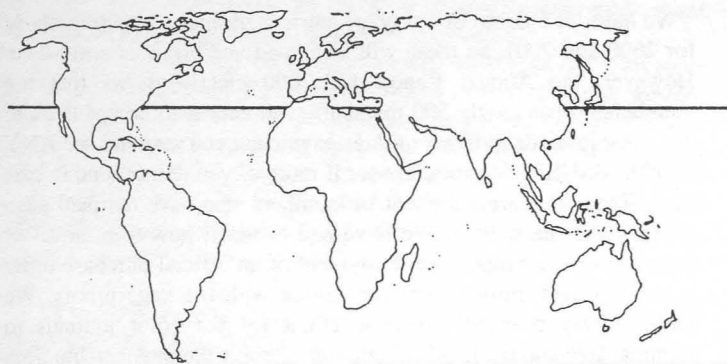


LEPIDOPTERA NEWS

June 2001

No. 2



Presidential Address

TROPICAL BUTTERFLIES: A KEY MODEL GROUP THAT CAN BE "COMPLETED"

Paul R. Ehrlich

Bing Professor of Population Studies
Stanford University, Stanford, California

It has long been clear that much of biodiversity will go extinct before it can be described and its most basic biological characteristics recorded. Many, if not most species of eucaryotic organisms will vanish before they can even be given a latinized names (Myers, 1979; Wilson, 1992), a process which by itself provides little of scientific value. With the exception of a very few of those species that have been described, the distribution of populations has not even been preliminarily mapped, a process necessary to track the thousands of population losses that, while many thousands of the billions of these critical units disappear, occur daily under human onslaught (Hughes *et al.*, 1997). And, the vast majority of species clearly will either be exterminated or will evolve into entirely different entities before we gain even the sort of very partial understanding that of them as we now have for intensively studied selected organisms such as the nematode *Caenorhabditis elegans* (e.g., de Bono and Bargmann, 1998; Sternberg, 1990; Wood, 1988), fruit flies (*Drosophila* spp.) (e.g., Dobzhansky, 1947; Konopka and Benzer, 1971; Morgan, 1911; Schaeffer and Miller, 1993), checkerspots (*Euphydryas editha* and *Melitaea cinxia*) (e.g., Ehrlich, 1961; Ehrlich *et al.*, 1975; Gilbert and Singer, 1973; Hanski *et al.*, 1994; Hanski, 1995; Harrison *et al.*, 1988; Zimmermann *et al.*, 2000), *Bicyclus* butterflies (Brakefield *et al.*, 1998; Wijngaarden, 2000), white-crowned sparrows (*Zonotrichia leucophrys*) (Baptista, 1975; Baptista and Petrinovich, 1986) or chimpanzees (*Pan troglodytes*) (Ehrlich, 2000; Goodall, 1986; Goodall *et al.*, 1979). In the face of this biological holocaust, what the scientific community primarily concerned with biodiversity should have been doing has also long been clear — population biologists (especially taxonomists and ecologists) should have been emulating the success of geneticists by concentrating their efforts on carefully chosen model systems (Ehrlich, 1997). They need to choose a sample of taxonomic groups to be the biodiversity equivalents of the gut bacteria (*Escherichia*), fruit flies (*Drosophila* spp.), and laboratory mice (*Mus musculus*), used by geneticists from which other biologists induce generalities about other organisms or life in general. Instead, taxonomists and ecologists have historically largely taken a non-scientific "shotgun" approach to nature, and have paid a high price in lack of progress (and of prestige within the scientific community) for their folly.

It is now too late to "complete" today's crude fragmentary systematic/genetic/ecological/behavioral overview of the vast panoply of biological diversity, but it is not too late to develop a substantially more detailed picture and useful understanding of a limited number of model groups — comprehensive pictures of their diversity, taxonomy, distribution, behavior and ecological relationships. Such a picture that could provide a framework of understanding for population biologists in a century or so when much of today's biodiversity will be the subject of study of paleontologists. Think of how informative it would be if we had available such comprehensive contemporaneous studies of Cretaceous dinosaurs, birds, and plants, or of the primates of 6-8 million years ago (when the common ancestors of chimps and people were alive). Groups that might be chosen for "completion" today include most vertebrates, vascular plants, and, of course, true butterflies (Papilionoidea). The Papilionoidea are the most obvious taxon of the invertebrates to select as a model group for detailed taxonomic, ecological (including ecophysiological), evolutionary and behavioral study. Other relatively well-understood arthropod groups that might be chosen to serve as models include ants (Beattie, 1985; Gordon, 1999; Hölldobler and Wilson, 1990), because of their incredible importance in ecosystem functioning, especially in the tropics; bees, because of their key roles in pollination (Michener, 1974; Michener, 2000); mosquitoes and ticks, because of their public health significance; and tiger beetles, which have many attributes that would make them good indicators of biodiversity (Pearson and Cassola, 1992).

But in the face of the disappearance of much of what they study, professional taxonomists and ecologists are not switching in large numbers to helping the development of model systems. One does not need to search far for the reasons scientists are slow to join this important effort. First among those reasons is the training of how professional taxonomists and ecologists are educated, which needs to be overhauled. Taxonomic training too often produces workers who are taxon-bound, many of whom persist in doing alpha (species description) and beta (simple classificatory revisions) taxonomic studies of little-known groups in which they happen to be interested (or were introduced to by their major professors). Many [cont. on p. 10]

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JOURNALS: separates (1990-95 only), \$1 first page, 25¢ each added page (specify author and citation). Past journal issues: \$22.50 each (1990-98) (1994 *HL* double issue: \$45). *Lepid. News*: \$10 per year.

CONTENTS for the journals are issued every two years.

TO OUR READERS

We have all 8 issues of our color journals in final production, those for 2000 and 2001, so these will be issued and bring us up-to-date. However, the Annual Report for 2000 clearly shows that the membership has nearly 500 members who appear to be apathetic to our color journals in terms of dues payments: you may not see ANY MORE ISSUES after another year if more of you do not send in past dues. There also are a number of members who have not paid page charges due the society. We have had to resort now to removal of papers from a journal issue if payment or an official purchase order is not returned, prior to printing, along with the page proofs. We have already reduced our page count for the color journals to minimal size and made other economies, but if the membership does not want the color journals anymore, then there appears to be no clearer documentation of this than the 494 members in arrears for their dues payments. It is up to you. Send your dues in and keep your journal issues coming.

As to the current issue of *Lepidoptera News*, we have a guest essay by our 2000 President, Dr. Paul R. Ehrlich, famous for his research on butterfly ecology and for his long-term writings on the problems of world over-population and conservation issues. He presents some interesting arguments in terms of biodiversity studies of butterflies, although I believe that he dismisses the moths too much (How can we know the butterflies if we do not study their evolutionary forebears, the moths, where over 90% of Lepidoptera biodiversity is found?), but clearly butterflies are the mainstay of what the general public knows when they think about Lepidoptera. Whether you work on moths or butterflies, your personal contribution along the lines that Dr. Ehrlich suggests will be a great legacy to future generations who will marvel at the diversity we had the privilege of studying in 2001.

J. B. HEPPNER
Executive Director

NOTES

1. **2002 Annual Meeting:** April 6-8 in Gainesville.
2. **2002 Annual Photo Contest:** deadline is March 15, 2002. Note that the prize awards now include only a Grand Prize winner (award may be cash or a book). We only had 12 photos entered for 2001, so could not have any photo contest with such a small number: if there is no interest in a photo contest then none can be had. It is up to you — lets make 2002 better.
3. **Cover Photos:** members can note that color photos for journal covers are always sought. ATL does not pay photo fees, but you do have the gratification of having your photo selected for one of the front or back covers. Photos should be exceptionally sharp and in our page proportion.
4. **ATL Debentures:** a number of ATL members have already taken advantage of our interest rates and invested in ATL debentures. Please let us know what you can do to help! Returns of principal (at end of period) and interest (paid annually) are guaranteed.
5. **ATL Photo Archives:** Do not forget to consider ATL as the ultimate depository for your valued color slides of moths and butterflies and larvae. Do not let your investment of time and effort go to relatives who may not appreciate photographs of Lepidoptera; donate them to the ATL Photo Archives. You are also welcome to send listings of your holdings to add to the ATL Photofile database: let others know what species you have recorded on film. You may have unique life history photos never seen before.
6. **Life memberships:** life member dues total \$2,000 (or \$400 per year for 5 years).

ELECTIONS 2001. Candidates for offices include 3 nominations for 2001; see ballot and return to ATL before Dec 31. No Directors are up for election.

ATL WEBSITE

Check out the revised ATL website (www.troplep.org) for new images, covers of all journal issues, and contents lists for all issues and newsletters. By mid-summer 2001, over 54,000 visitors have logged on since it opened.

LETTERS

SANTO DOMINGO IN TAIWAN?

For most Lepidoptera specimens, the label "Santo Domingo" may mean many different locations in Latin America, although most refer to the capital city of the Dominican Republic, on the West Indian island of Hispaniola. I was surprised to note recently an article in *Taipei Review* (January 2001) about the old Spanish fort at Taipei, Taiwan, which is called Fort Santo Domingo. The fort is on the outskirts of present-day Taipei, built in 1629 when Spain had a small outpost in northern Taiwan. Local Taiwanese finally attacked the fort in force in 1636, whereupon the Spanish colonizers had to rebuild much of the fort. Dutch troops later advanced on Spanish areas of Taiwan, and finally mainland Chinese settlers took over the remnants of Fort Santo Domingo after 1681.

One thing that may be of interest for Lepidoptera studies involves any species that may be misplaced in the Caribbean. If any species appears misplaced in the New World based on old descriptions, one may consider that a label stating "Santo Domingo" may in fact refer to the fort of the same name on Taiwan. Although I am not aware of any such misread labels on specimens, it seems noteworthy to clarify this in case other researchers come across a West Indian species strangely out of place in the Neotropical fauna: they should best then check the fauna in Taiwan in case it is such a case of misreading what Santo Domingo stands for on the old specimen label.

J. B. HEPPNER
Gainesville, Florida

FSCA RESEARCH ASSOCIATES

The Florida State Collection of Arthropods (FSCA), Gainesville, FL, part of the Florida Dept. of Agriculture & Consumer Services, Division of Plant Industry (DPI), maintains the State of Florida insect collection. Many in the entomological community, or those seeking specimen records, mistakenly assume the FSCA only deals with insects from Florida, or think of it as a small regional collection with interests only in the region, but the FSCA has material from all over the world and is the 5th largest insect collection in North America, totaling over 8 million curated specimens (not counting many more that are still unprepared). For Lepidoptera, the FSCA has nearly 1.5 million curated specimens.

