

# Phaëton

The Official Newsletter of the  
Maryland Entomological Society

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## Meeting Announcement

The Maryland Entomological Society's 260<sup>th</sup> regular meeting will be held **Friday, February 15, 2008**; beginning at 8:00 P.M., in **Room 004** (one floor below the street level), Biological Sciences Bldg., University of Maryland, Baltimore County (UMBC). Bring a friend and specimens/observations to share. Refreshments will be provided. Presentations are scheduled to begin about 8:15 P.M.

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**Speaker:** Steve McDaniel - Master Beekeeper, Freelance photographer.

**Title:** “ The Secret Lives of Bees ”

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Steve McDaniel is a Master Beekeeper and an outstanding freelance photographer. In this presentation, he will take us on a trip inside the fascinating home of the gentle honey bee, a city of fifty thousand or more, all working together for the common good. His dramatic close-up photographs of the inner workings of the hive bring to light a fascinating seldom seen world. The bees' dance language, their temperature control (heating and air-conditioning systems) in the hive, and their marvelously-adapted built-in tools, each of which is amazing.

Thousands of his images have been published in calendars, children's nature books, magazines, and other books and periodicals including: ***American Bee Journal, Newsweek, National Geographic Kids, Nature's Best, BBC Wildlife, Chesapeake Home, Harvard, Outdoor America, Hawaii***, and even ***Beekeeping for Dummies***.

Steve has won awards in several major photography competitions, including ***Nature's Best*** and ***Wildlife Photographer of the Year***, as well as many local awards. A selection of his excellent art photography is displayed on the website: [www.mcdanielphotography.com](http://www.mcdanielphotography.com).

His honey and beeswax have won many awards at fairs and competitions throughout Maryland, including Grand Champion awards at the Maryland State Fair in 2006 and 2007. Bees face many difficulties today, and you will learn how you can help save these vital pollinators.

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If you want more information concerning this meeting, contact one of the following people:

Annapolis Area - Harold Harlan (410) 923-0173 (Home) “ haroldharlan@comcast.net ”  
Baltimore Area - Phil Kean (410) 944-4630 (Home)  
Fred Paras (410) 374-0425 (Home) “ bugandrockman@msn.com ”  
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### Minutes of the November 2007 MES Meeting

The 259<sup>th</sup> meeting of the Maryland Entomological Society was held on Friday, November 16, 2007 at UMBC and was begun at 8:24 p.m. The meeting opened with a welcome by Fred Paras and a brief business meeting. Fred first discussed plans for program speakers for the fiscal year. Next, the October 2007 meeting minutes were read and approved (with slight corrections on speakers' trip details), and the Treasurer's report was issued. The MES Funds total was \$2550.67; and Ed Cohen, as the new treasurer, is sorting out details on back dues payments. A turtle Ed photographed in Prince George County, VA in 2006 and reported on during his trip presentation at the October MES meeting was finally identified by a reptile expert as the Yellow-bellied Slider (*Trachemys scripta scripta*). Gene Scarpulla's paper on the insects of Hart-Miller Island will appear in the new issue of the *Maryland Entomologist*, which should be published later this year. Dick Smith mentioned that Dr. William Andersen had donated 14 Lepidoptera and local geology books to the MES earlier in November, and that these would be formally listed and brought to the MES meeting in February to determine final disposition. This was followed by the main program summarized below and then a period of fine refreshments and discussion.

The main program: "*Acropyga*: Dairy Farmers of the Ant World," was presented by Dr. John S. LaPolla, Assistant Professor, Towson University, Towson, MD. Trophobiosis, and in particular trophophoresy, are integral parts of the life history in the *Acropyga* (Hymenoptera: Formicidae) tropical ant genus. Trophobiosis, wherein ants acquire honeydew, the sugar-rich fluid excreted by sap-feeding Hemipteran insects, has evolved multiple times in ants, most commonly in the subfamilies Formicinae, Dolichoderinae, and Myrmicinae. For most ants, trophobiosis is known to be facultative (one of many feeding behaviors, no single one vital). In a very few ant species, however, trophobiosis is obligate (required for survival). Some obligately trophobiotic ant species have acquired particular adaptations for ensuring the transfer of their associated trophobionts (Hemipterans) from parent to daughter colonies. Among the nomadic herding *Dolichoderus* species of Southeast Asia, for example, colonies reproduce by budding, in which a portion of the colony, including a newly mated daughter queen, workers, and mealybugs (Hemiptera: Pseudococcidae), separate from the parent colony and

