

TROPICAL LEPIDOPTERA NEWS

June 1996

No. 2



WOKOMUNG – A REMOTE GUYANA TEPUI

The following is a brief account, with some highlights, of an expedition to Mt Wokomung, Guyana in November 1993. I hope to publish a more detailed account sometime in the future.

Mt. Wokomung is the highest summit (ca. 5500ft) of a large tepui massif near the upper Ireng River on the Guyanian-Brazilian frontier. It belongs to the Pakaraima Mountains, an extension of Venezuela's extensive Guayana highlands. Second in height (of Guyana's summits wholly within Guyana, Mt Roraimas's summit is shared by Guyana, Venezuela, and Brazil) only to the isolated Mt. Ayanganna (ca. 6700ft), Mt Wokomung is one of a small number of Guyana tepuis rising above 5000ft. All these tepuis are remote and little explored. I was part of Smithsonian botanist Terry Heinkel's second expedition to Wokomung's summit zone. Both these expeditions were to parts of the mountains no humans had ever visited before.

Though a great expedition overall, a small disappointment to both Terry and myself was not reaching the actual summit. We reached a small pinnacle on the summit ridge, a small gulf and about a hundred feet of sheer cliff face separated us from the small summit plateau. Through binoculars we spied a low, sclerophyll vegetation on the edge of the summit plateau (lower and different than other vegetation we had encountered along the summit ridge) we were very anxious to explore. Time and effort to get there left its exploration to a future date.

The Mt. Wokomung tepui massif is surrounded by forest. To the south, where our expedition started at Orinduik falls on the Ireng River, there are extensive upland savannahs (ca. 2000ft elevation) with some gallery forest along the river, and forest patches in suitable areas in the hilly savannah. As we proceeded north, the gallery forest became more continuous and extensive, and forest a bigger percentage of the savannah/forest mosaic, until approaching the Mt. Wokomung massif, we were in forested country with savannah patches very restricted.

I collected on the savannah, along and within the Ireng river gallery forest, along a savannah creek with patches of brushy forest, in the montane forests of the tepui, and finally in the upper level cloudforests and tepui vegetation just below and along the summit ridge. As noted earlier I hope to publish a more detailed account of the expedition, what follows is a few collecting highlights of what I think are rare or interesting records.

Collecting on the savannah, on the edge of the Ireng River gallery forest and on the rich grass zone adjacent where this occurred, and along the savannah creek, produced some interesting results. My first catch of the trip was a fresh male *Lyropteryx terpsichore* (Riodinidae) with velvety blue-black wings. At sunset on a savannah hill near our camp, it perched on several shrubs with wings spread before it was netted. Several other riodinids taken in the savannah area could prove to be interesting records: a tiny *Calephelis*? among the rich, long grasses adjacent to the Ireng River gallery forest, and a worn orange *Calospila*? (*Calospila maeonides*?) among the grasses and scrub along the savannah creek.

I am interested in the status and distribution of a tiny blue (Polyommatainae) taken on a grassy flat near the Ireng. In a rich grass zone bordering Ireng gallery forest, I took a couple of specimens of the striking hairstreak, *Strymon tegaea*, with its dark brown upperside containing large orange patches. According to Dr. Robert Robbins (pers. comm.), the campos cerrado savannahs of the Brazilian plateau is prime habitat for the species, and the Guyana specimens are a notable extension to its known range. There is a good reason to believe *Strymon tegaea* occurs widely in the extensive savannahs of Brazil's upper Rio Branco drainage as well as the upland savannahs of the Pakaraima mountains and Venezuela's Guayana highlands, and possibly has been taken in these areas in the past. Most interesting (and most disappointing that it was not caught) of the savannah lycaenids [**cont. page 4**]

1997 ATL Photo Contest: entries due by March 15, 1997. \$480 in cash prizes!

Photo Contest entries are due each year the same date, March 15.

ATL EXPEDITIONS: 1996 – TAIWAN, July: 400 species of butterflies; ca. 5,000 moth species
– BRAZIL, October (Rondônia): 1,500 butterflies; ca. 20,000+ moth species
1997 – CHILE, February: return visit for Chilean summer species!
– VENEZUELA, August: first trip in over a decade to this diverse country!

TROPICAL LEPIDOPTERA NEWS

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EXPEDITIONS:

TAIWAN	Jun 28/29 - Jul 13, 1996
BRAZIL (Rondônia)	Oct 21 - Nov 4, 1996
CHILE (Santiago, Concepción and the Lake District)	Feb 1997
VENEZUELA (Maracay, Barquisimeto, Merida)	Aug 1997

TO OUR READERS

The ATL Home Page on the World Wide Web of the Internet (<http://www.troplep.org>) has already had about 1000 persons worldwide as visitors. A few new members have found out about ATL this way as well, and copied the membership form from the on-line web pages. Please take a look at it (those without Internet access can probably find someone who can get on-line to it for them).

Please continue having your friends sign up as members with ATL. Although our new members are getting higher member numbers all the time, many members have not sent in dues (forgot? dropped out?), so many are not receiving current journals (check your mailing label to see if you are up to date).

