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The **News of the Lepidopterists' Society** (ISSN 0091-1348) is published quarterly by The Lepidopterists' Society, c/o Los Angeles County Museum of Natural History, 900 Exposition Blvd., Los Angeles, CA 90007-4057, USA., and includes one or two supplements each year. The **Season Summary** is published every year as Supplement S1 and is mailed with issue 1 of the News. In even numbered years a complete **Membership Directory** is published as Supplement S2 and is mailed with issue 4 of that volume of the News. Please see the inside back cover for instructions regarding subscriptions, submissions to, and deadline dates for, the News.

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Front Cover:

Anaea troglodyta floridalis on 26 February 2010 in Long Pine Key, Everglades National Park (Miami-Dade County, Florida). Photo: Holly L. Salvato

Achalarus tehuacana (Hesperiidae: Eudaminae): a New United States Record from Southern Texas

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Historically, reports of new United States records for Lepidoptera species have been based on specimens. Such vouchers of the first occurrence of a species in the United States are frequently deposited in major institutional collections to be readily available for future studies. In the last several decades, many public nature localities have placed various restrictions on insect collecting, so in some cases, researchers are left with insufficient quality photographs of species that may potentially be new for the United States. Sometimes the identity of the photographed species is clear and unambiguous (e.g., Dauphin et al. 2005, Bordelon and Knudson 2006), however on many occasions such photos pose challenges even for the experts. Some of these more challenging species are poorly known and at present can be unambiguously identified only through genitalic examination. These possible and yet unconfirmed records based on photographs alone include *Calephelis stallingsi* McAlpine, 1971, *Rekoa stagira* Hewitson, 1867, and *Urbanus evona* Evans, 1952. Experts and hobbyists will argue about the identity of these photographs for years to come.

On the other hand, a photograph is a voucher for the live individual, and it can be preserved and made available for scrutiny by researchers. No matter how poor an image is, it may offer important identification clues and lead to unambiguous determination of the species photographed. Such determination may be far from trivial, and diligent analysis may be required to build up a convincing case for some of the new national records.

Here, we present photographic evidence for the first occurrence of *Achalarus tehuacana* (Draudt, 1922) in the United States (Texas, Hidalgo Co.) and support this identification with a detailed analysis of *A. tehuacana* wing pattern characters, detailing differences between it and its apparent closest relative, *Achalarus casica* (Herrich-Schäffer, 1869). We believe that photographs shown here offer unambiguous determination of *A. tehuacana* and establish it as a species recorded from the United States. Since *A. tehuacana* is not widely discussed in the literature and is not well known to most butterfly enthusiasts, we use this opportunity to review available literature sources and characters useful for identification, some of which are suggested here for the first time (and may require additional field testing to note possible exceptions).

On August 2, 2010, Butterfly Docent Rickard was guiding visitor Hardy through the butterfly gardens of the Old Hidalgo Pumphouse World Birding Center, in Hidalgo, Hidalgo Co., Texas. Hardy called to Rickard for help in identifying a skipper he had spotted seeking nectar on some flowering shrubs. As they began taking photographs of the skipper (collecting is prohibited in the park), they debated the identity of the individual. Hardy believed it to be *Achalarus casica* while Rickard believed it to be something else, possibly a *Cogia*. After about ten minutes the butterfly departed, and subsequent searches by others failed to turn it up again. Back at the car, field guides were consulted and it became apparent that *A. tehuacana*, unrecorded from the United States, was also a possibility. Rickard was unfamiliar with this species, but Hardy had encountered it in the Picachos Mountains, north of Monterrey, in Nuevo León, Mexico. Internet sources also seemed to point to *A. tehuacana*, so photos were sent to Grishin and Warren for confirmation.

A. tehuacana was described by Draudt in Seitz Volume V (1922), being placed in the genus *Rhabdoides* Scudder, 1889 (a synonym of *Autochton* Hübner, 1823); ventral wings were illustrated on plate 196 (row b) in the same volume. The description was short and largely comparative to its closest congener, *A. casica*, for which ventral wings were also illustrated. These illustrations are shown here as Fig. 4 (*A. casica*) and 5 (*A. tehuacana*) along with specimen photographs of both species (Figs. 3, 6) to facilitate comparison between them. The original description of *A. tehuacana* reads:

"**R. tehuacana** *sp. nov*. (169 b) I as yet consider to be a distinct species, since there are also typical *casica* before me from the same district. It greatly resembles *casica* above, but it is of a somewhat duller, greyer tone, with


1
2
casica U
3
4
tehuacana
5
6
7
8
light
dark
casica
9
dark
light
tehuacana
10
light apex
darker framing of apical spots
M3
Cu1
Cu2
spots closer together
dark apex
no darker framing of apical spots
spots wider apart
dark areas
M2
M3
dark crescents
casica
11
light areas
tehuacana
12
13
14

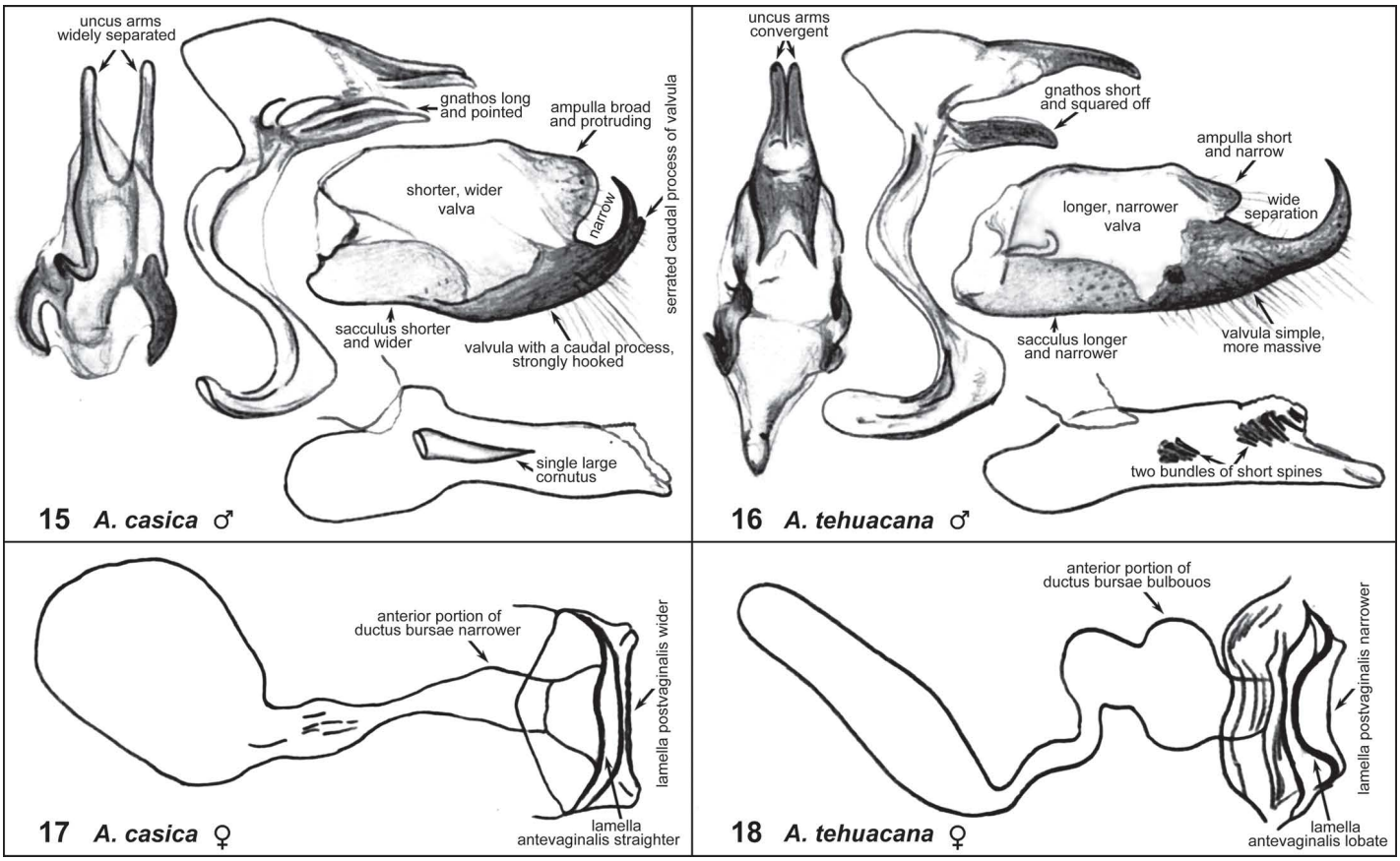

Figure legends

Wing patterns. 1, 2, 7, 8, 13, 14 - *Achalarus tehuacana* female, USA: TEXAS: Hidalgo Co., Hidalgo, 2-Aug-2010, first US record; 3, 4, 9, 11 - *A. casica*; 5, 6, 10, 12 - *A. tehuacana*; 1, 2 - original unmodified photos by MAR; 5 - original illustration of *A. tehuacana* from Draudt (1922); 4 - *A. casica* illustration from Draudt (1922) for comparison; 7, 8, 13, 14 - digitally modified images of right (7, 13) and left (8, 14) wings of *A. tehuacana* from Texas. Left wings are shown as a mirror image and are digitally expanded; 3, 11 - female, USA: TEXAS: Brewster Co. Big Bend National Park, upper Green Gulch bridge, ex ovum, emerged 21-Jul-2004 [NPS]; 6 - female, MEXICO: OAXACA: 8 km N of Nejapa, 12-Aug-1971 [MGCL]; 9 - female, USA: ARIZONA: Cochise Co., Garden Canyon, 19-May-2007; 10 - male, MEXICO: OAXACA: Distrito Miahuatlán, Mpio. San Ildefonso Amatlán, cañon Sto. Domingo-Yocuela, elev. 1,800 m., 7-Jul-2007; 12 - male, MEXICO: OAXACA: 8 km N. of Nejapa, 12-Aug-1971 (Genit. slide M2380, genitalia of this specimen are shown on Fig. 16) [MGCL]. **Genitalia.** Male (15, 16) and female (17, 18) genitalia of *A. casica* (15, 17) and *A. tehuacana* (16, 18). Male genitalia (15, 16) are drawn from photographs in Steinhauser (1974). On each panel (15 and 16), ventral view of uncus and tegumen, left lateral view of genital ring (uncus, gnathos, tegumen, vinculum, saccus) and inner view of the right valva are shown from left to right above the aedeagus. 15. EL SALVADOR: AHUACHAPAN: Rio El Molino, 600m, 22-Apr-1971 (H1306). 16. MEXICO: OAXACA: 8 km N. of Nejapa, 12-Aug-1971 (H1564, slide M2380, wings of this specimen are shown on Fig. 12). Female genitalia (17, 18) are drawn from Austin & Warren (2002). 17. MEXICO: MICHOACAN: Mpio. Uruapan, Cerro de la Cruz, 2000m, 23-Aug-1997 (GTA #10438). 18. MEXICO: COAHUILA: km 214, Cuatro Cienegas, San Pedro de las Colonias, 19-Mar-1996 (GTA #10440). All preparations are currently at MGCL.

smaller, partly almost extinct hyaline spots. On the hindwing beneath the white marginal area is much broader, proximally convex, almost without any black dashes, the other space of a pure ashy-grey without the jet-black transverse bands which are merely indicated, and near the proximal margin with 2 whitish spots. The forewing is somewhat more tapering at the apex. From Tehuacan (Puebla)."

Maybe partly due to Draudt's somewhat tentative assessment of *A. tehuacana* as a species ("yet consider to be a distinct species", "greatly resembles *casica*"), and the lack of larger specimen series in the BMNH, Evans (1952) treated *A. tehuacana* as a subspecies of *A. casica*. According to Evans, both *A. casica* and *A. tehuacana* differ from other *Achalarus* species by a combination of small white, separated hyaline spots on the forewing, lack of a costal fold in males (though *A. albociliatus* (Mabille, 1877) also lacks a costal fold), and checkered white fringes. Evans distinguished *A.*

techuacana from *A. casica* by its smaller size with male forewing about 22mm (vs. 24mm forewing length), forewing spots reduced to dots (conspicuous in *A. casica*) and broader white border of the ventral hindwing. Evans listed only 2 specimens, both males from Guatemala, in the BMNH and did not illustrate their genitalia, so it is not surprising that characters he listed for *A. tehuacana* are somewhat vague and the taxon was regarded as a subspecies. It is widely known today that Evans' classification was quite conservative, frequently lumping many species as subspecies or synonyms of others (e.g., Steinhauser 1989, 1991, Burns 2000, Austin & Warren 2002, Austin 2008).

To further assess the identity of *A. tehuacana*, Steinhauser (1974) analyzed and illustrated male genitalia of *A. casica* (from El Salvador) and *A. tehuacana* (from Oaxaca, Mexico), and discussed profound genitalic differences between the two taxa. These differences are quite dramatic (see below), and are comparable in magnitude to those between *Thorybes bathyllus* (J. E. Smith, 1797) and *T. confusis* E. Bell, 1923, thus establishing that *A. tehuacana* and *A. casica* are distinct species-level taxa as suggested by Draudt (1922). Austin and Warren (2002) further confirmed the specific status of *A. tehuacana* by providing an analysis and illustration of the female genitalia, which also differ in a way consistent with the two *Achalarus* being separate species. Recently, pinned specimens (male and female) and live individuals of *A. tehuacana* were figured by Warren et al. (2010).

Draudt (1922) mentioned that *A. casica* and *A. tehuacana* are sympatric in Puebla, Mexico. At present, it is known that the distributions of the two species overlap in eastern and southern Mexico, as well as possibly Guatemala and El Salvador. Available records of *A. casica* are from the USA (southeast AZ, southwest NM, west and central TX), Mexico (Chiapas, Chihuahua, Coahuila, Colima, Durango, Guerrero, Jalisco, México State, Michoacán, Morelos, Nayarit, Nuevo León, Oaxaca, Puebla, Sonora, Tamaulipas, Veracruz), and El Salvador (Rio El Molino, Ahuachapan). Records of *A. tehuacana* are from Mexico (Chihuahua, Coahuila, Durango, Guerrero, México State, Morelos, Nuevo León, Oaxaca, Puebla, Querétaro) and Guatemala. Here we establish the first United States record of *A. tehuacana*.

Analysis of 134 specimens of *A. casica* and 83 specimens of *A. tehuacana* from USNM, AMNH, BMNH, MGCL, TAMU and several private collections reveals the following wing pattern differences, illustrated on Figs. 9-14:

1. *A. tehuacana* is characterized by a broader and convex white marginal area on the ventral hindwing distad of the median dark band. In *A. casica*, this white area has better developed dark striations and is concave basally. In *A. tehuacana*, the dark median band on ventral hindwing generally does not have the well-defined darker distal boundary of *A. casica*. This feature is most prominent in cells M2 and M3, where scales forming the dark boundary in *A. casica* are still present in *A. tehuacana* but are arranged into dark crescents surrounded by light scales on both sides. In particular, lighter areas are developed basad of these dark crescents, giving the appearance that the light marginal area invades the dark median band on *A. tehuacana*, whereas the light marginal area stops just distad of the band in *A. casica*. More specifically, in *A. casica*, these dark crescents form the distal boundary of the median dark band; white scales are present only distad of the band and dark scales are situated basad. These dark crescents with lighter areas basad in cells M2 and M3 are probably the most prominent diagnostic features of *A. tehuacana*, and were noted by Draudt in the original description (1922).

2. Reduced opaque spots on dorsal forewing of *A. tehuacana*, as stated by Draudt (1922) and Evans (1952).

The remaining three characters were not mentioned by other workers and thus seem to be new, but they appear consistent in the series of specimens we examined:

3. Dark apex on the ventral forewing near the fringe in *A. tehuacana*, with light scales present only along the wing margin. In *A. casica*, the ventral forewing apex mostly contains light scales.

4. Postmedian opaque macules in forewing cells Cu1 and Cu2 (one in each cell) are further apart in *A. tehuacana* than in *A. casica*.. In particular, the macule in Cu2 is more offset basad from the macule in Cu1 in *A. tehuacana* than in *A. casica*. This character can be seen on both wing surfaces, but is somewhat variable.

5. Apical opaque spots on the ventral forewing of *A. casica* are surrounded by scales darker than the background and these darker borders are usually quite prominent, appearing as an intricate "web" forming frames around the opaque spots (although some of the opaque spots, especially those in cells R5 and M1, may be highly reduced or absent). In *A. tehuacana*, apical spots are frequently reduced in size and usually developed only in cells R3, R4 and R5; they are surrounded by uniformly dark background scales, and are not prominently darker just around the spots. The ventral forewing cell M2 of *A. tehuacana* usually does not contain the postmedian opaque spot of *A. casica* framed by dark scales, but a small yet prominent macule of dark scales is present instead.

