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Aquatic beetle visitors: K. Miller, A. Short, C. Barr, B. Shepard



Mignon Davis in Lepidoptera collections at
Royal Museum for Central Africa



Jurate and Wille De Prins

Front Page:

A convergence of aquatic beetle workers occurred in mid-October, extending through a weekend. Thanks to Don and Mignon Davis for fully documenting an important trip to Belgium (see text below).

(Photo credits: Aquatic group, D. Furth. Royal Museum, D. & M. Davis). Formatting of front page/J. Louton.

CORRECTION from September issue. *Stalachtis halloweenii* Hall was credited to Hall & Fratello as describing the species, due to a faulty abstract submission.

Belgium trip report:

Representing the Department of Entomology, National Museum of Natural History, Smithsonian Institution, Don and Mignon Davis recently participated at an inaugural AfroLep Initiative Workshop for Afrotropical Lepidoptera which was hosted October 18-19, 2006 by the Royal Museum for Central Africa (RMCA) in Tervuren, Belgium. Workshop presentations, scientific collections, and public exhibits were located in separate buildings amidst a densely wooded parkland and vistas of biological grandeur, all within a twenty minute walk of one another. Talks focused on the need for further work in systematics, digitization (GLOBIZ), and DNA barcoding, molecular phylogenetics, biodiversity, and biological interrelationships of Lepidoptera of the Afrotropical region. Presentations included “Examples of Lepidoptera with poorly known or suspected Afrotropical distributions: by Don, and “Moths Associated with Social



Hymenoptera: a Need for Renewed African Research” by Mignon. Akito Kawahara of the University of Maryland discussed and demonstrated the University of Maryland based Lepidoptera ATOL website ‘LepTreeNet.’ Other participants included Niels Peder Kristensen, Zoological Museum, Copenhagen, Denmark; Bernard Landry, Museum of Natural History, Geneva, Switzerland; David Lees, The Natural History Museum, London, United Kingdom; Carlos Lopez-Vaamonde, National Institute of Agronomy, Olivet, France; Raimondas Mozuraitis, Royal Institute of Technology, Stockholm, Sweden; Erik van Nieukerken, National Museum of Natural History, Leiden, The Netherlands; Nabil Youdjou, Belgian Biodiversity Platform, Brussels, Belgium; and Jurate De Prins, Royal Museum for Central Africa, who organized the workshop. Microlepidopterist Wille De Prins was responsible for drafting the minutes of the workshop. Also in attendance were the chairman of Entomology, Marc De Meyer, and Director General of the Museum, Guido Gryseels. The Royal Museum for Central Africa was established in 1898 under King Leopold II to display extensive natural history collections arriving from the former Belgian Congo. Most of the current RMCA collections are from the colonial era of the Congo. More recent acquisitions are primarily from Kenya. Less than five per cent of the acquired flora, fauna, and cultural items are on display at any one time. The workshop coincided with an impressive display of a temporary exhibit on butterflies and moths of the Afrotropical region. The entomology collection at the RMCA totals about six million specimens, five hundred thousand of which are Lepidoptera with two thousand types. Specimens are immaculately prepared and housed in glass topped drawers in century old cabinets of the finest wood carpentry.

ANNOUNCEMENTS:

The 1105th regular meeting of the **Entomological Society of Washington** will convene on December 07 at 7:00 pm in the Cathy Kerby Seminar Room at the National Museum of Natural History. Molly Rightmyer will present the topic “Phylogenetics and special adaptations for parasitism in the bee tribe Epeolini, with emphasis on the genus *Triepeolus*

(Hymenoptera: Apidae).”

GENERAL NEWS

In early November, Warren Steiner was notified of a grant award (\$3,500.00) to conduct a survey of populations of two reared beetle species proposed for State Endangered status, October 1, 2006 to December 30, 2007. The contract is between the Maryland Department of Natural Resources Natural Heritage Program and the Dept. of Entomology, SI, to assist in the restoration of Sharptown Dunes Natural Heritage Area, and to search for new populations of the beetles at other localities on the Eastern Shore.

PUBLICATIONS BY STAFF:

Research papers by retired members of the combined entomological staff will be listed, and those will be preceded by a double asterisk.

Gibson, G. A. P., **M. W. Gates** & G. David Buntin. 2006. Parasitoids (Hymenoptera: Chalcidoidea) of the Cabbage Seedpod Weevil (Coleoptera: Curculionidae) in Georgia, USA. *J. Hym. Res.* 15(2): 187-207.

