Baytown, TX 77521³

The purpose of this article is to document the occurrence in the United States of *Agaraea semivitrea* a widespread Neotropical arctiid moth. A superficially similar moth, *Biturix venosata* Walker, 1865, is illustrated for comparison.

The first specimen a somewhat worn male, was found and collected by the senior author in Hidalgo Co., TX, Mission, on 23-XI-04. It was identified by comparison to photos from several sources, and confirmed by Julian Donohue from a photo. The second two male specimens were photographed alive, and collected by John and Gloria Tveten in Cameron Co., TX, Harlingen, on 5-XI-05, and 8-XI-05 (Fig. 5, pp.25). The next two male specimens (fig. 1), were collected by Knudson and Bordelon, in Hidalgo Co., TX, Estero Llano Grande State Park, on 16-X-06. A female specimen (Fig. 2) was collected by Bordelon in Mission, TX, on 18-XI-06. The last two specimens collected were found at La Lomita Mission Park, Mission, TX, on 19-X-07, by all three authors. One of these, a female, was kept by the Tvetens for ova, but these efforts were not successful. The final example, (Fig. 6), a probable male, was photographed by Robin McLeod in Hidalgo Co., TX, Pharr, on 29-XII-07. All examples were found at lights.

Agaraea semivitrea is a medium sized species, with a forewing length of 13-15mm in TX males and 16 mm in the TX female. A specimen illustrated from Ecuador, has a 37 mm total wingspan, Pinas R., Francisco, et.al. 2000.

This moth is semi-translucent yellowish-gray, with darker veins and a black discal spot on the forewing.

Very fresh examples may have gray scaling between the veins. The hindwing is translucent pale yellowish gray. The head and thorax are gray, with a dorsal black stripe and black stripes on the tegulae. There are also prominent lateral black stripes on the underside of the thorax. The legs are gray, except for yellow laterally on the forecoxa. The first abdominal segment is gray, with a dorsal black stripe; the remaining abdominal segments are orange-yellow dorsally, with a dorsal row of black spots, (which are reduced in the males) and a double row of lateral black spots. The underside of the body is unmarked whitish-gray.

The most similar arctiid species in southern TX is *Biturix venosata* Walker, which is so far known only from the Audubon Sabal Palm Sanctuary, near Brownsville, TX. *B. venosata* differs in several respects; lacking the black discal spot on the forewing, lacking the gray 1st abdominal segment, lacking the black stripe on the tegulae, and having orange-yellow on the head and thoracic collar. A pair of *B. venosata* (figs. 3,4), from Cameron Co., TX, Audubon Sabal Palm Sanctuary are illustrated for comparison.

Agaraea semivitrea was described from specimen(s) from Venezuela. It occurs from extreme southern Texas to Bolivia. Nothing has been found regarding the life history. Twenty species in the genus *Agaraea* are listed by Watson & Goodger, 1986. We have seen examples or illustrations of only a few of these, so there is a remote possibility that the species illustrated here is something other than *semivitrea*, but most of the other species are local in known distribution.

Illustrations of *Agaraea semivitrea* may be found in Pinas, R., Francisco, 2000 (Ecuador); and on the internet (Belize, Costa Rica, French Guyana, Guatemala).

Acknowledgments:

The senior, and second authors would like to thank Martha Martinez, superintendent, Estero Llano Grande State Park, and Texas Parks and Wildlife Dept. for granting permits to investigate Lepidoptera. We acknowledge Jimmy Paz, superintendent at the Audubon Texas Sabal Palm Sanctuary, for permission to conduct Lepidoptera research. We also thank the Mission Chamber of Commerce, for providing access to La Lomita Mission Park, during the Texas Butterfly festival, 2006/2007. The Tvetens thank Thomas Klug and Lupita Lucio for their hospitality and permission to collect and photograph at their home in Harlingen, Texas