We still get few notes for the newsletter. It continues to amaze me to see the dozens of notes and notices sent in by only about 200 enthusiasts of a wasp newsletter, yet with over 1,200 members, our Lepidoptera group can send in so few! I hope you will take that extra time this month to send something about what you are doing, trip you plan on taking (or have taken), or other note, to let your fellow members read about new developments and "news."

Some of you have waited a long time to receive publications you ordered. Yes, we have been slow recently, but remember that only volunteers do all the work (have you tried to get "volunteers" to do anything fast?). We will try to do better, but please be patient (shipping also can take several months to Asia or South America).

J. B. Heppner
Executive Director

NOTES

1. **1997 Annual Meeting:** April 4-5, in Gainesville.
2. **1997 Annual Photo Contest**

Members are welcome to enter up to 5 photographs (8x10 in) in each of three categories: butterflies, moths, and immatures. Prizes total \$480; winners are published in *Tropical Lepidoptera*. Deadline is March 15, 1997; likewise each year. There is no entry fee.

3. DUES

Members are thanked for sending in their dues payments on time! The added donations of some members are also greatly appreciated (your canceled check can be used to verify donations). Likewise, special thanks to a number of members who have become life members. Life membership is now even more a value, since life members get both *Holarctic Lepidoptera* and *Tropical Lepidoptera*, plus all supplements, at no further cost (including airmail for members outside of the USA).

4. **New telephone code:** Gainesville is (352), not (904).

5. **New e-mail for ATL!** jbhatl@aol.com. Send your messages and book orders fast and cheap via e-mail.

6. **ATL Home Page!** Look at our internet ATL Home Page at <http://www.troplep.org>. Check on the latest information on ATL and ATL publications. Also, find numerous links to other Lepidoptera web sources and ATL information about museums, societies, book dealers, publishers, and suppliers, as well as ATL book series.

ATL JOURNAL SALE (extended to September 30, 1996)

Back issues of *Tropical Lepidoptera*, from 1990-95, will be available at 20% off, through September 30, 1996. The issues are in Vol. 1-6. If you are missing any of these colorful and informative issues, now is your chance to save. Orders must be postmarked by September 30, 1996 for the sale (single volumes at 20% discount, also).

Vol. 1-3 (1990-1992)	\$25 per yr	* = \$75.00
Vol. 4-6 (1993-1995)	\$35 per yr	* = \$105.00
	- 20%	- 36.00
	Total (for Vol. 1-6)	\$ 144.00

* prices include *TL News* and mailing costs. The biennial Table of Contents booklets are also included. Supplements are extra.

DARGE Book: Saturniidae of Africa [part 1] ATL Sale: \$70.00

ANNUAL REPORT 1995

MEMBERSHIP (December 31, 1995)

	Total	USA	Other Nations (76)
Life Members	67	29	38
Benefactors	2	2	--
Patrons	4	3	1
Sustaining Members	32	21	11
Regular Members	1024	532	492
Basic Members	77	51	26
Exchanges	49	4	45
Members resigned	3	3	--
Died	2	1	1
TOTAL	1260	646	614

FINANCIAL SUMMARY

ASSETS	1995
Current Assets	
Net Funds (cash Dec 31)	12,033
Foreign Currency Dues	2,503
Publications Stock ¹	362,210
Endowments	8,860
Book Reserves	16,250
Computer/Office Equipment	8,558
Total Current Assets	410,414
Other Assets	
Memberships Due	42,540
Life Memberships Due	6,000
Payments Due	13,929
Page Charges Due	11,057
Total Other Assets	73,526
Total Assets	\$ 483,940
LIABILITIES	
Current Liabilities	
Printing Invoices	21,456
Supplies/misc.	--
Total Current Liabilities	21,456
Other Liabilities	
Notes Due	8,000
Total Other Liabilities	8,000
Total Liabilities	29,456
BALANCE	\$ 454,484

The 1995 Annual Report, presented herewith, shows continued large donations for conservation goals; it should be noted that these contributions result in a large total income for the Society, although all these special funds are dedicated only for conservation projects (currently in Rondonia, Brazil). Overall, the Society needs your further added support in contributions, particularly for the Publication Fund or General Fund of the Society. Our income from member dues and book sales just about keeps up with the expense of publishing the journals and other publications. Page charges offset only a small amount of these costs, since the Society supports the larger share of journal production; costs per page actually are about \$145 per page, versus the \$20 per page we ask authors to contribute! (not counting the added author payment for color plates). Membership in ATL continues progressing at a steady rate but over 400 members are in arrears (or have lost interest?).