--**abstract**—Five families and 13 species of Chalcidoidea (Hymenoptera) were obtained from mass-reared seedpods of *Brassica napus* L. (Brassicaceae) as putative parasitoids of the cabbage seedpod weevil, *Centorhynchus obstrictus* (Marsham) (Coleoptera: Curculionidae), in Georgia, USA. The species are *Conura torvina* (Cresson) (Chalcididae), *Euderus glaucus* Yoshimoto and *Necremnus tidius* (Walker) (Eulophidae), *Brasema allynii* (French) n. comb. (from *Eupelmus* Dalman) and *Eupelmus cyaniceps* Ashmead (Eupelmidae), *Eurytoma tylodermatis* Ashmead (Eurytomidae), and *Lycus incertus* (Ashmead), *L. maculatus* (Gahan), *L. perdubius* (Girault), *Mesopolobus moryoides* Gibson, *Neocatolaccus tylodermatis* (Ashmead), *Pteromalus cerealellae* (Ashmead) and *Pteromalus* sp. (Pteromalidae). An illustrated key is provided to differentiate the taxa. *Lycus maculatus* constituted about 96% of all reared Pteromalidae and 87% of the total parasitoid fauna. The associations of *B. allynii*, *E. glaucus*, *E. cyaniceps*, *E. tylodermatis*, *L. incertus*, *N. tylodermatis*, *Pteromalus* sp. and *P. cerealellae* with *C. obstrictus* are new, but some of these species likely are hyperparasitoids or emerged from insect contaminants of the mass-reared seedpods. The only previous report of a parasitoid of *C. obstrictus* in eastern North

America, *Trichomalus perfectus* Walker) (Pteromalidae), is a misidentification. The parasitoid fauna of *C. obstrictus* in Georgia is discussed relative to that known for western North America.

****Gordon, R. D.** 2006. Studies on the genus *Aphodius* of the United States and Canada (Coleoptera: Scarabaeidae): X. some new species from central North America. *Insecta Mundi* 20(1-2): 47-54.

--**abstract**—Six new species of *Aphodius* Illiger (Coleoptera: Scarabaeidae) are described from the central United States. They are: *Aphodius ashworthi*, *Aphodius barri*, *Aphodius gardneri*, *Aphodius salsburyi*, *Aphodius sayi*, *Aphodius ulkei*.

Hall, J. P. W. 2005 (paperback), 2006 (hardback). A Phylogenetic Revision of the Napaeina (Lepidoptera: Riodinidae: Mesosemiini). 235 pp. The Ent. Soc. Wash., Washington, D.C.

--**summary**—A phylogenetic monograph of the Neotropical riodinid subtribe Napaeina (Mesosemiini) is presented. A phylogenetic analysis for all species, including one fossil species, using seventy-eight characters of adult morphology, generated a single most parsimonious cladogram. Six genera are recognized here for the Napaeina, including the new monotypic genus *Ionotus* Hall, n. gen., for *alector*. The hypothesized phylogenetic relationships among these six genera are as follows: *Hyphilaria* + *Napaea* + (*Voltinia* + (*Ionotus* + (*Hermathena* + *Ithomiola*))). As previously conceived, only *Eucorna* (monotypic), *Voltinia*, *Hermathena* and *Ithomiola* were monophyletic, whereas *Hyphilaria*, *Cremna* and *Napaea* were polyphyletic. Only *Hermathena* is used here in its historical sense, with *Hyphilaria*, *Voltinia* and *Ithomiola* more broadly delimited, and *Napaea* more narrowly delimited. A total of eighteen new generic combinations are proposed, and two new generic synonyms are made, *Cremna* with *Napaea*, and *Eucorna* with *Voltinia* (n. syns.). The three largest genera are divided here into monophyletic species groups as follows: *Napaea* into the *actoris* and *eucharila* groups, *Voltinia* into the *danforthi*, *sanarita*, *radiata* and *phryxe* groups, and *Ithomiola* into the *floralis* and *nepos* groups. A total of forty-four species are recognized in the Napaeina, including eight new species: *Napaea fratelloi* Hall & Harvey, n. sp., *Napaea gynaeomorpha* Hall, Harvey & Gallard, n. sp., *Napaea joinvilea* Hall & Harvey, n. sp., *Napaea mellosa* Hall & Harvey, n. sp., *Napaea rufolimba* Hall, n. sp. (proposed to substitute the unavailable infrasubspecific name *rufolimbata* Stichel), *Hermathena eburna* Hall & Harvey, n. sp.,