Characters 1 and 3 appear to work best for separating the two species. Indeed, the darker vs. paler apex of the ventral forewing is usually immediately noticeable even on worn specimens and live individuals. The character of wider marginal ventral hindwing whitish area is also generally reliable, but is sometimes less clear on worn specimens or heavily marked individuals of *A. tehuacana*. Character 2 may not be particularly reliable, as dark individuals of *A. casica* with reduced opaque spots exist. Generally, we observed significant variation of wing

patterns in *A. casica*, however, those characters on *A. tehuacana* are much more consistent and seem to be less variable.

Male genitalic differences, largely based on Steinhauser (1974), include the following (Figs 15,16):

1. Uncus arms are convergent, touching each other in *A. tehuacana* (as in *T. confusis*, see Scott (1986) for illustration), but are widely divergent in *A. casica* (compare to *T. bathyllus*);

2. Ampulla is small, short and narrow in *A. tehuacana* (as in *T. confusis*) but is much broader and protruding in *A. casica* (as in *T. bathyllus*);

3. Valvula is well separated from the ampulla, more massive (again, compare to *T. confusis*) and is strongly curved in *A. tehuacana*, while in *A. casica* it is close to ampulla, more hooked (as in *T. bathyllus*) and armed with a short serrated caudal process;

4. Sacculus is longer and narrower in *A. tehuacana* compared to that of *A. casica*;

5. Gnathos is short and squared off in *A. tehuacana*, but is longer and pointed in *A. casica*;

6. Aedeagus has two bundles of many short spines as cornuti in *A. tehuacana* while *A. casica* has a single large knife-like cornutus.

Female genitalia differences, per Austin and Warren (2002) are (Figs 17,18):

1. Lamella postvaginalis is narrower in *A. tehuacana* than in *A. casica*;

2. Lamella antevaginalis is lobate in *A. tehuacana*, and is largely straight, but is only slightly concave in *A. casica*;

3. Anterior portion of the ductus bursae is bulbous in *A. tehuacana*, but is narrower and not expanded in *A. casica*.

We note that the shape of the corpus bursae in our illustrations, appearing narrower for *A. tehuacana* and more rounded for *A. casica*, changes much with preparation and handling as the corpus bursae is softer and experiences expansion and shrinkage, thus not offering a reliable way to separate the two species. Since most of these genitalic characters are external (uncus and distal part of valvae in males and lamella in females), their inspection does not require full dissection. Brushing the scales off the end of abdomen will make them accessible for inspection in most cases.

While *A. tehuacana* might be poorly known to most butterfly observers, it is a common species in parts of eastern Mexico and occurs in a variety of desert and semi-arid habitats, generally below 1800 m elevation. Males perch in dry washes from at least 10:30 to 15:00 hrs., under sunny conditions, and vigorously chase similarly-sized hesperiids passing nearby. Males repeatedly return to the same rocky perches after short sorties, and while engaged in perching behavior, show no interest in feeding. Because of their predictable behavior along dry watercourses, which are often the only easily navigable routes through their desert thornscrub habitats, this skipper is a prominent member of the butterfly community in areas where it is common. Warren has found the species most abundantly west of the town of Peñamiller, in western Querétaro, in March and September; this habitat was illustrated in detail by Warren et al. (2008). This species has also recently been found in abundance at many sites in the Cuicatlan-Tehuacan Biosphere Preserve in southern Puebla and northern Oaxaca by field surveys coordinated by the Museo de Zoología, Facultad de Ciencias, Universidad Nacional Autónoma de México, in Mexico City. Northern Mexican sites for *A. tehuacana* include the Cuatro Ciénegas area of Coahuila, 10 mi E of Parral, Chihuahua, and west-central Nuevo León (e.g., 3 mi E Galeana Junction). Thus, given its wide distribution in northern Mexico not far from the United States border, the occurrence of *A. tehuacana* in south Texas is not too unexpected. In fact, we would not be surprised if a temporary or permanent population of *A. tehuacana* is discovered in southern Texas, especially between Webb and Brewster counties.

Careful analysis of the wing patterns on the photographs of the individual from Texas shows that all 5 characters agree with *A. tehuacana*, and none agrees with *A. casica*. While the photographed individual is quite worn and the images are not of the best quality (Figs. 1, 2, 13, 14), some might argue that the whiter area of the ventral hindwing might be simply due to wear of darker scales. However, inspection of the magnified images does reveal whiter scales basally of the darker crescents in cells M2 and M3 on both wings, despite the missing part of the left hindwing, and the Texas individual clearly shows the dark apex of *A. tehuacana*, covered in scales and not showing significant wear. Apparently, these photographs are inconsistent with all the *A. casica* characters. Thus, despite our inability to study genitalia of this female individual, we believe that the photographs are only consistent with *A. tehuacana* and firmly establish this species as new for US. We hope that future observations will reveal more *A. tehuacana* strays or even temporary or permanent populations, so more work can be done on this interesting and rarely discussed species.

Acknowledgments

We are grateful to Edward G. Riley (Associate Curator, Texas A & M University insect collection), Donald J. Harvey (Museum Specialist, US National Museum of Natural History, Smithsonian Institution), Robert K. Robbins (Curator of Lepidoptera, US National Museum of Natural History, Smithsonian Institution), Suzanne Rab Green (Curatorial Assistant, American Museum of Natural History), Blanca Huertas (Curator of Lepidoptera, The Natural History Museum, London, UK), Jorge Llorente-Bousquets, Armando Luis-Martínez and Isabel Vargas-Fernández (Museo de Zoología, Facultad de Ciencias, Universidad Nacional Autónoma de México, Mexico City) for granting access to collections and permission to photograph specimens in their care. Warren thanks Thomas W. Ortenburger, Jose Luis Salinas Gutiérrez and Blanca Claudia Hernández-Mejía for help with fieldwork in Querétaro. We are indebted to the United States National Park Service and the personnel of Big Bend National Park for assistance (in particular, to Wildlife Biologist Raymond Skiles), and continuing support with research permits (BIBE-2004-SCI-0011, BIBE-2005-SCI-0006, BIBE-2007-

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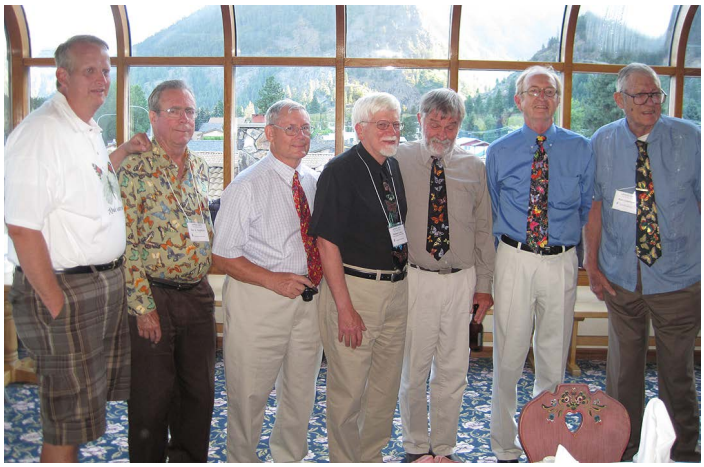
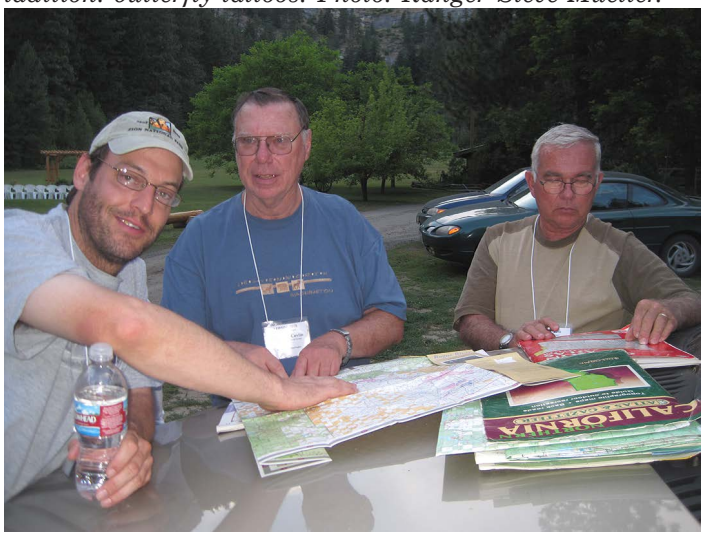
59th Annual Lepidopterists' Society Meeting

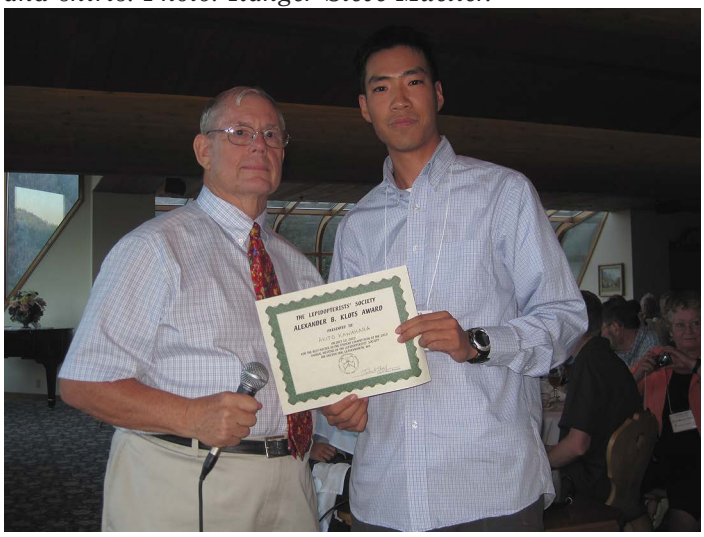
The women show off their butterfly attire....and a new tadition: butterfly tattoos! Photo: Ranger Steve Mueller.



A smaller group of men show their lepidoptera graced ties and shirts. Photo: Ranger Steve Mueller.



Andy Warren, Vernon Covlin, and John Peacock make plans for one of the field trips. Photo: Ranger Steve Mueller.



Charlie Covell presents the Alexander B. Klots award to Akito Kawahara. Photo: Ranger Steve Mueller.

Markku Savela focuses on a subject during a field trip. Photo: Ranger Steve Mueller.

Members, new and experienced, search the meadow. Photo: Don Rolfs.

Young (and not so Young) Ones Celebrate LepSoc 2010 in Washington State!

David G. James, LepSoc 2010 Organizer

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During July 8-10 2010, 187 lepidopterists from around the US, South America, Canada, Europe and Japan alighted in the gorgeous Bavarian-themed alpine village of Leavenworth in central Washington State. The occasion?, the 59th Annual Meeting of the Lepidopterists' Society aka LEPSOC 2010: The Young Ones!

Despite many nervous moments before and during the conference, this 'meeting martyr' as Bob Pyle most aptly christened me, is very happy indeed that LEPSOC 2010 has joined the long list of successful lepsoc meetings. The first meeting to be held in Washington State, our theme was immature Lepidoptera and young lepidopterists. From the moment 4 year old Rhiannon Vanessa rang the Swiss cow bell to bring the meeting to order and 6 year old Jasmine Vanessa welcomed us all to Leavenworth, eggs, larvae, pupae and young lepidopterists were our focus.

Twenty two invited presentations in the two symposia (Research on Immature Stages, Youngling Research) dominated proceedings with a further 18 contributed oral presentations and 9 posters. I was thrilled that two 14 year olds, Alexandra Sourakov and Megan McCarty agreed to present their research on butterflies in the 'Youngling' symposium. Both gave masterful talks that I hope will springboard them onwards and upwards as lepidopterists and scientists. The standard of all the presentations was exceptional and I warmly congratulate all of the speakers and poster presenters for their contributions.

The Washington Butterfly Association (WBA) held their meeting jointly with ours and their interaction with out of state participants was invaluable in making them feel welcome. This was particularly the case with the organization and conduct of field trips and I thank all of the WBA members for their roles in ensuring all aspects of the meeting ran smoothly. I particularly thank Don Rolfs for his hours of pre-conference work and attention to detail ensuring the field trips and moth experience ran exceptionally well and encountered a terrific diversity of species! Dave Nunnallee, Caitlin La Bar, David Droppers, Bob Hardwick, John Davis and Peter Smytheman were excellent field trip leaders with unsurpassed local knowledge.

A reception, a rousing barbeque at a local farm and the traditional banquet provided great opportunities for informal interactions, lubricated by a decent selection of Cascadian microbrews! If you enjoyed the beer, you should try the ones we wanted to get!

Following President John Shuey's address on butterfly conservation, our keynote speaker and skilled raconteur Robert M Pyle, better known as 'Butterfly Bob', Santa or perhaps Kenny Rogers, read entertaining excerpts from his new book 'Mariposa Road'. This is an account of Bob's 'big butterfly year' when he travelled far and wide in this great land seeking butterflies, so it was not surprising that his vignettes often featured people at the banquet!

The Enzian Inn proved to be an excellent venue for the conference with great facilities and unique touches like being serenaded by alpenhorn at breakfast! The weather was excellent, a little hot perhaps in the village but perfect in the butterfly-laden mountain meadows.

Naturally, there are many people to thank beyond those mentioned above but I particularly want to credit Larry Wright my former technician at Washington State University for doing much of the lead up work. I also thank Ashfaq Sial and Jeremy Buchman for their sterling work at the registration desk, also Joyce Bergen of WBA. I thank my Department Chair Steve Sheppard and the WSU Department of Entomology for sponsorship.

Finally, there would have been no LEPSOC 2010 without the help of my wife Tanya who dealt with all the registrations and a lot of the pre conference organization and I thank her from the bottom of my heart. I thank my other girls, Jasmine (6) and Rhiannon (4) for playing important roles in opening the proceedings, taking 'official' photographs and generally being social butterflies….

Finally, I thank all the Lepidopterist Society, Pacific Slope Branch and Washington Butterfly Association members whose participation made the meeting the success it was!

Dainty Sulphur (*Nathalis iole*) Host in the Delta National Forest

Paulette Haywood Ogard

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Most references indicate that Dainty Sulphurs (*Nathalis iole*) utilize plants in the Aster family as their larval host choice. In mid-September, while visiting the Delta National Forest (north of Vicksburg, Mississippi), Sara Bright and I observed Dainty Sulphurs ovipositing on Green Carpetweed (*Mollugo verticillata*), a mat-forming member of the Carpetweed family (Molluginaceae). Scott indicates that oviposition on non-Asteraceae may indicate "oviposition error," and lists *M. verticillata* in this category. It was clearly not an error in the two sites we observed Dainty Sulphurs in Mississippi.

We initially spotted eight Dainty Sulphurs flying along the sides of Forest Route 709. The butterflies were clustered in two areas that we later discovered corresponded to the location of the carpetweed. We saw two females ovipositing on these plants, some of which had been so severely sheared by roadside mowing that they were almost unrecognizable. Distribution was limited to dry, sandy road edges where competition with grasses and other weedy plants was less intense. In addition to eggs, we discovered caterpillars representing three different instars, including one fully mature larva.

The second site was the boat launch on the Little Sunflower River. Because of extremely dry conditions, the banks of the river had receded, leaving an expanse of parched, cracked earth that supported early succession plant growth. Here the carpetweed grew vigorously and was much more abundant: we observed approximately two-dozen Dainty Sulphurs in its vicinity. Several were ovipositing, and virtually every clump of carpetweed was dotted with eggs. One basal rosette contained sixteen ova.

Green Carpetweed was formerly included in the Fig-Marigold or Ice Plant family (Aizoaceae). It is native to the tropics and considered an adventive or nearly-naturalized plant throughout its range in the United States. Its prostrate growth habitat, whorled leaves, and miniscule red seeds are diagnostic. In addition, Green Carpetweed bears small greenish-white flowers that served as a nectar source for some of the Dainty Sulphurs we observed.

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1) Egg on Green Carpetweed (*Mollugo verticillata*) flower bud; **2)** Final instar caterpillar eating carpetweed flower; **3)** Green Carpetweed (*M. verticillata*) growing near the Little Sunflower River boat launch. Photos: Sara Bright.

Digital Collecting:

Photographing Butterflies Digitally – Movie Making

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John Banks has been capturing butterflies on film – still and movie - for nearly 50 years. Here he offers some tips to those who love butterflies but also appreciate a challenge. Why not have a go at filming them?

