FLY TIMES

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Welcome to the latest issue of *Fly Times*! Let me first thank everyone for sending in such interesting articles – I hope you all enjoy reading it as much as I enjoyed putting it together! With that, please let me encourage all of you to consider contributing articles that may be of interest to the Diptera community. *Fly Times* offers a great forum to report on your research activities and to make requests for taxa being studied, as well as to report interesting observations about flies, to discuss new and improved methods, to advertise opportunities for dipterists, and to report on or announce meetings relevant to the community. This is also a great place to report on your interesting (and hopefully fruitful) collecting activities!

The electronic version of the *Fly Times* continues to be hosted on the North American Dipterists Society website at http://www.nadsdiptera.org/News/FlyTimes/Flyhome.htm. The Diptera community would greatly appreciate your independent contributions to this newsletter. For this issue, I want to again thank all the contributors for sending me so many great articles! That said, we need even more reports on trips, collections, methods, updates, and anything else you can think of about flies, with all the associated digital images you wish to provide. Feel free to share your opinions or provide ideas on how to improve the newsletter (I am very happy to hear ways that I can enhance it!).

The *Directory of North American Dipterists* is constantly being updated and is currently available at the above website. Please check your current entry and send all corrections to Jeff Cumming. There is a form for this on the last page of the newsletter.

Issue No. 42 of the *Fly Times* will appear next April. If possible, please send your contributions by email, or disc, to the editor at sgaimari@cdfa.ca.gov. All contributions for the next *Fly Times* should be in by 10 April 2009.

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NEWS

Richard L. Hurley, 1934-2008

by Justin Runyon

Associate Curator, Montana Entomology Collection, Montana State University
Bozeman, MT 59717 USA; jbr160@gmail.com


Photo: Emily Nichols

Richard Lester Hurley, dolichopodid worker and friend to everyone, passed away on September 3rd at the age of 74. He was born on June 22, 1934 in Sault Ste. Marie, Ontario and received a B.A. in biology from Queen's University in Kingston, Ontario in 1957. For his senior thesis, he conducted an insect survey of the Lake Opinicon region. Rich spent the summers of 1957-58 working for Agriculture Canada; collecting insects in the Northwest Territories for the Northern Insect Survey in 1957, and in southern Manitoba in 1958. It was during these two summers that his interests were confidently narrowed to Diptera ("refined" as Rich would say). For this, Rich was charged with collecting all insects, but he quickly favored the flies – in particular the ornate, long-legged Dolichopodidae. After polling a number of prominent dipterists for a list of dolichopodid genera most in need of revision, he chose *Hydrophorus* for his doctoral work. Rich completed his Ph.D. in Systematic Entomology in 1965 at the University of Illinois, Champaign-Urbana.

Rich then became a professor of Biology at Humboldt State University in Arcata, California where he remained for 30 years (1966-1996). There, he was an admired teacher and advised approximately a dozen graduate students on subjects ranging from pigments of butterfly wings, to the arthropod fauna in pitcher plants, to histology of glands found in dolichopodids. Rich's enthusiasm for Diptera was contagious: one student had a large, male *Dolichopus* tattooed on his arm! He also led annual field trips to the desert southwest, which are much storied and remain legendary among the participants. At Humboldt, in spite of his large teaching load, Rich completed work on *Hydrophorus* and the other Hydrophorinae genera *Hydatostega* and *Scellus*. All were published in the monographic series, *Flies of the Nearctic Region*.

Upon retiring in 1996, Rich was associate curator of the Montana Entomology Collection (MTEC) at Montana State University until his death. Rich played an important role in the education of most entomology students there, and when asked by two graduate students, even became an ordained minister in order to marry them. I knew nothing about flies when I met Rich in 1998. Under his guidance we published five papers, including a revision of *Nepalomyia*, the discovery of a fly with asymmetrical wings, and a biography of Fred C. Harmston. And I was never officially his student.

Rich authored or coauthored 9 scientific papers, including 224 pages in the two Hydrophorinae monographs, and described 1 genus group name and 22 species group names (we have projects near completion so there's more to come). He was an avid collector and donated his extensive collection of Dolichopodidae to the MTEC in 1996.

Those who knew Rich describe him using words including: beloved, helpful, easy-going, smiling, humorous, and a truly accurate dipterist. In true Rich fashion, he did not want a sad funeral, but chose a "memorial celebration" with pizza and beer. That was Rich. He will be missed.

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The Cingulum: a unique structure of some Dolichopodidae

by Justin Runyon

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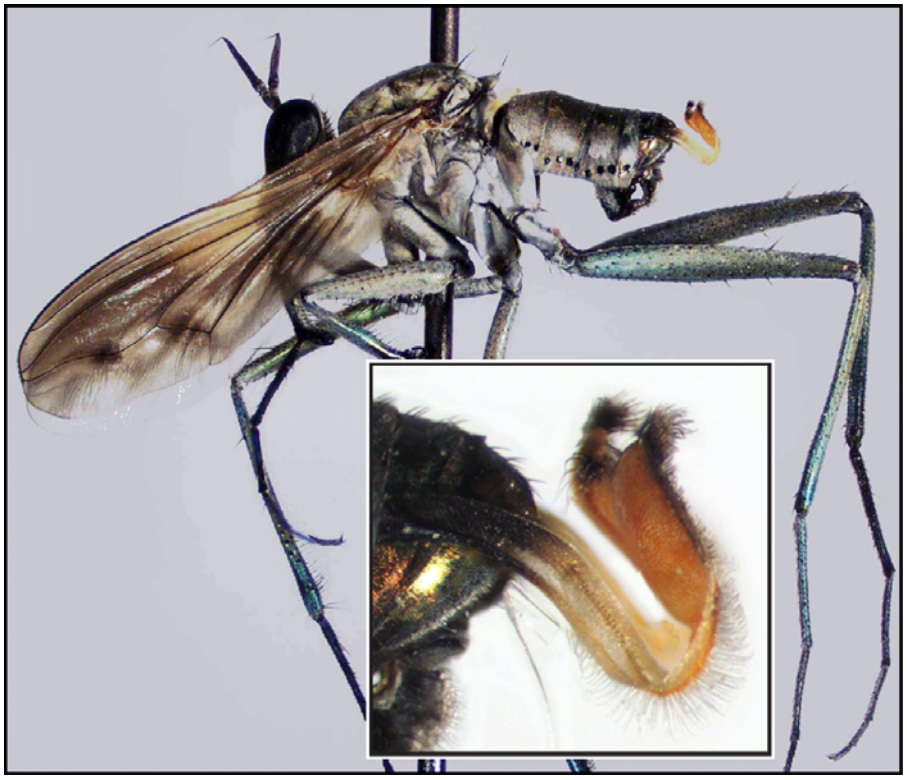
The cingulum is a U-shaped structure of unknown function which arises between abdominal sterna 4 and 5 and terminates in a pair of variously modified flag-like appendages. This structure is well developed only in males of the genus *Scellus*. Richard Hurley discovered that *Hydatostega* have a much reduced cingulum, a finding that had broad implications for elucidating hydrophorine phylogeny. Rich suggested that the size and bright coloration might serve a visual signaling function, whereas the arrangement of hairs suggests a pheromone-dispersing function.