thereafter lead an independent existence. In certain obligately trophobiotic ant species, virgin queens depart on their mating flights carrying the trophobiont (a mealybug in this case) between their mandibles, and these mealybugs subsequently serve as foundresses for a new mealybug "herd" in the new ant colony. This form of trophobiosis has been termed trophophoresy. Only two ant genera are known to contain trophophoretic species: *Acropyga* (Formicinae), in which there are now 37 known species, all tropical and all of which are thought to be trophophoretic, and *Tetraoponera* (Pseudomyrmecinae), in which trophophoresy has been observed in only one species, *T. binghami*. The *Acropyga* are small ants, typically between 1–2 mm in total length; they have reduced mandibles and large, oval propodeal spiracles; and they live almost entirely underground where they tend Rhizoecine mealybugs and place them on roots to feed. The ants and mealybugs are mutually dependent on each other for survival. The mealybugs provide the ants nutrition, and the ants provide the mealybugs protection from predators and parasitoids. The degree of species specificity between ant and mealybug is variable, but there is evidence that co-evolution has occurred between the two groups. Fossil *Acropyga*, and even a species, *Acropyga glaesaria*, named later by Dr. LaPolla, carrying or in close proximity to a primitive mealybug, were discovered in Dominican amber from the Miocene era, indicating that trophophoresy is at least 15–20 mya old. Dominican amber, from Hispaniola, was formed from the aleo-resin of a now-extinct species, *Hymenaea protera*, of the algarroba tree. Many primitive insects and insights into their behaviors have been revealed from remnants preserved for millions of years in fragments of Dominican amber. The taxonomy of *Acropyga* has until recently been confused, and the monophyly (single-stock or clade ancestry) of the genus has been questioned. It has been suggested the genus was either paraphyletic (surviving branch of a clade) or polyphyletic (from a cross-section of clades), with each scenario having important implications for the evolution of trophophoresy (*i.e.*, implying that trophophoresy may have arisen more than once within the Formicinae and more than twice within the ants overall). Dr. LaPolla's research, has shown via both morphological and molecular data that the *Acropyga* are monophyletic, which suggests that the *Acropyga* and mealybugs co-evolved. New species of mealybugs, *Neochavesia iwokramae* and *N. lapollai*

(named after the speaker) have just been discovered in Guyana where they are associated with *Acropyga panamensis* and *A. ayanganna*. *Acropyga fuhrmanni* (from Costa Rica) is observed to be trophophoretic usually with a single *Neochavesia* species, whereas *A. exchanges* (also Costa Rica) is trophophoretic with species from several mealybug genera. Associations are clade-specific between *Acropyga* and mealybugs, but they are not exclusively associated between single species. His data further suggests that *Acropyga* belongs within a clade containing *Anoplolepis*, *Aphomyrmex*, and *Petalomyrmex* ant species. *Aphomyrmex* and *Petalomyrmex* were found to be a sister group to *Acropyga*. The results also indicate that the Lasiini and Plagiolepidini ant tribes are not monophyletic and may need reexamination. In Lasiini species, queens are parasitic on other ant colonies, wherein they invade an active nest, kill other queens, adopt colony workers, and replace the workers gradually with their own species. Given the extant pantropical distribution of *Acropyga*, it is speculated that *Acropyga* may be of Gondwanan origin and that trophobiosis was the first form of agriculture to evolve in the ants. Dr. LaPolla continues to collaborate with other experts at the Smithsonian on this work. He mentioned that researchers have tried but have found it very difficult to keep viable cultures of *Acropyga* and mealybugs sustained in the laboratory. Dr. LaPolla also mentioned that Towson University has a large in-house insect collection of 20-30 thousand specimens.