J.B.H

RECEIPTS AND EXPENDITURES

RECEIPTS	1995
Cash (from previous year)	14,010.61
Member Dues	40,702.44
Life Memberships	16,905.00
Newsletter Dues (Basic only)	325.00
Foreign Currency Dues	2,503.00
Grants	3,000.00
ATL Expeditions	11,800.00
Contributions	1,871.50
Conservation Donations	63,516.67
Publication Sales	22,539.83
Program Services (page charges)	6,658.33
Interest	95.42
Annual Meeting	336.50
Advertising	--
Misc.	339.12
TOTAL RECEIPTS	\$ 184,603.42
EXPENDITURES	
Conservation Projects	60,640.88
Research Projects	153.00
Research Grants (grant supported)	3,000.00
ATL Expeditions	14,014.45
Journal Printing ²	34,428.19
Newsletter Printing ²	4,258.27
Photographic Costs	715.78
Book Stocks	8,633.89
Postage ³	9,905.63
Fees	611.40
Office Equipment	838.00
Supplies	4,848.73
Research Equipment/Supplies (with grants)	--
Advertising	3,390.02
Interest (notes/debts)	1,133.33
Annual Meeting	658.53
Misc.	230.00
TOTAL EXPENDITURES	\$ 147,460.10
BALANCE	\$ 37,143.32

1. Book value of back stock (reduced as issues are sent to members).
2. Includes invoices carried over from previous year as received from printer.
3. Includes postage for advertising.

Wokomung Tepui [Continued from Page 1]

was a very large, sky blue hairstreak with rounded wings. Under a glaring sun on a savannah flat with scattered shrubs, it flew by and settled briefly on one of the shrubs with wings spread before making off at my approach.

In one particular area where I collected, skippers were numerous in variety and numbers at the edge of the Ireng River gallery forest and especially among the rich, long grass zone of the adjacent savannah. Another good area for skippers was among the richer grasses (as opposed to the sparser grasses of the savannah flats and hills) along the scrubby creek. I would have to think due to the limited collecting done on these upland savannahs there would be interesting records among the skippers taken. The same might be true about some of the '*Euptychia*' (Nymphalidae: Satyrinae) taken also. The tiny '*Euptychia pharella*'? was local and not uncommon.

In the montane forest on Mt. Wokomung there were a number of interesting catches, possibly new records for genera in Guyana: *Lieinix* (Pieridae), *Oressinoma* (Satyrinae), a hairstreak, and possibly new taxa at least at the subspecies level.

At approximately 2000ft elevation along the large Suruwabaru creek, I encountered *Archonias* (Pieridae) for the first time. *Archonias bellona* seemed local but not uncommon along the creek by our first camp on the mountain. I do not think they are uncommon in Guyana in the right habitat, they are represented on the most often used Guyanan stamp! Especially in flight, and until they are recognized as *Archonias*, they could easily be mistaken for similar looking *Heliconius* and *Eueides* heliconiines (Nymphalidae) that occur in the area. Another pierid, the tiny *Leucidia brephos*, was very common along the creek. I had seen it common along other rocky creeks in the Guyana lowlands and in rocky forest of the upper Kaieteur gorge, but never this common.

Also along Suruwabaru creek, only my second encounter with the many ocellied *Erichthodes erichtho* (Satyrinae) from many days exploring the Guyana forests. Before it was netted, I didn't recognize it as a satyrine. It flew rapidly and erratically over the creek, interrupted by brief perchings on the creekside vegetation. After capture, an examination revealed several tiny orange mites on its legs. In mid-afternoon in a tree fall gap on a small ridge close by the creek, the second hairstreak of the expedition was taken that resulted in a notable extension to its known range (Dr. Robbins, pers. comm.). *Iaspis beera* (Lycaenidae) is known mainly from the upper Amazon region of Columbia, Ecuador and Brazil.

On the slope above our first camp at approx. 3000ft, I took an interesting female *Mesosemia* (Riodinidae). I had never seen this species among the numerous *Mesosemia* I had taken at the other Guyana localities. Dr. Lee Miller identified it as a relative of *Mesosemia asa*. Is this the undescribed population of *M. asa* from Guyana that D'Abrera mentions in his riodinid volume? I took another specimen (female) at approx. 4750ft in a large tree fall light gap near our third and highest camp. In this light gap and the surrounding forest, I took or saw about five *Mesosemia* species. Other than *Mesosemia*, riodinids had largely disappeared from the scene. I possibly saw a *Lyropteryx* (*L. apollonia*?) in the same large tree fall light gap. On a small pinnacle on the summit ridge (over 5000ft), I saw a small blue butterfly on subsequent days, my first guess a riodinid, second a hesperid.

The above mentioned large tree fall light gap was the best spot for butterflies I encountered in Wokomung's montane forest. For a few hours in midafternoon, when the sun's rays penetrated to lower levels in the gap, butterflies abounded. Seen or caught were *Parides* (Papilionidae), *Lieinix*, *Leucidia*, *Heliconius*, *Adelpha* (Nymphalidae), *Mesosemia*, hairstreaks, skippers and others. I caught two *Lieinix* specimens of the same species. When matched against *Lieinix* in the American Museum of Natural History, New York (AMNH), collection including Venezuelan material, there were none close. The Natural History Museum, London (BMNH), with extensive Guyana material from the old days, should be checked. Because of the inaccessibility of the high Guyana tepuis, I surmise a new Guyana record for *Lieinix* and possibly a new taxa.