FSCA acquisition policy is not limited to regional specimens but is mandated to obtain specimens from all areas, especially from pan-tropical regions of the world. While the FSCA has its greatest interest in Florida and Caribbean faunas, the FSCA retains representative material from all over for research on insects and to help in identifying new arrivals, since there continues to be an ever greater influx of unwanted species from tropical regions coming into Florida ports-of-entry. Recent years have seen large increases of air traffic to Florida from west Africa and Southeast Asia in particular, resulting in about 10 new exotic insect species becoming established in Florida every year. With the tropical climate of South Florida, many tropical species can adapt to living in Florida once they are introduced.

With the new McGuire Center for Lepidoptera Research opening in 2003, the FSCA Lepidoptera will be housed there, only about 150 feet from the present location in the DPI building in Gainesville. The FSCA title pertains to all state-funded insect collections in Florida, now housed with DPI, but Lepidoptera specimens and books will be housed separately once the new McGuire Center is open after 2003. With the added transfer of the Allyn Museum from Sarasota, and the accumulation of a number of large bequests of collections, as well as other acquisitions, the Lepidoptera collections in the McGuire Center will become among the largest in North America, perhaps second only to those housed at the Smithsonian Institution in Washington.

FSCA Research Associates

Some 35 years ago, Dr. Howard V. Weems, Jr., former head curator of the FSCA, initiated an affiliation program for entomologists and advanced amateurs who could become FSCA Research Associates. There never has been any demands made on FSCA Research Associates, and

many have been given insect pins, labels and other equipment to help with their collections, yet most have freely donated various amounts of insect specimens for the FSCA over the years. There now are over 325 FSCA Research Associates, in North America and other parts of the world, helping to augment the collections in Gainesville.

For Lepidoptera, the FSCA has received large donation accumulations over the years, particularly from Vernon A. Brou, Jr. (Louisiana), Terhune S. Dickel (Florida), Thomas C. Emmel (Florida), S. V. Fuller (Florida), Dale H. Habeck (Florida), J. Richard Heitzman (Missouri), J. B. Heppner (Florida), and J. Bolling Sullivan, III (North Carolina), just to name those making the largest donations. There have been many others who have donated sizeable numbers of Lepidoptera as well: James K. Adams (Georgia), Morton S. Adams (New York), Robert A. Belmont (Florida), Richard W. Boscoe (Pennsylvania), Peter J. Eliazar (Florida), Irving L. Finkelstein (Georgia), Clifford D. Ferris (Wyoming), Jean Filiatrault (Quebec), Lawrence F. Gall (Connecticut), John Hyatt (Tennessee), Stanley G. Jewett, Jr. (Oregon), Roy O. Kendall (Texas), Edward C. Knudson (Texas), Peter J. Landolt (Washington), Noel McFarland (Arizona), Robert B. Miller (California), Dale F. Schweitzer (New Jersey), Charles M. Stevens (Florida), Jürgen H. R. Thiele (Germany), Hiltrud M. Webber (Missouri), Howard V. Weems, Jr. (Florida), and W. B. Wright (New Jersey). Many others have also given Lepidoptera specimens, both from Florida and exotic locations.

The FSCA houses the Lepidoptera collections of the following persons: W. Lee Adair (Florida), H. David Baggett (Florida), Larry N. Brown (Florida), Sandra S. Clenney (Florida and exotic), Linwood C. Dow (Florida), A. M. Dykstra (Missouri), Thomas C. Emmel (Florida and exotic), G. B. Fairchild (Florida and Nova Scotia), Robert V. Gregg (Kentucky), Florence M. Grimshawe (Florida), Robert L. Heitzman (Missouri), Roger L. Heitzman (Missouri), Parker R. Henry (Florida), J. B. Heppner (Florida and exotic), Shirley M. Hills (Florida), H. O. Hilton (Florida), H. L. King (Florida and exotic), John S. Kutis (Florida), Barbara Lenczewski (Florida), William W. McGuire (Minnesota), E. C. Olson (California and exotic), John M. Plomley (Florida), Walter J. Reinthal (Kentucky and Europe), R. Peter Rosier (Florida), F. C. Stone (Florida), Gayle T. Strickland (Louisiana), H. E. Woodcock (Illinois), and Charles F. Zeiger (Florida). About half of the Charles P. Kimball collection is also at the FSCA; the remainder was given to the Museum of Comparative Zoology, Harvard University, in Massachusetts. There also are a number of Lepidoptera collections bequeathed to the FSCA.

FSCA Specimen Needs

To help obtain more specimens from some areas the FSCA is weak in, persons interested in the FSCA and who would like to help with donations of specimens are encouraged to apply to become FSCA Research Associates. Donations to the FSCA are tax-deductible in the United States and Canada. As noted above, there are no requirements to donate specimens and some collection equipment can be sent to FSCA Research Associates: it is our hope, however, that in time needed specimens will be donated by research associates. Since some collectors retain only specimens in small series, the FSCA will gladly accept duplicate specimens. In North America, the FSCA can especially use more material from the following areas: Alabama, Alaska, California, Delaware, Georgia, Idaho, Indiana, Iowa, Kansas, Maine, Michigan, Minnesota, Mississippi, Nebraska, Nevada, North Dakota, Ohio, Oregon, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Vermont, Virginia, Wisconsin, Utah, Washington, and West Virginia, plus Ontario and all of western Canada. Parts of Arizona, New Mexico, Texas and Wyoming, are also underrepresented. The large donations noted in the previous section have provided generally ample material from the other areas of North America, although fine specimens are always welcome.

For the remainder of the world, the FSCA has a fair representation of some of the species from Europe, South America, and East Asia, but very limited numbers from Africa, Australia, and the Pacific Islands. To obtain the many unusual species of the biodiverse regions of the world,

particularly the tropics, the FSCA is most in need of material from central Africa, tropical Asia and Australia.

FSCA Contacts

Persons interested in the FSCA Research Associate program, or those wanting further details or having any questions about FSCA Lepidoptera, please contact the Curator of Lepidoptera, Dr. John B. Heppner, FSCA, P. O. Box 147100, Gainesville, FL 32614-7100 (Tel: (352) 372-3505 x139; e-mail: heppnej@doacs.state.fl.us). For other questions about the FSCA programs, contact Dr. Gary R. Steck, Research Associate Program Co-ordinator, address as above (Tel: (352) 372-3505 x188; e-mail: steckg@doacs.state.fl.us).

OLD NAMES AND THE ZOOLOGICAL CODE

One of the main features of the Zoological Code, both in the current edition (ICZN, 1999. *International Code of Zoological Nomenclature*. 4th ed.) and in past decades, has been the effort to stabilize the nomenclature of animals, especially the names of higher taxa (genera, subfamilies, families, etc.). A fashion of a number of taxonomists even today undermines this correct and needed feature of the ICZN (International Commission on Zoological Nomenclature), by the continual resurrection from the tomb of time of unknown and unused "ancient" names, all for the sake of absolute, iconoclastic, pedantic, date priority of names. It is one thing to use the correct names in a thorough revision of a group when such names being synonymized have all been in use and their correct status is clarified. It is another matter for authors to dig up old names (sometimes not used for over 100 years) and replace current valid generic (or even family) names all for the sake of priority, nevermind that all the literature for the past 100 years will have the "wrong" generic name.

The new Code has recommended that zoologists adopt an official registry listing all currently known names, thus thereafter eliminating the validity of any unused old names being discovered and used as senior synonyms if not already on the "official" list: this, however, is not a law of the Code in the current edition. The new Code requires authors who may discover older names (any published before 1900) to themselves treat these long forgotten names as *nomina oblita* (i.e., unknown names), and do so without going through the formal process of having the ICZN rule on the priority of such names (or their suppression). Unfortunately, this still leaves some cases just shy of the 100 year rule: obviously, names not used for 99 years ought to be treated as *nomina oblita* also, perhaps even names not used for 75 years, but here the author dealing with these names should rely on common sense and not too much on date priority.

A case in point is the recent replacement of a generic name in Notodontidae, *Quadricalcarifera* Strand, 1916, well-known in the Asian fauna of this large family of moths, with the previously forgotten older name, *Syntypistis* Turner, 1907 (see Edwards, 1996. In E. S. Nielsen, E. D. Edwards, and T. V. Rangai (eds.), *Checklist of the Lepidoptera of Australia*). If both names had been used in various works over the years, then their synonymy would be normal and expected. However, the Strand name was found to be a junior synonym of Turner's Australian generic name, and even if used in Australian literature previous to the 1996 catalog, the genus *Syntypistis* had not been associated with species of *Quadricalcarifera*. The use of the older "unknown" generic name puts 95 years of literature references to *Quadricalcarifera* into disarray. The new synonymy was also done in a catalog, not a generic revision, and no explanatory notes were offered about the change. A similar situation is the continual pedantic use of the subfamily name, Acentropinae, for the well-known name Nymphulinae, for this group of aquatic pyralid moths. There are other cases as well.

Added to all this is the inevitable usage by others of these changes that go against the stabilization recommendations of the Code (ICZN, 1999), to retain long-used names and make older unused senior synonyms *nomina oblita*; or, petition the Zoological Commission to declare the currently used name to be the valid name (not necessary, as noted above, for names published before 1900). Once someone proposes such ill-advised usage of these older names, however, it seems few will question it; just blindly following the leader and adopting this anti-Code,

anti-sense, procedure. The notodontid example was proposed in an important new catalog of Australian Lepidoptera, so use of the generic name *Syntypistis* has recently begun creeping into the new notodontid literature. Similar cases involve incorrect family names being used due to ignorance or lack of personal investigation of the facts: e.g., the continued use of the family name Roeslerstammiidae, instead of the correct Amphitheridae, all because a recent revisor thought the family name ought to be changed (an incorrect assumption based on ignorance of the Code), and others just blindly follow along.

My recommendation is to adopt what our Zoological Code states about old unused names: stop giving these names validity in attempted resurrections, and when found in older literature, list them as *nomina oblita*. Even when such old names are valid and would have been the name to be used for the past century, had they been properly known about, there is no rational argument for using them a century later, other than for pedantic name priority reasons. One also should question the use of older names for well-known genera even if below the 100-year standard: a well-known genus should not be changed for an unknown older name even at the 75-year mark, in my view (cases where genera are less known should be up to the next revisors judgement).

We will continually be changing well-known higher category names for no other reason than for the sake of priority, if authors continue resurrecting and then using these older names that have long been forgotten about, or previously unassociated with a well-known genus. Perhaps details of such name changes seem unimportant to some readers, just nomenclatural niceties, but consider the following hypothetical example and one will see that the ramifications of some generic changes can be massive disruption of our literature references to these taxa if a generic name is also the stem name for other names: for example, if someone found a 200-year old name buried in the literature and that name replaced *Nymphalis* as the correct generic name for this well-known group of butterflies (which could have been done under the rules of our older Codes), are we to blindly accept this and then also change all our literature base for these butterflies, change the subfamily name Nymphalinae and family name Nymphalidae (because *Nymphalis* is the type-genus), just for the sake of pedantic date priority? On a lesser scale, this is what is involved in the replacement of the notodontid name noted above. At least the new Code limits changes to names not used for the past 100 years (thus, the nymphalid case would dissolve anyway), but finding older names is still a kind of hobby among some workers.

