



FLY TIMES

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The scary events of this past month have had a profound impact on many of us. We extend our deepest sympathies to all of our American friends who were affected by the horrific bombings in New York and Washington DC.

This issue of the *Fly Times* includes our regular fare of reports, from meetings to recent publications. Our contributions have dropped off in number so please remember that we need your input to keep this newsletter healthy.

As indicated in other issues, this newsletter is also available through the ECORC website as follows:
<http://res2.agr.ca/ecorc/program2/entomology/flytimes/flytime.htm>

A variety of other Diptera links, including a number of newsletters restricted to a particular family, are available at: <http://res2.agr.ca/ecorc/cnc/diptera.htm>

The *Directory of North American Dipterists* is in the process of being updated and can be accessed at the following address: <http://res2.agr.ca/ecorc/program2/entomology/diptera/dipteras.htm>

Issue No. 28 of the *Fly Times* will appear next April as both hard copy (for those of you without Internet access) and on the Web. If possible, please send either editor your contributions by email, or on disc; electronic contributions make putting the *Fly Times* together much faster. Those of you with hard copy contributions (last possible choice) may fax, or mail your message to Art Borkent at the above listed address. All contributions for Issue No. 28 should be sent by the end of March, 2002.

NEWS

NADS Meetings in San Diego, at ESA, December, 9-13, 2001

by Brian Brown

The traditional meeting of the North American Dipterists' Society will be held on the evening of Tuesday, 11 December in conjunction with the Annual Meeting of the Entomological Society of America in San Diego, California. The meeting will consist of a mixture of presented talks, announcements, and discussions of ongoing dipterological projects. It will be followed by a lively debate on all of the above at a yet to be named drinking establishment. At least the following talks will be presented:

J. E. O'Hara. Review and phylogenetics of the Polideini, a remarkably diverse tribe of Tachinidae.

C. R. Nelson. Flies on the Grand Staircase: collecting on the Colorado Plateau of southern Utah.

B.V. Brown. Characterization of an assemblage of parasitic bee-killing flies, genus *Melaloncha* (Phoridae).

If you have further items to add to the program, please contact the organizer, Brian Brown.

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A Flash from the Past

from Neal Evenhuis

Bishop Museum, 1525 Bernice Street, P.O. Box 19000A, Honolulu, Hawaii, 96817 0916, USA.

Here is a photo of a swarm of dipterists that gathered at the 1995 NADS meetings in Costa Rica with a key to their identification:



Front Row, Kneeling (L to R): Marion Kotrba, Guy Bush, Frank French, Gregory Forbes, Hannah Nadel, Chen Young, Rob Canning, Brian Brown, Marti Condon, Manuel Zumbado, Elke Buschbeck, Greg Dahlem.
Second Row, Standing (L to R): Neal Evenhuis, ??, Donald Webb, Monty Wood, Riley Nelson, Eric Fisher, Mark Metz, Al Norrbom, Sturgis McKeever, Jeff Cumming, Larry Quate, Dick Vockeroth, Thomas Pape, John Burger, Donald Feener, Steve Marshall.

Lots of Lauxanioidea

from Allen Norrbom

Systematic Entomology Lab., ARS, USDA, Smithsonian Institution, Washington, D.C.

The USNM collections of Lauxanioidea (Lauxaniidae, Celyphidae, and Chamaemyiidae), including type specimens, have been sent on a long-term, off-site enhancement loan to Steve Gaimari at the California Department of Food and Agriculture. Steve will curate these families, and all requests for loans, returns of borrowed material, and associated correspondence should be sent to him. Loan paperwork will continue to be generated from the USNM. Steve's new contact information follows:

Dr. Stephen D. Gaimari
 Plant Pest Diagnostics Branch
 California Department of Food and Agriculture
 3294 Meadowview Road
 Sacramento, CA 95832, USA.

email: sgaimari@cdfa.ca.gov tel.: 916-262-1131 fax: 916-262-1190

Corpses, Flies and DNA

by Jeff Wells

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Dipterists may be interested to know that we are making some progress in accumulating the mitochondrial DNA sequence data needed to identify carrion fly eggs larvae likely to be collected during a death investigation in Canada or the USA. The Sarcophagidae and blow fly subfamily Chrysomyinae are done, and the work on greenbottles is near completion. A related problem, what to do when you find maggots but no corpse, was addressed by demonstrating that a human genotype can be recovered from maggot gut contents.

Wells, J.D. and F.A.H. Sperling. 2001. DNA-based identification of forensically important Chrysomyinae (Diptera: Calliphoridae). *Forensic Science International* 120:109-114.

Wells, J.D., F.A.H. Sperling and T. Pape. 2001. DNA-based identification and molecular systematics of forensically important Sarcophagidae. *Journal of Forensic Sciences* 46:1098-1102.