I believe *Oressinoma* (probably *O. typhla*) might be a record for Guyana, also. In a tree fall adjacent to camp there was a large sprawling patch of razor sedge (*Scleria*) around which a number of *Oressinoma* gathered at midday. I presume both sexes were present and *Scleria* is the hostplant.

Heliconius elevatus subspecies and *H. erato/melpomene* were numerous in the large light gap. As for *H. elevatus*, again when compared to AMNH material, they are different. If *H. elevatus* is strictly a montane species, this is not surprising, since the different tepuis are highland islands in a sea of lower elevation forest or savannah. According to evolutionary theory, the great ages the individual tepuis have been isolated should account for noticeable differences among the populations. Whether the *H. elevatus* I took are different enough from ones previously caught to warrant a name, I would not guess.

Among the skippers taken in the light gap, was a glorious fresh *Pyrrhopyge sergius* (?). A few hairstreaks were seen but unfortunately none taken. On the summit ridge in a tree fall gap at approximately 5000ft, I took a female hairstreak of an undescribed species that is a Guyana record. Dr. Robbins (pers. comm.) puts the species in *Ocaria*. Only two other specimens are known, another female was taken on Mt Duida, Venezuela, and a male from another Venezuelan locality. In this same light gap, my Indian partner, Milton, caught a large *Memphis* (Nymphalidae), with a reddish brown underside, after we had numerous stalkings of the usually just out of reach beauty. This specimen should prove to be an interesting catch.

On up the summit ridge on the small pinnacle aforementioned, a small light blue hairstreak was seen but not taken on subsequent days. Also an *Adelpha* with bright orange median forewing band, no hindwing band. Another interesting record or possibly new taxa from the high forests is an *Antirrhea* species seen at elevations up to 5000ft. I took one and saw others. It looks very distinct though closely related to *Antirrhea murena*, which was taken at elevations below 3500ft. I presume the other *Antirrhea* specimens seen about 4000ft were this taxa and not *A. murena*.

The summit ridge contained large areas of a good-sized bambusoid interspersed in the broken, rocky forest. A little surprisingly, no pronophiline satyrines were taken. Possibly a few were seen, but I could not determine for sure whether they truly were large satyrines.

Just a note on moths. On Mt. Wokomung, I collected diurnals and nocturnals by lantern at the three camps (2000ft, 3500ft, 4750 ft). Though I assume conditions were good (I have little experience with nocturnal collecting), numbers taken were scant (233

specimens). Surprisingly, the bulk of the specimens (180) came from the upper camp. According to Dr. Jim Miller (pers. comm.), the four Diopitidae specimens I took represent two new species. All specimens were taken in the upper forests. A diurnal clear-winged ithomiine look alike (*Diopitidae*) yielded three specimens, two males and a female. One male specimen was taken at 5000ft near the summit ridge, and I believe one of the specimens was taken by lantern. The other new species, unknown whether diurnal or nocturnal, was taken at the upper camp by lantern. Given the nature of tepui biogeography, I can only assume many of the other moths taken, especially at the upper camp, will be new to science. For those interested, the moths reside at the American Museum of Natural History. The hairstreaks are at the Smithsonian Institution, Washington, DC; other butterflies mentioned are at the Allyn Museum of Entomology, Sarasota, FL.

I hope this article spurs work on identifying a number of the taxa I wasn't sure about, with the resulting identifications to be included in a future *Tropical Lepidoptera* journal article I plan to write.

I would like to thank Dr. Lee Miller (Allyn Museum), Dr. Robert Robbins (Smithsonian Institution), and Dr. Jim Miller (American Museum of Natural History), for determinations of specimens. And to Dr. Robbins and Dr. Jim Miller, further insight and knowledge to their respective groups.

I am planning a tentative trip a couple of years from now to Mt. Ayanganna (unexplored for Lepidoptera) and hopefully back to Mt. Wokomung also. Numerous new taxa await to be discovered. Anyone who could assist in funding or would be interested in a possible joint expedition, please contact the author.

STEVE FRATELLO
West Babylon, NY

KILLER CATERPILLARS

The note in the last *News* about poison caterpillars in Brazil should be corrected now. A newspaper notice reported killer caterpillars in Brazil but did not mention what species was involved. Later, I talked to a Brazilian who just had come from Brazil, who stated the poison caterpillars were in the genus *Hylesia* (Saturniidae). However, Dr. Claude Lemaire, specialist in Saturniidae in Gordes, France, sent me copies of newspaper articles from Brazil that detailed the attacks, noting that the actual species involved was *Lonomia obliqua*. A number of saturniids have larvae with poison spines, likewise in the families Limacodidae and Megalopygidae, but none seem as toxic as the *Lonomia*.

In the Brazilian states of Rio Grande do Sul and Santa Catarina, these caterpillars have increased in numbers and many persons have encountered them. Severe reactions are produced by touching the poisonous spines of these larvae, which resemble io moth caterpillars. In persons especially allergic to the toxins, which include a blood anticoagulant, reactions have included such grave complications as kidney failure and cerebral hemorrhages. Reactions can occur within 12 hours. Nine deaths have been reported in Brazil over the last 24 months as a result of touching the larvae.