Scellus virago Aldrich showing the bright orange cingulum arising from abdomen. The bright coloration fades over time in preserved specimens. Inset: close-up view.

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High-speed video reveals the secrets of fly escape

by Gwyneth Card & Michael Dickinson

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Why is it so hard to swat a fly? The answer may be that they plan ahead with fancy footwork. In the Dickinson Lab at Caltech we are interested in the behavior of the fruit fly, *Drosophila melanogaster*. This successful organism can perform dazzling feats of in-flight acrobatics, find its way to your wine glass from across a crowded room, and – as learned in a recent set of experiments – plan an escape route to avoid your swatter. Flies accomplish all these behaviors and more using a brain with roughly a billion times fewer neurons than a human brain. A brain so tiny it's no bigger than a grain of sand. For neuroethologists, this combination of intricate behavior and relative neural simplicity has made the fly an ideal system in which to study the neural control of behavior.

In our studies of fly escape, we filmed the fly using a high-speed video camera recording at 5,400 frames per second. First we enticed the fly to climb onto a small right-angle glass prism. This small platform kept the fly in focus for our camera and allowed us to capture images of the fly from underneath and from the side simultaneously. Once the fly was in place, we released a 14-cm diameter black disk, which slid down a rod through its center on a direct collision course towards the unsuspecting animal. Though a stopper at the end of the rod kept the disk from actually contacting the fly, the disk's speedy descent mimicked an approaching predator -- or fly swatter.

What we saw flies do in response to our looming swatter was rather surprising. Previously it was thought that a fly’s escape response was controlled by a hard-wired circuit that, when activated, caused the fly to launch itself into the air by a rapid kick of its jumping legs, much like our own knee-jerk reflex. This escape jump is so fast it's over in less than 5 milliseconds. Our videos, however, revealed that as early as 200 milliseconds before the fly jumps it is already planning an escape route. When the disk starts falling, the fly's first response is to stop whatever it is doing -- usually grooming itself with its front or back legs -- and lower all its legs to the ground. It then adjusts its body relative to its two middle legs so that when these legs extend at take off the fly is propelled away from the threatening object.

We noticed that flies had two different strategies for preparing themselves for the jump. If the swatter approached from the front or back, the fly would move its middle legs towards the looming disk. If the swatter came from the side of the fly, however, the fly didn't need to move its legs, it just leaned its body away from the threatening stimulus. Both these strategies prepare the fly to jump away from the swatter. What's more, how far the fly moved its jumping legs, or how much it leaned depended on what the fly's posture was before the disk was dropped. Thus the fly's pre-jump motions are not just simple feed-forward reflexes -- the fly must be able to incorporate feedback about its current posture into its escape plan.

Our results suggest that a fly’s response to an approaching swatter is not the simple reflex we previously thought, but is rather a very sophisticated behavior. The fly can calculate the direction of the threat and plan an escape route in the opposite direction, take stock of its current posture and make adjustments to aim itself in the correct direction, and finally, trigger the escape jump. All these actions

take place in, quite literally, the blink of an eye. Because a fly has nearly 360-degree panoramic vision, this ability to swiftly sense and evade a threat from any direction is one of the things that make flies so hard to catch.

We are looking forward to finding out more about the parts of the fly's brain that coordinate this rapid escape response. We hope that by understanding more about this amazing little creature we will one day understand more about our own brain. At the very least we can appreciate the efficient solution nature has devised to frustrate our best swatting attempts.

Flies always jump away from a threat. In these video collages, three different flies are responding to a disk falling toward them from the right side of the image. Each fly could choose its own orientation on the platform, so across the sample of flies we studied, we were able to observe how a fly responds to a threat from every direction. The collages illustrate that flies jumps away from the threat regardless of original orientation. [Photo: Gwyneth Card & Michael Dickinson, Current Biology, August 28, 2008]

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All the Flies on Flowers

by Mark Deyrup

Archbold Biological Station
Lake Placid, Florida, USA

For the last 20 years or so we have been working on an inventory of all the species of flies that visit flowers here at the Archbold Biological Station in south-central Florida. This is part of an even larger project to document the complexity and characteristics of a pollinator (or flower-visitor) web, and to show how flowers support some of the many ecological functions performed by flower-visiting insects. The predatory functions of most sphecid wasps, for example, are fueled by nectar, as are the parasitoid roles of certain tachinids and the clepto-parasitic activities of miltogrammine sarcophagids. From the botanical side, we are obtaining lists of potential pollinators, and evidence of how adroitly plants may manipulate the behavior of their visitors.

This project is not as absurdly ambitious as it might appear, as both the flora and fauna are relatively depauperate on the Station. This is primarily due to a series of environmental factors: severe droughts, frequent fires, nutrient-poor soil, an absence of topographic diversity, and a lack of mesic habitats. In addition to this, the site is near the terminus of a well-known decline in diversity of major boreal and Appalachian groups, such as the Anthomyiidae, Tipulidae, Empididae and portions of many other families, including the aphidophagous Syrphidae. The reduced diversity of anthophilous flies is

matched by a low diversity of bees, especially in the Apidae and the major genus *Andrena*.

While these factors greatly limit the diversity of flower-visiting flies, we are still dealing with hundreds of species. Many of these, such as members of some genera of Milichiidae and Chloropidae, belong to families with obvious taxonomic lacunae. Problems with identifications are not confined to acalyptrates, much as some would like to blame every kind of confusion on that amazing group of flies. In the Bombyliidae, for example, there are more morphospecies in the genus *Villa* at the Archbold Biological Station than the number of species reported for the entire state of Florida, and the common species *Hemipenthes bigradata* is not, apparently, even supposed to inhabit eastern North America.

When I look over our data and arrays of specimens, I feel my years upon me. I am now 61, and while taxonomists and ecologists often keep going strong far beyond my age (sometimes, perhaps, to the frustration of our younger colleagues), it is disturbing to observe that this project is, if anything, expanding. So, if there are any dipterists reading this report who would like to share any part of the enterprise, feel free to contact me. While some aspects of our data set are not particularly exciting, most of the details represent original information. For example, my son and I recently collaborated on a list of flower-visiting Ephydridae and their floral hosts at the Archbold Biological Station (Fla. Entomol. 91(3): 504-507; available on line). These flower-visitors turned out to be only a small subset of the local Ephydridae, and 9 out of 14 belong to the subfamily Psilopinae. A few of these may be specialized nectar-feeders. These kinds of results are not particularly thrilling, but they do add to our understanding of the habits of adult ephydrids.