Planning & preparing

I often remember a sombre Russian proverb "Life is not crossing a field" because it applies so well to filming butterflies.

You certainly need what Prime Minister Harold Macmillan referred to as 'cool, calm, deliberation' before setting out. Try to think about what kind of end product you would like, and who it is for, if anyone other than yourself.

That may help you decide what equipment you need or can carry, on your back or your budget. Early on, I used a Bolex shoulder pod, until I was told by a friend in the BBC 'you must use a tripod'. These days a lot of hand-held shots are used in published films, but wobbly close-ups make hard viewing and must be mixed in with good steady images. Find a good sturdy, adaptable, tripod; put a good strong tilt-head on it – mine is an Italian Manfrotti; and take them everywhere.

My friend also said, somewhat mysteriously, 'You must use the grammar of the camera'. That was in 1968 when zoom lenses were only just coming in. But he had a point, especially relevant to working with butterflies: not all takes should be slow zooms. (I had a German customer who complained I had too many in my second film "Diversity in the Rainforest". I think he was just jealous.)

But it is very important: you must get as many different kinds of shots as you can. If you do that, you should find that you end up, at the edit stage, with a surprisingly wide range of takes: zooms, medium distant shots, near-close-up stills, close-ups, feeding at flowers, basking, 'puddling', walking, courting, mating, and even flying (more on that in a moment).

So, remember, this advice is free: do use the 'grammar of the camera'.

But which camera? There are so many marvellous ones to choose from these days it is impossible to generalise which will be best for you. My wife, Pat, and I have always used Canons: currently the XL2 and XM1 (see photos). Whichever you go for, you'll need plenty of optical ("telephoto") magnification – digital magnification is not much good for anything - but 20 times optical comes pretty standard these days. You can add a converter ("extension tube") to some cameras and get more than the zoom lens alone gives you. You can also fit a close-up lens on the front, for filming details of the head, wings etc of a butterfly. Happily these two both use the same type of battery, of which you will need, say, three each (biggish ones).

The XL2 – see photo - is very heavy but it works like a dream. With its tilt-head and tripod, it weighs about 18lbs (7kg) but can be taken apart and fitted into a small rucksack to go as cabin luggage on a plane, and you can carry it on its tripod on your shoulder all day without problems. The (smaller) XM1 has no external Automatic Exposure (AE) control - more on that below - but is very light (merely 3lbs without a tripod) and the lens is stunning. It works well for filming butterflies in flight; keep both your eyes open, and follow the butterfly with the left one as the other looks through the viewfinder, and have the camera about half zoomed up; takes practice, but can produce surprisingly watchable results.

Camera weight, and manoeuvrability, are obviously important. In the field, you need to be quick, and ready to shoot. A lot will depend on the camera's automatic exposure and focus systems if you are to get good close-ups, in focus, and steady, before the butterfly moves on. As to exposure, aim to underexpose one stop; and ideally that means having an Automatic Exposure control on the outside of the camera, so you can vary the exposure slightly from moment to moment as you shoot. Don't forget you can use very high shutter speeds (on many cameras) to get clear images of movement if you are filming fluttering, settling, taking-off, landing, or mating, sequences.

Should you record on to tape or disc? In the digital age, after years using 16mm film and then Hi-8 analogue video, I have used only Mini DV tape, with memory embedded, which gives excellent results, and dollar for dollar, better quality, I believe, than disc. You need memory tape because it records the date and time, frame count and exposure details, all of which are important when you begin to edit.

Sound is also important. You'll automatically capture 'wild' sound as you film, and become, well, sensitive to people chattering idly nearby as you concentrate on your subject, crouching painfully still and holding your breath…But the sound track can be

altered in the edit stage so as to use the best parts.

But don't be shy of enriching your film by capturing nice bird song; butterflies may not sing but that's no reason not to record good birds standing in for them – cuckoos especially. It's ever so much better than having to add some recorded pop music as background, which beginner film-editors tend to do. And if they are around, cicadas and frogs also sound good as background - and, again, no copyright problems.

In the field

To begin with, choose a familiar spot with plenty of butterflies, and get some practice. Shoot everything in sight that you can get up to, and learn your way. You want plenty of butterflies around, and fresh ones, not beat-up. Your aim should be to film everything, until you are sure you are repeating yourself, so to speak. In filmmaking of all kinds, choice means quality; you need as many different views of each butterfly as you can take; one classic shot, good as it may seem to you in the field, 'is not enough' (as Nurse Edith Cavell memorably said of patriotism before being shot by the Germans in 1915).

Make an early start. Shots of butterflies basking can be very atmospheric; low, strong sun; dew on leaves; fresh, glistening wings stretched out nicely; 'revving-up' - only by Hesperids? . On the edge of tropical forests, Metalmarks fly about before the sun appears. An 8 o'clock start can repay you. They flit so attractively from leaf to leaf, well within range of both lens - and your patience. All these are good easy material. By mid-morning filming, even more than taking stills, gets steadily more difficult.

You want to use bait? Smelly prawns, over-ripe bananas, urine, water, cigarette packets, animal and bird droppings? Well, of course. But beware the intrusion of flies into your view, and the noise they make on your sound track. And if your aim, as mine, is to film nature naturally, there are limits. You are better off hunting along streambeds, another natural centre of attraction for many species; mixed groups from several Families make good contrastive movie. The water gives nice background sound depth.

Later on, as you go further afield, perhaps abroad, you really need to ask local help in finding good locations. Because filming butterflies takes about twice as long as getting good stills of them, if you have not researched the season and location, you may be very frustrated. Ideally try to take 4-6 weeks, at the right time of year, in a good rich location and get a mass of takes, from which you can spend happy hours and weeks editing your favourites into a gloriously rich and edifying movie.

Well, anyway, let's be realistic: take as much time as you can afford, or your spouse will allow…Just remember: filming is much, much slower than still photography.

Back home; the edit

Time was when I used to spend two days in a well set-up studio with Avid software, doing an 'off-line', and then an 'on-line', edit, helped by enthusiastic young editors. It was great. But these days, life is even better: you can do everything yourself at home.

This is the stage where forethought about aims and audience, and about getting plenty of variety of takes, pay you dividends. After sorting through the mass of tapes (it might be 15 or so hours, we hope) you have brought home, you must identify what you have shot, so that you have a well-recorded library of the material.

Identifying species from film is not easy, and you must be prepared to accept its limitations. A butterfly 'set' and pinned in a museum drawer is unlike a living one in many respects, especially its shape (unnaturally posed) and colour (sometimes painfully lost by pigmental deterioration). And the photos in Guidebooks are also so fallible. Photo guidebooks are a bit better in some ways (good colour, pose) but worse than traditional guides in others, if the author was not skilful in bringing out the distinctive characteristics of each species and its range of variation.

Editing a finished film may take days or weeks. Like any computer job, it will certainly take twice as long as originally planned! Probably ten times. Along the way, here are some thoughts which should help save a few hours, on your Apple (I hope; few people in the media world use PCs) as you wrestle with FinalCutPro and DVDStudioPro, getting gradually from raw takes to a finished edited DVD.

Go through the whole raw material and pick the 'must-use' takes – give them their '3-star' rating, and put them to one side in their own file or 'bin' in the lingo of editing. Making that set of artistic-scientific judgements at the outset will simplify handling so many files of material.

With those visual gems at the back of your mind, try to write the story of the movie, in one simple paragraph. Then write a fuller version, and record the Commentary of the film on to tape, so you can capture it in Final Cut in short clips and lay it in the Timeline as you go along.

'Trial and error' is the route for beginners (and pros and elders too) in deciding what works on the screen. There is no short cut – that I have ever discovered. See if the images and the words match up by laying them and then watching critically. If they don't, be ruthless, and try another set or change the words to fit. It's so easy on the computer. Keep trying new combinations. If you are not sure, get advice.

It will help to think in chapters, or sections. Maybe some of them can have minimal commentary - or none even. Variety makes the world go round, and a film too.

Don't leave the sound track to the end. It's a very significant part of the film-viewer's experience, and you need to be aware of it early on. Pro filmmakers often spend as long on developing the sound track in the studio, in the postproduction stage, as they have done

shooting the pictures. You should be selecting 3-star clips of sound as you go along, and then working it up more when you are close to the end of the edit. Finally, 'grading' the sound (including any recorded music) and the Commentary, so they are nicely balanced will be one of the last jobs to be done.

Be sparing about introducing recorded music. It's so easy these days to access 'songs' and pop them into the sound track. If you have a friend who could write and play some music special to the film, splendid. But for authenticity, why not depend as far as possible on your recorded 'wild' sound, and let it be the background to your words?

Words can heighten, or deepen, feelings aroused by the images in many ways; at one level, just by telling the story of how (with what skill, pain, patience) you did the job in the field; or telling a quite different kind of story, about the history, geography, zoogeography, social biology, behaviour, or uniqueness of the butterflies you have so lovingly brought to the screen. As a filmmaker you have an opportunity to explain dramatically and with living images how butterflies look in the field or forest, and why you think they are so deserving of wonder and admiration, as examples of whatever passionate specialism you have developed about 'your' butterflies – maybe about the world too!

Last words

So now, have a go, and here are 4 starter field tips to set you on your way:

FEET: plant your feet and the tripod firmly in position.
FRAME: line up your picture in the viewfinder.
FOCUS: check the camera is focusing on the butterfly, and not on the background.
FIRE: take the shot, keeping the exposure at optimum underexposure by adjusting the AE.

Good luck!

You can learn more about John Banks' story, and send him any queries, by visiting his website www.cinebutterflies.com

Canon XL2, with tilthead and Bembo Tripod.

The Little Canon XM1.

Metamorphosis...

Julian Donahue

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

Adams, Eleaner Ruth of Liberty, Missouri, on 4 October 2010 at the age of 77. Eleaner earned degrees in bacteriology from KU, and art/biology/chemistry from William Jewell. She was a medical technologist and worked for several doctors and hospitals. From 1974-1999 she and husband Will taught ballroom dancing to approximately 3500 people. Eleaner was past president of the Idalia Society of Midwestern Lepidopterists, and had been a member of The Lepidopterists' Society since 2004. Survivors include her husband of 57 years, Dr. Will Adams, two sons, Dr. William Adams III, wife Dr. Barbara Demmig-Adams, Superior, CO and children Robert and Melanie; and Dr. James Adams, wife Kathy Parker-Adams, Calhoun, GA and children Patrick and Samantha. Memorial contributions may be made to the Martha Lafite Thompson Nature Sanctuary, 407 N. Lafrenz Rd., Liberty, MO 64068. Mrs. Adams had been a member of the Society since 2004, a gift from her son Dr. James K. Adams, who informed us of her unexpected passing. Mrs. Adams was his faithful and energetic companion on numerous field trips, and accompanied him to many meetings of The Lepidopterists' Society, the Association for Tropical Lepidoptera, and the Southern Lepidopterists' Society. [James has prepared a more lengthy remembrance of his mother, with photos, available from him on request.]

Doyle, L.F. Boker of Katonah, New York, earlier in 2010. Mr. Doyle was a Life Member of the Society, having first joined in 1962.

Habeck, Dale H., Ph.D., of Gainesville, Florida. Professor Emeritus, Department of Entomology and Nematology,

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Living with the Popoluca Another Adventure in Remote Mexico

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[The reader is referred to "Caterpillars, Ants and Populuca (sic) Indians: An Adventure in Remote Mexico" (Ross, 2010a, b) for a prequel to this essay.]

During the 1960s, I conducted research on the butterflies of the Sierra de los Tuxtlas ("Los Tuxtlas"). The sierra is an isolated volcanic range (the volcanoes are dormant) rising from the Gulf coast of southeastern Veracruz, Mexico. The range is essentially an "island" surrounded by the Gulf of Mexico and steamy lowlands, the homeland of the ancient Olmec culture (1500-400 B.C.), Mesoamerica's first powerhouse civilization. Much of Los Tuxtlas was still cloaked in what has been noted as the northern limit of the Evergreen Tropical Rainforest or Neotropical Moist Forest. Nothing comparable existed for nearly 200 miles to the southeast. My research totaled 15 months during 1962, 1963, and 1965. Of this, nine months were spent in the eastern and most poorly known sector of the Sierra, Volcán Santa Marta (most current maps cite the elevation as 5,250 feet). I was the guest of the Popoluca (Sierra Popoluca or Popoluca de la Sierra)—an indigenous culture of approximately 12,000 speakers who anthropologists theorize are descendents of the Olmec.

My residency with the Popoluca was officiated by John and Royce Lind and their children—Cindy, Michael, Laura and Juanita (in 1963, Christina became the fifth child). The Linds resided in the small village of Ocotal Chico ("Little Piney Ridge"). Located at 18° 18'N, 94° 47'W, the village is perched on a red clay ridge at an elevation of 1,700 feet on the leeward slope of the volcano. As its name implies, the village was cleared from pine forest, a unique vegetation zone for Los Tuxtlas. For hundreds of years, Ocotal Chico, like the volcano on which it rested, had been in a state of slumber—a place where time moved at a different pace. The 300 or so villagers called themselves *Nuntajýypýc* ("straight-speaking-ones"). The idiosyncratic language, however, was purely verbal, unwritten. John and Royce were missionary linguists/anthropologists who were members of the affiliated Summer Institute of Linguistics (SIL) (Oklahoma) and Wycliffe Bible Translators (WBT) (California). These dedicated folks had come to Ocotal Chico in 1961 with two main goals: To translate the New Testament of the Bible into Popoluca and to prepare materials to help people learn to read and write their own language.

Ocotal Chico was not easy to access—not easy at all. In fact, my research partner, Robert Andrle, and I were the first biologists to record and sample this unique ecosystem in Los Tuxtlas in 1962. My initial visit to "Little Piney Ridge" lasted just 10 days. I resided with the Linds in their mud wattle, concrete floor, and corrugated and galvanized tin-roof house located in the center of the village. There was no electricity and no running water. The Linds did employ, however, a small gasoline-powered generator for a few hours each night to provide light. A cistern associated with the metal roof provided water for washing dishes. For drinking, Mike hauled pure spring water in plastic drums strapped to his pet donkey, "Eeyore." I slept in the living room in a hammock draped with netting to guard against mosquitoes and potential malaria. I dined with the family in their kitchen equipped with a small propane stove and a propane refrigerator—all brought up to the village on the backs of mules. A substantial latrine—the only such convenience in the village—was located behind the house. Every four to six weeks the family would travel the 27 miles to Acayucan by foot, horseback, or part way by truck for major supplies—especially flour, powdered milk, potatoes, and fresh meat. These were packed in cardboard boxes and strapped to mules for transport. Fresh staples such as eggs, beans, fruits, and some vegetables were available from Nahua (Aztec) traders who periodically walked into the village from their homes lower on the volcano. In addition, because most villagers had little or no cash, the villagers often bartered food items—especially eggs and fruits—for simple medicines (aspirin, antibiotics, vermicides, anti-amoeba medicine, and vitamin B injections) that the Linds kept on hand.

In 1963 and 1965 I was graced with the luxury of sharing Mike's newly constructed "bachelor pad"—a Popoluca-style hut consisting of a single, windowless room, thatch roof, slab sides with "Dutch door," and packed earth floor. The structure was positioned about 50 feet north of the main house. Although small, the room was spacey enough to accommodate two mosquito-draped cots, two small desks, and a small table to support a basin and bucket of water for personal hygiene. A Coleman lantern provided light at night. To bathe, each afternoon we hiked through a coffee grove, down a 400 foot ravine to a boulder-strewn stream of clear, cool mountain water. The path was often so slippery from rain that a video (not yet invented at the

time) of our slipping and sliding would now qualify for "America's Funniest Videos." Another routine was a weekly hike to Soteapan for mail service.

Mike soon became an excellent sidekick and friend (Mike, 14 and myself, 23 were not that different in age). Mike often doubled up on his school work on rainy days in order to accompany me in the field. This relationship proved of inestimable value because Mike was known throughout the village and was fluent in the Popoluca dialect. When Mike was unavailable or unsure of the terrain, I was able to arrange with a young Popoluca father, Pablo, to accompany me to remote areas of the volcano. And so I never felt unsafe or ever lost—for long, that is.