We need some common sense, not just the pedantism of blindly following arbitrarily drawn rules.

J. B. HEPPNER
Gainesville, Florida

COSTA RICAN LEPIDOPTERA STUDIES?

A special opportunity of interest to anyone with 1-3 months available to spend in Costa Rica has just been announced. Selva Verde Lodge, surrounded by over 500 privately owned acres of tropical Atlantic lowland rainforest, is offering a special rate to resident scientists and naturalists from November 2001 through January 2002. You can stay in your own suite with private bath and full board for only US\$1300 per month. Research can be pursued throughout the reserve, located about 6km from Puerto Viejo and the famous OTS La Selva Field Station. Contact Mrs. Giovanna Holbrook, 617 E. University Ave., Gainesville, FL 32602. Tele: (352) 378-9687.

MOTHS OF JAMAICA WEBSITE

Matthew Barnes, of Bicester, England, has opened a new website devoted to moths of Jamaica, documenting 730 of the 1000 estimated macro-moth fauna of the Caribbean island nation. Currently, there are color images of almost 500 species on the website. The URL is:

<http://members.fortunecity.co.uk/jamaicamoth>

The website can also be accessed via Barnes' other website, devoted to moths of Belize: www.tropicalmoths.org.

2001 ATL Annual Meeting

The 2001 annual ATL Lepidoptera Symposium and Annual Meeting was held in Gainesville, Florida, April 20-21, organized this year by Dr. Thomas C. Emmel, University of Florida, Gainesville, Florida. All meetings were held at the Division of Plant Industry, Florida Dept. of Agriculture & Consumer Services, home of the Florida State Collection of Arthropods. Contributions included the following:

- Steven A. Fratello (West Islip, NY)
The Tropical Rainforest of Guyana
- J. Akers Pence (Univ. of Florida, Gainesville, FL)
Saving the Biosphere, one Butterfly at a Time
- Tor Hansen (Cape Cod, MS)
Butterfly Nectaring Oases and Diversity across Cape Cod
- George O. Krizek (Washington, DC)
Human Perception of Insects Protected by the Mechanism of Crypsis
- Thomas C. Emmel (Univ. of Florida, Gainesville, FL)
The McGuire Center for Lepidoptera Research: a World Center for Biodiversity Research in the New Millennium
- Steven Madigosky (Michigan State Univ., East Lansing, MI)
Evidence of Chemical Defense in the Zebra Swallowtail Butterfly, *Eurytides marcellus*, involving Annonaceous Acetogenins
- Jaret C. Daniels (Univ. of Florida, Gainesville, FL)
Courtship Solicitation by Females of the Barred Sulphur Butterfly (*Eurema daira*) in Florida
- Vadim Kroutov (Univ. of Florida, Gainesville, FL)
Experience-related Changes in the Brain of *Agraulis vanillae* (Lepidoptera: Nymphalidae)
- Mirian Medina Hay-Roe (Univ. of Florida, Gainesville, FL)
Interspecific Crosses and Cuticular Hydrocarbons of *Danaus erippus* and *Danaus plexippus nigrippus* (Lepidoptera: Nymphalidae: Danainae)
- Thomas C. Emmel & J. Akers Pence (Univ. of Florida, Gainesville, FL)
The Reclamation of Golf Courses with Natural Habitat for Butterflies, especially the Endangered Schaus Swallowtail

In addition to the program of formal speakers, there were award presentations for the ATL Henry Bates Award and the ATL Jacob Hübner Award. Meeting attendance came to about 30 registered members and guests.

The evening banquet also featured two special talks:

- George O. Krizek (Washington, DC)
Tropical Riodinids from South America
- Andrei Sourakov (Univ. of Florida, Gainesville, FL)
Butterflies of Tropical Islands

The 2001 ATL Photo Contest was not held due to the lack of adequate numbers of entrants (only 12 photos were submitted, and not all categories were represented).

ATL WEBSITE

The ATL website (www.trolep.org) has been revised to include new images and the color covers of all the past journal issues, plus the titles of all articles for each issue. The newsletters have contents also noted. There are images for several articles, in addition to what was originally published: see *Images of Taiwan* in the Nov 1991 issue of *Tropical Lepidoptera*, *Images of Chile*, in the Mar 1996 issue of *Lepidoptera News*, and images of various Neotropical moths for the *Atlas of Neotropical Lepidoptera* series (Checklist, part 2). More will be added as time permits.

Images of covers of some of the ATL book series are also to be seen. In time more and more species will be illustrated in color as part of each faunal catalog series. The Neotropical images already added allow about 60 species to be identified with some accuracy from the color figures (some work is still in progress or needs filename corrections for the images to appear properly).

June 2001

Association for Tropical Lepidoptera 2001

HENRY BATES AWARD

In Recognition of Outstanding and Extraordinary
Efforts Toward the Knowledge and
Conservation of Tropical Lepidoptera

Dr. William W. McGuire

The 2001 Henry Walter Bates Award is being awarded to Dr. William W. McGuire for his consummate contributions to the advancement of Lepidoptera study in general and on the Hesperidae and Megathymidae in particular. Dr. Bill McGuire grew up in the southwestern United States, where he attended the University of Texas at Austin and received his M.D. degree. His avocational interest in Lepidoptera included intensive work throughout Texas and adjoining states for field studies of the virtually unknown giant skippers of the family Megathymidae, an interest which led him to assemble one of the world's great private collections of this obscure but fascinating family. During his years at the University of Texas, he met and married his wife, Nadine, who encouraged him in his field studies. During his subsequent medical residency years in southern California, Bill McGuire continued his studies of other skippers, building probably the world's largest collection of the genus *Hesperia* from North America, discovering and describing many new taxa. During these years, he also accumulated substantial life history information, preserving and recording in meticulous detail the eggs, larval stages, and pupae of many western skipper species.

Moving on to Colorado, Dr. McGuire assumed an important hospital position in Colorado Springs, in pulmonary trauma medicine, but in 1984 was persuaded by the President of a small health maintenance organization, called Peak Health Care, to assume the Vice Presidency and start a new career. His remarkable business and organizational abilities took him ever higher in the professional health care field, ultimately resulting in him becoming Chairman and CEO of the giant United HealthCare Corporation, today called UnitedHealth Group.

However, he never lost sight of his early interest in Lepidoptera and continued studying his much-loved skippers, as time permitted. Dr. McGuire has had several new skipper taxa named after him by other workers. However, the press of business led him ultimately to give his very important collections to the University of Florida, completing these gifts in 1997 with over 30,000 specimens of the genus *Hesperia*. His collection represents the most extensive personal collection of these skippers in the world. His earlier gift of material from the giant skipper family Megathymidae ranks as the foremost collection outside any other institutional collection and has provided a fertile field of research for the staff in the Division of Lepidoptera Research at the University of Florida.

Dr. McGuire has also made extraordinary contributions in a philanthropic way to the advancement of the study of Lepidoptera. He sponsored work at the University of Florida on the conservation biology of the Schaus Swallowtail, a federally listed endangered butterfly species in the Florida Keys, and also the Rockland Skipper, an endangered species of *Hesperia* found today only on Big Pine Key, in the Florida Keys, and nearly extinct. By far, his most major gift to date was made jointly with his wife, Nadine, on December 29, 2000, when they gave \$4.2 million to the University of Florida Foundation — being of even greater impact due to Florida legislative matching funds that double such donations — for the construction on the University campus, in Gainesville, Florida, of a 40,000 square foot complex of collection space, research laboratories, offices, and public exhibition areas, to be called the

McGuire Center for Lepidoptera Research. The new Center will be the world's largest museum devoted exclusively to the study of Lepidoptera and will have a staff of 10-12 curators and faculty, 2 collection managers, a number of other support staff, and numerous post-doctoral, graduate student, and undergraduate student positions. The research and

conservation programs to be realized by this gift will result in a major impact throughout the 21st century and beyond in the field of lepidopterology.

For all these accomplishments, we honor Dr. William W. McGuire with the Henry Walter Bates Award for 2001.

Association for Tropical Lepidoptera 2001 JACOB HÜBNER AWARD

In Recognition of Significant Contributions for the
Advancement of the Systematics of Lepidoptera

Dr. Frederick H. Rindge

Dr. Rindge is being honored with the ATL Hübner Award for 2001, recognizing a lifetime of research and publication on Lepidoptera, primarily on moths of the family Geometridae for the New World fauna.

Dr. Rindge was born in 1921 in Los Angeles, California. He received both his B.S. and Ph.D. degrees from the University of California, at Berkeley, in 1942 and 1949, respectively. His university education was interrupted by WW2, in which time he was an officer serving in the the South Pacific with the U.S. Navy, ending the war as a lieutenant. Even during the war, he was able to make some collections, particularly in the Solomons, Guam, and some other South Pacific atolls

After finishing his doctorate, he joined the staff of the American Museum of Natural History, in New York, in 1949, and remained there throughout his career. Even in retirement, he still goes to the museum on most weekdays to help curate the collections. When he arrived there in 1949, the AMNH Lepidoptera collection amounted to about 600,000 specimens, yet by the time he retired he had helped increase the Lepidoptera collection to 2 million specimens. His own collecting over the years provided about 100,000 specimens, primarily from the western United States, particularly for moths.

His area of research specialization has been among the family Geometridae, particularly for the New World fauna. Since 1949, he has

produced a long list of many major revisions for the geometer moths for the Western Hemisphere. Perusing the yearly issues of the *Bulletin* of the American Museum of Natural History, or smaller papers in their *Novitates* series, virtually every year would find one or more papers by Dr. Rindge. The accumulation of these papers, some of which are major revisions of various genera for the New World, is the reason we honor him today with the ATL Hübner Award.

Some of his main papers include revisions of New World Geometridae: *Drepanulatrix* (1949), *Sericosema* (1950), *Syrrhodia* (1950), *Exelis* (1952), *Tornos* (1954), *Pero* (1955), *Deilinia* (1956), *Oxydia* (1957), *Glaucina* and relatives (1959), *Nacophorini* (1961), *Eupithecia* (1952, 1963), *Melanolophia* and relatives (1964), *Anavinemina* and relatives (1964), *Carphoides* and relatives (1964), *Anacamptodes* (1966), *Glena* (1967), *Earophila* (1967), *Stenoporpia* (1968), *Ennominae* of Baja California (1969, 1976), *Holochroa* (1970), *Hulstina* and relatives (1970), south temperate *Nacophorini* (1971), *Lytrosis* (1971), *Cleora* (1972), *Mericisca* (1972), Galapagos geometrids (1973), *Pseudoboarmia* (1973), *Nepterota* and relatives (1973), *Gabriola* (1974), *Animomyia* (1974), *Hesperumia* (1974), *Ceratomyx* (1975), New World *Bistonini* (1975), *Plataea* (1976), *Sabulodes* (1978), *Xanthotype* (1978), *Lomographa* (1979), *Somatolophia* (1980), *Meris* and relatives (1981), New World *Nacophorini* genera (1983), *Acronyctodes* (1985), southern *Eupithecia* (1985), New World *Lithinini* (1986), *Eupithecia* of Chile (1987, 1991), *Phyle* (1990), *Melanolophiini* (1990), and on some geometer moths from the Galapagos Islands (1995). He also completed studies on some Noctuidae, plus butterflies of the Bahamas and Baja California, as well as numerous other papers.