For more information on the Archbold Biological Station and its habitats, there is a web site at www.archbold-station.org, or search on the station name on Google.

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Review of:
Borkent, A. 2008. The Frog-Biting Midges of the World (Corethrellidae: Diptera).
Magnolia Press, Auckland, New Zealand. 456 pp.
ISSN: 1175-5326 (Print edition), 1175-5334 (Online edition)

Review by Peter Adler

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Few workers have described more than half of the species in any family of insects. Art Borkent, in his recent world monograph of the monotypic family Corethrellidae, has described 54% of the 97 extant, known species of frog-biting midges and established 13 new synonyms. The world's corethrellid species are found in all zoogeographic regions of the world, but are most species rich in the Neotropical Region, with 69 species; the fewest species, only 2, inhabit the Palearctic Region. Borkent suggests that well over 500 species of corethrellids might exist on Earth. One wonders how many cryptic species exist among the Corethrellidae and to what extent they might influence conclusions regarding host specificity and other biological attributes. Of the 97 described, extant species, 85 are placed in 10 species groups, with the component species given in cladograms.

Based on inferences drawn from ecology, fossil evidence, morphology, and phylogeny, Borkent provides an analysis of the coevolution of corethrellids and frogs, correctly recognizing that

coevolution means reciprocal evolutionary change, rather than a simple, long-term association. The corethrellid-frog relationship is inferred to be of ancient origin, dating from the Early Cretaceous. Some species of corethrellids are putative vectors of *Trypanosoma* blood parasites that infect frogs. The three groups – corethrellids, frogs, and trypanosomes – are presented as a triumvirate, interacting since deep in the Cretaceous and perhaps even the late Jurassic. Borkent warns that the relation between flies and frogs is tight enough that the global decline in anuran populations [as a result, for example, of habitat destruction and the parasitic chytrid fungus *Batrachochytrium dendrobatidis*] also could negatively affect corethrellid populations.

With more than 40 years of experience as a student of the Corethrellidae, Borkent has brought together information on the bionomics, collecting techniques, distribution, fossils, taxonomy, zoogeography, and evolution of biological traits for this family. A cladistic analysis using 89 well-discussed characters (all but 7 from adults) and their states provides a robust predictive framework for biological inferences. Five keys to adults are provided, each key representing a major geographic area of the globe, plus a key to the seven fossil species. The text is supplemented with 19 tables and 145 pages of cladograms, illustrations, maps, and photographs. The complete package is nicely presented in the rapid-publishing systematic zoology journal Zootaxa. Art Borkent has produced a masterful work that will stand as the definitive treatment of the Corethrellidae – at least until he decides to treat the anticipated hundreds of additional species remaining to be described.

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Diptera Synthesis Meeting

by Torsten Dikow

Biodiversity Synthesis Center, The Field Museum, 1400 S. Lake Shore Dr.
Chicago, Illinois 60605, USA; tdikow@fieldmuseum.org

Recently (October 7–9), 27 dipterists met at the Biodiversity Synthesis Center (BioSynC, http://www.fieldmuseum.org/biosync) at the Field Museum of Natural History in Chicago, Ilinois, to discuss ways of providing information about Diptera to the Encyclopedia of Life (EOL, http://www.eol.org). The EOL is an "... ambitious project to organize and make available via the Internet virtually all information about life present on Earth ..." primarily through species pages. This meeting was funded by BioSynC and EOL and included participants from six continents and eleven countries and included four students (see group photo).

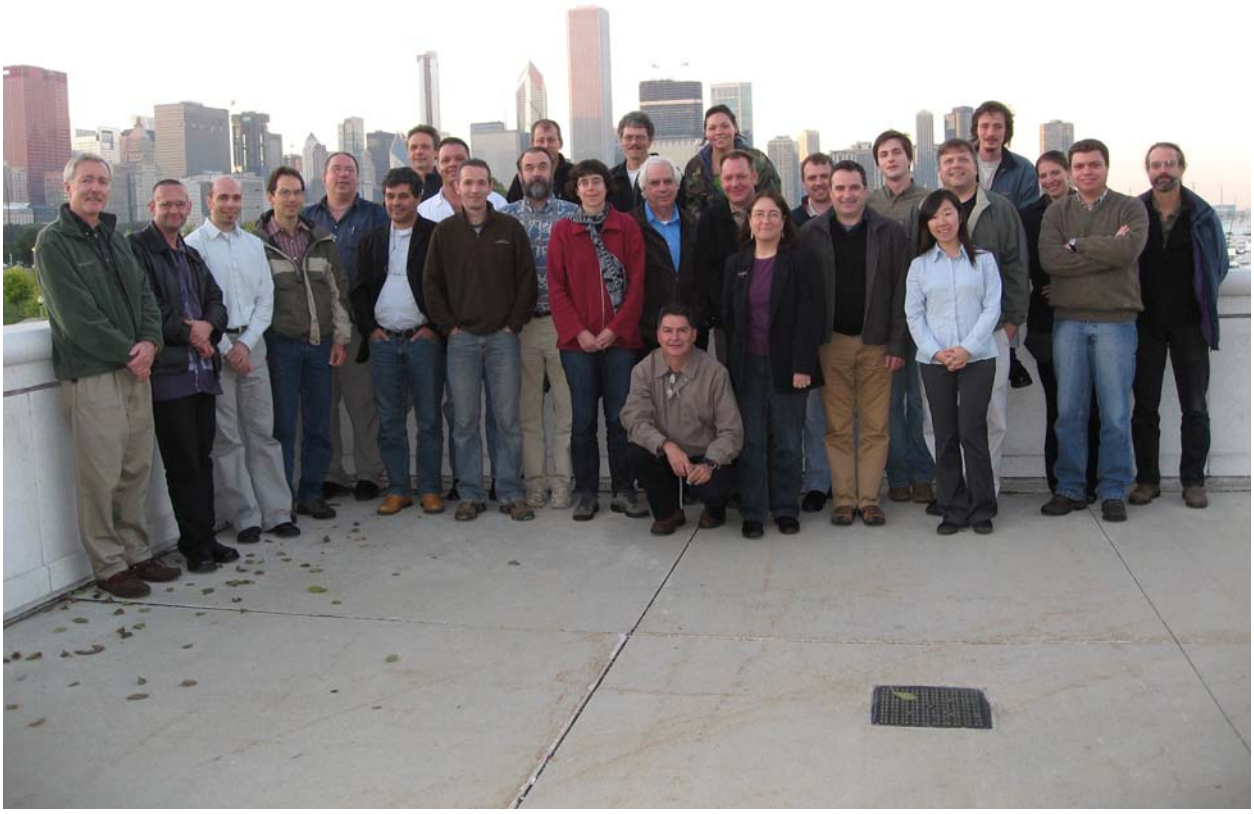
As you all know, the Diptera community is fortunate to have already at their disposal a web-based nomenclator of scientific names (BioSystematic Database of World Diptera http://www.sel.barc.usda.gov/Diptera/diptera.htm), a number of community as well taxon specific websites, e.g., The new Diptera site (http://diptera.myspecies.info) and Diptera.info (http://diptera.info), a US NSF-funded Assembling the Tree of Life project (http://www.inhs.uiuc.edu/research/FLYTREE/), several NSF-funded Partnership for Enhancing Expertise in Taxonomy (PEET) projects, and other systematic and taxonomic projects, Diptera diversity inventories, as well as digital identification tools. The BioSynC Diptera meeting was organized to enhance the outcome of all of these initiatives by synthesizing their common goals—increasing the knowledge about the evolutionary history and diversity of Diptera species and making this information more widely known through the EOL.