The greatest hindrance to field work was rainy weather. Except during the months of spring, Los Tuxtlas experiences a pronounced rainy season that dumps as much as 80-100 inches of rain each year. This meant that I spent a lot of time close to the village so that I could easily retreat to my hut. This was not all that bad, though. Because the village was small and perched atop a red-dirt ridge, the pine and mixed oak forests were at hand. Likewise, the more "tropical" communities that occurred within the numerous ravines were equally close; these harbored a great many species of butterflies—called *me̲me* in Popoluca. (As a term of endearment, I became referred to as *me̲me pi̲xiñ* "butterfly man.") Moths, on the other hand, were referred to as *mêmtútsài* "butterflies of the night." Finally, most village houses were surrounded by trees—coffee, coconut, citrus, plantain, papaya, avocado, mango, bread fruit, and guava—that provided shade and seasonal fruits. Because of the extensive greenery, a large number of showy butterflies often flew within the village proper. Foremost species include the blue morpho (*Morpho montezuma peleides*) (Popolucas singled out this species as *cawaj me̲me* "horse butterfly" because its flight—typically along trails—resembles the gallop of a horse), the owl butterfly (*Caligo telamonius memnon*), swallowtails (papilionids) as well as several species of longwings (heliconians) and clearwings (ithomiines). *Philaethria dido*, a heliconian endowed with unusual light green wing panes, was common during fall months and was particularly attracted to the fresh bright foliage of mango and citrus trees as well as the flowers of marigolds often cultivated in old cans and set outside of villagers' huts. Crackers (*Hamadryas*) were ubiquitously common; their lackluster appearance made them virtually indiscernible when at rest on lichen-encrusted trees trunks—their favorite perches. But their unique cracking sounds when they flew gave them away, and provided amusement not only for me but villagers as well.

Although field work was my core responsibility, I did undertake some photography. For this, my first foray into research photography, I had purchased a new MIRANDA 35 mm SLR camera equipped with a 55 mm lens, accessory extension tubes (no macro, no telephoto, and no wide angle lenses), a small hand-held flash unit, and a tripod for close-up work. I used fine grain film: KODACHROME 25 for slides and KODAX PANATOMIC-X (32 ASA) for black and white prints. (Fortunately, all photos survive to this day.)

One of the joys of being based in Ocotal Chico is that I could sample many of the volcano's stratified ecosystems within but a day's walk. For example, as I ascended the 3,500 feet in altitude to the crater of Santa Marta I would encounter six distinct vegetation zones. These were: (1) Pine-Oak Woodland (*Pinus oocarpa*, *Quercus conspersa*, and *Q. ghiesbrechtii*); (2) Oak Woodland (dominated by *Q. peduncularis*, *Q. oleoides* and *Q. ghiesbreghtii*); (3) Oak-Gum forest (dominated by *Liquidambar styraciflua* and *Q. ghiesbrechtii*); (4) Upper Montane Rainforest or Cloud Forest (dominated by *Engelhardtia mexicana*, *Q. skinneri*, and *Rheedia edulus*); within this zone tree ferns such as *Cyathea* sp. and *Alsophila schiedeana* were common; (5) Montane Thicket (dominated by *Podacarpus oleifolius*, *Thouinidium decandrum*, and *E. mexicana*); and (6) Elfin Woodland (dominated by dwarf *Q. ghiesbrechtii*, *Clusia salvinii*, *P. oleifolius*, *Myrica cerifera*, and V*iburnum acutifolium*).

While it is not my intent here to describe each vegetation zone with its associated butterflies (see Ross, 1975-1977), I would like to single out three strata that were relatively restricted in Los Tuxtlas and best represented on Volcán Santa Marta. These are: (1) Pine-Oak Woodland, the base for my extensive work on the life history of what was then considered to be an undescribed species of myrmecophilous metalmark (Riodinidae) later named *Anatole rossi* in 1964, but eventually reclassified—apparently—as *Lemonias caliginea* (see Ross 2010a,b); (2) the Gum-Oak Forest, the preferred zone for coffee cultivation by the Popolucas, and the exclusive domain of the showy *Heliconius sapho leuce*; and (3) the Elfin Woodland—a thicket composed of specialized dwarf trees and shrubs festooned with epiphytes, and found only on tropical mountain tops where clouds are common. On Santa Marta, this "fairyland" vegetation was restricted to a narrow band surrounding the summit and inside the crater proper where moisture from clouds was common throughout much of the year. Ferns, lichens, selaginellas, mosses, club mosses, orchids, and bromeliads were galore. Even exposed roots were covered in spongy greenery. Many butterflies characteristic of this zone would "hilltop," that is, sail in circles above a promontory and even out into the crater—adrift on thermals. The most common species: Papilionidae—*Graphium c. calliste*, *Papilio androgeus epidaurus*; Pieridae:Dismorphiinae—*Dismorphia euryope*, *D. nemesis*, *D. jethys*; Lycaenidae:Theclinae—*Eumaeus debora* (observed to oviposit clusters of eggs on fresh fronds of *Ceratozamia mexicana*, a cycad attaining a height of 3-4 feet and common in the Upper Montane

Rainforest below the Elfin Woodland), *Callophrys a. agricolor*, *C.* nr. *longula*, *Thecla laothoe*; Lycaenidae: Polomnatinae—*Celastrina argiolus gozora*; Riodinidae—*Euselasia cheles aurantiaca*; Nymphalidae: Heliconiinae—*Dione moneta poeyii*, *Heliconius hortense*; Nymphalidae: Nymphalinae—*Vanessa virginiensis*, *Limenitis leuceria*, *Hypanartia dione*; Nymphalidae:Charaxinae—*Anaea proserpina*; Nymphalidae: Morphiinae —*Morpho theseus justiciae*, *M. polyphemus luna*; Nymphalidae: Satyrinae—*Pedaliodes pisonia circumducta*, *Dioriste tauropolis*; Nymphalidae:Ithomiinae—*Greta anetta*.

Although I spent most of my time within the enigmatic Pine-Oak Woodland, the summit of the volcano really lit up my radar. For here was a beguiling, surreal world. But to reach it I had to begin my hike shortly after dawn on a day that I gambled would remain rainless. My route followed a rudimentary trail cleared each December when Popolucan men were searching for palm fronds and the inflorescences of bromeliads to be sold as Christmas decorations to traders from the lowlands. The trail was occasionally used to hunt wildlife for the cooking pot, also.

Because of the steep terrain, the climb was arduous. Often I had to scramble on hands and knees, griping tree branches and roots as handholds. At such times my mind screamed "STOP! TOO DANGEROUS! TURN AROUND!" Not easily stymied, however, I eventually reached the eastern rim of the crater. And imposing it was: not really round but oval in shape, about one and a half miles in length, and about 500 feet in depth. The sides were precipitously steep except for a partial opening to the north, which I could not access. Tired, hungry and drenched with sweat, I would locate a sunny outcrop on which I could rest while devouring my simple lunch—two peanut butter/jelly sandwiches, a piece of fruit, a chocolate bar, and a canteen of water. From this vantage point I had a panoramic view of the great expanse of greenery that extended down the windward slope of the volcano to the blue waters of the Gulf far below.

Lunch finished, I continued my interlude by stretching out on my back. The thick forest resounded with the hypnotic, saw-blade shrills of cicadas. These were punctuated with the melodious and sonorous warbling of the slate-colored solitaire (*Myadestes unicolor*), a bird that I heard only in the upper forests. (Popolucas aptly refer to the bird as "marimba bird." For a recording, visit **www.xeno-canto.org/species.php?query=sp:3017.00**). Closing my eyes I would let my mind drift into the solitude. The fact that I was seemingly on top of the world and isolated from the rest of humanity infused me with a palpable sense of serenity as I had never before experienced. For the moment, I, nature, and the cosmos were one—the way it was before there was anyone else in the world. This nirvana restored my stamina and senses.

Although the astounding landscape was my "Happy Place," this was a tough neighborhood! The vegetation surrounding the crater was virtually impenetrable, unforgiving. Worse, the matted roots were covered in slippery greenery (no terra firma here). With perils at every step, I had to search for open windswept areas that had been created by recent mini landslides. There I could rock hop along the margin of the thicket. And although the interior of the ancient caldera was tantalizing, I was not intrepid enough to attempt a descent. Auspiciously, most lepidopterans concentrated their activities within the sunny areas along the rim.

In this "theater of the wild," a titillating tableau usually played out about 100 feet below the actual Elfin Woodland. Here the trail ran along a treeless, knife-edge crest. The slopes, though, were covered in virgin cloud forest. From my vantage point I could see that the white morpho (*Morpho polyphemus luna*) commonly flew above the verdant lushness of the canopy. This butterfly was magnificent. Superlatives include a wingspan of 6-8 inches (the largest of the three subspecies of *M. polyphemus* as well as the largest butterfly in Los Tuxtlas), translucent and opalescent white in color with a flight that consisted of graceful, deliberate and deep-flapping strokes—reminiscent of an albatross in slow motion. While this butterfly was relatively common in the higher forests throughout Los Tuxtlas, its aerial habits precluded any chance of it being netted. (I had encountered my first white morphos on Volcán San Martín Tuxtla in 1962, where initially I mistook them for birds! To secure a voucher specimen, I had to shoot the quarry down using a 12 gauge shotgun loaded with hand-packed "dust shot"—see Ross, 2009c.)

On Santa Marta, though, the white morphos were tricked by topography. Here's the thing: An individual morpho would insistently fly up the northeast slope of the ridge, over the bald crest, and then down the opposite slope. But during this feat to gain altitude, the butterflies had to labor so hard that by the time they reached the crest of the ridge, they were no more than a few feet above the ground. This brought the normally elusive butterfly within easy range of my net. As a result, I was able to collect a series of excellent specimens. Often I would simply sit and marvel as the morphos maneuvered so close to my head that I could hear the ponderous flapping of their goliath wings.

In order to devote as much time as possible to exploration, I would postpone my descent until about 3:30 PM. Then it was imperative that I engage my warp speed. After about two-and-a-half hours of bounding and jogging, I would arrive in Ocotal Chico just before dark. The next day my legs—particularly knees—would be incredibly sore. This was no great inconvenience since I needed to sit at my desk in order to prepare my cache of specimens. [I placed fresh specimens in glassine envelopes. These were numbered and recorded in a notebook

along with field data. The envelopes were placed in a large plastic bag containing silica gel for drying and to keep the ubiquitous, tiny, pesky ants at bay. After a week or so, I removed the envelopes and stacked them inside metal army ammunition boxes containing moth crystals (to prevent mold). I used army duffle bags for transport back to the U.S.]

The most exciting times were during the dry season. With weather less capricious, I could plan extended hikes. I usually was accompanied by Mike, Pablo, and often my host, John. Destinations included: (1) the crater rim of Santa Marta; (2) the classically round crater of San Martín Pajapan (3,750 feet), a nearby volcano cloaked in relatively undisturbed Montane Rainforest accessible from the village of Ocotal Grande (near the crater we rediscovered an ancient Olmec sculpture that had not yet been relocated by the Mexican government for exhibition (the sculpture now resides in the Museo de Antropologia de Universidad Jalapa); (3) recent Popoluca settlements on the Gulf-facing slope of Santa Marta; and (4) a small Popoluca settlement—Zapoapan—on the narrow strip of Gulf coast on the windward side of the volcano.

During these excursions, I was fortunate to see some larger wildlife characteristic of Neotropical forests. Once, while sleeping in my hammock atop Volcán Santa Marta, a jaguar (*Panthera onca*) sniffed the bottom of my hammock but quickly disappeared into the darkness after I turned on my flashlight. Other striking wildlife included great curassow (*Crax rubra*), tayra (*Eira barbara*), white-lipped peccary (*Tayasau pecari*), coatimundi (*Nasua narica*), tapir (*Tapirus bairdii*), lowland paca or tepezcuintle (*Cuniculus paca nelsoni*), Mexican lowland white-tailed deer (*Odocoileus virginianus thomasi*) and kinkajou (*Potos flavus*). By far, however, the most common mammals were monkeys—principally spider (*Ateles geoffroyi*) and to a much lesser extent, the howler (*Alouatta palliata*). "Spiders" or changos were often shot by Mexicans for food, but Popolucas considered the animal's hands so similar to those of humans, that the animals were taboo. *Changos* were whimsical acrobats—although cranky most of the time. They usually became riveted to any activity on the forest floor. Whenever I was spotted, for instance, a troupe would congregate directly overhead. The monkeys would then rigorously shake branches. If this noise failed to convince me to move on, they would urinate and toss their feces at me. Now that grabbed my attention!

By any measure, the most dangerous animal I encountered was a reptile: the fer-de-lance (*Bothrops asper*), a species responsible for the most serpent-related deaths within the American tropics. I had close calls with this serpent on three occasions: once around Lago Catemaco (see Ross, 2009a, b) and on two occasions on Santa Marta. I carried a simple snakebite kite at all times, and my hosts kept a supply of antivenin on hand since villagers are frequently bitten by the snake. Three other venomous snakes were known to occur within the area, but I am delighted to state that they and I never crossed paths.

Popolucas traditionally were subsistence farmers of corn, squash, and beans. Many families grew coffee and some owned cattle—mainly to sell for cash. The culture was non-acquisitive, and because of its long isolation had little knowledge of scientific research or the value of collections. Villagers, however, were not opposed to me residing in their village and collecting specimens. But Popoluca culture is steeped in mythology, superstition, and primal fear. A particularly illuminating case involves my (and Mike's) first overnight trip up the volcano. When Mike and I returned to the village about four days later, just about everyone ran onto the main trail to cheer us—much as Americans do for a parade. Turns out that a bedrock belief of the indigenes is that the forests atop Santa Marta are the home of malevolent night spirits. During our expedition, several concerned women let it be known to Royce that Mike and I probably would never be seen again. And so, when Mike and I were spotted on our return to the village, everyone was jubilant.

Too, as is so often the case with indigenous cultures, butterflies per se were opined as magical, spiritual creatures. Understandably, many villagers presumed that I craved butterflies to engage in witchcraft. John spent considerable time trying to dismiss this conviction. John's offhand explanation? Because my homeland lacked showy insects, I wanted to share my experiences in the Popoluca lands with my family "across the big water." That seemed to suffice. However, the local shaman, who I suspect didn't buy the explanation, always went out of his way to avoid me. But I must say that I never had any indication that he meant me any harm.

Children, on the other hand, thought that I was hunting butterflies for food to ship to my hungry relatives. The youngsters were bemused by my antics and so would often follow me about. Sometimes they would beat down a specimen or two with a small branch, pull off the insect's wings, and then pop the wriggling body into their mouths. At other times they would offer me some of these hapless specimens. At this point I had to solicit assistance once again from John. He explained that neither I nor anyone in my family ate butterflies, and that the removal of the wings from the insects destroyed the beauty that I was trying to share. Not to stymie the children's curiosity about the natural world, I demonstrated the assiduous way to handle a butterfly. The next day, I noticed that several enterprising little guys were crafting nets from small branches that they laced with spider silk. And believe it or not, most of the butterflies from these simple nets proved unsullied and perfectly usable as vouchers.

Children also enjoyed snacking with gusto on hairless, plump caterpillars. Prime fare was the glossy, brilliant

cherry colored larvae of *Eumaeus minyas* (the color reminded me of cherry-flavored hard candy). Adults, which are related to the south Florida atala (*E. atala*), were abundant around the village. The host plant was the cycad *Zamia loddigesii* var. *angustifolia*, a small plant common throughout the pine-oak forest. The cycads put on new growth only towards the end of the dry season (April-May) following the passage of ground fires. These fresh fronds were the targets of female butterflies, which laid small clusters of eggs. But usually, the nascent leaves were not sufficient to sustain the caterpillars throughout their various molts. Propelled by hunger, the would-be butterflies would abandon their hosts and crawl along the ground in search of an intact cycad. It was during these wanderings that the conspicuous "*gusanos*" (Spanish for "worms") would become easy pickings for Popolucan children.

Butterflies were not the only creatures I was gifted. Prior to my trips, several entomologists in the U.S. had asked that I collect a sample of arthropods, particularly ants, springtails (collembola), millipedes, scorpions and whip scorpions. After noting my interest, villagers soon began gifting me with miscellaneous specimens. Scorpions and whip scorpions, however, had their pernicious tails chopped off—"to protect me from getting stung." Of course, I expressed my appreciation, but I asked John to explain that I needed the bodies intact so that my friends and relatives could appreciate just how dangerous the creatures were. After that, some of the adroit villages brought live specimens in old tin cans. (I preserved these in vials of alcohol.)