Dr. Rindge is a charter member of the Lepidopterists' Society and has served in several capacities, including President in 1965, and Secretary from 1949-54, and was made an honorary life member in 1997. He was awarded the Karl Jordan Medal in 1986. He also is a member of several other entomological societies.

ATL BOOK SERIES UPDATE: ATLAS OF NEOTROPICAL LEPIDOPTERA

The ATL series, *Atlas of Neotropical Lepidoptera*, the first part being a checklist/catalog of the Microlepidoptera families that was published in 1984, continued in 1995 with Part 2 of the checklist for the remainder of the Microlepidoptera. In 1996, Part 4B on the macro-moth groups that include the Saturniidae and Sphingidae, was published. A bibliography for Neotropical butterflies, Vol. 124, was published in 1995.

In recent years, Dr. Gerardo Lamas has been coordinating the checklist part for the butterflies, Part 4A. With the help of other specialists, particularly Dr. Olaf H. H. Mielke of Brazil, for Hesperidae, and Dr. Robert K. Robbins of the Smithsonian Institution, Washington, DC, for Lycaenidae, the catalog is now completed and in final preparation. With review and setup for printing, it is expected the catalog will be available sometime in 2002. The butterfly bibliography published earlier will compliment the catalog in terms of pertinent literature references to the Neotropical fauna.

Dr. Lamas has done considerable original research of high merit in getting the butterfly catalog in order. There will be numerous new combinations and other changes, and represents the first modern catalog for the Neotropical region for butterflies. Coverage goes from the border region of the United States and Mexico, south to the southern tip of Argentina and Chile. Besides the Caribbean, all oceanic islands with a mostly Neotropical fauna are also included (e.g., Bermuda). The final species count is not certain yet, but the number will be close to 8,000 valid species, or about 40% of the worldwide butterfly fauna. The

taxonomic references to all published names for Neotropical butterflies, including synonyms, infraspecific names, and misspellings, involve close to 20,000 names listed and indexed in this new catalog.

ATL is sponsoring other Lepidoptera catalogs and atlas series, eventually to be illustrated, all under the general editorship of Dr. John B. Heppner, but the Neotropical series is the most advanced of these. Currently, a new Nearctic catalog is actively in progress, with the butterfly part to be issued within a year or less. A new catalog in ATL format for the Palearctic region is also in progress.

ATL also sponsors the series, *Lepidopterorum Catalogus*, the authoritative world catalog for all Lepidoptera. Already over 40% of all Lepidoptera species have been cataloged, with the publication in 1989 of the catalog for Noctuidae (by Robert Poole), and the more recent catalogs for some of the smaller families among the Microlepidoptera and for Hedyliidae (by Malcolm Scoble). While some catalogs have been published by others as separate books, it is hoped more lepidopterists will cooperate in this series and publish their catalogs as part of the new *Lepidopterorum Catalogus*, much as the cooperation of many was involved in the original series of the same name, dating from 1911-1939.

All the ATL series welcome prospective cooperating authors to submit catalog proposals to the series editor, Dr. John B. Heppner.

ANNUAL REPORT 2000

MEMBERSHIP (December 31, 2000)

	Total	USA	Other Nations (74)
Life Members	102	40	62
Benefactors	2	2	--
Patrons	5	4	1
Sustaining Members	5	3	2
Regular Members	843	454	389
Basic Members	125	85	40
Exchanges	84	8	76
TOTAL	1166	596	570
Members in Arrears	494	263	231
Members resigned (removed)	5 (209)	2 (101)	3 (108)
Died	2	2	--

FINANCIAL SUMMARY

ASSETS

2000

Current Assets	
Net Funds (cash Dec 31)	5,332
Foreign Currency Dues	1,446
Publications Stock ¹	498,250
Endowments	37,900
Book Reserves	16,250
Computer/Office Equipment	10,804
Grant remainders	7,777
Total Current Assets	577,759
Other Assets	
Memberships Past Due	91,380
Life Memberships Due	1,850
Page Charges Past Due	44,684
Total Other Assets	137,914
Total Assets	\$ 715,673

LIABILITIES

Current Liabilities	
Printing Invoices	12,065
Supplies/misc.	1,145
Total Current Liabilities	13,210
Other Liabilities	
Notes Due	5,000
Debentures	18,000
Total Other Liabilities	23,000
Total Liabilities	36,210

BALANCE \$ 679,463

The 2000 Annual Report is presented herewith. Membership growth of 135 new members in 2000 was offset by reductions due to 5 resignations, plus the removal of 209 members in arrears more than 5 years. Conservation donations were large, primarily as special projects in Brazil (Bahia) and Ecuador, but greatly reduced from previous years. Small and larger donations, mainly for conservation aims of the society, continue to be made. The Society considerably reduced its printing bills during the year and is expecting to maintain a shorter payment schedule in 2001. Members in arrears continue to plague the society, going up to 494 members in arrears. The added deficit in payments from members for their page charges, together with the many in arrears, gives an overriding assessment that the membership is not supporting the society anymore, to the detriment of our color journals. The overall balance of ATL assets is still high, but members are reminded that this is primarily in unsold back stocks of books and journals, not cash. Members are encouraged to subscribe to all ATL books and series.

J.B.H

RECEIPTS AND EXPENDITURES

RECEIPTS

2000

Cash (from previous year)	5,422.45
Member Dues	27,301.55
Foreign Currency Dues	410.00
Grants	15,000.00
ATL Expeditions	--
Contributions	2,320.00
Conservation Donations	16,611.00
Publication Sales	2,078.50
Program Services (page charges)	613.00
Interest	2,857.78
Annual Meeting	230.40
Advertising	20.00
Misc. (includes air mail postage)	250.40
Debentures	3,000.00
TOTAL RECEIPTS	\$ 78,111.08

EXPENDITURES

Conservation Projects	33,924.00
Research Projects	(-17,313.00)
Research Grants (grant supported)	15,000.00
ATL Expeditions	--
Journal Printing ²	21,062.61
Newsletter Printing ²	2,714.77
Photographic Costs	995.41
Book Stocks	--
Postage ³	8,036.18
Fees	221.25
Office Equipment	--
Supplies	5,521.89
Research Equipment/Supplies (grants)	--
Advertising	--
Interest (notes/debts)	640.00
Annual Meeting	276.00
Misc.	--
TOTAL EXPENDITURES	\$ 61,179.11
BALANCE	\$ 4,931.97

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.

GUYANA MONTANE EXPEDITIONS, II

STEVE FRATELLO

West Islip, New York

Following on the heels of the highly successful 1999 Guyana montane expeditions (Kanukus Mts.: Nappi Creek and Peak / Mt. Ayanganna), two more expeditions to remote Guyana montane regions were undertaken in the latter part of 2000, under the auspices of the Smithsonian's Biological Diversity of the Guianas Program. Again, these expeditions brought forth incredible results. The first area explored was the Two Hat Mt. area in the southeast Kanukus. The second expedition was to one of the highest peaks (ca. 3700 ft [1128m]) of the Acarai Mts., a range astride Guyana's southern border with Brazil and dividing Guyana's river drainage from the predominantly south flowing Amazonian drainage of adjacent Brazil. Guyana's far south is nearly an entomological blank spot on the map. This was certainly the first Lepidoptera expedition to the high Acaraís on the Guyana side, and I doubt if the range has ever been explored from the Brazil side. The following is a very preliminary report of our results, more detailed reports hopefully to follow.

TWO HAT MOUNTAIN (13 Sep-8 Oct 2000)

From Shea Village on the south Rupununi savannah we walked approximately 25 miles to Two Hat Mt. in the southeast Kanuku Mts. This long approach allowed us to collect in various habitats: shrub savannah, Ite palm draws, bush islands, xerophytic thorn scrub, low seasonal rain forest, high rain forest and cloud forest with bambusoids along Two Hat's summit ridge (ca. 2500 ft [762m]). All told, we collected nearly 300 butterfly and skipper species: close to the variety we took in the Nappi area of the northwest Kanukus. I estimate about one third of the species we took on this trip were species we did not take on the Nappi expedition. The following are a few highlights.

In the high rainforest at the base of the main range, *Euselasia brevicauda* (*E. eugeon*?) (Riodinidae) was the most abundant butterfly in the understory, not just locally, but nearly everywhere we explored. We literally could have taken hundreds of this one *Euselasia* species! This was my first encounter with the species in Guyana. It was also my first encounter with *Heliconius metharme* (Nymphalidae: Heliconiinae), my most sought after *Heliconius* species. After never having seen a one in numerous other Guyana localities, *H. metharme* was now abundant and definitely the most common *Heliconius* species. This gorgeous blue-rayed heliconiine was abundant both in the middle story and understory of the high rainforest and, along with *Parides* species (Papilionidae) and various skippers, greatly attracted to the cauliflorous pink blossoms of a small understory *Inga* (Leguminosae) tree. *Heliconius metharme* was also part of the greatest heliconiine spectacle I have yet witnessed: nearly ten *Heliconius* species patrolled, investigated and held me mesmerized for hours in one large tree fall light gap!

Just like the Nappi trip, a rich assortment of euptychiines were taken: 25-30 species total and now a combined total of approximately 40 species for these two areas. How many more euptychiine species will be found to inhabit this large, complex mountain range? Three *Taygetis* species (Nymphalidae) were collected on the Nappi expedition. The Two Hat Mt. expedition proved much richer in *Taygetis*: 8 species and numerous individuals were collected, at least half of which I had never seen or collected in Guyana.

Astounding numbers and varieties of butterflies and especially skippers were to be seen when the sun was shining (especially in the light gaps) on Two Hat's summit ridge. It was one of the best sites I have ever seen! Unfortunately, unseasonably cloudy and rainy weather coupled with the illness of one of our party (with an early departure from that furthest camp) restricted us to only two days collecting on the summit ridge. But this early departure allowed us to explore the summit ridge (ca. 1500 ft [457m]) of a hill near our first high forest camp. In a large tree fall light gap on the summit ridge, 15-20 species of skippers were collected during just a few hours in the morning!