Ithomiola bajotanos Hall, n. sp., and *Ithomiola calcuosa* Hall & Harvey, n. sp. Three additional subspecies names are recognized in *Ithomiola*, including one new subspecies, *Ithomiola theages tessera* Hall, n. ssp.. A total of seventeen taxonomic changes are made at the species level, predominantly involving the synonymy of subspecies names, but two taxa are elevated to the rank of species (*Voltinia cebrenia* from synonymy with *V. umbra*, and *Ithomiola cribaralis* from a subspecies of *I. theages*), two taxa are downgraded from species to subspecies (*Ithomiola cascella* and *Ithomiola celtilla*), and two species names are synonymized (*Ithomyiola rubrolineata* with *Ithomiola floralis celtilla*, and *Napaea cuyabaensis* with *Napaea actoris*). An appendix provides a list of corrections to the many errors of identification of Napaeina species in the popular literature. To ensure nomenclatural stability, I designate lectotypes for five names. Two names are transferred to genera outside of the Napaeina. The east Andean species *anophthalma* C. * R. Felder, 1865, long treated in *Hyphilaria*, has setose eyes, prominently bifurcate male genital valvae, and symmetrically positioned female genital signa, characters that place it in the *Mesosemia* group of genera in the Mesosemiina. Based on wing pattern similarities, I tentatively place *anophthalma* in *Leucochimona* Stichel, (n. comb.). The name *paupercula* Zikan, 1952, was described, and has always subsequently been treated, in *Napaea*, but the apparently unique holotype female is the female of "*Calospila*" *candace* (H. Druce, 1904), a southeastern Brazilian species in the Nymphidiini (n. comb., n. syn.). The Mesosemiini and its two subtribes are characterized. For the Napaeina, I provide a history of its classification and a key to its genera, and discuss in detail the biology and biogeography of its species. Biological topics discussed include habitats, phenology, rarity, mate location, mimicry, adult nutritional ecology, food plant use and immature stage biology. A list of all the reported Napaeina food plants is given, and the macro- and ultrastructure of the immatures are described, and exemplars illustrated. Biogeographical topics discussed include patterns of regional and community species richness, patterns of speciation, conservation and historical biogeography. The Napaeina ranges from Mexico to Argentina, but is most diverse along the base of the eastern Andes, where its species richness peaks at 500 to 600 m. It appears to be divisible into three discrete elevational faunas, a large lowland fauna below 1000 m, a sizeable montane fauna from about 1000 to 700m, and a small cloud forest fauna from about 1700 to 2300 m. Many Napaeina species are allo- or parapatrically distributed

with respect to their closest relatives. Most *Ithomiola* species are elevationally parapatric, and the genus provides excellent examples of "vertical" speciation, or parapatric speciation across an environmental gradient. Nine Napaeina species are believed to be of conservation concern and, given their restricted ranges and threatened habitats, six species are deemed to be vulnerable to extinction (*Voltinia danforthi*, *V. sanarita*, *V. tumbesia*, *Ithomiola neildi*, *Napaea fratelloi* and *N. zikani*). Critical faunas analyses highlight Mexico, Brazil, and Ecuador to be the countries of potentially greatest conservation importance, and pinpoint eleven already protected areas in five countries that could theoretically conserve all of the known Napaeina species. The historical biogeography of the Napaeina was studied using cladistic biogeography methods and Parsimony Analysis of Endemicity to generate hypotheses of historical Neotropical area relationships. Most methodological permutations produced the same general area cladogram: S.E. S. America + ((C. America + Choco) + (Amazon + Guianas)). For each of the polytypic genera, I review the history of classification of the group, and provide a synonymic checklist, a detailed diagnosis, a key to the included species, and a summary of the biology and biogeography of its constituent species. For each species, I discuss its nomenclature, phylogenetic position within the genus, morphology, identification, variation, biology and distribution. Locality data that have been recorded from sixteen museums and several private collections in Europe and the Americas, as well as the literature, are listed at the end of each species account, and are plotted on maps of the Neotropics. The adults of all species are illustrated in color, including both sexes where known, and multiple phenotypes where appropriate. The male and female genitalia, where known, are illustrated for all extant species.

Kula, R. R., G. Zolnerowich & C. J. Ferguson. 2006. Phylogenetic analysis of *Chaenusa sensu lato* (Hymenoptera: Braconidae) using mitochondrial NADH 1 dehydrogenase gene sequences. *J. Hym. Res.* 15(2): 251-265.

--abstract—Alysiinae currently contains over 1,500 described species and is divided into the tribes Alysiini and Dacnusiini. There is disagreement on how species should be grouped within Dacnusiini, and *Chaenusa* Haliday is a prime example. *Chaenusa sensu lato* is defined by the presence of setae on the compound eyes (Griffiths 1964). Alternatively, Riegel (1950, 1982) treated *Chaenusa s. l.* as three genera, *Chaenusa*