Wells, J.D., F.G. Intron, G. Di Vella, C.P. Campobasso, J. Hayes and F.A.H. Sperling. 2001. Human and insect mitochondrial DNA analysis from maggots. *Journal of Forensic Sciences* 46:685-687.

The 2001 Joint Meeting of the North American Dipterists' Society (NADS) and Biting Fly Workshop (BFW)

by Gregory A. Dahlem¹ And Frank E. French²

The North American Dipterist's Society and the Biting Fly Workshop held a joint meeting in Alpine, Texas from May 30 - June 4, 2001. Alpine is located in a beautiful mountainous area of southwestern Texas, in the vicinity of Big Bend National Park. Alpine is about a three-hour drive from the nearest major airport in Midland/Odessa. The rugged terrain, marked with numerous igneous rock formations, was mainly covered with dry scrub vegetation and a wide variety of cacti and agaves (many of which were in full bloom). Deer and pronghorn antelope were common and very visible in the area and javelinas (a type of wild pig) were definitely around, as we saw a dead one on the side of the road one morning. The weather was dry and hot.

We held our evening meetings at Sul Ross State University in Alpine. It was surprising to find this large and modern university in the heart of such a sparsely populated area. Our local host, Kazushige Yaguchi, was recruited by local professor Diane Wood. Attendance was rather low, when compared to other recent NADS/BFW meetings, but those that did come were treated to good food, interesting presentations, nice weather, and productive collecting. Some highlights of the talks presented were "Sarcophagidae associated with North American pitcher plants" by Greg Dahlem and "*Spiroplasma acteria* from Costa Rican Tabanids" by Kimberly Stewart. Of the several interesting and offbeat dining events, perhaps the greatest "find" was by Riley Nelson-The Shotgun Grill- with a freshly minted "Caution" ribbon and hand branded plywood sign.

and broad range of plenary speakers, symposia, sessions and workshops. We are also planning student prizes for oral and poster presentations and competitions in photography and illustration.

The committee is very encouraged by the level of interest in the Congress. Sally Brown, the Congress organiser has received over 200 expressions of interest to date.

The Committee is seeking assistance from those who would like to coordinate symposia or workshops. Please contact the Convenor of the Scientific Committee David Merritt (dmerritt@ento.uq.edu.au) if you would like to play such a role. Bookmark the Congress website www.uq.edu.au/entomology/dipterol/diptconf.html and check it from time to time as we update information there.

On behalf of the Organising Committee, we look forward to a great Congress in Brisbane and seeing you there from September 29-October 4, 2002.

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Biodiversity Resources Development Project - The Diptera of Central America

by Art Borkent
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There was another major meeting of the TWIG members on Aug. 10-11 in the Osa Peninsula, in the southwestern corner of Costa Rica. Our goal was to discuss progress in our seven year project to interpret the fauna of Costa Rica and to hear about developments in the growth and management of the collection at INBio (Instituto Nacional de Biodiversidad) in Santo Domingo. Some scientists arrived early for the meetings and numbers stayed after, to make use of the wonderful collection at INBio, as well as to complete field work.

After initially gathering at INBio, the entire party of over 30 people left on Aug. 9 in a convoy of vehicles. Due to roadblocks in Cartago, we needed to make a circuitous route around this city and didn't arrive at our destination until late at night. Our expected 7 hour journey turned into a 15 hour trip!. The people at the "Centro Juvenil Tropical" near Rincon on the eastern side of Osa Peninsula were wonderfully hospitable and we had excellent accommodation and food while we were there. The Centre is backed by second growth rainforest and the collecting for most of us was excellent. Here's a photo of most who attended:



Front Row, Kneeling (L to R): Greg Dahlem, Matthias Buck, Brian Brown, Alvaro Herrea, Valery Korneyev.

Second Row, Standing (L to R): Steve Marshall, Kevin Barber, Manuel Zumbado, Guillermo Chaverri, Graham Rotheray, Geoffrey Hancock, Larry Quate, Dick Vockeroth, Maria Marcos, Art Borkent, Jeff Cumming, Elvia Zumbado, Chris Thompson, Monty Wood, Norm Woodley, Elena Kameneva, Jeff Skevington, Vladimir Berezovski, Wayne Mathis, Dianne Mathis, John Vargas.