ACARAI MOUNTAINS. (20 Oct-18 Nov 2000)

Mind-boggling sums up the Acarai Mt. expedition — approximately 400 species taken in 20 days of collecting, including approximately 140

riodinid species and 475 individuals collected! Yes, other butterfly groups and skippers were in abundance, great moth material was taken in the day and also at night without even setting up a sheet, but this trip will be most remembered for the astounding variety and numbers of riodinids collected. Collecting by dugout canoe, both along the Sipu River or in the light gaps on the high Acarai ridges, brought rich rewards: among riodinids, approximately 25 *Euselasia* spp., 15 *Mesosemia* spp., 10 *Theope* spp., 5-8 *Argyrogrammana* spp., 8 *Symphachia* spp., plus *Chorinea*, *Ancyluris*, *Syrmatia*, and others. I had never seen or collected *Argyrogrammana* before this Acarai expedition, now we had several small series of these rare, exquisite jewels.

Another big surprise awaited me on this trip. On our three-day boat trip to get close to the mountains and my first few days in the forest, I searched in vain for the familiar blue-black wings with the striking crimson forewing band of *Heliconius erato/melpomene*, common insects in every other Guyana locality I had been to. Soon it dawned on me that they might now be masquerading in the *H. xanthocles/aeode* complex, as they do in some other parts of South America. And, that proved to be the case: now completely different forms of *H. erato/melpomene* than occurred in the not too distant Kanuku Mts., and with no geographic barriers in between! Where is the divide from one phenotype to the other in southern Guyana and is there any transition or overlap zone? Hopefully, this question will be answered by someone, someday!

CUYUNI RIVER EXPEDITION (29 Nov-6 Dec 2000)

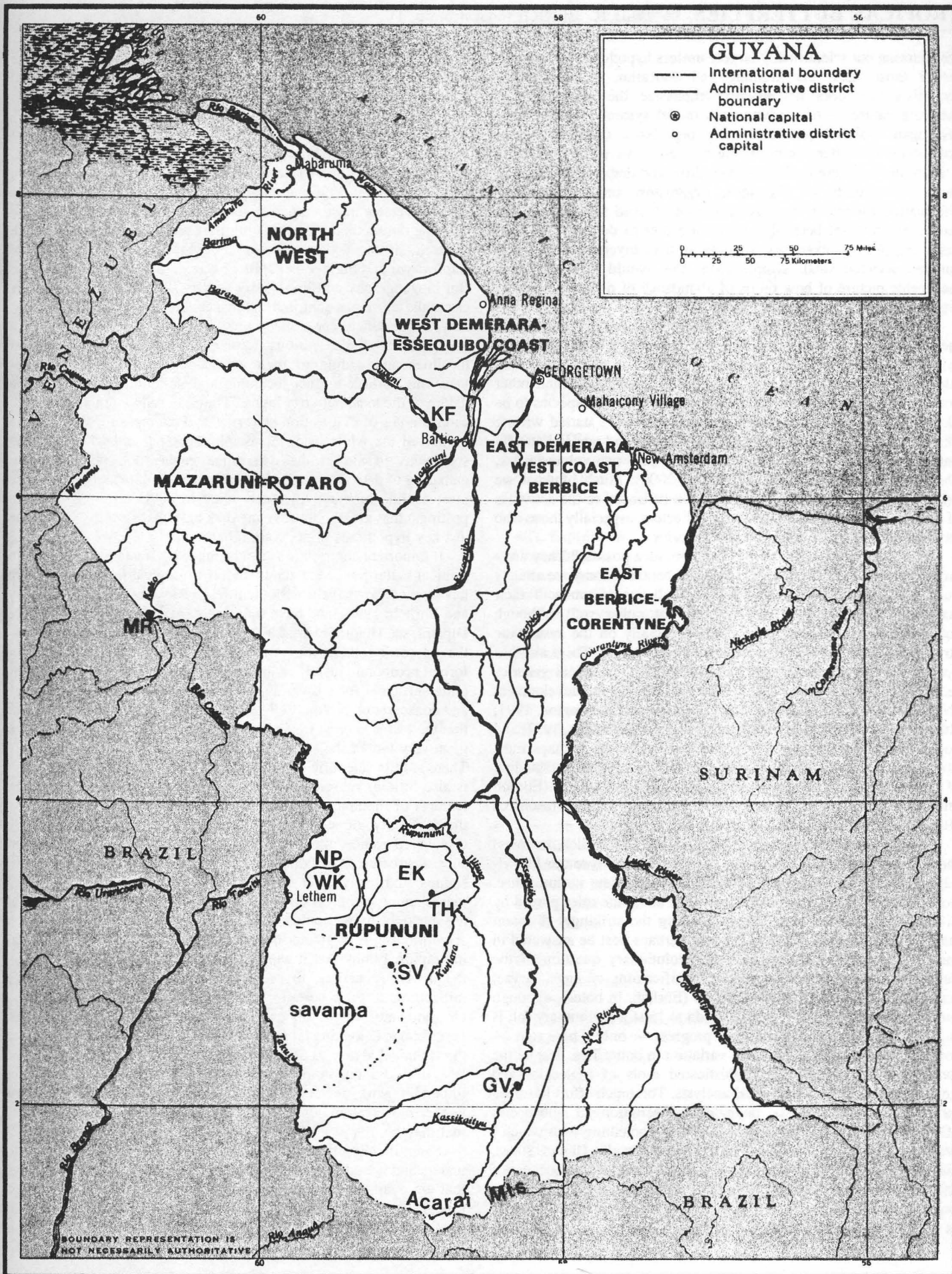
After two large-scale montane expeditions, a short trip was in order. We returned to one of my old haunts, Kamaria Falls on the lower Cuyuni River. The Christmas rainy season had started, we had a very rainy week, but when the sun was out there were butterflies in abundance — a very good season: at least 5 *Parides* spp. were on the wing, nymphalines and charaxines were common, and with a rich assortment of riodinids and hairstreaks about. A great find was a glorious and fresh *Menander coruscans* (Riodinidae) male, taken on secondary vegetation along the Cuyuni. I was witness to a grand riodinid spectacle along the muddy Cuyuni. *Helicopsis cupido* (Riodinidae) and its aquatic aroid hostplant are both common here. I saw a male involved in an unbelievable courtship display. Several times it flew to a perched female, perched right next to her, and with an incredible motion flipped its forewings forward in a rapid motion towards her, the forewings twisting at their bases! Skippers were also in abundance in variety and numbers, a flowering shrub (Rubiaceae) in the understory very attractive to a number of the medium-sized and large species. If great variety and small number of individuals per species is a general rule of rainforest biology, our skipper catch is a superb example of this: out of 63 specimens taken, I count 48 species!

FUTURE GUYANA TRIPS

In the second half (Jan-Apr 2001) of my 6-month stint collecting for the Smithsonian the following trips were undertaken: a two-week trip to the Tropenbos Ecological Reserve in the middle Demerara River region, a 10-day solo trip to the incomparable Kaieteur Falls and gorge (observation only), and a solo 2-1/2 week solo trip to the Iwokrama Rainforest Reserve with time spent on high ridges of the Iwokrama Mts. While I was at Kaieteur and Iwokrama, my main assistant, Ramo Williams, did some limited collecting on a Smithsonian ornithology expedition to Mt. Roraima (9094 ft [2772m]). I will report on all these trips sometime in the near future.

For the great experience and collecting results of our latest expeditions, I thank my partners Romeo, Keith, Sammy, Vibert, Galbert, Guy, Ralph, Nicolas, Thomas, Silas and Ephron, and all others who helped. Thanks to my mom, Diana Fratello, for typing this manuscript. Everlasting Thanks to the Glory of God that makes it all possible.

Map 1. Guyana: EK = East Kanukus, GV = Gunn's Village, KF = Kamaria Falls, MR = Mt. Roraima (2772m), NP = Nappi Peak, SV = Shea Village, TH = Two Hat Mt., WK = West Kanukus (modified from Defense Intelligence Agency map).



are churning out scientifically largely useless hypothetical phylogenies of those taxa. The training and education of professional ecologists also does not usually emphasize the importance of sampling nature — of working with model systems. Instead, they investigate isolated questions using organisms, communities, or ecosystems that often are not being worked on by many others. As a result, the literature is clogged with dribs and drabs of information on a vast variety of situations, organisms, and communities, information for which there is little context. And taxonomists and ecologists have not been able to get together to do even the most basic and obvious exercises, such as all-taxa inventories of a few hundred selected small sample plots, that would give science a reasonable picture of how ratios of abundance of different kinds of organisms vary geographically (May, 1988).

But the study of butterflies, fortunately, does not depend only on the attention of professionals. They are a particularly advantageous candidate for a model group because of the strong interest they attract from amateurs and the existence of field guides and other books that permit adults of the vast majority of Earth's species to be identified with little professional training. Indeed, I started writing this editorial in a tropical forest area of Queensland whose butterfly fauna is well-described in the magnificent new two-volume work, *The Butterflies of Australia*, by Braby (2000). Much of what we know about the biology of butterflies can be traced to the activities of large numbers of amateur butterfly collectors, especially those who have an interest in working out life histories.

What other advantages do the Papilionoidea possess? They are a large group whose morphology, alpha and beta taxonomy are already quite well-known. The phenetics and cladistics of much of their taxonomic structure has been worked out rather well, although substantial work remains to be done, especially on the systematic structure within the Nymphalidae and Lycaenidae s.s. There also has been some important research done on their biochemical genetics (e.g., Watt, 1992; Watt, 2002; Watt *et al.*, 1989), development (Nijhout, 1999), sensory physiology (Bernard and Remington, 1991; Rutkowski, 2002), resource allocation (Boggs, 2002; Boggs, 1997) and countryside biogeography (Daily and Ehrlich 1996). Perhaps most important of all, we possess at least the outlines of an understanding of their life-cycles and relationships with larval food plants (Ehrlich and Raven, 1964; Hellmann, 2002) and adult nectar resources (Boggs, 1986; Boggs, 1987; Murphy *et al.*, 1983).

Despite long-standing appeals (Remington and Ehrlich, in notes) there is, however, much that remains to be done before our knowledge of the butterflies could be considered adequate in any sense. Some fascinating developmental questions about the roles played by different parts of the genotype in creating the strikingly different stages of holometabolous insects could perhaps best be answered in the butterflies. Even the elementary evolutionary question of the degree of congruence of phenetic classifications of eggs, larvae, pupae and adults remains unanswered (Ehrlich, in notes), although much of the information required to do at least a preliminary job is in hand. And, there has been little progress — only a bare start — toward understanding geographic variation in butterflies, despite the availability of increasingly sophisticated tools of molecular and geographically explicit statistical analysis. Too much effort has been expended on the useless taxonomic description of subspecies (Gillham, 1965; Wilson and Brown, 1953), something with which I wasted some of my own time in my youth. In the United States, subspecies are important tools for preserving biodiversity, because of the structure of the nation's laws protecting endangered organisms, but nobody should be deluded into thinking the naming of subspecies is of scientific significance.