sensu stricto, *Chorebidea* Viereck, and *Chorebidella* Riegel, and differentiated the genera primarily using forewing venation and shape of the forewing stigma. Phylogenetic analyses using molecular data have not been undertaken. Therefore, we assessed the monophyly and interspecific relationships of *Chaenusa s. l.*, *Chaenusa s. s.*, *Chorebidea*, and *Chorebidella* through maximum parsimony, maximum likelihood, and Bayesian analyses using mitochondrial NADH 1 dehydrogenase gene sequences. *Chaenusa s. l.* and *Chorebidea* were not monophyletic in any of the analyses, but four of five species of *Chorebidea* always formed a clade. Further, *Chaenus s. s.* and *Chorebeidella* were monophyletic in all analyses and were always sister taxa. The results of this study largely support Riegel's (1950, 1982) treatment of *Chaenus s. l.* as *Chaenusa s. s.*, *Chorebidea*, and *Chorebidella*. However, we suggest that *Chaenusa s. l.* be retained until additional phylogenetic analyses have been undertaken to confirm the relationships inferred in this study. In addition to the phylogenetic analyses, we discuss the morphological features relevant to Griffiths' definition of *Chaenus s. l.* and Riegel's definition of *Chaenusa s. s.*, *Chorebidea*, and *Chorebidella*.

Staines, C.L. & S.L. Staines. 2005 [2006]. The Dytiscidae and Hydrophilidae (Insecta: Coleoptera) of Eastern Neck National Wildlife Refuge, Maryland. Maryland Naturalist 47(1): 14-20.

--abstract—Inventory work conducted at Eastern Neck National Wildlife Refuge, Rock Hall, Maryland from April to September 2003 found 17 species of Dytiscidae and 25 species of Hydrophilidae. This represents 22.4% of the Maryland fauna. The most unusual find was the woodland pool specialist *Agabetes aceductus* Harris (Dytiscidae), a candidate for endangered species in Maryland.

VISITORS:

John Ascher from the American Museum of Natural History in New York was a visitor with Brian Harris and the Bee Collection October 18-20.

Ricardo Ayala from UNAM, Mexico was a visitor with Brian Harris and the Bee Collection on October 20.

Yves Bousquet from Agriculture Canada, Ottawa, visited Warren Steiner and the Tenebrionidae Collection September 25-28.

Joaquin Bueno from UNAM, Mexico visited Oliver Flint and the Trichoptera Collection for a few days in early November. Joaquin is currently on sabbatical, and will make several visits to the Smithsonian over the next year.

Greg Courtney from Iowa State University, Ames Iowa, visited the Diptera Collection to confer with specialists October 30-November 03.

Stephan Cover from MCZ, Harvard University visited with Oliver Flint on November 7-8, to pack up Neotropical caddis flies for return to MCZ.

Liz Day from the American Museum of Natural History in New York was a visitor with Brian Harris and the Bee Collection on October 20.

Wills Flowers from Florida A&M University will visit Gary Hevel and the Histeridae Collection during the time period of December 27-30.

Jason Gibbs from York University in Canada was a visitor with Brian Harris and the Bee Collection October 18-20.

Terry Griswald from Utah State University was a visitor with Brian Harris and the Bee Collection on October 19.

Frank Kulash from Cambridge, Massachusetts, accompanied by other family members, visited Elizabeth Roberts and the Elateridae Collection on November 17. Mr. Kulash came specifically to see specimens named after his father, Walter Kulash, an entomologist at North Carolina State, who worked there before 1960. Both a click beetle and derbid (Homoptera) species bear the specific name *kulashi*, and were shown to the group.

Dave Roubik from STRI in Panama was a visitor with Brian Harris and the Bee Collection on October 20.

Jonathan Salazar from the Departamento de Biología, Universidad de Carabobo, Valencia, Venezuela, is a current visitor with the Walter Reed Biosystematic Unit and Rick Wilkerson, having begun a visit on November 07 to work on the phylogeny of the mosquito genus *Haemagogus*. The visit will continue until November 28.

Erik van Nieuwerkerken, from the National Natuurhistorisch Museum, Leiden, Netherlands, will be working with Don Davis on the North American Nepticulidae from December 04 to 08. They will also be collaborating on a talk involving the morphology of Nepticuloidea to be presented at the upcoming ESA meetings in Indianapolis.

TRAVEL BY STAFF:

Don Davis will be attending the annual meetings of the Entomological Society of America in Indianapolis, Dec. 10-13, where he will participate in a Lepidoptera morphology workshop in connection with the Lepidoptera ATOL project.

Jeffrey Sosa-Calvo and **Ted Schultz** just returned from five weeks in the field in Guyana. Three and a half of those weeks were spent in the remote Acarai Mountains of southern Guyana, the territory of the Wai Wai Amerindian people, who were our hosts. Also on the trip was Chris Marshall of Oregon State University, formerly a postdoc in our department. Jeffrey and Ted conducted ant surveys; Chris collected dung beetles and passalid beetles.

Charlie & Sue Staines will be attending the Discovery Life in America Annual Meeting at the Great Smoky Mountains National Park December 06-08.