Chris Thompson starting the discussion of the Biosystematic Database of World Diptera.

The main topics discussed at this synthesis meeting were (1) alpha taxonomy and nomenclature, (2) EOL species pages and education, (3) Diptera inventories and specimen-level databases, as well as (4) DNA and tissue banking. In particular, we discussed enhancing the outcome of revisionary taxonomy that is the corner stone for describing the worlds biodiversity and provide this information in a more cohesive digital, machine-readable way so that the EOL and other initiatives can easily use the information for species pages etc. This can be achieved by employing tools like the EDIT (European Distributed Institute of Taxonomy, http://www.e-taxonomy.eu) scratchpads (http://scratchpads.eu/about), using the Lucid builder (http://www.lucidcentral.com/lucid3/builder.htm) to make matrix-based identification keys and fpr output of natural language descriptions to speed up taxonomic revisions, or publishing well-illustrated dichotomous or matrix-based identification keys online through the Canadian Journal of Arthropod Identification (http://www.biology.ualberta.ca/bsc/ejournal/ejournal.html) or with Linnaeus II (http://www.eti.uva.nl/products/linnaeus.php) through the Expert Centre for Taxonomic Identification.

In addition, we discussed how we can speed up our contribution to EOL species pages and a number of the participants agreed to curate certain families for the EOL. In the near future, we anticipate being able to use EOL software directly to upload information about Diptera to provide species pages for many taxa. Once this software is available, we will contact every one of you again and ask for help in providing information on your favorite group. One way you can help in increasing the presentation of Diptera on the EOL right now is by providing your properly identified photographs of flies to the flickr group “Encyclopedia of Life Images” (http://flickr.com/groups/806927@N20/). If the photographs are properly tagged with a scientific name (see details on the flickr group web-site) they will soon show up as one of the pictures of the species page. We also talked about the organization of Diptera inventories throughout the world. Standards for databasing specimen data using, for example, Mandala (http://www.inhs.uiuc.edu/research/mandala/), to comply with the Biodiversity Information Standards (TWDG, http://www.tdwg.org/) in personal as well as institutional databases, providing community-wide authority files about dipterists, collecting localities, and literature, and practices for vouchering and storing tissues or flies for DNA extraction were discussed as well.

Overall, the meeting was a success and many new ideas were spread around that will enhance the contributions of the Diptera community to the Encyclopedia of Life. Although we were only able to invite 27 participants, this meeting should be seen as a community effort and we will communicate our findings and recommendations to the Diptera community in more detail in the very near future. If you have questions regarding this meeting or the Encyclopedia of Life please don’t hesitate to contact me at tdikow@fieldmuseum.org.



Group photo: Participants from left to right: Steve Marshall, Ashley Kirk-Spriggs, Torsten Dikow, Brian Brown, Steve Gaimari, Dalton Amorim, Marc De Meyer, Martin Hauser, Shaun Winterton, Neal Evenhuis, Jeff Skevington, Irina Brake, Thomas Pape, Chris Thompson, Manuel Zumbado, Dominique Orozco, Joachim Ziegler, Gail Kampmeier, Rudolf Meier, David Yeates, Keith Bayless, Hui Dong, Brian Wiegmann, Greg Davies, Michelle Trautwein, Carlos Lamas, and Bradley Sinclair.

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North American Dipterists Society Informal Conference
Entomological Society of America Annual Meeting

by Terry Wheeler

Department of Natural Resource Sciences, McGill University, Macdonald Campus
Ste-Anne-de-Bellevue, Quebec, H9X 3V9 Canada; terry.wheeler@mcgill.ca

WHERE: Reno-Sparks Convention Center, Room E2, First Floor, Reno, Nevada, USA
WHEN: Tuesday 18 November 2008 from 7:30-9:30 p.m. (give or take)

The annual NADS Informal Conference will be held during the Annual Meeting of the Entomological Society of America. We plan to have the usual updates on ongoing projects and initiatives of interest to dipterists, as well as a set of informal research presentations. Please consider giving a brief presentation

on your research, an overview of the stunning diversity of your favorite family of flies, a profile of your lab research group, or other topics of relevance to dipterology.

Anyone wishing to give a project update or a presentation should contact me as soon as possible, so I can start assembling the program. I will arrange for a computer projector in the room for Powerpoint presentations. I will have a PC computer available for loading presentations. Anyone wishing to make a presentation on a Mac, an overhead projector, or lantern slides will have to make their own arrangements for the appropriate technology.

Following the Informal Conference those who are so inclined will, as is traditional, adjourn to another location where refreshments may be purchased and consumed. If we're lucky, we'll beat the Coleopterists to the most desirable assembly sites, as we did last year in San Diego.

Hope to see many of you in Reno!

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The Seventh Annual Meeting of the North American Black Fly Association (NABFA)

Chair: John P. Walz

Metropolitan Mosquito Control District, 2099 University Ave West
St. Paul, Minnesota 55104, USA; 651-643-8388; johnwalz@visi.com

WHERE: Archbold Biological Station, Lake Placid, Florida, USA
(http://www.archbold-station.org/abs/index.htm)
WHEN: 4-6 February 2009

Greetings NABFA members, Friends and Colleagues,

This is to announce the Seventh Annual Meeting of the North American Black Fly Association (NABFA) and first call for papers and posters. We invite black fly enthusiasts, scientists, researchers and students to join and exchange ideas, information and camaraderie.