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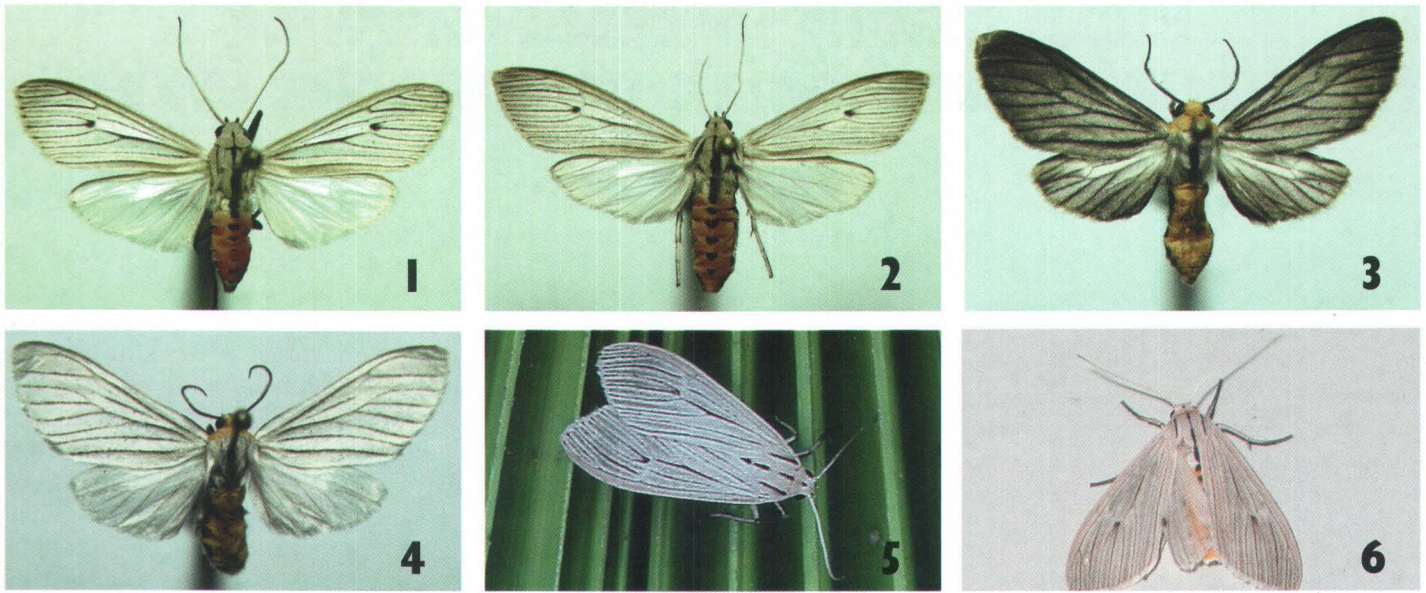
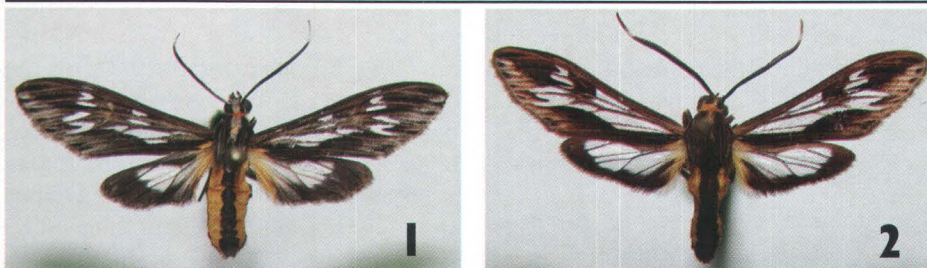
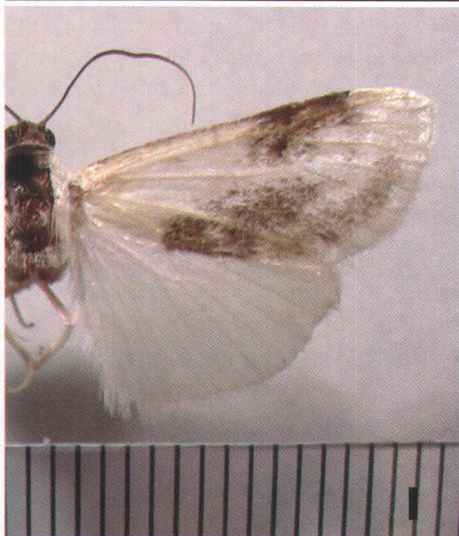