Of course, many of the most serious lacunae in human knowledge about butterflies are concentrated in the tropical butterflies. Even in relatively well-known tropical faunas, such as that of the tiny nation of Costa Rica (e.g., DeVries, 1987), distributions are known only roughly (Ehrlich *et al.*, 1994), and food plant associations consist mostly of records of known associations with plant families (e.g., *Memphis* with Euphorbiaceae, Piperaceae, Lauraceae, etc.). In fairness, however, information on host plant use is not systematically known even for most temperate zone faunas — in large part because working out methods of evaluating host preference is often difficult in itself, as the dedicated work of Singer (e.g., 1971, 1994) on *Euphydryas* and Scriber on papilionids (e.g., Scriber, 1991) suggests. But biogeography and life-history studies are areas where amateurs can make enormous contributions, especially now in tropical regions: they, for instance, can collect widely and publish what they learn about details of distributions. Rather than going to classic tropical localities and adding to their collections, they could take their vacations at little-known locations and assiduously work out the nature of the local butterfly fauna. They can follow females and take careful notes of oviposition behavior, and attempt to rear any larvae found, all the while using notes, photographs, and where possible specimens to aid in the determination of food plants. Similar gathering of data on use of nectar and other adult resources would be most useful. Such activities can result in publications (and/or web postings) that greatly improve the data base that scientists can use to test key hypotheses in population biology.

If important contributions can be made by amateurs working with tropical butterflies, what about studies of tropical moths? Our group has worked extensively with them (e.g., Ricketts *et al.*, 2001; Daily and Ehrlich, 1996), and have found that (as in the case of temperate Diptera; see Hughes *et al.*, 2000), identification to morphospecies — that is sorting them into different kinds without worrying about formal taxonomic identification (e.g., Oliver and Beattie, 1993) — is quite sufficient for answering many important questions in ecology and conservation biology (Oliver and Beattie, 1996). It is quite clear that the lesser interest in, and much greater diversity of moths gives them very few of the advantages butterflies enjoy as a model group. There is little scientific reason to do further work on them. But there is also little or no scientific reason for human beings to be naming features of mountains (or rapids in rivers) and classifying them by the difficulty of climbing or navigating them, naming newly discovered comets after their discoverers, naming newly discovered subsea structures, or collecting, naming, and/or classifying coins, stamps, and many other items. But we do those things, and in my view naming and classifying the moths and the other organisms that are our only living companions in the universe, while not of much scientific use, is of greater human interest than naming and classifying rapids. I think that it would be wonderful if *Homo sapiens* took the necessary actions to preserve present day biodiversity for a millennium or so, to permit it to be reasonably completely described. Or, humanity might allocate enough resources to get a rough describing/cataloguing largely done in a few decades, especially since the technical ability to do so is increasingly in hand. That would be fine if it did not compete with the funding of the much more important work on model systems. My personal judgment is that neither preservation nor comprehensive cataloguing is likely, sad as that may be.

Scientifically, the required action is clear: sample nature to understand it, and concentrate the intellectual and financial resources that are available on carefully selected model systems. Butterflies, especially the Papilionoidea, are clearly one such system, and all those interested in them, amateur and professional, can help make it one of the most thoroughly understood.

ACKNOWLEDGMENTS

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FSCA GETS NSF GRANT

The Florida State Collection of Arthropods (FSCA) has been awarded a Collections Improvement Grant by the National Science Foundation, Washington, DC. The \$375,000 grant provides funding to equip a compactor already in place with new cabinets and insect drawers, to nearly double the overall capacity of the Entomology Museum, in Gainesville, Florida. The grant also includes monies for technician assistance to incorporate and recurate specimens into the new drawers over the 4 years of the grant period. The primary additions of drawer space will be in the Diptera/Hemiptera Room of the museum, currently also housing the North American moths: this room has 2,688 Cornell drawers in older cabinets and will be converted to the thinner California Academy-style drawers, thus allowing space for 8,748 thin drawers — nearly triple the drawer space — on compactors versus what the old arrangement had space for. Additionally, the grant has funds for two added cabinet banks and 1,848 drawers for the Coleoptera/Hymenoptera Room (including Orthoptera, Neuroptera, Mecoptera, and Odonata): exotic moths and all butterflies are also currently housed in this room. The emptied Cornell-style drawers and old cabinets will be used in off-site locations for other collections.

After the NSF grant was processed, the McGuire donation was made in late 2000, thus complimenting the NSF grant for the FSCA. Once the McGuire Center is ready, all FSCA Lepidoptera will be housed there, in McGuire Hall just adjacent to the FSCA building, thus leaving even more drawer space in the current FSCA for other insects. With the McGuire Center expected to house over 3.5 million Lepidoptera — once all specimens currently at FSCA and at the Allyn Museum (part of the Florida Museum of Natural History, currently housed in Sarasota), plus other specimens expected before 2003, are integrated — the arthropod collections in Gainesville will total nearly 11 million specimens. Added to that is the American Entomological Institute, a private entomological museum in Gainesville near the FSCA, with over 1 million specimens of parasitic Hymenoptera.

The FSCA currently has about 8.2 million curated insect specimens (pinned and labelled specimens, plus some groups in alcohol or on slides), housed in 16,495 insect drawers; thereto are added 352,000 slide mounts and over 294,000 alcohol vials. The FSCA has over 3500 primary types (holotypes) and at least 15,000 secondary types (paratypes). Coverage and acquisition policies of the FSCA are worldwide, with special emphasis on North America and all tropical faunas. Some families housed at the FSCA represent the

largest collections of such groups in the world: e.g., Pseudoscorpionida (Arachnida), Phytoseiidae (Acari), Collembola, Odonata, Trichoptera, Plecoptera, Asilidae (Diptera), Cerambycidae (Coleoptera), Ephemeroptera, and Myrmeleontidae (Neuroptera). The FSCA also houses what will become the largest collection of Odonata in the world, already totaling over 225,000 specimens; added donations already willed will bring the total to over 500,000 larval and adult specimens.

For Lepidoptera, the FSCA houses nearly 1.5 million specimens, particularly well-represented for the New World and certain tropical regions of the world, plus being exceptional for some groups of Microlepidoptera, for Sphingidae and for New World butterflies. Lepidoptera at the FSCA currently are housed in over 5,200 drawers, leaving over two-thirds of the collection in boxes and inaccessible storage space. The NSF grant will provide over 5,000 additional drawers to temporarily house the FSCA Lepidoptera, allowing most of the collection to be recurated with adequate space for all specimens. The Allyn Museum has over 11,500 drawers of butterflies and some moths in their worldwide collection, particularly rich in New World butterflies. Once the McGuire Center opens, in 2003, the 60,000+ drawer capacity of the new Lepidoptera Museum will provide ample space for full curation of all the Lepidoptera collections in Gainesville (FSCA and Allyn Museum specimens, plus what the University of Florida also has accumulated through the efforts of Dr. Thomas C. Emmel, Director of the Division of Lepidoptera Research, and now Director of the McGuire Center), and leave space available for future donations and material from new faunal surveys.

For further information, contact Dr. John B. Heppner, Curator of Lepidoptera, or Dr. Michael C. Thomas, Chief of Entomology, at the Florida State Collection of Arthropods (Division of Plant Industry, Florida Dept. of Agriculture & Consumer Services, P. O. Box 147100, Gainesville, FL 32614).

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McGUIRE CENTER NEWS

On December 28, 2000, the University of Florida received a gift of \$4.2 million from Dr. William W. McGuire and Mrs. Nadine M. McGuire, matched 1:1 by the State of Florida for a total budget of \$8.4 million, to construct two major new facilities in a multi-story building: a 35,000 square-foot educational museum and research complex to be named McGuire Hall, which will contain the McGuire Center for Lepidoptera Research, also named after the donors, and a 6,000-square-foot research and teaching facility to be named the McGuire Center for Insect Conservation.

The new McGuire Center for Insect Conservation will address important environmental issues in the 21st century, such as the impact of climatic warming and environmental change on endangered species, insects as indicators of healthy biodiversity in natural habitats ranging from the Florida Everglades to the tropical rainforests of the world, and the impact of biocontrol measures versus the use of chemical pesticides on agricultural crop pests and the health of surrounding human populations and ecosystems.

The state-of-the-art McGuire Center for Lepidoptera Research facility will enable the University and the State of Florida to gather its substantial but widely scattered collections and research programs dealing with this huge group of insects into one centralized building for the first time, including the 1.2 million specimen Lepidoptera collection of the Allyn Museum of Entomology, currently housed in Sarasota, Florida. The nearly 1.5 million specimen Lepidoptera collection of the Florida State Collection of Arthropods (FSCA) will also be moved to the McGuire Center from the adjacent Division of Plant Industry building. The combined collections, plus other specimens housed at UF and expected donations and acquisitions, will give the McGuire Center over 3.5 million curated Lepidoptera specimens by the time the new museum opens in 2003. Expected growth thereafter, from expeditions, faunal surveys and other donations, will quickly increase these numbers, which is the reason over 60,000 drawers are planned for the museum so about 10 million specimens can be properly housed. Future expansion of McGuire Hall is also anticipated as the need arises, so more drawer capacity can be added as the collection grows.

The insect order, Lepidoptera, contains more than 245,000 species of butterflies and moths and is estimated to be second in size and importance only to the beetles among all the orders of plants and animals in the world. As such, it is an extremely useful index group to a healthy biodiversity in nature. The adults of Lepidoptera serve as important pollinators to many kinds of plants, while their earlier stage, caterpillars, are extremely important ecologically. For example, it is estimated that more than 90% of all leaf damage in tropical forests is accomplished by moth and butterfly caterpillars, creating a constant turnover of nutrients essential to the health of the ecosystem as their excrement falls to the topsoil beneath the trees.

The new McGuire Center for Lepidoptera Research will include numerous offices and research laboratories to accommodate up to 12 curators and faculty who will be working with Lepidoptera. These include present curatorial positions centered at the Allyn Museum of Entomology, in Sarasota, Florida, the Florida State Collection of Arthropods at the Division of Plant Industry, in Gainesville, and faculty from the departments of Entomology and Zoology at the University of Florida.

In revised plans, the new building will house over 60,000 glass-topped drawers in three parallel mechanical compactor systems, with multiple aisles in each compactor row. These drawers will hold the combined Lepidoptera collections presently scattered from Sarasota (at the Allyn Museum of Entomology there) to Gainesville and across the University of Florida (UF) campus in facilities as diverse as the departments of Zoology, Entomology, Natural Sciences (at the Florida Museum of Natural History), and the Boender Endangered Species Laboratory. There will also be a special collection area with a small

compactor to house the substantial holdings in immature Lepidoptera, with upwards of half a million eggs, larvae, and pupae in alcohol vials, combined from the FSCA and UF immatures collections. The main collection room for the adult specimens will have sufficient space to house the projected growth of the collections for at least the next 20-30 years.