Opening ceremonies will begin on Wednesday February 4 at 12:30 pm. Depending on the number of speakers and presentations, the meeting should conclude early Friday afternoon on February 6th. Please make note of this and schedule your travels accordingly. **Meeting details** including transportation, lodging, meeting registration and presentation criteria can be found at: http://mmcd.org/NABFAdetails09.pdf

The registration deadline for the meeting is **JANUARY 16**, **2009**.
The deadline for title and abstract submission is **JANUARY 9, 2009**
Please send titles and abstracts to: johnwalz@visi.com

Registration, meal, and lodging fees are payable to *Archbold Biological Station.* Pre payment is not required – See registration form for fee schedule: http://mmcd.org/pdf/blackflyform08.pdf

As always, feel free to contact me with any questions or concerns. I look forward to a great turnout!

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2009 North American Dipterists Society Field Meeting

by Peter Kerr

Plant Pest Diagnostics Branch, California Department of Food & Agriculture
3294 Meadowview Rd., Sacramento, CA 95832, USA; pkerr@cdfa.ca.gov

WHERE: State & National Parks, north coast of California, USA
WHEN: tentatively either 22-25 June, 29 June-2 July, or 6-9 July 2009

As reported last October, the next NADS field meeting will be held in California, organized by the dipterists at CDFA (Peter Kerr, Martin Hauser, Steve Gaimari, Alessandra Rung). Among the many options available, we felt that the north coast of the state holds the most appeal for our next field meeting. The details are still to be worked out, but we are looking forward to collecting in at least a few of the following parks: Redwood National Park, Jedediah Smith Redwoods State Park, Del Norte Coast Redwoods State Park (left photo), Patrick's Point State Park (right photo), and Prairie Creek Redwoods State Park. Together, these parks are a World Heritage Site and International Biosphere Reserve.

Although we are sure to get a taste of old growth coastal redwood forests, this area boasts a wide variety of habitats including beaches and tidepools, bluffs, forested dunes, meadows, oak woodlands, Sitka spruce stands, and lagoons and riverways of various sizes. The Klamath mountain range is also nearby, allowing for collecting at higher elevations. We are looking into meeting facilities around Crescent City, which is the most central point for a variety of habitats, but we may need to be based in Arcata, home to Humboldt State University, and approximately 17,000 people. From Arcata, it is approximately 35 minutes to Redwoods National Park, and another hour to reach the northernmost park in the area, Jedediah Smith Redwoods. As for logistics, participants are advised to fly to Arcata (Arcata-Eureka Airport, ACV) and take a bus or taxi into town for a rental car locally, or fly to San Francisco and drive to Arcata via rental car (280mi; approx. 5 hours drive). We will try to coordinate so that groups can travel together, but private/group vehicles are a must for reaching most of the collecting areas.

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The Dipterology Fund – Report on the 2008 Grants Competition

by Terry Wheeler, Chair, The Dipterology Fund

Department of Natural Resource Sciences, McGill University, Macdonald Campus
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As many of you are aware, the Dipterology Fund offers annual research and travel grants up to $1000 to students of North American dipterology. Preference is given to projects in Diptera systematics and ecology, with an emphasis on whole-organism studies. The 2008 competition was a stiff one, with more excellent applicants than the number of available grants. The grants committee selected the following four applicants to receive grants in this year's competition:

Chris Borkent – Larval Mycetophilidae in the Pacific Northwest
Gil Felipe Goncalves Miranda – *Ocyptamus* (Syrphidae) in southern Brazil
Joel Kits – Archiborborini (Sphaeroceridae) in southern Brazil
Julia Mlynarek – Diversity of Chloropidae in the southern Appalachians

Congratulations to this year's grant recipients! Details on the Dipterology Fund competition for 2009 may be found at www.nadsdiptera.org.

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Looking for "pest" phorid flies

by Brian V. Brown

Entomology Section, Natural History Museum of Los Angeles County
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Dear Colleagues,
I am writing to request people from anywhere in the world to send me fresh specimens of "pest" phorid flies that they may find infesting homes or businesses. Usually, such fly outbreaks occur when there is a sewage line break under a house, or a dead animal body is stuck between walls, etc. Often, the building fills up with hundreds of the flies.

I am asking because a colleague and I are undertaking a phylogeography project to try to determine the area of origin of these flies, which are worldwide in distribution and strongly synanthropic (associated with humans). Most of these flies are *Megaselia scalaris* and *Dohrniphora cornuta*, yellowish flies with dark markings, about 2-3 mm in length. See my website for photos of *M. scalaris* (http://www.phorid.net/phoridae/mscalaris.html).

A few specimens in alcohol would be ideal, or freshly killed dried specimens sent immediately would work as well. We are particularly in need of material from outside the New World, but are grateful for specimens from anywhere (except perhaps the Los Angeles, California area).

Thanks!

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Hennig Translations online

by Jeff Skevington

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Many years ago, CNC scientists (primarily Frank McAlpine) coordinated the English translation of several of Hennig's papers. We have had these translations in our files for years and have decided to make them available to the Diptera community online. We have scanned them, run basic OCR on them so that they are searchable (note that we have not taken time to correct OCR errors) and put them up on the Canacoll web site (http://www.canacoll.org/Diptera/Main/diptera.htm). They are all large files so high speed Internet is pretty much a prerequisite to download them.

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Reprints available

by Henry Hespenheide

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I'm not out of the fly business yet, but I'm gradually downsizing as I head towards retirement. If any of you would like a wad of early back numbers, please contact me. First ones in win!

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From Nick Downes

"There are 150,000 species of Diptera, pal. You're the freak."

[used with permission of Nick Downes, caption modified;
originally published in American Scientist, 1995, Volume 83]

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TRAVEL NEWS AND TIPS

Patagonia – A Long Wait, But Worth It

by Greg Courtney
Department of Entomology, Iowa State University,
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I finally made it! Ever since a graduate student at the University of Alberta (i.e., mid- to late 1980's), Patagonia had been on my list of "Top 3 destinations for field work". Although it took more than two decades to get there, I was not disappointed in the least. For some of you this report will be "old news", especially since my trip was more than a year ago (October 2007). Despite the delay, I felt compelled to regale my fellow dipterists with a brief account of my travels and collecting.