Fig. 1 *Agaraea semivitrea*, male: TX, Hidalgo Co., Estero Llano Grande State Park, 16-X-06, Bordelon & Knudson coll. **Fig. 2** *Agaraea semivitrea*, female: TX: Hidalgo Co., Mission, 18-XI-06, C. Bordelon coll. **Fig. 3** *Biturix venosata*, male, TX: Cameron Co., Audubon Sabal Palm Sanctuary 12-X-04, Bordelon & Knudson coll. **Fig. 4** *Biturix venosata*, female, TX: Cameron Co., Audubon Sabal Palm Sanctuary, 16-X-05, Bordelon & Knudson coll. **Fig. 5** *Agaraea semivitrea*, male, TX: Cameron Co., Harlingen, 8-XI-05, J. Tveten photo **Fig. 6** *Agaraea semivitrea*, male?, TX: Hidalgo Co., Pharr, 29-XII-07, Robin McLeod photo.



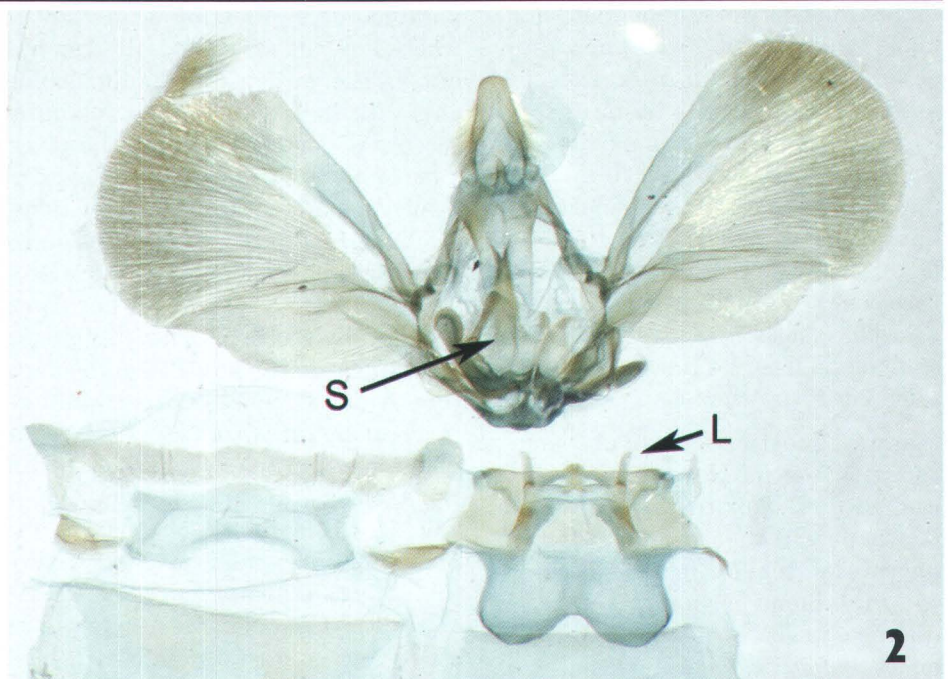
***Psilopleura polia minax* Draudt, 1915: (Arctiidae; Ctenuchinae) a New United States Record from the Rio Grande Valley, Texas**

Fig. 1: *Psilopleura polia minax*, Texas, Hidalgo Co., Mission, 8-XI-07, C. Bordelon coll. **Fig. 2:** *Psilopleura vittata*, Mexico, San Luis Potosi, Cd. Valles, 28-XI-78, E. Knudson coll. See article on pp. 21.



Notes on *Metrea ostreonalis*

Fig. 1: Male *Metrea ostreonalis*. Norway Bay / Que. 5-VII-1938 / G.A. Hobbs. Canadian National Collection. Scale in mm. **Fig. 2:** Genitalia of *M. ostreonalis* (CNC). L, lamelliform structure on 8th sternite; S, squamiform structures (square, paired and slightly offset). See article on pp. 20.