This state-of-the-art facility will also include advanced laboratories for molecular and genetic research with DNA sequencing, cuticular hydrocarbons, electrophoresis of enzymes, pheromone analysis, juvenile hormones, development of artificial diets for Lepidoptera, and other physiologically and genetically related research areas. The facility will also house two scanning electron (SEM) microscopes, which are presently situated at the Allyn Museum of Entomology and at the Boender Endangered Species Lab on the main UF campus. Combined with these will be state-of-the-art image analysis systems and advanced optical microscopes for detailed analysis of chromosomes and other cellular structures in Lepidoptera. Special preparation rooms and work areas for student preparators and two professional collection managers will be provided. Offices and laboratory spaces for up to 30 or more graduate students and undergraduates interested in working in Lepidoptera are planned. Additionally, provision is being made for offices for Visiting Scientists, including amateur and professional lepidopterists who wish to work for short or long periods of time on groups of interest in the McGuire Center collections. A fully equipped library room, to house the 6,000 volumes on Lepidoptera from the Allyn Museum of Entomology and the more than 5,000 volumes in other collections at UF and FSCA, will be included.

A public museum facility will comprise the front portion of McGuire Hall, facing the existing Harn Art Museum across a landscaped mall. This public display facility will include a large living butterfly display, open 365-days-a-year to an expected several hundred thousand visitors annually. More than 5,000 square feet of permanent as well as traveling exhibits will focus on the many themes in the biological and natural sciences which research on butterflies and moths has contributed to over the centuries. There will be educational and interactive displays on ecology, biodiversity, conservation, environmental pollution and change, tropical rainforests and other habitats around the world, mimicry and protective coloration, the fossil history of butterflies and the flowering plants, developmental biology, genetics, behavior, and the science of systematics, which is the study of the classification and identification of organisms. As part of the public area, a 250-seat auditorium with state-of-the-art projection, acoustics and stage arrangements will be part of the museum complex on the UF campus and adjacent to the McGuire Center butterfly vivarium: the auditorium project is part of a separate donation from Dr. Gary N. Ross, of Baton Rouge, Louisiana.

The McGuire Center will be the largest such facility in the world dedicated to the systematics of Lepidoptera and to the intensive study of the biological phenomena that butterflies and moths help to interpret. It will provide ample housing for what will be one of the most inclusive collections of this important order of animals in the world. In fact, it will be second only to the British Museum in comprehensive coverage of the 20,000 species of butterflies, including more than 95% of the known butterfly genera and species, plus close to a third of the estimated 225,000 moth species of the world.

Groundbreaking is expected by the end of 2001 and with an accelerated construction schedule, the building complex should be ready for occupancy by early 2003. McGuire Hall, home of the McGuire Center for Lepidoptera Research, will be placed on an elevation far above any possible floodplain. With standby power generators, underground utilities, special wind resistant construction and other precautions, it will be among the most advanced and secure museum buildings in the world. A world-class architectural firm has

been contracted to develop design concepts and make final building plans for the building. When construction is completed in early 2003, the Allyn Museum of Entomology, in Sarasota, together with its curatorial positions, will move to Gainesville to the new facilities. Likewise, the Lepidoptera collections, books and Lepidoptera staff of the FSCA will also move to the new building.

McGUIRE CENTER MISSION

The McGuire gift for this project consists of three programmatic parts:

- (1) The McGuire Center for Lepidoptera Research;
- (2) A public educational facility (combined with the museum as McGuire Hall, to be located next to Powell Hall of the Florida Museum of Natural History, and adjacent to the FSCA building; and
- (3) The McGuire Center for Insect Conservation (part of the McGuire Hall complex).

With this project's McGuire Hall building, we are accommodating a long-standing University commitment, since 1981, to move the Allyn Museum of Entomology from Sarasota to Gainesville and combine its extensive Lepidoptera collections (1.2 million specimens) library, equipment, and staff with those currently scattered in the Zoology and Entomology departments on the main campus, as well as those in the Florida State Collection of Arthropods (including 1.5 million Lepidoptera specimens) from the Florida Department of Agriculture's Doyle Conner Building adjacent to campus. With the Conservation Center, we are replacing the space presently in a large temporary modular building comprising the Boender Endangered Species Laboratory.

MISSION STATEMENT

- (1) McGuire Hall

The Center for Lepidoptera Research portion will provide over 35,000 sq. ft. of special space for what will be the penultimate Lepidoptera collection in the world (second only to the British Museum in size of collection), with over 95% of the world's butterfly taxa represented in its holdings and equally invaluable coverage of the world's biodiverse moth fauna. It will provide office and research space for curatorial and professorial staff in Lepidoptera from the Florida Museum of Natural History, the Florida State Collection of Arthropods, and the Departments of Entomology in IFAS and Zoology in the College of Liberal Arts & Sciences. It will provide research space for 24-30 graduate students, postdoctoral fellows, and visiting scientists working on Lepidoptera-related investigations in genetics, biocontrol, systematics, ecology, evolution, migration, developmental biology, physiology and behavior, and systematics.

- (2) Butterfly Vivarium and Public Educational Museum

The Public Educational Museum Hall and Vivarium will be immediately adjoining the Center in McGuire Hall, and will face the Harn Art Museum across the planned museum mall and sculpture plaza. Its architecturally dramatic northern exterior and main entrance will bring the visitor through a great glass enclosure of living tropical rainforest plants and hundreds of live tropical butterflies, to enter the main public museum area with interactive exhibits introducing the visitor to all the areas of biology and natural history where butterflies and moths (at 245,000 species being the second largest group of animals in the world) can provide important insights (e.g., history of our continents and biogeographic realms, biological effects of global warming, evolution of mimicry and protective coloration, pesticide use and pollution effects, conservation issues, pollination of crop plants, etc.).

- (3) McGuire Center for Insect Conservation

This smaller unit of approximately 6,000 square feet will house the present research and teaching activities of the Boender Endangered Species Laboratory, including captive propagation of endangered invertebrate species such as Florida's Schaus Swallowtail Butterfly and the Stock Island Tree Snail, and the experimental reintroduction of threatened species as well as the restoration ecology of endangered or

devastated habitats. A large teaching classroom and laboratory will permit expansion of UF offerings in conservation-related courses and the training of both undergraduate and graduate students in entomology, zoology, wildlife ecology and related majors.

LIST OF PROJECTS TYPICAL OF RESEARCH ACTIVITIES IN LEPIDOPTERA AT THE UNIVERSITY OF FLORIDA, ALLYN MUSEUM, AND THE FSCA

SYSTEMATICS AND PHYLOGENY OF BUTTERFLIES:

Basic research in Lepidoptera systematics has been an important focal point of activity here through the years. Lee D. Miller and Jacqueline Y. Miller have published many systematic papers on various butterfly groups and the tropical moth family Castniidae. They also co-authored the very well received major book on the Caribbean butterfly fauna, *The Butterflies of the West Indies and South Florida* (Oxford University Press, 1994), which contained many new systematic treatments of difficult species groups. Thomas C. Emmel recently coordinated and edited the 880-page volume, *Systematics of Western North American Butterflies* (Mariposa Press, 1998); he has also published many systematic papers on butterfly groups in North America, Brazil, Africa, and Malaysia.

Jason P. Hall and Keith R. Willmott have completed a massive two-volume book manuscript on the butterflies of Ecuador (over 2,400 species). In the preparation of this important work, over 100 species new to science have had to be described and many systematic questions in neotropical groups explored and solved, with publication in many notable papers; these two former graduate students and present postdoctoral fellows have also published their doctoral theses on butterfly research (Revision of *Theope* Riordinids, by Jason Hall, and Revision of Neotropical *Adelpha* Nymphalids, by Keith Willmott).

Andrei Sourakov has tackled a number of major systematic problems in the butterfly family Satyridae in his former graduate and present postdoctoral studies, including most notably the remarkable radiation of the genus *Calisto* in the West Indies (over 30 species on Hispaniola alone!). He has also examined the systematics of a number of satyrid genera from Madagascar, the African mainland, Asia, and North America.

LIFE HISTORIES

The basic biology of many butterfly and moth species has been pursued by a number of the graduate students and faculty at UF. For example, former graduate students Richard J. Worth and Kerri A. Schwartz studied the life history and ecology of two threatened species of butterflies in the Florida Keys, the Florida leafwing and Bartram's hairstreak. This work was built upon by Mark Salvato for the U.S. Fish and Wildlife Service to prescribe better management methods of fire control and planned burning in their favored pine habitat. Dale H. Habeck, of the Department of Entomology, has assembled a collection of over 300,000 preserved immatures of Lepidoptera, especially focusing on the family Arctiidae, but also including a substantial number of eggs, larvae and pupae of other major moth families and butterfly species. Thomas C. Emmel and Andrei Sourakov have authored and published many comprehensive descriptions of life histories new to science.

ECOLOGY AND CONSERVATION BIOLOGY

A principal focus of part of the Division of Lepidoptera Research group at the University of Florida since 1984 has been the conservation biology and management of the endangered Schaus swallowtail species in the Florida Keys. Intensive work on the basic biology of this species made possible a highly successful captive propagation and reintroduction program after the species was nearly exterminated by the spraying of mosquito control pesticides through 1991, and the occurrence of Hurricane Andrew destroying its remaining wild populations in August 1992. Today, the species is thriving in 12-13

reintroduced populations over an 80-mile geographic range, hopefully now removing them from the threat of a single catastrophic event destroying the entire remaining species population.

Long-term population-ecology studies on the satyrid *Cercyonis oetus* in Colorado and the other species of *Cercyonis* in the western United States have resulted in understanding many of the selective factors that drive populations' peaks and declines over the course of three decades. These studies on *C. oetus* have also shown remarkable sensitivity to predation and parasitism of the genetic system controlling spotting pattern, to account for microevolutionary changes in phenotype between populations located as close as a quarter of a mile apart.

Recent ecological studies of an extremely rare *Hesperia* skipper species on Big Pine Key in the Florida Keys have uncovered what appears to be a new species of skipper (first recognized as different by William A. McGuire). A number of intensive studies of other species are underway, including an evaluation of *Mitoura sweadneri* and *Mitoura grineus* in the southeastern United States, by UF graduate student Akers Pence, which appears to be resulting in a determination of the probable unique species status of *M. sweadneri* (contributing to its revised status as an endangered species).

Graduate student Varsovia Cevallos, of Ecuador, is studying the Lepidoptera fauna of Andean habitats by Volcán Cotopaxi, near Quito, Ecuador.

CHROMOSOME EVOLUTION

Since 1967, Thomas C. Emmel has been studying the evolution of chromosome structural changes and butterfly karyotypes from butterfly material gathered throughout the world. Over 3,500 species of butterflies now have their karyotypes analyzed (of the 20,000 known species in the world), representing the largest sample group of animal species in the world for such chromosome research. A new image analysis system and development of chromosome banding techniques will allow a spectacular increase in meaningful data to be derived from these chromosome preparations and photographic files of past preparations, and contribute towards biologists' understanding of the broader role of genetic rearrangements in animal speciation and evolution.