Respectfully submitted,  
Richard H. Smith  
MES Secretary

### Announcements

2. Distributing this newsletter via e-mail is intended to save the MES printing and mailing costs, and to allow quick transfer of information. Members who have provided no current e-mail will continue to be sent hard-copies for the near future. If you have questions, please contact a person listed at the bottom of the front page, above. **ALSO** please provide your current e-mail address. Dues for 1 Oct. 2007 through 30 Sep. 2008, are **\$10.00 / year**. Please send dues & any address corrections to:

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Columbia, MD 21045 e-mail: [edcohenfam@yahoo.com](mailto:edcohenfam@yahoo.com)

2. Regular MES meetings are held the 3<sup>rd</sup> Friday of each of 6 months each year: Oct., Nov., Feb., Mar., Apr. & May (parallel to UMBC's academic year). The remaining meetings for the 2008 "MES year" include:

<u>month</u>	<u>date</u>	<u>speaker</u> (if known)	<u>topic</u>
Feb. 08	15 <sup>th</sup>	Steve McDaniel	(See front page)
Mar. 08	21 <sup>st</sup>	Sam Droge	Bees
Apr. 08	18 <sup>th</sup>	Jorge Santagio-Bley	Insects in Amber
May 08	16 <sup>th</sup>	TBA	members' "pot-pourri"

3. The **Washington Area Butterfly Club** (WABC) monthly free public meeting will be at 7:30 P.M., Thurs., Feb. 28, 2008, at the Long Branch Nature Center. Robert (Bob) Speaker will give a talk on: "Butterflies at the National Arboretum." WABC is quite active in local & regional nature education, butterfly observation & conservation. Their web site has a wealth of current information on Lepidoptera, articles, plant sales, & "links" to other regional nature resources. For more details, directions to events go to: <http://users.sitestar.net/butterfly/>, or contact Pat Durkin at: (202) 483-7965 or at: "[plusultra@aol.com](mailto:plusultra@aol.com)".

4. The National Museum of Natural History (NMNH) has a paired Nature program opening Fri., Feb. 15<sup>th</sup> at 600 Independence Ave., SW, Washington, DC. "**Butterflies and Plants: Partners in Evolution**" is free, and addresses how insects and other animals have co-evolved with plants. **The Butterfly Pavilion** is a fee-based (tickets are required) live butterfly experience located adjacent to 'Partners in Evolution'. The joint exhibits are open 10:00 A.M. – 5:00 P.M. Tickets are \$6.00 – Adults; \$5.50 – Seniors; \$4.50 children. They can be purchased in advance by phone: (202) 633-4629 or at: [www.butterflies.si.edu](http://www.butterflies.si.edu).

5. Tuesday, Feb. 19, at 7:00 P.M., Pat Durkin will speak on: "Saving Maryland's Baltimore Checkerspot Butterfly," at a free public meeting of the Western Mountains chapter meeting of the Maryland Native Plant Society. The meeting will be in the Appalachian Laboratory, 301 Braddock Rd., Frostburg, MD. For more details, contact Liz McDowell at (301) 895-3686, or [info@elkridgenatureworks.com](mailto:info@elkridgenatureworks.com); or Cheryl Lough at (301) 616-7983, or [clough3@yahoo.com](mailto:clough3@yahoo.com).

6. Practical Beekeeping for Beginners is a series of weekly 2-hr. classes which include some hands-on experience and practical references. These are being offered by the Northern Virginia Beekeeping Teachers' Consortium, for \$85.00 per person (student), between

Feb. 6 and Mar. 21, 2008. These classes are being offered at **three ( 3 ) separate sites** in northern Virginia. For more information about classes at the Falls Church High School site, contact Pat Haskell, (703) 560-3484 or go to: [www.beekeepersnova.org](http://www.beekeepersnova.org) . For more information about classes at the Sudley North Government Center, Manassas, contact John Strecker, (703) 675-8251 or [www.PWSBeekeepers.com](http://www.PWSBeekeepers.com) . For more information about classes at the Loudoun Co. Cooperative Extension Office site, contact Billy Davis, (540) 903-9274 or [www.loudounbee.org](http://www.loudounbee.org) .