Evenings and rainy days were particularly enjoyable and poignant. Village elders frequently would visit with the Linds in their main room. While Popoluca men were masterful storytellers, many conversations centered on my seemingly "quirky" activities. Of course, John and Royce (and their children) were fluent in Popoluca. (To me the language sounded choppy. This, according to my linguist hosts, was because Popoluca contains glottal stops.) Of course, I didn't understand a single word. Mercifully, however, John would translate. From these bilingual interactions, I learned a great deal—not only about the surrounding forests and their inhabitants but likewise about the Popoluca culture—past and present. For me, an upstart with no experience with exotic cultures, one of the more interesting aspects of the language was that it was difficult to express courtesy concepts such as "please," "thank you," and "may I." However, my hosts were quick to point out that Popolucas often express these concepts by physical actions. For example, in response to some form of kindness, a Popoluca reciprocates by sharing food, supplies, or perhaps even time and labor. This caused me to reflect on the poignant American adage: "Actions speak louder than words." I was so impressed with the Popolucan custom, that I have tried to incorporate this simple concept into my daily life ever since. (As an aside, I found it interesting that the Popolucas associated us gringos with the odor of milk. Since Popolucas did not use milk other than mother's milk to nurse infants, the odor of powdered cow's milk was unfamiliar. As explanation, the villagers likely smelled the cooking of our daily breakfast pancakes.)

From a linguistic/anthropological perspective, Popoluca culture had been experiencing significant changes. For instance, by the 1960s the vast majority of Popolucas had given up their traditional dress (although a few men still wore white cotton pants and shirts and less than a handful of women still wore a plain wrap-around skirt with no blouse). Weaving, pottery and basket making were all but lost, too, although the senior man in the village still wove split-oak baskets. Over the years villagers simply found it easier to purchase everyday necessities from Mexican or Nahua traders. As a result, simple clothing and household items were utilized way beyond their intended lifespan. Ipso facto, from an outsider's perspective, the Popolucas appeared to be extremely poor and living within an impoverished economy.

Day-to-day village life was never boring, blasé. Late in the dry season, Popoluca men would set fire to many of the pine-clad ridge crests and upper slopes surrounding the village. These annual fires were never infernos. Rather, the fires simply spread rapidly through the sparse tinder along the ground. The fires were set to encourage the new growth of grass once the summer rains began. The tender grasses proved nutritious fodder for the villagers pack animals. From an entomological perspective, annual firings were beneficial, too, in that they encouraged the new growth of various forbs, many of which were used as host or nectar plants for butterflies. Examples: *Croton repens*, a fire-dependant low-growing plant (Eurphorbiaceae) was the exclusive host of the unusual metalmark that occupied much of my study time in 1963. And *Calliandra grandiflora* ("Angel's hair"), a shrubby, fire-dependent legume featuring plumose red flowers, demonstrated to be an irresistible nectar source for most butterfly species.

And then there were the swarms of ants—two distinct species. First, army ants (*Eciton*). Once during the evening meal we noticed that a meter-wide platoon of army ants was invading the kitchen. Terrorized of nasty bites and stings, we practically catapulted into the main trail to wait out the raid—usually no more than 20 minutes. (When all was said and done, we expressed our relief in that the invasion hadn't taken place while we were sleeping.) Second, leafcutter ants (*Atta*). The leafcutters didn't attack but simply swarmed about noon a day or two after the first rain of the season. Myriad large, plump winged males and females thickened the air as they took their nuptial flight. After the insects fell back to earth, they were eagerly collected and roasted for high-quality protein snacks to supplement typical bland diets of corn tortillas and beans (meat was always a luxury).

Volcán Santa Marta (elevation 5,250 feet) from the lowlands of southeastern Veracruz.

Trail into Ocotal Chico, a Popolucan village of about 300.

Hut or "bachelor pad" of teenager Mike Lind. The simple structure served as the home and laboratory of the author during his extended visits in 1963 and 1965.

Volcán Santa Marta (elevation 5,250 feet) from the lowlands of southeastern Veracruz.

Popoluca children using their hand-crafted nets of twigs and spider webs assisting with the author's collection of butterflies. The crude nets were quite effective. Butterflies and caterpillars were sometimes consumed as "snacks."

Typical Popolucan house in Ocotal Chico.

Finally, uniformed government workers funded by the World Health Organization would occasionally trek into the village. Their purpose was the control of mosquitoes, ergo, malaria. The protocol consisted of spraying the interior of every house with the DDT, in the 1960s, a commonly used white powdery insecticide that was mixed with water. When the sprayers arrived, our protocol was to cover everything with plastic. Villagers, however, didn't take precautions so that just about everything within their houses wound up coated with a potentially dangerous white powder. DDT was known to control human head lice, also. After spraying houses, the government workers corralled as many children as they could into the main trail. With eyes protected, each child received a full-body spraying. The youngsters jumped with glee as their skins were rendered talcose white. For the rest of the day, these raccoon-eyed "Caspers" scampered about the village spooking their smaller siblings as well as every dog that crossed their paths.

To conclude this essay, I can think of no more appropriate words than those I penned in my prequel:

"*My several visits with the Popoluca in Ocotal Chico proved mutually beneficial. I, for example, managed to write both a master's thesis and doctoral dissertation from my ecological studies of the butterfly fauna*. [I collected a total of 3,893 butterfly specimens representing 359 species, excluding skippers (Hesperiidae), from the Sierra de los Tuxtlas. Of this total, 1,795 specimens were collected on the slopes of Volcán Santa Marta. All specimens are in the collections of the McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida in Gainesville.] *As a side project, I was able to produce a 16 mm, 55-minute, color and sound motion picture of the culture—which I dedicated to the Linds and which was later shown in Soteapan. For their part, the Popolucas learned a little bit more about themselves and the small creatures that inhabit their unique realm. But just as valuable, we all learned to appreciate the similarities and differences between our cultures—the dignity of human kind. And today, some forty-plus-years later, that elemental meeting of the minds remains my most cherished memory. (I even remember a few Popoluca words!)"*

UPDATE: What was is no more. No longer can Los Tuxtlas be considered part of the Mexican frontier. Over the last several decades, human encroachment with its inevitable deforestation has been heavy duty throughout the region. Mexican scientists have calculated that the annual rates of deforestation from 1967-1986 have averaged just over 3.5 percent per year. The current estimate is that between 85-90% of the original forest is gone. In an effort to combat this, in 1998 the Mexican government established Los Tuxtlas Biosphere Reserve ("Reserva de la Biosfera Los Tuxtlas") to protect sections of the three primary volcanoes—primarily land above 1,000 feet in elevation. The reserve encompasses 155,122 hectares (363,151 acres, 600 square miles) divided principally between the following: (1) 9,805 hectares (24,216 acres or less than 40 square miles) on Volcán San Martín Tuxtla—including 644 hectares (1,591 acres) of "La Estación de Biología Tropical Los Tuxtlas," which is administered by Universidad Nacional Autónoma de México, (2) 18,032 hectares (32,539 acres or less than 70 square miles) on Volcán Santa Marta, and (3) 1,883 hectares (3,651 acres or 7.3 square miles) on Volcán San Martín Pajapan. (Remaining hectares occur mainly in buffer lands or "*amortiguamiento*.") But frankly, the quoted figures are only formalities on paper. Because 90 percent of these lands are not federally owned but are instead under communal (*ejido*) ownership, federal enforcement of conservation policies is extremely difficult. In fact, only about 24,421 hectares (60,320 acres or 483 square miles)—16 percent of the total—are vaguely patrolled by two assigned rangers. Consequently, Los Tuxtlas Biosphere Reserve is classified as "critically threatened" and considered to be one of the most threatened "protected" areas in Mexico. (See Internet: www.catemaco.info/biosphere/areas.html.)

The oft voiced reason for deforestation in developing countries is run-away human population. Los Tuxtlas is no exception. Mexican, Popoluca, and Nahua populations throughout the area have been increasing significantly over the past few decades. Understandably, additional people require additional lands for farming and ranching, additional wood for construction and cooking, and additional wild meat and fish to lessen cash drain. With a lack of field personnel to monitor accruing incremental human activities, remaining forested areas continue to be stripped of their trees and animals; also, water resources are becoming increasingly exhausted and polluted.

And Ocotal Chico? No longer is "Little Piney Ridge" a far-flung village, drowsing village—an anachronism in this New Millennium. And no longer are the Popolucas stay-at-homes. An all-weather road now accesses the village. Electricity, clean spring water (thanks to an innovative system designed by John), and septic tanks for indoor toilets and showers are readily available. In nearby Soteapan, Popolucas have access to modern medicine and a variety of food stuffs and household furnishings. The number of people residing in Ocotal Chico is approximately 1,000—because of emigration, lower than one might expect. The total number of Popoluca speakers is estimated to be 30,000 scattered within 45 villages and towns.

All is not gloom and doom for the environment, however. Because of Volcán Santa Marta's long-term isolation, the region has been influenced less by human designs and expansionist ways than have other venues within Los Tuxtlas. Furthermore, no longer does national policy discourage indigenous

languages. Today "linguistic peace" reigns throughout Mexico and the country's minority peoples are nurtured as assets. This turnabout has produced a dramatic transformation in the culture. Present-day Popolucas, for instance, are imbued with a new sense of dignity and respect for themselves and their ancestral homeland. Just as important, thanks in large part to the life-long work of the John Lind family and to new government programs aimed at education, most Popolucas are now literate in both their own language and Spanish. Armed with the formidable "4 R's"—reading, 'riting, 'rithmatic, and religion—the Popolucas are now codifed with self-dignity, that is, freeing themselves from long-established shackles. For the first time in centuries, the outside world no longer is viewed as alien, hostile. With heads held high alongside their Mexican neighbors, the "straight-speaking-ones" are at last "somebody."

The widespread high morale and bilingual literacy, too, allows many Popolucas to work in jobs outside the village to increase family earnings. Some ambitious men have joined the throngs of migrant laborers in the United States to acquire heretofore unimaginable amounts of cash to purchase unimaginable worldly items: pick-up trucks, televisions and even laptop computers and cell phones. Upping the ante again, local villagers are more willing than outsiders to work for the low wages offered by the government for the implementation of its reforestation programs on Volcán Santa Marta. The bottom line is this: With increased access to cash from both local and outside sources, there is less incentive for villagers to clear new lands for agriculture and pasturage.

All in all, I believe that the future of the land of the *Nuntajýyipýc* will not echo the devastation experienced in most other sensitive areas throughout the tropics. Better yet, with this new cultural pride, the Popoluca could even opt for what several indigenous tribes in the United States are doing (see Bowden, 2010): Take matters into their own hands to restore the resources of their tribal lands.

Hyperbole? Maybe, maybe not. Popolucas have always had a pronounced respect for their natural surroundings. (One gentleman in Ocotal Chico, for example, could recite the names and reproduce the calls of at least 50 different birds.) John and Royce Lind, who know the Popolucas better than anyone, are convinced that the "straight-speaking-ones" would consider the loss of their once inviolate environment a grievous diminution. Therefore, if Popolucas so rally to stewardship, then the unique landscapes of Volcán Santa Marta may remain one of the culture's salient legacies to "Spaceship Earth."

Nevertheless, caution is prudent: Volcán Santa Marta is a time bomb. Dormant volcanoes often have the uncanny habit of unexpectedly breaking their slumber. And although there is no historic record of volcanic activity for Santa Marta, there were several small eruptions on Volcán San Martín Tuxtla in 1664 and 1793, and a venting in 1829. (As a possible indication of the volcano's instability, I remember that during my residency in Ocotal Chico, the village experienced no less than a dozen minor earth tremors.) Patently, Santa Marta may not be in a deep sleep. A major eruption could prove devastating—even apocalyptic—to plant, animal, and human life alike.

Meanwhile, the beat goes on.

ACKNOWLEDGEMENTS

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A cracker butterfly, Hamadryas februa*, in characteristic resting position. Butterflies within this genus are noted for making loud, cracking sounds when flying.*

Camp site in Upper Montane Rainforest on upper slopes of Volcán Santa Marta. Army jungle hammocks were used at night for sleeping.

Popoluca family drying corn to make the staple of diet, tortillas.

Author preparing daily catch of specimens in Mike Lind's "bachelor pad." A total of 3,893 specimens (1,795 from Volcán Santa Marta) were collected during 15 months of field work in 1962, 1963, and 1965. This represented 359 species—excluding skippers (Hesperiidae).

A family compound in Ocotal Chico. Many species of butterflies often flew within the village because of its proximity to healthy habitat.

Mike Lind using a flashlight equipped with red cellophane to investigate night activity of myrmecophilous metalmark caterpillars (then thought to be a new species and named Anatole rossi*, but now thought to be* Lemonias caliginae*) common in the pinelands surrounding Ocotal Chico.*

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Achalarus tehuacana in Texas

Cont. from p. 111

SCI-0007, BIBE-2008-SCI-0044) that were needed to rear and illustrate *A. casica* from the park.

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Membership Update...

Julian Donahue

This update includes all changes received by November 30, 2010.

Corrections to entry in 2010 Membership Directory:

Purdum, David A.: correct home phone is (904) 962-2880

New and Reinstated Members:

Members who have joined/renewed/ been found/or rescinded their request to be omitted since publication of the 2010 Membership Directory (not included in the 2008 Membership Directory; all in U.S.A. unless noted otherwise)

Cock, Matthew J.W. (Ph.D.): CABI Bioscience Centre Switzerland, 1 Rue des Grillons, CH-2800 Delémont, Switzerland.

Detore, Jon P.: 2400 52nd Street North, Saint Petersburg, FL 33710-3547.

Fagua, Giovanny: Carrera 28 No. 46-31, Apartamento 603, Bogotá 1111111, Colombia.

Geisler, Bubba (Mr.): P.O. Box 97, Wheatley, AR 72392-0097.

Planalto, Ernest: [address omitted by request]

Shaak, Steven: 2 Breezy Drive, Erwinna, PA 18920-9209.

Torres, Diego: Carrera 12 No. 2-80, Buga, Valle del Cauca 45450, Colombia.

Address Change:

Dimock, Thomas E.: 6250 Telegraph Road, #604, Ventura, CA 93003-4336.

60th Annual Meeting The Lepidopterists' Society 23-26 June 2011 Yale University, New Haven, Connecticut, USA http://www.lepsoc.org/2011_meeting.php

The Entomology Division of the Peabody Museum of Natural History and the Connecticut Butterfly Association invite you to attend the 60th annual meeting of The Lepidopterists' Society, to be held in New Haven, Connecticut. New Haven is on the shoreline in south-central Connecticut, about 70 miles NE of New York City and 30 miles SW of Hartford. The weather in late June is generally fair, with high temperatures around 75-85 and lows around 55-65 degrees F. Lepidoptera are diverse in the state at that time, with good observing and collecting sites close by.

Home base for the meeting will be in the "Science Hill" complex of buildings on the main campus of Yale University. For those who attended the 50th Anniversary Meeting of the Society at Yale in 1997, the venue will likely be familiar, but much has also changed, most notable being the new 100,000 square foot building (the Class of 1954 Environmental Science Center) that now houses most of the Peabody's collections, including those for the Entomology Division.

The Executive Council will meet during the day on Thursday 23rd in the Marsh Room at the Peabody Museum, and the opening reception will take place that evening in the Great Hall of Dinosaurs at Peabody. On Friday 24th during the day, paper sessions and other activities will take place in the main lecture hall in nearby Osborn Memorial Laboratory. Later Friday afternoon will feature a tour of and barbeque at Yale's new "West Campus" facilities, located a few miles down the road. Events on Saturday 25th will again be at Osborn, with a return to the Peabody's Great Hall of Dinosaurs for the evening banquet, talk, and awards ceremonies. The conference will finish in Osborn on Sunday 25th with additional papers and the annual business meeting.

Collecting and observing trips are planned for before and after the meetings, and details for these will be posted on the Society's website as they become finalized. The Lepidoptera (and other) collections in the Entomology Division will be open for perusal during the meeting dates. Anyone wishing to spend more time in the collections before or after the meeting is welcome, and should contact Larry Gall (203-432-9892, lawrence.gall@yale.edu) as soon as feasible.

Meeting registration, housing reservations, tickets for box lunches, the barbeque and banquet should all be obtained online via the Society website. Yale's Conference & Events Services is managing the online activities and if you need assistance you can reach them at 203-432-0465. Regular registration is $115/person and student registration $95/person, through 20 May 2011 (after that date rates are $150/person and $125/person). Registration covers the daily events, coffee breaks and reception. Barbeque tickets are $37/person and banquet tickets $48/person, and are purchased separately (food/dietary choices are online). Box lunches can be purchased either Friday and/or Saturday for $13.50/person per day (although there are other lunch options in the area, the box lunches will save time). A block of rooms has been reserved at the Omni Hotel in downtown New Haven ($129/night, single or double occupancy) as well as in Yale dormitory housing ($85/night, single room in two-person suite). Dorm reservations are made online via the Society website; Omni reservations should be made directly with the hotel by calling 1-800-THE-OMNI and noting you are with The Lepidopterists' Society. Both the Omni and the dorms are about a 15-20 minute walk to Science Hill, with the dorms being closer.