Here's a brief synopsis of conclusions and decisions made at the meetings:

- estimates were made for the number of figures that would be required for the final volume.
- final submissions for chapters dealing with families are to be submitted by the end of this year and introductory chapters are to be completed by the end of 2002.
- the book will be of a similar size to the Hymenoptera of Costa Rica. It will include about 12 color plates with family habitus, plus one color plate for genitalia parts.
- regarding terminology, the Manual of Nearctic Diptera will be followed, with some modifications concerning parts of the genitalia based on Sinclair (2000).
- the Mycetophilidae (Mycetophilioidea) will be broke into 5-6 families.
- the inclusion of subgenera or species groups in the family chapters are optional and dependent on the author's choice.
- some discussion was held about having a web version and about including some teaching aids, in order to expand the potential audience for the Manual.
- it was proposed and accepted that the title of the manual be changed from "Manual of the Diptera of Costa Rica" to "Manual of the Diptera of Central America"
- Manuel Zumbado gave an overview of the new space available for the collection in the new entomology facilities at INBio. The available space has doubled since last year and the Diptera collection is already in place, with each family having at least double the space formerly available. The MacGynley index for collection management was applied and a File Maker data base for this (each drawer is a record in the DB) is available. Another FM DB includes records for every taxon in each drawer. If a given taxon is present in two or more drawers, this will be evident in the DB (separate records for each of the drawers). These two data bases allow staff or visitors to print drawer and unit tray labels directly or to locate any taxon in the collection.

- About 15 malaise traps are running in various localities in the Costa Rica and the material is being sorted to morphospecies, avoiding long series of common species.
- Larger specimens from the samples are been mounted using the ethyl acetate method.
- The CPD unit is now in place and working.
- Participants were informed too about the existence of another File Maker DB for Diptera papers, mostly taxonomic, including more than 7000 records so far. Contributions from the participants and their institutions are welcome, especially of reprints and other publications dealing with the Neotropical fauna.
- The UBIs (Species Web Pages on the INBio webpage) were briefly discussed and participants were invited to contribute to this electronic publication format. Currently there are 142 species web pages or UBIs on Tabanidae which have been prepared for publication. Each will include a diagnosis, a habitus drawing and illustrated diagnostic characters, distribution, available biological information, etc. and a map of Costa Rica showing the collecting localities.
- The INBio's Associated Researcher status was announced and interested collaborators were invited to participate.
- Manuel Zumbado wrapped up the meeting by recognizing the major contribution being made to an understanding of biodiversity in Costa Rica, that we had made substantial progress so far and, finally, he thanked everyone for their participation. Upon the final signal, a vigorous discussion broke out concerning the earliest possibility for going out for beers.

The following is a list of attendants:

D. Monty Wood	(Canadian National Collection, Agriculture Canada, Ottawa)
Lawrence W. Quate	(Poway, California)
Art Borkent	(Royal British Columbia Museum, British Columbia)
Norman E. Woodley	(Systematic Entomology Laboratory, USDA, Washington DC)
Jeffrey M. Cumming	(Canadian National Collection, Agriculture Canada, Ottawa)
Brian V. Brown	(Los Angeles County Museum)
Stephen A. Marshall	(University of Guelph, Ontario)
Matthias Buck	(University of Guelph, Ontario)
John Vargas	(Organismo de Investigación Judicial)
Christian Thompson	(Systematic Entomology Laboratory, USDA, Washington DC)
Wayne Mathis	(Smithsonian Institution, Washington DC)
Geoffrey Hancock	(University of Glasgow, Scotland)
Graham E. Rotheray	(National Museum of Scotland, Scotland)
Valery Korneyev	(I. I. Schmalhausen Institute of Zoology, Ukraine)
Elena Kameneva	(I. I. Schmalhausen Institute of Zoology, Ukraine)
Jeffrey Skevington	(Canadian National Collection, Agriculture Canada, Ottawa)
Kevin N. Barber	(Canadian Forest Service, Ontario)
Richard Vockeroth	(Canadian National Collection, Agriculture Canada, Ottawa)
Gregory Dahlem	(Northern Kentucky University, Kentucky)
María A. Marcos	(Centro Iberoamericano de Biodiversidad, Alicante)
Evert Schlinger	(The World Spider-Parasitoid Research Laboratory, California)
Manuel Zumbado	(INBio, Santo Domingo)
Guillermo Chaverri	(INBio, Santo Domingo)
Elvia Zumbado	(INBio, Santo Domingo)
Alvaro Herrera V.	(INBio, Santo Domingo)

Dipterology Fund

by Terry Wheeler

Report on 2001 Grants Competition

Five applications for funding were received in the 2001 competition. The grants committee recommended three of these for support. Congratulations to this year's recipients:

Art Borkent (Enderby, British Columbia) received support for fieldwork in Western Australia in search of the ceratopogonid genus *Austroconops*.

Dan Hansen (University of Minnesota) collected specimens of *Axarus* (Chironomidae) in the southeastern United States for a revision of the genus.

Jade Savage (McGill University) travelled to Abisko National Park in Sweden to collect specimens of the muscid genus *Thricops* for phylogenetic analysis of their relationships.