One should definitely avoid touching any unknown caterpillar with spines on it, since many have poisonous glands that produce stinging reactions at the least!

J.B.H.

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INSECTS OF WESTERN NORTH AMERICA (Essig) (1926)	*100.00c
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1996 ANNUAL MEETING



The 1996 Annual Meeting was held April 12-14 in Gainesville, Florida, as usual at the Florida State Collection of Arthropods. This year a modest number of members attended, but the scientific papers were most interesting and well presented; abstracts can be read below.

The annual Photo Contest included 74 entries, making the selection of winners difficult, as the four judges can attest to. We did not have any donation of a grand prize this year, like the Nikon lense of last year, but our usual prizes were presented to the winners (see *Tropical Lepidoptera*, June 1996, for the names of winners and their photographs).

ABSTRACTS

James K. Adams (Dalton College, Dalton, Georgia)

Lepidopterological Biodiversity of Northern and Eastern Mexico

A representative cross-section of different habitats east of the continental divide in Mexico are discussed, and numerous examples of different species of both butterflies and moths from the different habitats are presented. Factors influencing the diversity of Lepidoptera in the different habitats are emphasized (e.g., total rainfall, seasonality, temperature extremes, elevation). An update on the permit situation in Mexico will be presented, as well.

José Clavijo-A. (Universidad Central de Venezuela, Maracay, Edo. Aragua, Venezuela)

Lepidoptera Research in Venezuela

An overview of Lepidoptera research in Venezuela is presented. Over the last 9 years, the number of Lepidoptera taxonomists at various institutions in Venezuela has increased from 3 to 5, although some of these persons are not working full time in this specialty. There has been an increase in the number of graduate students working with Lepidoptera and we expect that this number will grow. The number of collections has also grown, especially those relative to butterflies. Some amateur lepidopterists are starting to produce some scientific work and their number is increasing, especially among the young amateurs. The Museo del Instituto de Zoología Agrícola "Francisco Fernández Yépez" (MIZA), in Maracay, is trying to build a new museum building and it is ready to start as soon as funds are received to do it. Just recently the MIZA received the donation of two very important Venezuelan collections: the Feige Lepidoptera Collection and La Salle Insect Collection.

Jaret C. Daniels (University of Florida, Gainesville, Florida)

Temperature and Photoperiodic Control of Seasonal Polyphenism in the Barred Sulphur, *Eurema daira* (Pieridae).

Temperature and photoperiod conditions during development were shown to control the phenotype of north-central Florida populations of *Eurema daira*. These environmental factors controlled both pattern and

color elements of the phenotype, and the responses of the sexes differed. The photoperiodic and thermal extremes, alone or combined, could not produce 100% of either phenotypic extreme. The polyphenism of *Eurema daira* appears to be unusual among Lepidopterans, as it clearly represents a multiple induction system.

John F. Douglas (African Tropical Biodiversity Program, Toledo, Ohio) **Critical Imperilment of Central Africa's Virunga Volcanoes National Parks and Intensification of Bioinventory Efforts**

1) BIODIVERSITY.— The Albertine Rift region of Central Africa, where Zaire, Uganda, Rwanda, and Burundi meet, leads the continent in overall biodiversity (Pomeroy, 1993). The Kivu-Ruwenzori Highland Forest harbors Africa's richest endemic montane bird and butterfly faunas (Carcasson, 1964; Pomeroy, 1993), and Virunga National Park (Zaire) is host to a greater number of mammal species than any other national park in the world (Bonner, 1994). Faunas of the Kivu-Ruwenzori Highlands and adjoining Ituri Forest contribute strongly to Zaire's number one rank (Pomeroy, 1993) among African countries in butterfly diversity, and Uganda's species-rich western montane forests account in large part for its number one rank in both bird and mammal diversity. The Yirunga volcanoes ecosystem is exceptionally rich in endemism. Its landscapes are beautiful beyond description. Three national parks together provide protection for this unique area: the Parc National des Volcans in Rwanda, Virunga NP (VNP, Parc National des Virunga-Sud) in Zaire, and Mgahinga Gorilla NP, recently gazetted in Uganda. Protection of resident mountain gorilla populations has been the prime moving force in establishment of these sanctuaries.

2) REFUGEE CRISIS.— A refugee crisis of immense proportions besieges the Virungas in the wake of civil war in Rwanda. Human pressure on the parks is extreme. An estimated 746,000 Hutu refugees are encamped on the Zairian side of the Virungas (Salopek, 1995). Cutting of trees for firewood is denuding the fringes of VNP as every day an estimated 30,000 refugees forage with machetes in the park (Bonner, 1994); an estimated 230 truckloads of trees are being cut per day (Salopek, 1995). Refugees have stripped thousands of acres of rainforest within a four-hour walk of mountain gorilla habitat (Salopek, 1995); already 112 sq.mi. of VNP have been partly or completely deforested (Bonner, 1994).