For those presenting paper, please submit your title & abstract (125 words or less) by 20 May 2011 online via the Society's website, to guarantee inclusion in the meeting program. Each paper is a total of 15 minutes; allow 12 minutes to talk and 3 minutes for questions. Limit is one presented paper per person.

Air travel to New Haven is most economical through Kennedy, LaGuardia, Newark and/or Westchester County airports in the New York City area. Amtrak and Metro North both provide rail service to New Haven. To drive to the Peabody: take Exit 3 (Trumbull Street) off Interstate 91, go straight (west) through the first stop light (Orange Street) and turn right (north) at the second stop light onto Whitney Avenue. The museum is two blocks north at the next stop light (170 Whitney Avenue), at the intersection of Whitney Avenue and Sachem Street. Osborn Memorial Laboratory and the Environmental Science Center are located on Sachem Street just west of the Peabody Museum. Hope to see you in June!

Conservation Matters:
Contributions from the Conservation Committee

26 August 2010

Trisha Roninger
Fish and Wildlife Biologist
US Fish and Wildlife Service
1936 California Ave.
Klamath Falls, OR 97601

Dear Ms. Roninger:

RE: Support for Endangered Species Act protection for Leona's little blue butterfly (*Philotiella leona*)

We the undersigned support the petition of the Xerces Society for Invertebrate Conservation, Dr. David V. McCorkle and Oregon Wild to protect *Philotiella leona* under the US Endangered Species Act (ESA).

In reviewing the petition we find that it presents substantial evidence that this species meets all of the criteria for Endangered Species Act protection. The taxonomy of *Philotiella leona* is uncontested. This butterfly is likely limited to a single population found in the Antelope Desert in Klamath County, Oregon. This highly endemic species occupies a specialized niche within a volcanic pumice and ash ecosystem on private timberland and a small portion of the Fremont-Winema National Forest.

Lepidopterist Dana Ross surveyed the Antelope Desert and estimates that there are only approximately 2,000 butterflies in this population. Therefore a single event – such as a catastrophic wildfire or a pesticide used indiscriminately – could lead to the extinction of *Philotiella leona*.

There are also multiple threats to the long term survival of this species. *Philotiella leona* is threatened by conifer encroachment, catastrophic and controlled fire, cinder pit mining, insecticide and herbicide use, excessive logging and logging related activities, and livestock grazing. Without protection under the ESA, this species is likely to go extinct.

The US Fish and Wildlife Service should provide protection for this species under the ESA. The Service should also develop a comprehensive plan for the management and recovery of this species. This should include research into the life history and management needs of this species. The Service should also work with the multiple landowners that will be impacted by this listing to ensure that the management of the butterfly's habitat is consistent with its survival and recovery.

Thank you for your efforts to conserve this species.

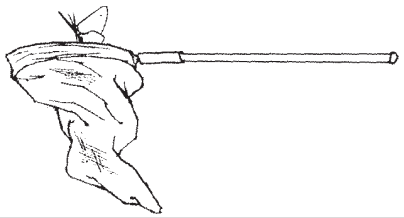
Sincerely,

John Shuey
President, Lepidopterists' Society
Chair, Conservation Committee

Members of the Conservation Committee

Dana Ross
Robert Pyle
Dale Schweitzer
Dave Wagner
Doug Taron
Eric Metzler
Ernest Williams
Jaret Daniels
Jens Roland
John Calhoun
Keith Brown
Neil Björklund
Pat Durkin
Thomas Simonsen

The Mailbag.....



6 December 2010

Dear Editor:

As a student of the behavior of butterflies and other insects (e.g. Rutowski 1991, 2003), I read with interest James Scott's article ("New Terminology for Describing Mate-Locating Behavior of Butterflies (and Moths), with Examples in Colorado") in the Summer 2010 Newsletter. My purpose in this letter is to provide some thoughts and resources that readers might find of value in evaluating Scott's proposals and ideas.

First, as Scott points out, since the mid-1970's he and Suzuki (1976) have promulgated the view that few if any butterflies are properly described as territorial. What he does not point out in his article is that studies dating back to the 1980's have given butterfly territoriality a critical look and presented clear evidence that territoriality is a relevant, valuable, and powerful concept for understanding the mate-locating behavior of males of a variety of butterflies (e.g. Wickman and Wiklund 1982; Lederhouse 1982). Since then, this view has prevailed, although there are still many interesting questions to address (for a recent review, see Kemp and Wiklund 2001). Royce Bitzer has provided a balanced and well-referenced summary of this debate about butterfly territoriality at this URL: http://www.public.iastate.edu/~mariposa/contests.htm

Second, I do not know to what extent students of mating system diversity in insects will find useful the new terms Scott proposes here and in a previous article (Scott 2006). For this to happen, Scott will need to be clearer as to the empirical evidence that will be needed to decide which term best fits what is observed in a given species. Take for example the tactic "rait" (rest and wait) defined as "males rest (land), wait, and watch at a genetic mating site for females to arrive at that rendezvous site for mating where males fly out to investigate passing individuals to see if they are receptive females." Notwithstanding the odd idea that an environmental location can be genetic, what evidence would be needed to demonstrate this preference? Also, many literature reports show that arriving females and even mating pairs at such sites are only very rarely observed, so how many would need to be observed to conclude that females are what males are waiting and watching for? Finally, when a male leaves his perch to approach and chase another butterfly, how do we objectively determine that his goal is to "investigate passing individuals to see if they are receptive females?" These are tough questions to answer quantitatively and butterfly behavioral ecologists continue to grapple with them (e.g. Kemp and Wiklund 2001). Mark-resighting studies, although described by Scott as often a "distraction," will continue to be our best tool for moving the study of the causes of mate-locating behavior beyond the realm of anecdotes and assertions.

Finally, Scott's article might have more appropriately been submitted to and published in the Journal. Appropriate material for the News is described as "short manuscripts covering new state records, current events, and notices." Scott's contribution proposes a novel system of naming some behavior patterns of butterflies and other insects. This system and its presentation would have benefited from the more rigorous system of multiple peer evaluation used by the Journal.

Sincerely,

Ronald L. Rutowski
School of Life Sciences
Arizona State University
Tempe, AZ 85287-4501

REFERENCES CITED

Lederhouse RC (1982) Territorial defense and lek behavior of the black swallowtail butterfly, *Papilio polyxenes*. Behavioral Ecology and Sociobiology 10: 109-118

Kemp DJ, Wiklund C (2001) Fighting without weaponry: a review of male-male contest competition in butterflies. Behavioral Ecology and Sociobiology 49: 429-442

Scott JA (1974) Mate-locating behavior of butterflies. The American Midland Naturalist 91:103-117

Scott JA (1986) The Butterflies of North America. Stanford University Press, Stanford

Scott JA (2006) A serious discussion of territoriality in butterflies, and new mate-locating terminology. Papilio (New Series) 14: 70-74.

Suzuki Y (1976) So-called territorial behaviour of the small copper, Lycaena phlaeas aimio Seitz (Lepidoptera, Lycaenidae). Kontyû 44: 193-204

Wickman P-O, Wiklund C (1983) Territorial defence and its seasonal decline in the speckled wood butterfly (Pararge aegeria). Animal Behaviour 31: 1206-1216

Article used in school.

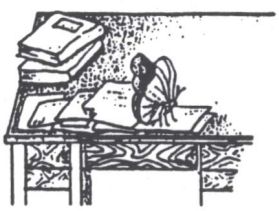
Dale: I am delighted to report to you and all readers that my past article "Caterpillars, Ants and Popoluca Indians: An Adventure in Remote Mexico" that appeared in NEWS (Spring 2010, Vol. 52, No. 1) reached a wider audience than you and I anticipated. Turns out that Laura Lind, the daughter of John and Royce Lind, my host family in the 1960s when my initial research was done, now teaches at a small, rural school (Ash Creek Elementary School) in Sunizona (Cochise Co.), Arizona. The school has

about 40 students and is one of several that receives funds from Southeastern Arizona Arts in Academics—an organization that is dedicated to "establishing a creative, innovative and intense learning model designed to bring quality research based professional development in arts integration to rural schools." The project is funded through the U.S. Department of Education Office of Innovation and Improvement, Professional Development for Arts Educators Program. It has received further support through the Dana Foundation in collaboration with Borderlands Theater in Tucson, AZ (**www.saaa.schoolinsites.com**/).

As a new project for her 11 students in grades 6-8, Laura decided to use the "Caterpillars…" article in NEWS as the basis for her fall curriculum involving the development of reading skills in English and science, writing, art, social/cultural studies, and geography (the article will be used in a unit on photography during the spring session). Each student received a copy of the article, which was then read several times and discussed at length over a period of weeks. The culminating project was a play, based on the caterpillar-ant interactions as well as my part in the discovery of the relationships. The play—written, prepared, and acted by the students—was performed in the school's auditorium on the night of October 27, 2010 to approximately 100 parents and friends. A video was made of the play and Laura believes that she will be invited to have the students perform the play in spring 2011 during a regional meeting in Phoenix.

As a consummate lepidopterist and educator as well as a lifelong member of THE LEPIDOPTERISTS' SOCIETY, I am always gratified when some research or writing of mine inspires others—particularly youngsters who have formative minds. Furthermore, I am equally delighted that TLS has a periodical such as NEWS that encourages members to write in a rather non-technical format about their personal adventures in the world of lepidoptera. So, thanks, Dale, for publishing the lengthy manuscript with its large number of photographs.

Gary Noel Ross
6095 Stratford Avenue
Baton Rouge, LA 70808
GNRoss40@yahoo.com



From the Editor's Desk

Dale Clark

A Fond Farewell...

How quickly five years flies by. It doesn't seem possible that I've been lucky enough to be the editor of the News of the Lepidopterists' Society for half a decade. I remember vividly how excited I was getting this position, and while that new found enthusiasm eventually was tempered by the rigors of the job, I've certainly never regretted the decision.

This is my last issue as editor. It's been a great ride but it is time to move on to other projects and pass the torch off to someone else.

I'd like to thank everyone who has submitted their articles, photos, opinions and suggestions to me over the years. The News comes about because of YOU, not because of the editor. The editor is just the "worker bee" that pulls it all together. One of the reasons this Society has had such longevity is because everyone can have as active a part in it as they choose. That's how an amateur lepidopterist like myself was allowed to get in here and take part in the workings of the Society: the door is open for anyone. It's been a great pleasure and honor to be able to "rub elbows" with some of the people I've looked up to in this field all my life. No one has every made me feel anything but welcome.

I won't lie and say it's always been fun. There have been times, running up against a deadline, that I've wanted to pull out what remaining hair I have. And there have been fumbles on my part: forgetting to run a photo; losing a file; insulting an entire culture because of a typo, to name a few. But I wouldn't trade the experience for anything.

James Adams will be taking up the duties starting with the next issue and I feel quite certain he'll do a fantastic job sitting in this chair. He has my gratitude for stepping up to the plate. So help make it easy on him and send in those articles, photos and letters or emails.

Thanks for a great time!

Dale Clark

The Marketplace

***IMPORTANT NOTICE TO ADVERTISERS:* If the number following your advertisement is "523" then *you must renew your advertisement* before the next issue! Remember that all revisions are required in writing.**

Books/Videos

New book on American butterflies: R.R. Askew &P.A. v.B. Stafford: Butterflies of the Cayman Islands. Hardback, 24x17cm., 172 pages incld. 6 color plates and 119 color photos. Maps and other figures. US $69.50. Also available: Larsen: Butterflies of West Africa. Hardback 28x21cm.865 pages in two volumes. 125 color plates depicting 1,400+specimens. US $276.00. Monastyrskii: Butterflies of Vietnam, softcover, 21x15cm., Vol. 1: Satyrinae. 199 pages incl. 35 color plates, US $64.00. Many others available. Visit website: www.apollobooks.com or contact Peder Skou, Apollo Books, Kirkeby Sand 19, DK-5771 Stenstrup, Denmark, or ask for a copy of our 2010-11 catalogue. 523

For Sale: High quality critically aclaimed book, The Butterflies of Venezuela, Pt. 2 (Pt. 1 also in stock). 1451 photographic figs.(84 color plates) display all 196 species (355 subspecies) of Venezuelan Acraeinae, Ithomiinae, Libytheinae, Morphinae, and Nymphalinae. 8 new species, 91 new subspecies. Laminated hardback. Details/reviews, sample plates at: www.thebutterflies ofvenezuela.com Price GBP £110 (+ p&p). Please contact the author/publisher, Andrew Neild: 8 Old Park Ridings, London N21 2EU, United Kingdom; tel: +44(0)20 8882 8324; email: andrew.neild @blueyonder.co.uk 524

For Sale: Butterflies of Southern Amazonia, a photographic checklist. A spiral bound book with 350 color pages, 8 photos/page, of almost 1,350 species from southeast Peru and Rondonia and Mato Grosso, Brazil. Mostly live photos but includes some specimens too. $98 plus shipping $7.50 in the US or $16 international. You can order it with a credit card or by paypal at www.neotropicalbutterflies.com, or contact Kim Garwood at kimgrwd@sbcglobal.net, or mail a US check to Kim Garwood, 721 N Bentsen Palm Dr #40, Mission TX 78572. We also have Butterflies of Northeastern Mexico, for the states of Tamaulipas, Nuevo Leon and San Luis Potosi, Mexico. This includes over 600 species, one third of the Mexican species. The cost is $30 plus shipping. 524

Livestock

For Sale: Captive bred Philippine butterfly pupae, year round. Imogene Rillo, P. O. Box 2226 Manila 1099 Philippines email: clasinse@mindgate.net 524

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

No mention may be made in any advertisement in the **News** of any species on any federal threatened or endangered species list. For species listed under CITES, advertisers must provide a copy of the export permit from the country of origin to buyers. **Buyers must beware and be aware.**

Only members in good standing may place ads. **All advertisements are accepted, in writing, for two (2) issues unless a single issue is specifically requested.**

Note: All advertisements must be renewed before the deadline of the third issue following initial placement to remain in place.

All ads contain a code in the lower right corner (eg. 481, 483) which denote the volume and number of the **News** in which the ad. first appeared. ***Renew it Now!***

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

Send all advertisements to the Editor of the News!

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

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

Nominations for Karl Jordan Medal 2011

Jacqueline Y. Miller,

McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History,

P. O. Box 112710, University of Florida, Gainesville, FL 32611-2710

The Karl Jordan Medal is an award that may be given by the Society biennially at the Annual Meeting in recognition of original published research of exceptional quality on the morphology, taxonomy, systematics, zoogeography and "natural history" of Lepidoptera. The criteria (J. Lep. Soc., 26:207-209) emphasize that the work may be based on a single piece of research or on a series of interrelated works and must be at least three but not more than 25 years old. The former is to assure that the awarded work has been used by lepidopterological community and stood the test of time. The Jordan Medal is not intended to be a career award for service rendered to the study of Lepidoptera inasmuch as the Lepidopterists' Society already has two such awards, the Honorary Life Member and the William D. Winter Service Award. In addition, the nominee does not have to be a member of the Society. A list of the previous Karl Jordan Medal Award honorees is available on the Society website.

Formal nominations for the Karl Jordan Medal will be accepted from any member of the Lepidopterists' Society and should be sent to Dr. Jacqueline Y. Miller, Chair, Jordan Medal Committee, McGuire Center for Lepidoptera and Biodiversity, University of Florida, P. O. Box 112710, Gainesville, FL 32611-2710 or via email (jmiller@flmnh.ufl.edu). Please include a list of specific publications for which the candidate is nominated, a support letter outlining the significance of the work(s), and a copy of the curriculum vitae, if possible, no later than 1 March 2011.

Announcement

2011 Meeting of the Pacific Slope Section of the Lepidopterists' Society

The 2011 Pacific Slope Section meeting of the Lepidopterists' Society will be held in Prescott Valley, AZ, 80 miles NW of Phoenix from 22-24 July, 2011. This venue is ideally located for quick access to many good collecting or watching sites representing diverse habitats in the Prescott National Forest and elsewhere nearby.

Papers submitted on any aspect of Lepidoptera will be accepted by Kelly Richers by June 10, 2011, who is coordinating the presentations for this meeting. Interested parties should contact Kelly at kerichers@wuesd.org A Call for Papers registration form will be mailed out with the Pacific Slope info and registration package.