Pupal mating in Zebra longwing (*Heliconius charithonia*): photographic evidence

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Introduction

Pupal mating is a term that describes the behavior of butterfly males seeking out female pupae prior to eclosion and competing for the chance to mate with either phorate (uneclosed) or with teneral (freshly emerged) females. Pupal mating is known for many *Heliconius* species (Gilbert, 1991), but the behavior is otherwise unknown in the Lepidoptera, with the single exception of a lycaenid, *Jamenus evagoras* (Elgar and Pierce, 1988). Also, in *Heliconius*, the behavior arose only once in the course of evolution (all the pupal-mating species form a clade together on the DNA-based evolutionary tree (Beltrán et al, 2007)).

I observed pupal mating for the first time in my back yard in Florida this winter. The following week, Chris Jiggins, a noted *Heliconius* specialist, told me during his visit from Cambridge to the University of Florida that though pupal mating is very well known from observations made in insectaries, it is observed infrequently in nature. The exception is *Heliconius hewitsoni*, which served as a model in a famous pupal mating study by Deinert et al. published in NATURE in 1991. The latter study suggested, for instance, based on the 27 matings observed in the wild, that males with longer wings and shorter bodies should be favored by selection.

Many questions about mate competition in *Heliconius* remain unanswered. For instance, it is not known how frequently mating with the phorate vs. teneral females occurs in the wild. Some earlier literature, for example, indicates that *H. charithonia* males mate with teneral females (e. g., Bogs, 1991). Apparently, if *H.*

charithonia are indeed facultative in the manner in which they mate, they are not unique. *H. erato* males also mate sometimes with teneral females, as observed in insectaries by Chris Jiggins (pers. com.), though they are also documented to mate with phorate females (Gilbert, 1975; Turner, 1981). Perhaps the trait's expression is male-density-dependent. Perhaps some species, such as *H. charithonia*, are less "hardwired" when pupal mating is concerned than, for instance, *H. hewitsoni*. Deinert et al.'s description of *H. hewitsoni*'s mating behavior is not very detailed, but states that "mating takes place as the female begins to eclose."

My observations

The attendance of female pupae by males begins at least a week prior to the pupa becoming receptive. The persistence of males has also been pointed out by Fleming et al. (2005), who state that "males virtually 'camped out' in the garden waiting for female chrysalises to become sexually receptive." The latter article, however, does not describe that 'camping' behavior in detail. In my observations, the males not only visited and visually examined the same pupa for at least a week (Fig. C, pp. 32), but also periodically swarmed it, with fighting occurring over the position on the pupa (Fig. A and B, pp.32). What would be interesting to explore is whether pheromones have anything to do with the cyclic nature of this behavior or whether the landing of one male on the pupa triggers a similar competitive drive in other males. Turner (1981) attributes the ability to locate pupae again and again to memory. Gilbert (1976) provides circumstantial evidence

that anti-aphrodisiacal pheromones might be involved in repelling sexually active males from male pupae of *H. erato* before eclosion, but does not discuss the role of possible female pupal attractants. Males in my observations seemed to be well aware of the pupal presence and whereabouts, but investigative visits were initiated sporadically and so were ritual and actual fights over position on the pupa. These fights consisted of attempts by a male that first landed on a pupa to fend off landing of the next male by opening its wings. If such an attempt was unsuccessful, the attempts to throw the competitor off using pressure of the head and antennae (Fig. B, pp. 28) were used. In the event that more males approached, the two males on the pupae joined in their effort to fend them off by simultaneously opening their wings (Fig. A, pp.28), foregoing for the moment their own rivalry. Otherwise, they mostly maintained a closed wing position as in Fig. D. The competitive behavior would end after one-two hours as abruptly as it would be initiated, but would reoccur on the same pupa periodically throughout its development.