3) AFRICAN TROPICAL BIODIVERSITY PROGRAM.— A five-year conservation and training initiative, recently funded by the MacArthur Foundation, represents a collaborative effort between Makerere University (Kampala, Uganda) and the Field Museum of Natural History (FMNH) (Chicago, Illinois). It will involve: a) modernizing of Makerere's museum and research facilities; b) training of African students (Ugandan and from adjoining countries) in the methods of ecology and museum work; c) inventorying of biota in Uganda's reserves, especially its western forest tracts, and development of conservation programs there. Inventorying of Lepidoptera is projected to begin in Mgahinga Gorilla National Park, SW Uganda, in 1998 (Mts. Muhavura, Mgahinga, Sabinyo). The main vegetation zones in the park are montane forest, bamboo, tree heather, and Afroalpine; at least 44 mountain gorillas (incl. two lone adult males) are known to use the area (Butynski and Kalina, 1993). Results of the Virunga Lepidoptera Bioinventory will be incorporated into public education and conservation programs in Uganda's parks and at Makerere University.

Thomas C. Emmel (University of Florida, Gainesville, Florida)

Conservation Biology and Restoration Ecology of the Endangered Schaus Swallowtail Butterfly

After basic biology studies and status surveys annually since 1984, and captive propagation since 1992, the initial reintroduction of Schaus Swallowtails into the Florida Keys and onto the South Florida mainland were made and monitored during April-June 1995. Additional releases are forthcoming in April-June 1996. Initial results will be reported on and discussed.

Jason Hall and Keith Willmott (University of Florida, Gainesville, Florida)

Patterns of Nutrient Source Exploitation in Adult Male Riodiniidae and their Relationships to Morphology and Ecology

We present observations on adult male feeding behavior for 124 species in 41 genera of Ecuadorian Riodiniidae. Nutrient sources recorded in this study include rotting carrion, flowers and damp sand or mud. Rotting carrion placed in traps was the most frequently recorded food source, attracting 89 species from 32 genera. Plotting wing area against thoracic volume reveals the existence of two groups of species that are shown here to have significantly different mean ratios of wing area to thoracic volume; lower ratios are significantly correlated with species that were recorded feeding. Among species recorded feeding, those recorded on rotting carrion had the lowest mean wing area:thoracic volume ratio. The correlation between low wing area: thoracic volume ratios and feeding on rotting carrion is significant between all tribes (439 sp.) and within tribes (Riodinini and Charitini), and partially significant within the largest genus (*Euselasia*). We reanalyse previously published data on flight and morphology for species in other butterfly and moth families and show that the ratio of wing area to thoracic mass is negatively correlated with flight speed and metabolic rate. Thus, metabolic rate is probably an important factor in determining the nutrient requirements of adult male riodinids.

Michael Parsons (University of Florida, Gainesville, Florida)

Butterfly Farming and Indo-Australian Tropical Forest Conservation

Butterfly farming can epitomise a World Conservation Strategy-style renewable resource project. With varying degrees of success, it has been used for conservation of forest habitats throughout the Indo-Australian region. Problems facing the system have been well identified during the more than fifteen years of developing its methods and principles. Although insects represent the world's largest faunal group, birds and mammals take priority for conservation as they are overridingly more appealing and visible to the donating public. Thus, few projects in tropical developing countries specifically focus on insect conservation, and the butterfly farming concept has never been fully sponsored by international conservation organisations. The paucity of funding has also been accentuated by two major world economic recessions in the early 1980s and 1990s. Recent butterfly farming projects have suffered through failure to provide them with a constant level of expert tuition over their crucial initial 1-2 year implementation period, and also because of government apathy in countries like China and Indonesia. This has resulted in a critical lack of support that would otherwise compliment that of external sponsoring organisations (NGOs). Therefore, to more competently establish further regional projects, it is necessary to improve village-level tuition, refine liaison with government departments, more effectively use funds, and to improve interproject coordination through mutual support and education.

Austin P. Platt (University of Maryland, Baltimore, Maryland)

Relative Abundances, Spatial, Temporal, and Altitudinal Distributions of some Peruvian Adelphids (Nymphalidae)

In January, 1986 I purchased from Col. L. W. Harris of Lima, Peru a papered collection of 225 specimens of *Adelpha* spp. These insects had been collected from 21 Peruvian localities on the Amazonian side of the Andes between Jan., 1960 - Dec., 1969. Fourteen sites (the "northern" localities) cluster in (or near) Huanuco (vic. of Tingo Maria); seven others (the "southern" localities) lie in Pasco and Junin (in, or near, the Chanchamayo Valley). These localities vary in altitude from 700m (at Rio Rondos) to 2800m (at Carpisah Pass), with the mean collecting site altitude being about 1,060m.

These specimens represent ones remaining from approximately 16 insect collecting trips made into these wilderness areas by Col. and Mrs. Harris during the 1960's. When received, the papered insects were color-coded, both for collection localities and for identification of forms,

the latter being based mainly on Fruhstorfer's illustrations in Seitz (1924). Collection dates (month and year) had been written directly on the specimen envelopes.