The meetings will take place Saturday and Sunday at the Comfort Suites in Prescott Valley, 2601 North Crown Point Dr. and rooms are available there at $75/night single King or $85/night double Queen. There are other motels in the area and three RV parks as well as camping nearby.

There will be a Friday night reception with burgers, slideshows, and lighting for moths at The University of Arizona, Yavapai County Cooperative Extension offices located at 840 Rodeo Dr., Prescott, about 11 miles from Prescott Valley. The Saturday night "Banquet" and Comstock Award presentation will be held there as well. The dinner will be a chuckwagon style BBQ to fit the rich local history.

Interested members can contact:

Dave Wikle at wikleps2@earthlink.net [by phone: (714) 747-9609] or

Stephanie Shank at *sshank@cals.arizona.edu* [by phone (928) 713-0037]

for additional information.

Announcement

2012 Annual Meeting of the Lepidopterists' Society

The 2012 meeting of the Lepidopterists' Society will be held jointly with the Societas Europaea Lepidopterologica (SEL) at the Denver Museum of Nature and Science in Denver, Colorado. Expanded meeting dates to accommodate field trips and a longer program are July 23-29, 2012. Further details will be posted on the society web site. For information about the area and its fauna visit www.dmns.org, www.denver.org/tourism, www.Colorado.com, www.coloradofrontrangebutterflies.com, and www.butterfliesandmoths.org.

Frank Krell, DMNS – chair and local arrangements

Todd Gilligan, Program

Chuck Harp and Jan Chu, field trips

Mary Ann Hamilton – Butterfly Pavilion liaison

SEL coordinator – to be named

Evi and Paul Opler, advisors

The Biodiversity Crisis, Charitable Giving, and Estate Gifting

David L. Wagner, Scott Miller, Larry Gall, and Kelly Richers

Ecology and Evolutionary Biology, 75 N. Eagleville Rd., Rm. 312, U-43, University of Connecticut, Storrs, Ct. 06268-1712 david.wagner@uconn.edu[1]

Office of Under Secretary for Science, Smithsonian institution, MRC 009, P. O. Box 37012, Washington, D.C. 20013-7012 millers@si.edu[2]

Peabody Museum of Natural HistoryP.O. Box 208118, Yale UniversityNew Haven, CT 06520-8118 lawrence.gall@yale.edu[3]

9417 Carvalho Court, Bakersfield, CA 93311-1846 krichers@bak.rr.com[4]

We would like to encourage Lepidopterists' Society members to consider in their charitable giving and estate planning organizations such as the Lepidopterists' Society, The Wedge Entomological Research Foundation, the Smithsonian Institution, the Canadian National Collection, universities and natural history museums with systematic collections, and other like-minded entities. The world is in the midst of a biodiversity crisis, with many regions (faunas) highly imperiled directly or indirectly by human activities. According to a recent report by the United Nations Food and Agriculture Organization, an area roughly the size of Costa Rica is deforested each year: large portions of Haiti, Madagascar, and Brazilian Atlantic palm forests have been cut, burned, and converted to agriculture or otherwise developed. Additionally, human-spread exotic plants and animals threaten native biotas worldwide, and climate change is accelerating our collective need for action, and already is threatening coastal strand, arctic, and sky-island communities.

To maintain, manage, and protect biodiversity it is imperative that we understand the basic taxonomy and distributions of the components that make up that diversity. Systematists play quintessential roles in the preservation of biodiversity by making and curating collections, describing taxa and providing the means to recognize them, and calling attention to unique and/or imperiled taxa (and communities). Given that moths and butterflies represent one of the most speciose and ecologically successful lineages of macroscopic organisms on the planet, there has never been a time of greater need for systematists who can describe new taxa, prepare revisions, write monographs and catalogs, construct natural classifications, handle pest inquiries, provide identification services, and support efforts to conserve imperiled members of this beautiful and important group of animals.

Basic taxonomy and systematics provide the intellectual framework upon which many biological disciplines and inquiries are grounded. The recent renaissance in systematics and the opportunities made possible by innovative molecular techniques and modern taxonomic tools (including on-line taxonomic resources, new phylogenetic inference programs, automated alpha taxonomic software, digital imaging capabilities) have made it increasingly possible to carry out timely, state-of-the-art revisionary studies.

Although there are institutions that have thriving programs in organismal and systematic biology (with curatorial positions in their budget lines, coursework in a sweep of "ologies," and well-supported collection facilities), there are many more universities and museums across the globe in which systematic biology and biological collections are underfunded and understaffed. Dedicated endowments provide the only surety that institutions have to guarantee long-term financial resources and administrative commitment for the study of systematics. Gifts to support studies of Lepidoptera that are tied to positions for curators, collection managers, student fellowships, and collections operations are urgently needed—one such opportunity that we are endorsing is the creation of an endowment to pursue studies of the Geometroidea to fill the void left by several recent retirements and the untimely passing of Douglas Ferguson—see text box on opposite page.

Donations made to the Lepidopterists' Society and like-minded societies and institutions are tax-deductible. And, while charitable gifts are needed immediately to fund biodiversity studies, we also realize that financial uncertainties across the globe often make it impossible for members to make the large gifts necessary at this time to ensure resources in perpetuity. Estate gifting, while not a near-term solution, may be the most viable and universal means for all to contribute monetarily to the science of lepidopterology and the preservation of the animals that have come to be the focus of our attentions. Please do find a way to include charitable gifting in your long-term (estate) planning. To make donations to the Lepidopterists' Society contact Kelly Richers (661-665-1993 or kerichers@wuesd.org).

Endowed Position in Lepidopteran Systematics

One of the most important and diverse lineages of macroscopic organisms on the planet is the geometrid moths (inchworms, loopers, and spanworms). More than 12,000 geometrid species have been given names, and thousands new to science remain to be described. The Wedge Entomological Research Foundation is seeking funds to build an endowment that would support a systematist to carry out revisionary work on geometrids at the Smithsonian Institution or a comparable center of taxonomic excellence.

The Geometridae are the second largest family of Lepidoptera (butterflies and moths) in North America with more than 1,400 described species. Although there are many exceptions, most geometrids feed on woody perennials, and hence the family is well represented in woodland and forest habitats, and several are significant forest pests. Because of their sheer diversity and abundance, geometrids are integral to proper functioning of wooded landscapes. Their larvae make up a high proportion of the diets of warblers, vireos, and related songbirds. In a recent treatment of insect defoliators in North American forests, the Geometridae accounted for three times as many pest species as any other lepidopteran family. In addition to their economic importance, defoliation events are a threat to human safety by increasing fire risks. A spate of recent papers has demonstrated the family's utility in bioassessment studies, especially in tropical ecosystems where geometrids exhibit extraordinary species diversity.

Arid areas of the Southwest and Mexico are home to a diverse and largely unstudied geometrid fauna. The Neotropics are extraordinarily rich in geometrids, both in low-lying rainforests (e.g., sterrhines) and in mountainous regions (e.g., laurentiines). The genus *Eupithecia* alone (arguably the largest macrolepidopteran genus on the planet with an estimated 2,000 described species) presents a bewildering and virtually unstudied array of species in the Central American and Andean cordilleras.

As recently as 15 years ago there were four active senior geometrid workers in North America: William McGuffin (Canadian National Collection), Frederick Rindge (American Museum of Natural History), Douglas Ferguson (USDA/Smithsonian Institution), and Charles Covell (University of Louisville). With Ferguson's untimely passing and recent retirements, there are now none, and need could scarcely be greater.

Please consider contributing to a WERF endowment, either through charitable gifts or your estate planning. For more information, please contact Ronald W. Hodges (541-684-0484 or rwhodges@rhodges.net).

Although the initial focus of the Foundation will be to raise funds for a geometrid worker, to fill the void left by Ferguson's passing and the retirements of many of his contemporaries, the position will not to be tied to any single group of Lepidoptera. Of greater importance will be the nature of research: WERF is committed to supporting research in systematic biology that will lead to the completion of MONA fascicles and other scholarly monographic products.

Wedge Entomological Research Foundation

Ronald W. Hodges,[1] David L. Wagner,[2] and Oliver Dominick[3]

85253 Ridgetop Drive, Eugene, Oregon 97405-9535 rwhodges@rhodges.net[1]

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The Wedge Entomological Research Foundation (WERF) is a non-profit organization dedicated to producing taxonomic monographs on the moth fauna of the Nearctic Region. The Foundation's principle focus is to publish biosystematic treatments on the estimated sixteen thousand plus species of moths found in North America in a series of monographs - "The Moths of North America" (MONA). Each MONA fascicle treats a subset of the Nearctic fauna, i.e., entire families, subfamilies, tribes, or large genera. Volumes contain identification keys, diagnostic descriptions, information on the immature stages and their hosts, geographic and temporal data, illustrations of diagnostic characters, colored illustrations of the adults, and a revised synonymic list of included taxa. Occasionally, other taxonomic treatments are published by the Foundation, e.g., Jim Tuttle's "*The Hawk Moths of North America: A Natural History Study of the Sphingidae of the United States and Canada*."

A brief history of the WERF and the Wedge Plantation in South Carolina describing the early days of the Foundation appears as front matter of its first fascicle, that on the Sphingidae published in 1971 (a digital version can be accessed on the Foundation website: http://www.wedgefoundation.org/). In addition to Richard and Tatiana Dominick, proprietors of the Wedge and quintessential catalysts for early WERF efforts, key early figures in the Foundation's development included Eric Classey, Charles Edwards, Douglas C. Ferguson, John G. Franclemont, Basil Harley, Ronald W. Hodges, and Eugene G. Munroe.

The WERF website has a complete list of publications, scans of representative plates, and an order form. Free access to distributional and other label data is also being made available on-line, upon publication of a given fascicle. A brief synopsis for all recently completed volumes, with information on the taxonomic coverage, is provided in the "News" link. (Our thanks to Todd Gilligan for designing and maintaining the website.)

WERF is in the process of digitizing its previously published fascicles. A near-term goal will be to make available via the web low-resolution, fully searchable pdfs of older volumes. As in the past, high-quality print copies will be available for purchase. The next fascicle scheduled for publication is Powell and Brown's revision of the Sparganothini (Tortricidae). Jim Miller is heading efforts to complete John Franclemont's unfinished fascicle on the Notodontidae.

WERF's grants-in-aid program provides up to $5,000/yr to help authors complete systematic work leading directly to the completion of MONA fascicles. Activities eligible for funding include museum travel, databasing, illustration, equipment, and author stipends.

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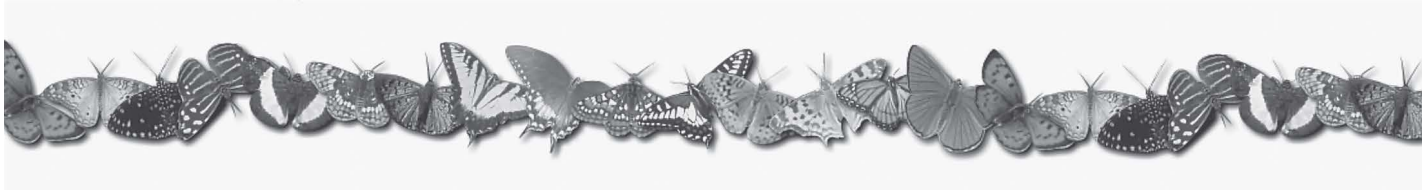
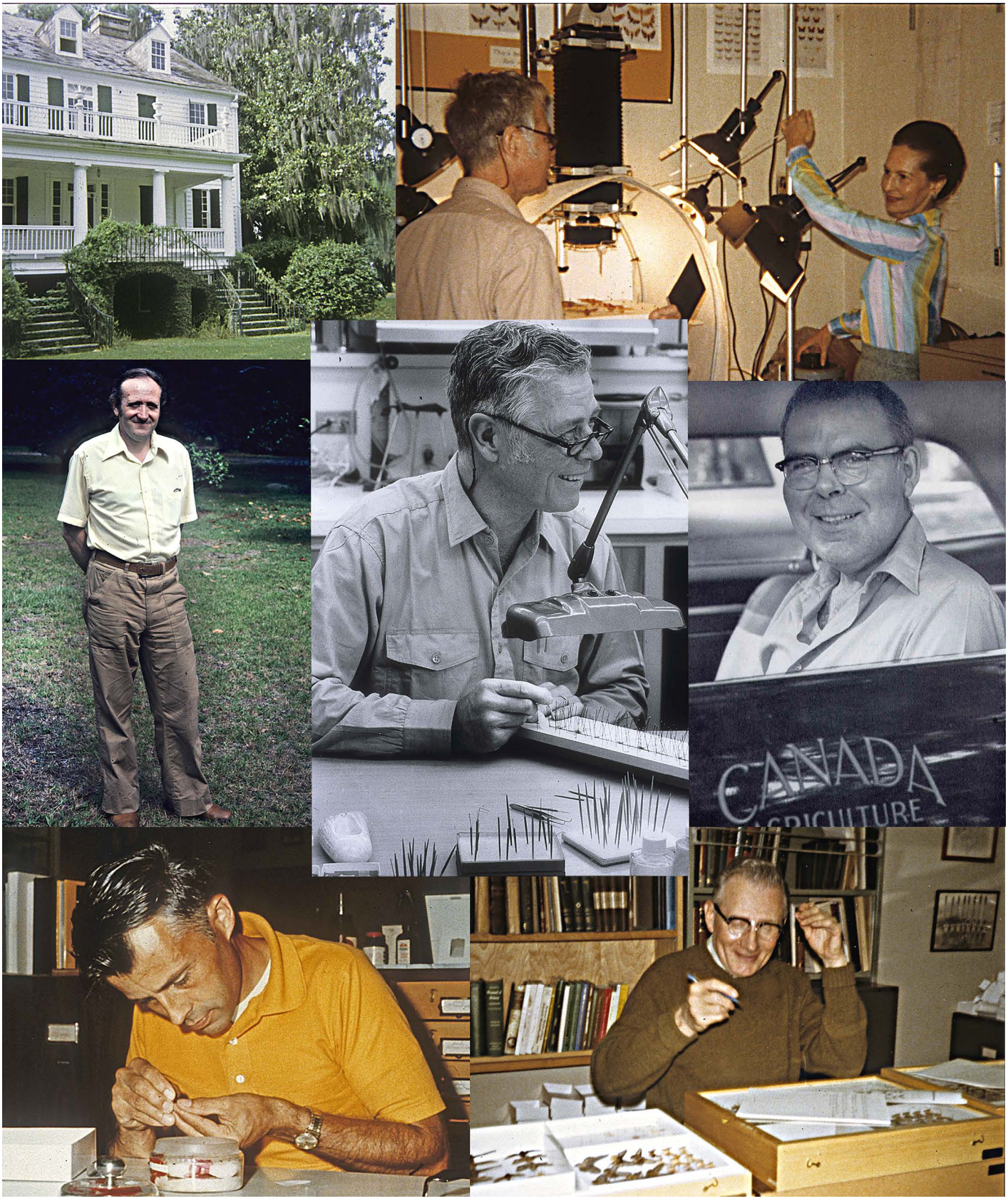
The Wedge Entomological Research Foundation is working to identify persons, estates, or foundations that will help endow a position in Lepidoptera biosystematics at the United States National Museum (Smithsonian Institution)—see article on p. 130 on charitable giving and the text box detailing a current effort to fund a geometrid worker to help fill the void resulting from Douglas Ferguson's untimely passing.





Clockwise from upper left: Wedge Plantation, front porch. Dick and Tania Dominick taking images for Sphingidae fascicle (1969). Eugene Munroe about to depart Wedge for Ottawa (circa 1970). Jack Franclemont at work on his Mimallonoidea and Bombycoidea fascicle. Ron Hodges pinning series of recently collected micros. Doug Ferguson at rear of Wedge. Dick Dominick at work in the lab. All images from 1971 unless otherwise noted.

Metamorphosis...