In Fig. D and E, the male on the left has successfully mated with the female by inserting its abdomen into the pupa. Most of the time, there was just one more male positioned on the pupa. That second male remained on the pupa throughout the mating and participated in fending off other males by opening its wings when the latter approached. Only for a brief moment in three hours of observations did I see the second male inserting his abdomen into the pupa. The rest of the time, the abdomen of this "companion" male was held bent backwards, though the claspers were

sometimes open and the abdomen was flexing sideways (Fig. F.) Occasionally, one or two more males succeeded in landing on the pupa, but due to insufficient grasp were dislodged shortly after (Fig. G, pp. 29). I have little doubt that similar observations have been made by the other researchers of *Heliconius* cited here; however, I found no detailed description in the literature. It would be interesting to investigate the role of the "companion" male in the population. Provided that mating success was not coincidental but was achieved by a dominant male, the question could be asked whether the "companion" male is the next in line in mate competition, and whether within a population successful mating is achieved by a small or large number of males.

Eventually, after two-three hours of mating, the female emerged (Fig. H, I, pp. 32) while still *in copula* and remained attached for at least another hour. The female remained passive throughout the process, with the exception of spreading of the wings and discharging meconium. The latter

continued at a very slow rate while *in copula* (Fig. J). Other males continued to approach the mating pair throughout (Fig. L) but with less and less frequency. They were always met with opening of wings by the mated male, which were held open until the intruding males left. The mated pair remained sitting side by side for some period of time even after copulation ceased (Fig. K). At this point, no advances by other males were observed. It was shown by Gilbert (1976) on *H. erato* (which is also a pupal mater) that males transfer anti-aphrodisiacs to females during copulation to prevent future matings. Judging by my observations, this might be the case in *H. charithonia* as well.

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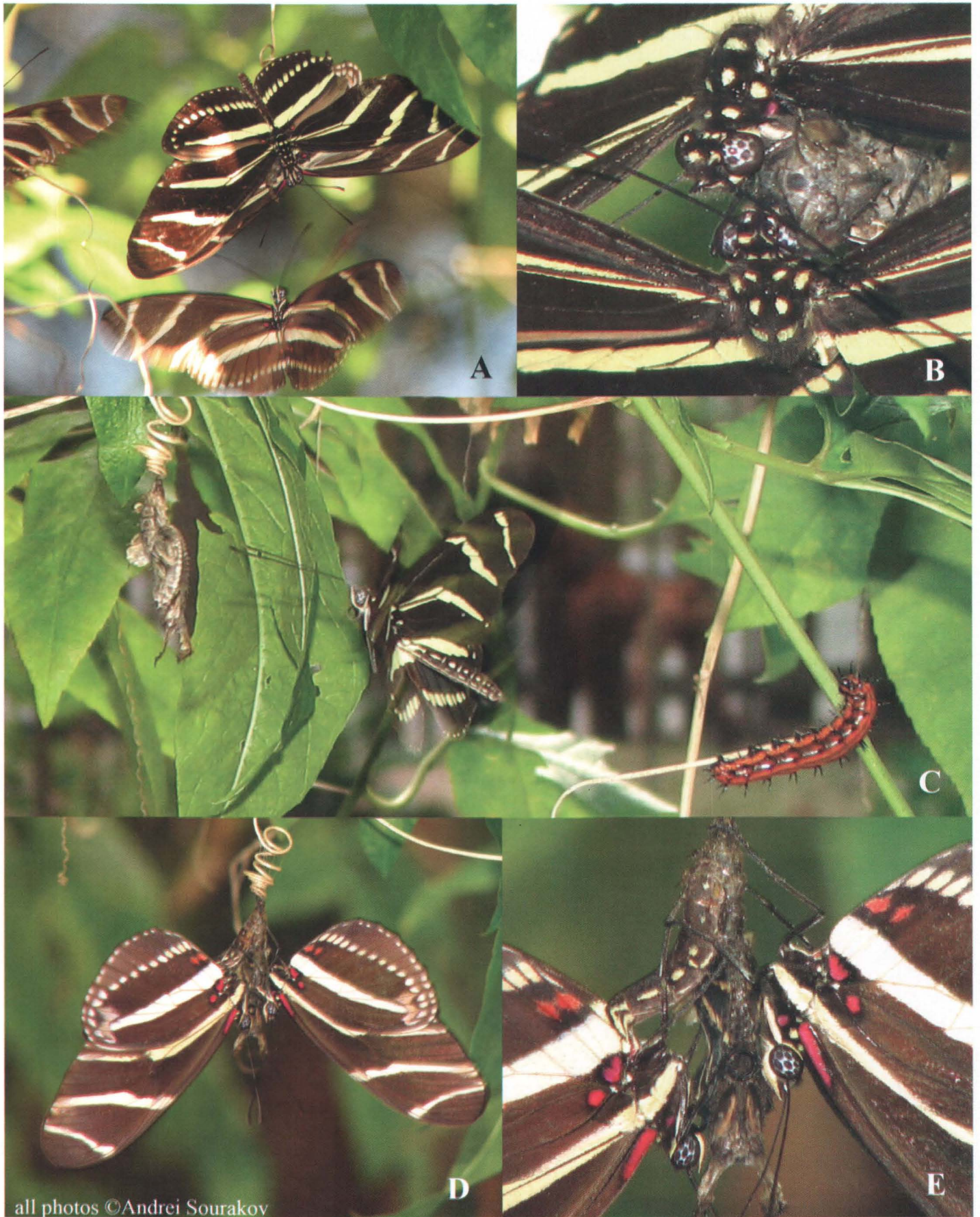
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Lepidopterists' Society Election Results