Most of the credit for trip organization goes to Pete Cranston, University of California - Davis (UCD). Pete had mentioned the possibility of an expedition to northern Patagonia (i.e, Lake District of Chile and Argentina) in Spring, 2007, when he said there might be "an extra seat in the van". However, it wasn't until September... when many of the logistical details were finalized... that my participation was confirmed. Because I'd never been to the area and had wanted to for >20 years, I jumped at the chance. Pete had assembled a team of mostly dipterists, including Andrew Baker and two students from the University of Queensland (all, like Pete, interested in chironomid midges) and a UCD postdoctoral scientist working on scale insects. The latter, Takumasa ("Demien") Kondo, had a unique background, being a Japanese citizen raised in Colombia, and with most of his academic training in Japan and the USA. Because of his time in Colombia, Demien spoke fluent Spanish, a bonus for all of us gringos. The end result was a truly international team, and one whose common goals and collecting strategies led to a fantastic trip. As such, it's difficult to summarize in just a few paragraphs… but I'll try:

We arrived at the Santiago airport the morning of 1 October, most of us after overnight flights from the US or Australia (although two team members had been in Peru so flew in from Lima). Despite the potential for logistical problems and delays, we all were ready to leave Santiago by early afternoon. After loading our gear in a rental minibus we would soon nickname "Christina" (recall Steven King novel and 1983 movie with similar moniker?), we headed south. Our destination was Pucon, Chile, a popular tourist town approximately 700km south of Santiago. We arrived in Pucon the afternoon of 2 October and checked into a comfortable guesthouse w/ 4 bedrooms, 2 baths, a full kitchen, and all the amenities of home. This would be our base camp for the next 6 days. Pucon sits on the east end of beautiful Lago Villarrica and below a spectacular, active volcano (Volcan Villarrica).

Volcan Villarica

From Pucon we visited numerous streams around the lake and volcano. Among the highlights were the many waterfalls (e.g., Salto el Leon), southern beech (*Nothofagus*) forests, morning runs along Lago

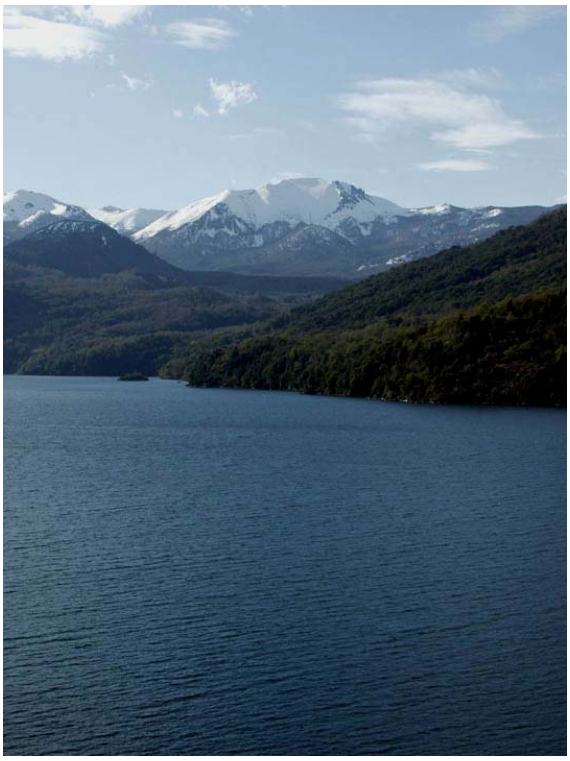
Villarrica, and some outstanding food & wine. And the collecting wasn't half bad, with many streams containing huge numbers of net-winged midges (Blephariceridae), including several new species and a probable new genus. Given the time of year (i.e., much earlier than known records) and the low reported richness of blephariceridae from all of Patagonia (11 described species), I was surprised to find at least 12 morphospecies in streams around Pucon and many streams with high levels of sympatry (e.g., 4-7 morphospecies of Blephs). Other collecting highlights were a handful of larval Tanyderidae, larval Thaumaleidae that presumably belong to the genus *Niphta*, and at least one family of aquatic insects I'd not seen previously (e.g., Plecoptera: Diamphipnoidae) and several "new" (to me) genera of families I'd seen only a few times (e.g., Ephemeroptera: Ameletopsidae: *Chiloporter*; Plecoptera: Austroperlidae: *Klapopteryx*, Eustheniidae: *Neuroperla*).

Salto El Leon

From Pucon we traveled southeast over Paso Mahuil Malal and into Argentina. The pass was one of the most interesting areas on the trip, partly because of the abrupt vegetational transition from the mesic Chilean side (mostly *Nothofagus* forests) to the xeric Argentinean side (mostly shrubs and steppe/grasslands). Sandwiched between these was a narrow band of *Araucaria* (Monkey Puzzle Tree) forests. *Araucaria* is a bizarre conifer native to the southern Andes, eastern Australia, New Caledonia, and a few other parts of the southern hemisphere (i.e., Gondwanian range). As is apparent from my "Lanin plate" (see link below), Monkey Puzzle Trees were one of my favorite photographic subjects, the other being Volcan Lanin.

Volcan Lanin

This spectacular mountain straddles the Chilean and Argentinean border and is the centerpiece of the largest park in the area, Parque Nacional Lanin. As we continued down from the pass and into the plains, we spotted a couple large birds off in the distance. Because we had for several days been on the lookout for Andean Condors, we pulled off the road and pulled out the binoculars. Meanwhile the "couple" birds had multiplied into seven or eight, then eventually nearly 20. And they were indeed condors, having been attracted a couple dead animals (probably cattle) off in the distance. Much to our surprise, a half dozen of these spectacular birds started drifting toward us and soon were directly in front of the van. I regretted not having a telephoto lens but still capture a few images (e.g., see inset of Lanin plate). This sighting was one of the major highlights of the trip.

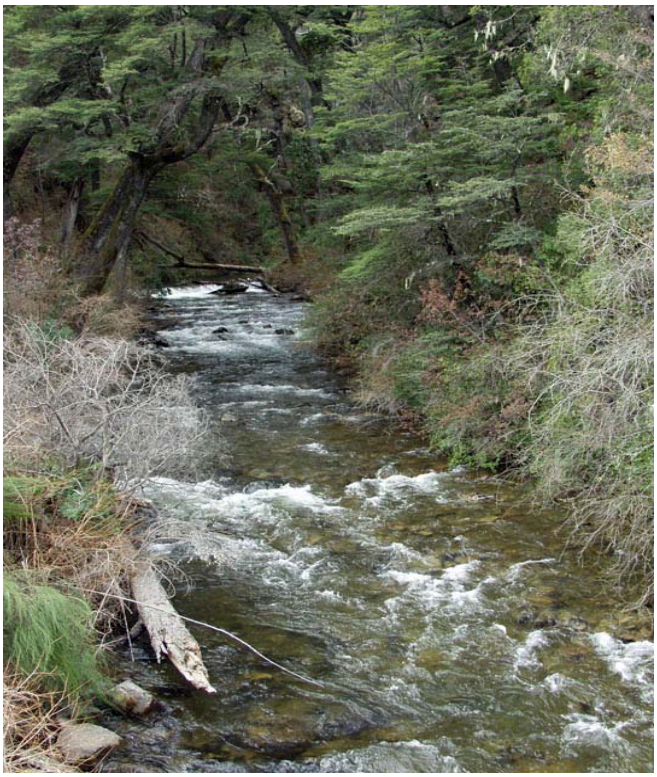


Lago Lacar

Our second base camp was San Martin de los Andes, Argentina, another tourist destination. Like Pucon, San Martin sits on a beautiful lake (Lago Lacar) and is surrounded by mountains. Our accommodations for the brief visit (3 nights) were excellent, comprising adjacent duplexes that resembled a chalet in the Alps (see image on “San Martin area plate”). In fact, much of the town resembled a village in Austria or Switzerland. From San Martin, we made side trips to Paso Hua Hum and Arroyo

Partido, the latter a pair of streams that converge, flow together for a short distance (100 meters?), then split into two branches, each entering a different drainage basin. Very odd hydrological phenomenon! We devoted most of the last day to the “Traful loop”, a long drive on mostly gravel roads, through dense *Nothofagus* forests, across cold torrential streams, and along several spectacular lakes. Despite the scenery, the drive was somewhat stressful because of several steep & slippery roads, the latter caused by the day's frequent rain and snow. And, as in Pucon, the food and wine was outstanding.