Julian Donahue

Continued from p. 117

University of Florida, and Research Associate, McGuire Center for Lepidoptera and Biodiversity, on 17 May 2010, at the age of 79. Dale was a member of the Society from 1970 to 1997, served as a Member-at-Large, 1990-91, and was a member of the organizing committee for the 1980 meeting in Gainesville, Florida. He received his B.S. (1953) and M.S (1954) from the University of Wisconsin and his Ph.D. (1959) from North Carolina State University. His research involved the biology, taxonomy and identification of immature insects, especially Lepidoptera, and the use of insects in biological control of aquatic and terrestrial weeds. He taught various classes and developed a graduate level course in immature insects at the University of Hawaii from 1959-1963, and at the University of Florida from 1963 to 1996. Along with building an extensive reference collection of preserved larvae, he maintained an active rearing program of the Lepidoptera of Florida and the Southeastern United States. He was passionate about all caterpillars, but especially the aquatic Crambidae (Acentropinae) as well as Arctiinae. His collection of reared adults and preserved larvae and pupae is housed at the McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida. Dr. Habeck's research in biological control allowed him to travel and study larvae in more than 40 countries, including a four-month stay in Queensland, Australia, where he worked on aquatic larvae associated with *Hydrilla*. He is the author of more than 138 scientific publications and was a chair or member of more than 90 graduate student committees. He is best remembered by students and colleagues for his helpfulness and easy-going, friendly manner. [submitted by Deborah L. Matthews and Jacqueline Y. Miller]

Johnson, John Warren of Santa Barbara, California, on 26 August 2010, at the age of 96. John was an educator and naturalist who influenced and inspired thousands of students in his long career. In 1938 he earned his B.S. degree in Entomology at the University of California, Berkeley, then worked in an experimental forest near Mt. Lassen for the Forest Insect Investigation Unit of the Bureau of Entomology and Plant Quarantine of the U.S. Department of Agriculture. After earning his teaching credentials, in 1942 he became a science teacher at Newport Harbor Union High School in Newport Beach, California. In 1947 he was given the Governor's Conservation Award for his outstanding conservation and biology program. During a sabbatical in 1961-62 he conducted an ecological study of the dune flora of the north spit of Humboldt Bay for his M.A. degree at Humboldt State College in 1963—his study area is now protected as part of the Humboldt Bay National Wildlife Refuge. John became the first Science Department Chairman when Corona del Mar High School opened in 1962, where he taught until his retirement in 1974. He was the Orange County Teacher of the Year in 1968; he was the recipient of the National Audubon Society Conservation Award in 1969; and in 1970 was chosen Newport-Mesa District Teacher of the Year. After his retirement he published 11 papers on Lepidoptera. He was a member of the Society from 1976 through 1994, with a lapse from 1983 to 1992. In 1993 the Pacific Slope Section of The Lepidopterists' Society presented him with the John Adams Comstock Award in recognition of his contributions to the study of Lepidoptera and their hostplant relationships. *Catocala johnsoniana* Brower, 1976, is named in his honor. [extracted from a more extensive obituary published on 4 September 2010 in the *Santa Barbara News-Press*; www.newspress.com]

Wilson, Kent H. of Edmond, Oklahoma, on 2 October 2010, at the age of 82. He was a Charter Life Member of the Society, having first joined in 1947, and later became a Life Member. Kent Wilson received his B. S. and M. S. in biology at the University of Idaho and also did additional graduate work at the University of Kansas. At Kansas, Kent met Robert Sokal and worked as his assistant in biometry and numerical taxonomy which was one of his major scientific endeavors. Kent was part of the group that started the Santa Fe Prep School (Santa Fe, NM) where he taught biology and math. He also taught at the University of Central Oklahoma, Rose State College, and finished his career as a science teacher at Memorial High School in Edmond in 1994. Although he initially collected all butterflies as a child, Kent had a special passion for the swallowtail butterflies worldwide. Along with Hamilton Tyler and Keith S. Brown, Jr., he published *Swallowtail Butterflies of the Americas: A Study in the Biological Dynamics, Ecological Diversity, Biosystematics, and Conservation* (1994). Kent Wilson donated his collection to the McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida in August, 2009. He is survived by his wife, Gene, and three children (Beth Siegel, Kirk Wilson, and Gretchen Bretz), and seven grandchildren. [submitted by Jacqueline Y. Miller, McGuire Center for Lepidoptera and Biodiversity]

Notes on the status of *Anaea troglodyta floridalis* on Big Pine Key

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The Florida leafwing, *Anaea troglodyta floridalis* F. Johnson and Comstock (front cover, p.105) historically occurred throughout the pine rocklands of southern Florida and the lower Florida Keys (Minno and Emmel 1993, Smith et al. 1994), where it is endemic. However, during the last half century the species range has become increasingly localized. For over a decade we have been monitoring the annual and seasonal abundance of *A. t. floridalis* on Big Pine Key, in the lower Florida Keys (Figs. 2 and 3, p. 136).

Our similar studies of *A. t. floridalis* within Everglades National Park indicates that the species, although variable from year-to-year, is well-distributed throughout the Long Pine Key region of the Park (Salvato and Salvato 2010). However, on Big Pine Key, the species has shown a precipitous decline during the past decade. As Figure 2 illustrates, *A. t. floridalis* numbers began to trend sharply downward after 2001 with our last observations of both larvae and adults occurring in 2006. In recent years, we have continued to survey several sites across Big Pine Key for signs of *A. t. floridalis* activity without success. In response to this decline, *A. t. floridalis* was declared a candidate for Federal protection by the United States Fish and Wildlife Service during 2006.

Extensive loss of pine rocklands within the lower keys, particularly those containing *Croton linearis* Jacq., the species only known hostplant, has been cited as the primary cause in the decline of *A. t. floridalis* throughout its range (Hennessey and Habeck 1991, Schwarz et al 1996, Salvato 2001, Salvato and Hennessey 2003). In addition, pine rockland habitat remaining on Big Pine and elsewhere in the lower keys has been inconsistently fire-managed over several decades. Natural fires are an important mechanism in maintaining pine rocklands and slowing their succession into hardwood hammock. An absence of natural fires or regular use of prescribed burns has greatly reduced much of the native vegetation within the pine rocklands of Big Pine, including *C. linearis*.

Beyond habitat loss and fire suppression, a number of factors, including hurricanes, exotic ants and pesticides, among others, may have also contributed to the demise of *A. t. floridalis* on Big Pine Key.

During late October 2005 Hurricane Wilma caused substantial damages to the pine rocklands of northwestern Big Pine Key. In historical instances when *A. t. floridalis* population numbers were larger on Big Pine, such as following Hurricane Georges (1998), the species appeared able to recover soon after a storm (MHS unpublished data). In the Everglades, where *A. t. floridalis* persists, the species was little affected by the 2005 hurricane season (Salvato and Salvato 2010). However, on Big Pine, given the substantial decline of *A. t. floridalis* prior to Wilma, it is possible that the impact of this storm served to further hinder and reduce extant populations of the species on the island.

Forys et al. (2001) found high mortality among immature *Papilio cresphontes* Cramer from red imported fire ant, *Solenopsis invicta* Buren predation in experimental trails and suggested other butterflies in southern Florida might also be influenced. Similarly, Cannon (2006) reported high mortality of *P. cresphontes* and *P. a. andraemon* Hübner eggs from an exotic species of twig ant on Big Pine Key. Historically, Matteson (1930) recorded ants as a predator of *A. t. floridalis* eggs in Miami. Hennessey and Habeck (1991) documented an *A. t. floridalis* pupa being consumed by ants on Big Pine Key. Through our monitoring of *A. t. floridalis* we have documented high levels of egg and larval mortality from a variety of parasites (biting midges, trichogrammid wasps, tachinid flies) and predators (ants, mites, spiders, ambush bugs). Although fire ants occur within our Big Pine study sites and we suspected their predation on immature stages of *A. t. floridalis*, we did not observe them in association with the butterfly when it still occurred on the island. Further studies of extant butterfly species in the lower keys may help determine what role exotic ants or other predators might have played in the ecology of *A. t. floridalis* on Big Pine Key.

Several authors have suggested the decline of imperiled Lepidoptera within the Florida Keys is partially the result of chemical pesticides used for mosquito control. For many years the Watson's Hammock region of Big Pine, an area of the island where pesticide usage is prohibited, maintained a substantial *A. t. floridalis* population. Hennessey and Habeck (1991) and Salvato (2001) theorized that the restriction of chemical pesticides in Watson's Hammock might explain the greater numbers of *A. t. floridalis* within this part of the island, as opposed to areas directly treated which often had reduced densities of the

species. Watson's Hammock remained a stronghold for *A. t. floridalis* for several years of our survey, but as the species decline accelerated on the island, even the population here began to wane.

We will continue to monitor Big Pine Key in the hopes of encountering extant *A. t. floridalis* activity. In addition, a number of studies are currently underway to examine several of the factors discussed above and their potential influence on the status and ecology of imperiled Lepidoptera in the lower keys.

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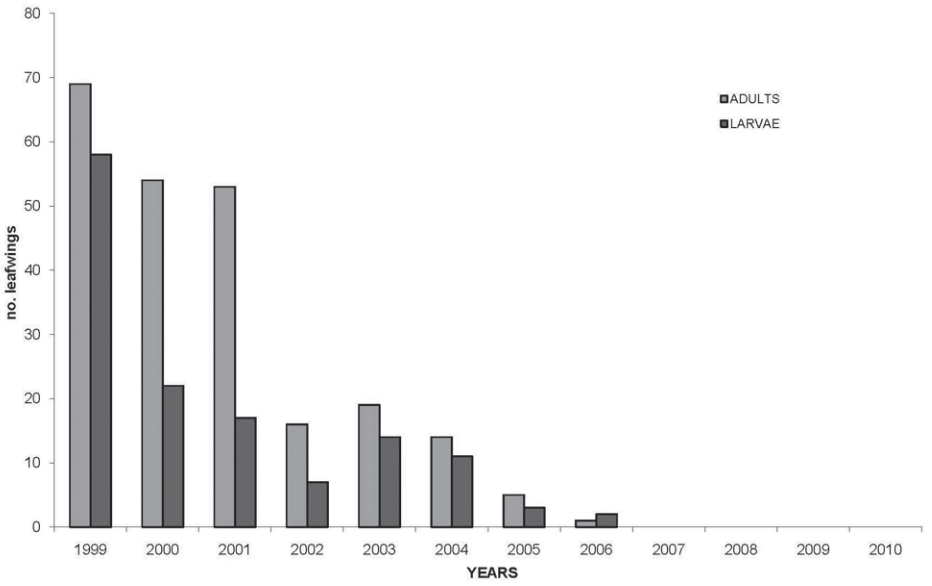

Fig. 2. Adult and larval *A. t. floridalis* abundance on Big Pine Key (Monroe County, Florida) during 1999 to 2010, based on monthly (1999-2006) and quarterly (2007-2010) surveys of 0.2 hectare transects (n = 6).

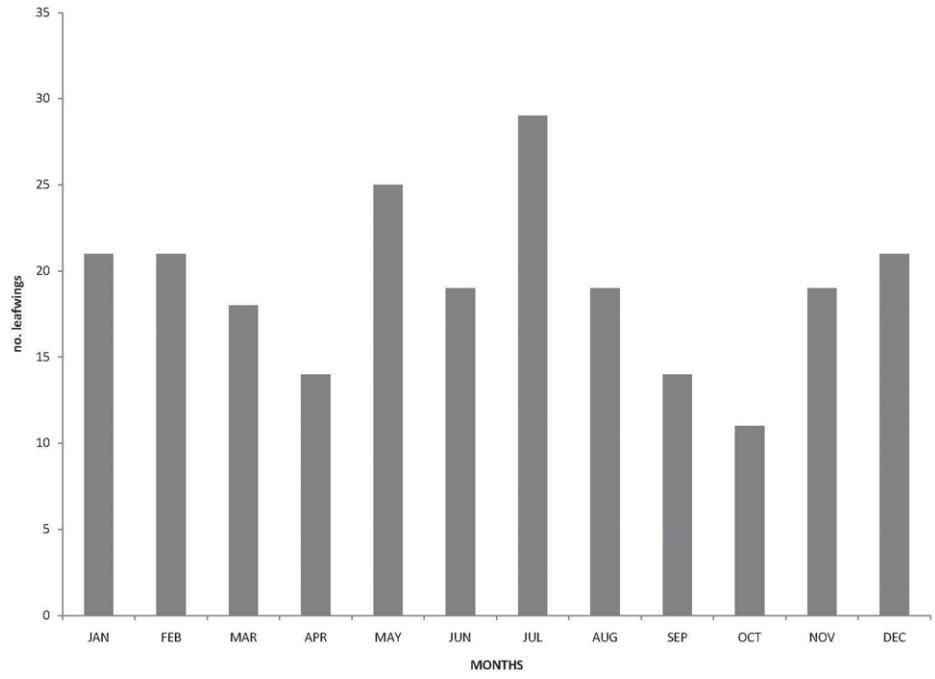

Fig. 3. The cumulative number of adult *A. t. floridalis* observed monthly from 1999 to 2006.

Kisutam syllis (Godman & Salvin, 1887) (Lycaenidae: Theclini) New to Texas and the United States

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On December 12, 2008, as a Texas Parks & Wildlife Volunteer Naturalist, I assisted a butterfly walk at Estero Llano Grande SP in Hidalgo County, Texas. Afterward, while crossing the parking lot to my car, I saw what appeared to be *Electrostrymon hugon* (Godart, 1824) on some cultivated flowers. Suddenly it flew to another blossom and I saw blue above! As I maneuvered to get a photograph (collecting is forbidden in the butterfly gardens of Texas state parks, even by permit), there was a strong gust of wind and it was gone. However, there was to be a sequel to this story, with a more satisfying ending.

What I had apparently seen was a hairstreak strongly resembling *E. hugon* ventrally, but with blue above rather than orange-red; and thus dorsally resembling the very common *Calycopis isobeon* (Butler & Druce, 1872). I thought I must have imagined this, but research in print and on-line resources led me to a likely candidate – *Kisutam* (=*Ziegleria*) *syllis*.

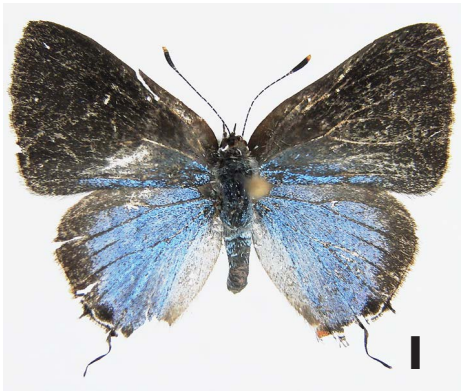
December 31 was to provide a dramatic ending to the year, as my wife and I photographed butterflies on some Lantana blossoms near Bentsen-Rio Grande Valley SP, some 30 miles west of Estero Llano Grande SP. Again an apparent *E. hugon* was spotted, itself an uncommon species. Again, the butterfly moved to another flower, and again – blue above! While I made unintelligible noises of excitement, we began taking photos. A cold front was moving through, bringing strong north winds, overcast skies, and rendering photography difficult (as reflected in our pictures), so the decision was made to voucher the specimen. It is now in the collection of the Texas Lepidoptera Survey.

The original description gave the distribution of *K. syllis* as Mexico and Central America. Mexican records seem limited to the states of Vera Cruz, San Luis Potosi, and southward. I'm unaware of records from neighboring Tamaulipas, but surely it occurs there. The dorsal blue, easily visible in flight, combined with the general ventral similarity, make it easy to confuse *K. syllis* with the regularly encountered *C. isobeon*. Thus it's quite possible that *K. syllis* has a more frequent existence within U. S. borders than is so far known.

The discovery of this species was erroneously credited in another publication.

Acknowledgements:

I'd like to thank Charles Bordelon, Nick Grishin, and Andy Warren for confirming the identity of the specimen. I'd especially like to thank the Texas Lepidoptera Survey - Ed Knudson and Charles Bordelon – for mounting and photographing the specimen, and for their continued support.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1) Dorsal view of *Kisutam syllis*; **2)** Ventral view; **3)** same specimen feeding on lantana bloom in Mission (Hidalgo Co.), Texas on December 31, 2008. Specimen photos: Charles Bordelon. Live photo: Mike Rickard.

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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:

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

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

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

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

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

Submission Deadlines

Material for Volume **53** must reach the Editor by the following dates:

Issue	Date Due
1 Spring	Feb. 15, 2011
2 Summer	May 15, 2011
3 Autumn	Aug. 15, 2011
4 Winter	Nov. 15, 2011

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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More Annual Meeting 2010 Photos...

Andrei Sourakov and Dan Lindsley enjoying beverages and conversation.

Steven Kohler, Paul Opler, Kelly Thomas, and Richard Brown.

Sangmi Lee, Silvia Richter and Jean-Francois Landry at the banquet.

Ray and Kitt Stanford at the banquet.

Nathan Johnson, a "young one" retrieving a capture from a field trip.

Megan and Dave McCarty

All Photos by Ranger Steve Mueller.