A total of 531 ballots, excluding those that were completely blank, were received by the stated deadline of January 15, 2007. A total of 24 ballots were received after the deadline, votes were not counted, but Journal Survey questions were. As opposed to the 2007 election, NO questionable ballots were received. Theresults are (* indicates elected officials):

President		Executive Council Members-at-Large	
*John H. Acorn	289	* Stephanie Shank	315
John Shuey	208	* Charles Harp	245
write-in	4	* Todd Stout	241
Vice-Presidents		Stan Gorodenski	213
* Jon Pelham (USA)	382	Steve Fratello	194
* Carmen Pozo (Mexico)	307	Jeff Marcus	163
* Lazaro Roque-Albelo (Ecuador)	242	write-in	2
Stanislav P. Abadjiev (Bulgaria)	198	Secretary	
Joaquin Baixeras (Spain)	191	Mike Toliver	457
write-in	2	write-in	2



Pupal mating in Zebra longwing, *Heliconius charithonia*

See pp. 26 for details.



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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
Bakersfield, CA 93311

Dues Rate

Active (regular)	\$ 45.00
Affiliate (same address)	10.00
Student	20.00
Sustaining	60.00
Contributor	100.00
Institutional Subscription	60.00
Air Mail Postage for News	15.00

Students must send proof of enrollment. Please add \$ 5.00 to your Student or Active dues if you live outside of the U.S. to cover additional mailing costs. Remittances must be in U.S. dollars, payable to "The Lepidopterists' Society". All members receive the **Journal** and the **News** (each published quarterly). Supplements included in the **News** are the Membership Directory, published in even-numbered years, and the Season Summary, published annually. Additional information on membership and other aspects of the Society can be obtained from the Secretary (see address inside back cover).

Change of Address?

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

Julian P. Donahue, Assistant Secretary,
The Lepidopterists' Society,
Natural History Museum of Los Angeles County, 900 Exposition Blvd.,
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).

Submissions of potential new Memoirs should be sent to:

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Museum of Natural History, P. O. Box
208118, Yale University, New Haven,
CT 06520-8118
lawrence.gall@yale.edu

Journal of the Lepidopterists' Society

Send inquiries to:

Brian G. Scholtens
(see address opposite)
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Book Reviews

Send book reviews or new book releases for the **Journal** to:

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Send book reviews or new book releases for the News to the News Editor.

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Submission Guidelines for the News

Submissions are always welcome! Preference is given to articles written for a non-technical but knowledgeable 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 and 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 50 must reach the Editor by the following dates:

Issue	Date Due
2 Summer	Now!
3 Autumn	Aug. 1, 2008
4 Winter	Nov. 7, 2008

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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Pupal mating in Zebra longwing, *Heliconius charithon*



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