All specimens were pinned and labeled accordingly, and representative ones were shown to the late G. B. Small, Jr. in March, 1986 for verification, while he was in the process of curating the Adelphid collection at the USNM, in Washington, D.C. Since then, I have carefully examined each specimen, and have grouped the specimens into "taxa" based upon an unpublished checklist of Peruvian Adelphids, kindly provided by G. Lamas of Lima. This checklist synonymizes many taxonomic names, but still includes about 50 valid Peruvian taxa of *Adelpha* spp.

My preliminary classification of these adelphids includes 28 taxa, with numbers varying from one or two specimens (for *A. cytherea*, *A. jordani*, *A. naxia*, and *A. valentina*) to 21 for *A. iphiculus*. Other common taxa (those with ten or more specimens) include *A. boreas*, *A. delinita*, *A. epione*, *A. erotia* (including form *lerna*), *A. olynthina*, *A. mesentina*, and *A. ximena*. The sample as a whole exhibits excellent species diversity. Fourteen taxa were collected only between altitudes of 800-900m. Seven taxa, including 72 specimens, were taken in the "southern" localities. The remaining 153 specimens, representing 21 taxa occurred mainly in the "northern" localities, with only two being found in both major regions. Eleven taxa were taken at only one collection site, but *A. iphiculus* was taken at five localities, and four other taxa occurred at four different sites. Species prevalence peaked annually between Oct-Dec and between Apr-May.

These data are of interest in light of the on-going habitat disturbances occurring in marginal Amazonian forests, such as those representing the localities from which these butterflies were obtained nearly thirty years ago. Finally, I wish to dedicate this presentation to the memories of Col. and Mrs. L. W. Harris, and G. B. Small, Jr.

PUBLICATION REVIEW

Self published papers by David K. Wetherbee

Dr. Wetherbee is a retired zoology professor, who studies natural history of Hispaniola and resides in the Dominican Republic. Since his self published works on Hispaniolan fauna, including butterflies, are largely unknown, the titles and abstracts of these works are noted below.

1991. Seventh contribution on larvae and/or larval host-plants of Hispaniolan butterflies (Rhopalocera), and nocturnal activity of adult *Hypanartia paulla* (Fabricius) (Nymphalidae). Shelburne, Massachusetts. 13pp.

Abstract: New information is given on larvae and/or larval host-plants for Hesperidae, Pieridae, Lycaenidae, Nymphalidae, Satyridae, and Danaidae. Also, crepuscular activity of adult nymphalids (*Hypanartia paulla*) is reported.

1991. Two centuries of exploration for Hispaniolan butterflies. Shelburne, Massachusetts. 82pp.

Abstract: The species and subspecies of Hispaniolan butterflies are discussed as to the history of collector, type-locality, and date. A list of suggested restrictions of type-localities is presented. Paintings of Cap-Haitien butterflies by Rene-Gabriel Rabie (1775) are republished in black and white. Lectotypes are designated for *Anaea troglodita* Fabricius, *Phocides pigmalion bicolor* Boddaert, *Dryas iulia* Fabricius, *Marpesia chiron* Fabricius, and *Hypanartia amphinome* Fabricius.

1992. Eighth contribution on the larvae and/or larval host-plant of Hispaniolan butterflies: The butterfly/larva flora, with the theory of *Calisto* (Satyridae) origin and endemism. Shelburne, Massachusetts. 114pp.

Abstract: The known larval host-plants and nectar plants of Hispaniolan butterflies are figured from botanical literature. Taxonomic and morpho-metric tabulations of Hispaniolan butterflies are presented. The Brazilian origin of the climbing grass *Arthrostylydium*, larval hostplant of the ancestral *Calisto archebates* (Satyridae) group, indicates a South American origin for the genus *Calisto*. A second wave of *Calisto* evolution in Hispaniola is represented by the *C. grannus-lyceia*-group that has unique concordance with the endemic grass *Danthonia domingensis*. An endemism theory is developed. A list of Hispaniolan grass species is appended.

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BOOK NEWS

ATLAS OF NEOTROPICAL LEPIDOPTERA

Vol. 124. *Bibliography of Butterflies*

by G. Lamas, R. G. Robbins, and W. D. Field. 463pp. 1995.

This bibliography to literature on Neotropical butterflies and skippers from 1758 to 1994, contains annotated references for over 10,000 citations for the entire region from the U.S.-Mexican border south to Tierra del Fuego (includes offshore islands like Bermuda).

Member price is \$32.50 (non-member price: \$62.95).

THE WILD SILK MOTHS OF NORTH AMERICA

A Natural History of the Saturniidae of the United States and Canada by P. M. Tuskes, J. P. Tuttle, and M. M. Collins. 250pp, 30 pl. 1996.

The monographic treatment of this book covers all Saturniidae in North America in detailed text and illustrations. There are 30 superb color plates, including 6 plates depicting live photographs of almost all the caterpillars. The text illuminates the known distributions (including range maps), plus details of identification and biology.