PUBLIC INTERFACING

One of the chief activities of a number of the members of the Division of Lepidoptera Research group is to give public lectures, write popular books and articles on butterflies, promulgate the philosophy and practice of butterfly gardening and habitat restoration, and similar outreach programs with the general public. As such, Thomas C. Emmel, Jaret C. Daniels, Andrei Sourakov, and others give dozens of lectures and publish scores of articles, photographs, and other publications each year. The new McGuire Center, with its public exhibits and vivarium, plus the adjacent auditorium, will provide an enhanced venue for such public lectures and meetings.

HOSTPLANT COEVOLUTION

Among our many interests in the Division of Lepidoptera Research are the coevolutionary races between butterflies and their larval hostplants. Mirian Medina Hay-Roe is studying the intricate pattern of hostplant exploitation (and the evolution of hostplant defenses against the butterfly) in the Neotropical Heliconian butterfly, *Heliconius erato*. Her two greenhouses full of living passiflora species and *H. erato* subspecies illustrate the lengths to which coevolution may drive both butterfly and plant. Biochemical analyses (by gas chromatography) of plant chemical cues for both adult female butterflies (for oviposition stimulation) and larval feeding are part of this project. James L. Nation and his students are working on a major project to develop a universal artificial laboratory diet for butterflies (and hopefully moths also) which will greatly simplify laboratory culture of Lepidoptera for physiological research, biological control tests, and even captive propagation of rare or endangered species for

study and reintroduction programs.

BUTTERFLY MIGRATION

For many years Thomas J. Walker of the Department of Entomology at UF has been studying the migration of a number of southeastern U.S. subtropical butterfly species through Florida. Using giant Malaise traps, he has demonstrated definitively the directional movements of the "northward" migration in the spring and the "southward" migration in the fall of these species, and quantified the number of individuals (millions to hundreds of millions) of cloudless sulfurs, long-tailed skippers, gulf fritillaries, and other butterfly species that annually participate in these incredibly massive but poorly studied movements. Lincoln P. Brower, Professor Emeritus of Zoology, continues his annual research into the far better known migrations of the monarch butterfly between Mexico and the rest of North America.

SYSTEMATICS AND BIOLOGY OF MOTHS

Moths represent about 90% of the biodiversity of the order Lepidoptera, with over 225,000 species estimated to occur in the world. John B. Heppner, Curator of Lepidoptera at the Florida State Collection of Arthropods, and his colleagues, have been working on some of the tiny moths that represent a sizeable percentage of the order Lepidoptera. His research on the taxonomy and biology of this group of little-understood moths has reached around the world, with special projects in Taiwan, the Neotropics, Europe and North America. He also has started the world cataloging series for Lepidoptera, published by the Association for Tropical Lepidoptera, which has already documented over a third of all species with taxonomic catalogs for Noctuidae and several Microlepidoptera families. He also edits the Lepidoptera atlas and catalog series for several faunal regions of the world, plus special projects for Chile, Taiwan and Florida. Systematics requires as complete a library of Lepidoptera books and reprints as possible: Dr. Heppner continues his worldwide efforts in helping to assemble a complete collection of all Lepidoptera literature for the FSCA and the McGuire Center, and to catalog such literature for ready reference.

Former graduate student Manuel Balcázar-Lara, from Mexico, studied the New World saturniid subfamily Ceratocampinae and completed a cladistic analysis of the included genera for his doctoral studies at UF.

FUTURE PLANS

The McGuire Center will provide the focus for worldwide studies of Lepidoptera, both in the laboratory on all biological and taxonomic aspects of all species of moths and butterflies, and in the field with expanded biological and survey studies on the world biodiversity of Lepidoptera. Once the McGuire Center is operational in 2003, plans are underway for active biodiversity surveys in critical habitats around the world so their inventories of Lepidoptera species can be recorded and studied before any further alteration can occur. The resulting faunal surveys will bring in large numbers of new specimens to the McGuire Center museum, providing a great new resource of specimens for taxonomic and biological research, both at the McGuire Center and for researchers in foreign museums receiving shared specimens for their host nations' cooperation in these studies and surveys. The McGuire Center will be a true "center" for Lepidoptera studies, bringing resources and researchers together in a convenient location and with all available modern facilities and equipment.

Dr. Thomas C. Emmel
Director, McGuire Center
University of Florida

BOOK NEWS

SMALL MOTHS OF EUROPE

by Václav Křenek

2000. Český Těšín, Czech Rep. 174pp (21 x 29cm). \$67 cloth. ISBN 80-238-5891-2. Available from Flora & Fauna Books, Gainesville, FL.

The author of this remarkable new book presents "portraits" of a selection of colorful micro-moths from Europe, all photographed in color. The illustrations are mostly of perfectly prepared museum specimens, but there also are some introductory photographs taken from nature showing various species in exceptional poses. Any one not familiar with the Microlepidoptera should obtain this book to delve into a largely unknown world of species often more beautiful and strange than any butterfly known. While specialists have always known this secret world of beauty, the lack of general appreciation about these moths has always been due to their small size. In this book the species are enlarged to about 6 inches in wingspread, letting one easily see all their intricate details. The text is a simple introduction to micro-moths, and the rest of the book is a series of plates (2 to a page) illustrating the choicest species from Europe as in an album of portraits; 242 species are treated and illustrated.

LEPIDOPTERA OF CHINA. 5. *Satyridae*

by Hsiao-Yue Wang and Li Zhao

2000. National Taiwan Mus., Taipei. 234pp (21 x 29cm). NT\$300 (ca. \$9) paper. ISBN 957-02-7183-3.

This 5th in the *Lepidoptera of China* series on butterflies treats the satyrine group of species. The treatment covers 210 species, particularly in the genus *Lethe*. Only some of the *Erebia* are noted, since there are a large number in China in this genus. The text is entirely in Chinese, as usual in these books. Scientific names of the species and hostplants are in Latin. The illustrations are all in full color, most from enlarged photographs of museum specimens, plus some photographs taken from nature.

LES *Colias* DU GLOBE. MONOGRAPH OF THE GENUS *Colias*

by Joseph T. Verhulst

2000. Goecke & Evers, Keltern. 2 v. (308pp, 183 pl.) (24 x 34cm). DM 440 (ca. \$210.00) cloth. ISBN 3-931374-15-7.

This folio-size set encompasses 84 species of the pierid genus *Colias*, plus discussions of all named subspecies. The author has traveled the world in search of *Colias*, studying about two-thirds of the species in the field. He has been publishing papers on each species for many years already, now revised and enlarged in this new monumental work. The 183 excellent color plates, plus some added pages of color photographs illustrate all the species. Text is in French and English; for some species the original description is also reprinted in other languages.

THE BUTTERFLIES OF UZBEKISTAN

by V. V. Tshikolovets

2000. Brno, Czech Rep. 400pp (43 col. pl.) (21 x 29cm) \$95.00 cloth. ISBN 966-02-1251-8

Another in the series called the Butterflies of Asia Series, all by the same author, presents a complete treatment of the butterfly fauna of this large Central Asian nation, between Russia and Iran to Afghanistan. The color plates are exceptionally clear and sharp. There is a short introduction to Uzbekistan biota and a gazetteer to place names used in the book. The text treats 256 species known to occur in Uzbekistan, plus various subspecies taxa, each with a small distribution map for the region. This is a larger format than the series started with (*Butterflies of Pamir* is only about half as large).

THE SPIRIT OF BUTTERFLIES: Myth, Magic, and Art

by Maraleen Manos-Jones

2000. H. N. Abrams, New York. 144pp (23 x 28cm). \$34.95 cloth. ISBN 0-8109-4115-5.

An eclectic compendium of butterfly motifs in literature and the arts, forms the basis of this new large-format book. The author has compiled an amazing assemblage of butterfly (and moth) illustrations, most in full color, from ancient Egypt to modern times. Any reader will surely learn something new about butterflies and how they have been used in designs and art, and in literature, over the years. A quick reading did locate some obvious errors that could have been prevented, had any knowledgeable lepidopterist reviewed the book prior to printing (e.g., the black witch moth is mistakenly called the "butterfly of death;" Van Gogh's error in a painting of 1889 is repeated uncorrected, where he calls a moth the death head moth while clearly illustrating the European saturniid, *Saturnia pyri* [the true death head moth is a hawkmoth, *Atropus styx*, which has what appears to be the likeness of a human skull on its thorax]; and the author notes incorrectly that 25 butterflies are on the endangered species list in the USA, when actually there are only 9 on the official list and only one of those is a full species, while the others are subspecies), but only a specialist would spot these errors in an otherwise most interesting book. One should have a copy of this book handy to find answers to numerous strange and unusual questions about butterflies and humans.

MOTHS OF NEPAL. Part 6

edited by T. Haruta

2000. Japan Heteroc. Soc., Tokyo. 163pp, pl. 161-174 (18 x 26cm). ¥8000 (ca. \$75.00) paper. (*Tinea*, Vol. 16, Suppl. 1).

This 6th part of the series, *Moths of Nepal*, based mostly on the collections of the late Japanese collector, T. Haruta, comprises another series of papers and updates on various groups of moths found in Nepal. Included are 7 additional papers: on Zygaenidae (*Agalope*), Geometridae (*Eupithecia* and *Perizoma*), Pyralidae, Hepialidae, and Lasiocampidae, plus some corrections to earlier papers in the series. The 14 color plates at the end of the volume show a sample of the species discussed, all in excellent reproduction. The series has been published like a journal, thus there is no organization to the papers and plates included in each part, but nonetheless offers the most recent treatment of this interesting fauna of tropical Oriental and Tibetan species, as they mix in Nepal. Hopefully, an index to all names will be published so one can locate where everything is.

MICROLEPIDOPTERA PALAEARCTICA. 10. *HOLCOPOGONIDAE*

by László Gozmány

2000. Goecke & Evers, Keltern. 174pp (8 col. pl.) (17 x 25cm). DM 100 (ca. \$48.00) cloth. ISBN 3-931374-20-3.

This is the 10th volume in the long-running series first begun in 1965 by H.-G. Amsel, for whom this volume is also dedicated. The present volume also marks the publication of the series by the third publisher, following Verlag Fromme & Co., of Vienna, and Verlag G. Braun, of Karlsruhe. Dr. R. Gaedike is now chief editor of the series. This new volume also marks a move to a somewhat smaller format and in not having a separate part just for the plates (plates also are now of photographed specimens, rather than the watercolor paintings of previous volumes). The Holcopogonidae group is one of the small specialty groups long-studied by the author, Dr. L. Gozmány, involving 34 interesting Palearctic species. Text is in German. Several genitalia plates enable the similar-appearing species to be identified with accuracy.

MEETINGS

2001 Oct 17-19
2002 Apr 6-8
Jun 1-6

Natura 2000: Pan-European Management of Butterflies, Laufen/Salzbach, Germany
Association for Tropical Lepidoptera, Gainesville, Florida, USA
Societas Europaea Lepidopterologica, Korsør, Denmark

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