**7. The Maryland DNR** recently accepted the donation from BP America™ of a new Solar Utility Vehicle (100% powered by solar panels built into its roof) for transportation of staff and “stuff” at Sandy Point State Park. The all terrain vehicle has 31 Hp, >170 lbs. of torque, & carries 4 persons. For more details about this & many other monthly features, information, links, & contact points, go to their web site: [www.dnr.state.md.us](http://www.dnr.state.md.us) .

**8. Eight-Legged Wonders** offers an up close look at live spiders and preserved specimens at the Earleigh Heights Ranger Station in Severna Park at 2-3 P.M., Sat., Feb. 23<sup>rd</sup>. Call (410) 222-6244 to register.

**9. Bug Juice**, a program for children 6-9 years old, will try to answer the question “What happens to bugs in winter?”, will be offered at Flag Ponds Nature Park, Lusby, MD; from 2:00 to 3:30 P.M., Sunday, Feb. 24<sup>th</sup>. Weather permitting, there will be various “bug” games, a short nature walk, and snacks. Natural adaptations and strategies will be discussed which help insects survive over winter. Reservations and a fee of \$3.00 per child are required. Call (410) 535-5327.

**10. The National Aquarium**, 501 Pratt St., Baltimore, MD (at the Inner Harbor) has many youth programs, teacher help resources, & educational programs for all ages. They are currently featuring sharks, breakfast with the frogs, breakfast with the dolphins, & other aquatic mammals. You can get behind the scenes tours of various marine animals, their care & feeding. For operating hours, prices, or more details; or to register for programs or events, call: 410-576-3800, or go to: “<http://www.aqua.org>”.

**11. The Audubon Naturalist Society (ANS)** offers a wide variety of nature events & experiences for all ages. Some of their classes, events, talks, & bird walks

are free, but most require a fee & pre-registration. For details, or to register, call (301) 652-9188 ext. 10, or go to: [www.AudubonNaturalist.org](http://www.AudubonNaturalist.org).

**12. The National Zoological Park**, 3001 Connecticut Ave., NW, Washington, DC, displays a wide range of species (>4,400 animals) for free; from pandas, to big cats, some are on “live” web cameras. Their web site has many interesting research articles, related images & “links” to other resources. You can help by joining the Friends of the National Zoo (FONZ). For more, go to: [www.nationalzoo.si.edu](http://www.nationalzoo.si.edu) or call: (202) 673-4717.

**13.** In response to the recent problems of honey bee Colony Collapse Disorder (CCD), the USDA has dedicated lots of funding, several labs & numerous Entomologists to research on: native bees, a new “megabee” overwintering food, & known & suspected parasites & pathogens. Go to “[www.usda.gov](http://www.usda.gov)” and search for CCD, pollinators, and related topics.

**14.** Additional contact web sites & phone numbers for Nature-related events & displays in this area include:

**a. Patuxent Wildlife Research Refuge’s** National Visitors’ Center, for details, call: (301) 497-5887, or go to: [www.fws.gov/northeast/patuxent/vcdefault.html](http://www.fws.gov/northeast/patuxent/vcdefault.html) .

**b. The “other” national aquarium** (in Washington, DC); Rm. B-077 of the Commerce Bldg., @14<sup>th</sup> St. & Constitution Ave., NW, Washington, DC 20230, call: 202-482-2825, or e-mail: [info@nationalaquarium.com](mailto:info@nationalaquarium.com).

**15.** For current details on a very wide range of topics for central Maryland & DC; like sports, restaurants, special events, & ads, check out the “**What’s Up? Annapolis**” magazine. They even have a live “harbor cam”. For a free subscription mailed to your home address (limited to Annapolis & surrounding areas), contact them at: What’s Up?, Inc., 929 West St., Suite 208A, Annapolis, MD 21401; by phone: (410) 267-9390; or via their website: [www.whatsupmag.com](http://www.whatsupmag.com) .

#### Current ( 2007 ) MES Officers

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