Price: \$75.00. Publisher: Cornell University Press, Ithaca, NY.

CHECKLIST OF THE LEPIDOPTERA OF AUSTRALIA,

edited by E. S. Nielsen, E. D. Edwards, and T. V. Rangsi. 529pp. 1996.

This first catalog of Lepidoptera for Australia lists 17,280 names, of which 10,583 are considered valid species: 89 families are included. The area covered includes mainland Australia and Tasmania, plus a few nearby islands. The faunas of New Guinea and New Zealand are excluded, as are a few Australian islands within the faunal sphere of Papua. Included is a CD-ROM of text files and the index! Each family also has a short diagnostic and remarks section before the list for that family begins.

Price: \$125 US. Publisher: CSIRO Publishing, Collingwood, Victoria, Australia.

CATESBY FACSIMILE

\$52,600 for one book! That's US Dollars, not Yen! Yes, this is the price of the facsimile reprint of Catesby's *Natural History of Carolina, Florida and the Bahama Islands*, of 1747. The work includes numerous insects, as well as birds and other animals, and plants of the then American colonies.

Only 50 copies will be printed, since each of the 263 plates will be done in a highly complicated printing process to render the finest fidelity of colors and details of the originals. The original prints are from the Royal Collection of natural history prints at Windsor Castle, England. The book will be printed over the next few years and will cost about the equivalent in current dollars what it would have cost 250 years ago! Now you can understand why so few persons bought folio books of color plates back then! If you pay cash now, you can get the book for only \$39,450. And, you complain about the cost of the D'Abrera books! Let us count our blessings. Those of you interested in this opus can contact Alecto Historical Editions, 40 Piccadilly, London, England, for a prospectus (e-mail: 100306.1645@compuserve.com).

MEETINGS

1996 **Pacific Slope Section, Lepidopterists' Society:** July 19-21, Ephraim, Utah, USA

XX International Congress of Entomology: August 25-31, Florence, Italy

1997 **Association for Tropical Lepidoptera:** April 3-4, Gainesville, Florida, USA

NOTICES

LOST MEMBERS! F. Bourlière, Paris, France. Matthew Kettle, Berlin, Germany. Lauri Luukhonen, Vantaa, Finland. Debra Murray, Tena, Ecuador. Mario Posla-F., San Jose, Costa Rica. Mel Tintpulver, Toronto, Canada. Thierry Varenne, Draguignan, France. Lawrence R. Wills, New Plymouth, New Zealand. H. Ziegler, Chur, Switzerland.

REMEMBER! If you do not send us your address changes, your copies of the journals may get lost (in the USA, our journals are sent 3rd class mail, which is thrown away by the postal service if the address is wrong!).

FORTHCOMING BOOKS – 1996

CLASSIFICATION OF LEPIDOPTERA, by J. B. Heppner

Still expected in 1996. The member price of only \$10 is valid to June 1996, thereafter \$24.50 (non-member price: \$42.50).

ATLAS OF NEOTROPICAL LEPIDOPTERA

Checklist. Part 4B: *Drepanoidea – Bombycoidea – Sphingoidea*, by V. O. Becker, R. H. Carcasson, J. B. Heppner, and C. Lemaire

Part 4B of the Neotropical catalog classifies 2,483 species, including those in such popular families as Saturniidae and Sphingidae. An extensive bibliography cites virtually all papers dealing with the included families for the Neotropics. The catalog is expected in Autumn 1996. Parts 1 and 2, treating all Microlepidoptera, already are available. Member price for Part 4B is \$14.95 (non-member price: \$29.95).

LEPIDOPTERA OF TAIWAN

December 1996

Vol. 1 – Part 1: *Introduction*, by J. B. Heppner and H. Y. Wang

The introductory part for this series follows the catalog already published in 1992. This part covers the history of Lepidoptera work in Taiwan from early days up to the current Lepidoptera survey, begun in 1981. A key to families is provided in English and Chinese. The main part of this volume comprises 60 plates of color photographs of selected species from Taiwan, about a third of the fauna being illustrated. Future parts will cover all species in detail. Member price is \$81.50 (non-member price: \$125.50).

WINGS OF PARADISE.

Autumn 1996

The Great Saturniid Moths, by John Cody

This artistic book of 80 paintings by John Cody depicts various spectacular saturniid moths from around the world. Preface by Dr. Richard S. Peigler. Price expected at about \$50. Publisher: Univ. of North Carolina Press.

DAMSELFLIES OF NORTH AMERICA

August 1996

by M. J. Westfall, Jr., and M. L. May

Although not on Lepidoptera, this monographic work treats one of the major predator groups and may be of interest to some members. The book compliments one done forty years ago on dragonflies (Needham and Westfall, 1955). All 161 species of damselflies in North America are treated (includes the Greater Antilles and the northern Mexican states). The book totals 650 pages, with 8 color plates. Price is \$69.50. Inquires to: Scientific Publishers, P. O. Box 15718, Gainesville, FL 32604, USA.