The last couple days included the long return trip to Santiago and some “unique” accommodations. [In fact, the guesthouse in Los Angeles was quite nice, once we found it! I best say nothing about our accommodations in Santiago.] For me the highlight of the return was a brief stop at Rio Quino, a mid-sized river near Victoria, where Bill Shepard had in 2000 collected some very odd blephariceridlarvae. Despite our visit being quite early in the season (i.e., their equivalent to our April), I collected several young larvae of this unusual fly which, based on both morphological and molecular data, appears to be new genus! In addition, the site yielded at least four other species, most/all probably new. Other highlights included a delicious lunch at Bodega Miguel Torres Winery, a spectacular waterfall (Salto del Laja), and a productive visit to Reserva Nacional Rio Clarillo (latter <50K from the outskirts of Santiago). All-n-all, an excellent introduction to Patagonia and myriad incentives to return in the future.



Arroyo Quilanlahue (Hua Hum road)

Last but not least, I captured nearly 500 images during the trip. I will refrain from inundating you with too many of these, "limiting" myself to just a few plates:

Pucon area plate
(http://www.ent.iastate.edu/scratch/files/Pucon%20area%20plate.jpg)
Top row: Volcan Villarrica, bridge to Huelque, lizard @ Rio Correntoso; 2nd row: Volcan Villarrica & Rio Quilque, Rio Palguin, Salto el Leon, Rio Correntoso; [inset = Lapwing] 3rd row: volcano warning sign in Pucon, "Fuschia Creek"; Llamma (image by Demien); Rio Correntoso; bottom row: Pucon & Volcan Villarrica, Andrew & Pete @ Rio Palguin; Volcan Villarrica (view from guest house).

Lanin plate
(http://www.ent.iastate.edu/scratch/files/Lanin%20plate.jpg)
Top row: Volcan Lanin from Chile side, Lago Quileihue @ Mamuil Malal; 2nd row: "Highway" @ Mamuil Malal, *Araucaria*, *Araucaria* looking up, Lanin @ Mamuil Malal; [inset = Andean Condor] 3rd row: Volcan Lanin & *Araucaria*; *Araucaria* trunk; *Araucaria* branches; Arroyo Correntoso; bottom row: Volcan Lanin (3 images, all from Argentina side).

San Martin area plate
(http://www.ent.iastate.edu/scratch/files/San%20Martin%20area%20plate.jpg)
Top row: Rio Traful near Confluencia, outcrops along Rio Traful, Lanin National Park information center in San Martin; 2nd row: Arroyo Quechuquina, San Martin de los Andes, guest house in San Martin, Arroyo Quilanlahue; 3rd row: Arroyo Partido, Salto Vulignanco, Lago Lacar, Lago Traful; bottom row: "Highway" 63 toward Paso del Cordoba, Lago Traful (2 images).

Miscellaneous images
(http://www.ent.iastate.edu/scratch/files/Miscellaneous%20plate.jpg)
Top row: Miquel Torres Winery Shop, Soil layers on road to PN Huerquehue, weevil (image by Demien); 2nd row: blepharicerid larva (new genus #1), ground beetle (image by Demien), blepharicerid (*Edwardsina*) pupae, Searching for blepharicerids @ Estero Correntoso (image by Pete), blepharicerid larva (new genus #2); 3rd row: Salto del Laja, Demien looking at scale insects, Rio Quino, Rio Clarillo; bottom row: Miquel Torres Winery, Salto del Laja, lunch @ Miquel Torres.

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BOOKS AND PUBLICATIONS

Note from the editor: I accumulate the various citations to list here by scanning through the Zoological Record. Note, many of the papers in the list are from Zootaxa – this is reflection of the fact that the majority of papers on Diptera seem to be published in Zootaxa – not due to my own biases! In any case, I am bound to miss some of the things you might want to see, so by all means, please send me citations for papers (your own or those of others) that you would like to see here! I am happy to include them! As a generality, I try to keep the focus either broad-based (e.g., large treatises), of general interest, or specific to the Nearctic (or at least New World) fauna. Many more papers would be included if revisions of Old World groups were included.

Barnes, J.K. 2008. Review of the genus *Ceraturgus* Wiedemann (Diptera: Asilidae) in North America north of Mexico. Zootaxa 1766: 1-45. (http://www.mapress.com/Zootaxa/2008/f/zt01766p045.pdf)

Beutel, R.G., & E. Baum. 2008. A longstanding entomological problem finally solved? Head morphology of *Nannochorista* (Mecoptera, Insecta) and possible phylogenetic implications. Journal of Zoological Systematics and Evolutionary Research 46(4), 346–367

Beutel, R.G., F. Friedrich, M.F. Whiting. 2008. Head morphology of *Caurinus* (Boreidae, Mecoptera) and its phylogenetic implications. Arthropod Structure and Development 37(5): 418-433

Borkent, A. 2008. The Frog-Biting Midges of the World (Corethrellidae: Diptera). Zootaxa 1804: 1-456.

Cheng, X.-Y., & F.C. Thompson. 2008. A generic conspectus of the Microdontinae (Diptera: Syrphidae) with the description of two new genera from Africa and China. Zootaxa 1879: 21-48. (http://www.mapress.com/Zootaxa/2008/f/zt01879p048.pdf)

Condon, M., D.C. Adams, D. Bann, K. Flaherty, J. Gammons, J. Johnson, M.L. Lewis, S. Marsteller, S.J. Scheffer, F. Serna, & S. Swensen. 2008. Uncovering tropical diversity: six sympatric cryptic species of *Blepharoneura* (Diptera: Tephritidae) in flowers of *Gurania spinulosa* (Cucurbitaceae) in eastern Ecuador. Biological Journal of the Linnean Society 93(4): 779-797.

Condon, M.A., S.J. Scheffer, M.L. Lewis, & S.M. Swensen. 2008. Hidden Neotropical diversity: greater than the sum of its parts. Science 320(5878): 928-931.

Dale, P.E.R., & J.M. Knight. 2008. Wetlands and mosquitoes: a review. Wetlands Ecology and Management 16(4): 255-276.

Dennis, D.S., J.K. Barnes, & L. Knutson. 2008. Pupal cases of Nearctic robber flies (Diptera: Asilidae). Zootaxa 1868: 1-98. (http://www.mapress.com/Zootaxa/2008/f/zt01868p098.pdf)

Enserink, M. 2008. A mosquito goes global. Science 320(5878): 864-866.

Evenhuis, N.L., J.E. O'Hara. 2008. The status of Mesnil's 1949 *Die Fliegen* genus-group names (Diptera: Tachinidae). Zootaxa 1827: 65-68.

Fonseca Mendes, H., & T. Andersen. 2008. A review of *Antillocladius* Sæther and *Litocladius* Mendes, Andersen *et* Sæther, with the description of two new Neotropical genera (Diptera, Chironomidae, Orthocladiinae). Zootaxa 1887: 1-75. (http://www.mapress.com/Zootaxa/2008/f/zt01887p075.pdf)

Foster, G.A., & W.N. Mathis. 2008. Review of the genus *Tethina* Haliday (Diptera: Canacidae: Tethininae) from western North America. Proceedings of the Entomological Society of Washington 110(2): 300-330.

Hanson, H.A., & R.H.L. Disney. 2008. An aquatic scuttle fly (Diptera: Phoridae). Antenna 32(2): 107-112.

Hernandez, L.M., A.J. Shelley, A.P. Andrade de Luna Dias, & M. Maia-Herzog. 2008. Review of the Neotropical blackfly subgenus *Chirostilbia* Enderlein (Diptera: Simuliidae) based on adults and pupal morphology. Zootaxa 1834: 1-100.

Huerta, H., & S. Ibanez-Bernal. 2008. The family Lygistorrhinidae (Diptera: Sciaroidea) in Mexico and the description of two new species. Zootaxa 1808: 44-52.

I.C.Z.N. 2008. Comments on the proposed conservation of the usage of the generic name of *Drosophila* Fallén, 1823 (Insecta, Diptera) (Case 3407; see BZN 64: 238–242). Bulletin of Zoological Nomenclature 65(1): 55–57. (1) Andrew Polaszek; (2) Amir Yassin; (3) V. Sidorenko.

I.C.Z.N. 2008. Comments on the proposed conservation of usage of *Drosophila* Fallén, 1823 (Insecta, Diptera) (Case 3407; see BZN 64: 238–242). Bulletin of Zoological Nomenclature 65(2): 137-150. (1) Stéphane R. Prigent; (2) F. Christian Thompson, Neal L. Evenhuis, Thomas Pape, Adrian C. Pont; (3) Patrick M. O'Grady, Michael Ashburner, Sergio Castrezana, Rob DeSalle, Kenneth Y. Kaneshiro, Richard T. Lapoint, Karl N. Magnacca, Therese A. Markow, Bryant F. McAllister, Alfredo Ruíz, Carlos R. Vilela, Francisca C. do Val; (4) Pavel Štys; (5) Stephen D. Gaimari; (6) Shane F. McEvey, Michele Schiffer, Jean-Luc Da Lage, Jean R. David, Françoise Lemeunier, Dominique Joly, Pierre Capy, Marie-Louise Cariou.

I.C.Z.N. 2008. Comments on the proposed conservation of the usage of the generic name of *Drosophila* Fallén, 1823 (Insecta, Diptera) by fixation of *Drosophila melanogaster* Meigen, 1830 as type species. (Case 3407; see BZN 64: 238–242). Bulletin of Zoological Nomenclature 65(3): 214-215. (1) Hans Silfverberg; (2) Yves Roisin.

Mathis, W.N. 2008. Two new neotropical genera of the shore-fly tribe Ephydrini Zetterstedt (Diptera: Ephydridae). Zootaxa 1874: 1-15. (http://www.mapress.com/Zootaxa/2008/f/zt01874p015.pdf)

Mazzon, L., A. Piscedda, M. Simonato, I. Martinez-Sanudo, A. Squartin, & V. Girolami. 2008. Presence of specific symbiotic bacteria in flies of the subfamily Tephritinae (Diptera Tephritidae) and their phylogenetic relationships: proposal of 'Candidatus Stammerula tephritidis'. International Journal of Systematic and Evolutionary Microbiology 58(6): 1277-1287.

O'Grady, P., & R. DeSalle. 2008. Out of Hawaii: the origin and biogeography of the genus *Scaptomyza* (Diptera: Drosophilidae). Biology Letters 4(2): 195-199.

Pape, T., K. Szpila, & F.C. Thompson. 2008. What's in a frog stomach? Solving a 150-year-old mystery (Diptera: Calliphoridae). Systematic Entomology 33(3): 548-551.

Perez-Gelabert, D.E. 2008. Arthropods of Hispaniola (Dominican Republic and Haiti): A checklist and bibliography. Zootaxa 1831: 1-530.

Reinert, J.F., R.E. Harbach, & I.J. Kitching. 2008. Phylogeny and classification of *Ochlerotatus* and allied taxa (Diptera: Culicidae: Aedini) based on morphological data from all life stages. Zoological Journal of the Linnean Society 153(1): 29-114.

Rohfritsch, O. 2008. Plants, gall midges, and fungi: a three-component system. Entomologia Experimentalis et Applicata 128(1): 208-216.

Sinclair, B.J. 2008. The systematics of New World *Clinocera* Meigen (Diptera: Empididae: Clinocerinae). NRC Research Press, Ottawa. viii + 245 pp. (order at NRC website: http://pubs.nrc-cnrc.gc.ca/eng/books/books/9780660198002.html)

Sinclair, B.J., S.E. Brooks, & J.M. Cumming. 2008. A critical review of the world catalogs of Empidoidea (Insecta: Diptera) by Yang et al. (2006, 2007). Zootaxa 1846: 61-68. (http://www.mapress.com/Zootaxa/2008/f/zt01846p068.pdf)

Smith, P.T., & B.V. Brown. 2008. Utility of DNA sequences for inferring phylogenetic relationships and associating morphologically dissimilar males and females of the bee-killing flies, genus *Melaloncha* (Diptera: Phoridae). Annals of the Entomological Society of America 101(4): 713-721.

Turienzo, P., & Di Iorio, O. 2008. Insects found in birds' nests from Argentina: *Anumbius annumbi* (Vieillot, 1817) (Aves: Furnariidae). Zootaxa 1871: 1-55.

Zhang, K., D. Yang, & D. Ren. 2008. The first Middle Jurassic *Protobrachyceron* Handlirsch fly (Diptera: Brachycera: Protobrachyceridae) from Inner Mongolia (China). Zootaxa 1879: 61-64.

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