Call for Applications - 2002 Grants Competition

Applications will be accepted for the 2002 competition of the Dipterology Fund until 01 March 2002. Up to four grants of CAN\$1000 each will be awarded. For details of eligibility and instructions, please see Fly Times Issue 25 (October 2000). Previous recipients of Dipterology Fund grants may submit applications for a second grant, as long as they are not in consecutive years, and not for the same project. Decisions on repeat funding will be at the discretion of the Grants Committee. Repeat applicants should note any previous Dipterology Fund grants on their application.

Dr. Terry A. Wheeler (Chair, Dipterology Fund)
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Books and Publications

- Bernasconi, M.V., C. Valsangiacomo, J.C. Piffaretti, P.I. Ward. 2000. Phylogenetic relationships among Muscoidea (Diptera: Calypttratae) based on mitochondrial DNA sequences. *Insect Molecular Biology* 9:67-74.
- Borkent, A. 2001. *Leptoconops* (Diptera: Ceratopogonidae): the earliest extant lineage of biting midge,

- discovered in 120-122 million-year-old Lebanese amber. *American Museum Novitates* 3328:1-11.
- Borkent, A. and G.R. Spinelli. 2000. Catalog of the New World biting midges south of the United States of America (Diptera: Ceratopogonidae). *Contributions on Entomology International* 4 (1):1-107.
- Brake, I. 2000. Phylogenetic systematics of the Milichiidae (Diptera, Schizophora). *Entomologica Scandinavica*, Supplement 57:1-120.
- Contributions to a Manual of Palaearctic Diptera (with special reference to flies of economic importance). Volume 1. General and Applied Dipterology. 2000. Eds. L. Papp and B. Darvas. Science Herald, Budapest, Hungary. 976 pp. 140 GBP (British Pounds), = 202.95 US, \$304.42 CAN. There are 24 chapters in this volume: 4 on morphology, key to families of adults and larvae, the rest on various aspects of biology. The book is available from Pemberly Books (www.pembooks.demon.co.uk) and E.W. Classey.
- Deutsch, J.S. 2001. Are hexapoda members of the Crustacea? Evidence from comparative developmental genetics. *Annales de la Societe Entomologique de France* 37: 41-49.
- Katzourakis, A., A. Purvis, S. Azmeh, G. Rotheray and F. Gilbert. 2001. Macroevolution of hoverflies (Diptera: Syrphidae): The effect of using higher-level taxa in studies of biodiversity, and correlates of species richness. *Journal of Evolutionary Biology* 14:219-227.
- Larson, B.M.H., P.G. Kevan, and D.W. Inouye. 2001. Flies and flowers: taxonomic diversity of anthophiles and pollinators. *Canadian Entomologist* 133:439-465.
- Moulton, J.K. 2000. Molecular sequence data resolves basal divergences within Simuliidae (Diptera). *Systematic Entomology* 25:95-113.
- Ovtshinnikova, O.G. 2000. Male genital musculature of Vermileonidae (Diptera, Brachycera) and systematic position of the family. *Entomologicheskoe Obozrenie*.79:513-521.
- Palmer, P.M., O.G. Ovtshinnikova and D.K. Yeates. 2000. Male genitalia of *Exeretonevra* Macquart (Diptera: Xylophagidae): Structure, function and phylogenetic implications. *Australian Journal of Entomology* 39:270-274.
- Papp, L. and W.N. Mathis. 2001. A review of the family Nannodastiidae (Diptera). *Proceedings of the Entomological Society of Washington* 103:337-348.
- Ratti, E. 2000. Enrico Catalogue of the Diptera types in the Museo civico di Storia Naturale di Venezia (Venice, Italy). *Bollettino del Museo Civico di Storia Naturale di Venezia*. 50:31-59.
- Rokas, J. Kathirithamby, and P.W.H. Holland. 1999. Intron insertion as a phylogenetic character: The engrailed homeobox of Strepsiptera does not indicate affinity with Diptera. *Insect Molecular Biology* 8: 527-530.
- Rozkošný, R. and J. Vanhara. 1998. Diptera of the Pálava Biosphere Reserve of UNESCO, I. FOLIA, *Biologia* 99, 219 pp. [Appendix 1 & 2]
- Saether, O.A. Phylogeny of Culicomorpha (Diptera). *Systematic Entomology* 25:223-234.
- Thien. L.B., H. Azuma and S. Kawano. 2000. New perspectives on the pollination biology of basal angiosperms. *International Journal of Plant Sciences* 161:225-235.
- Wheeler, T.A. 2000. Systematics of *Mallochianomyia Santos Neto* (= *Gayomyia* Malloch), an unplaced genus of Neotropical acalyptrate flies (Diptera: Schizophora). *Insect Systematics and Evolution* 31:209-224.
- Wiegmann, B.M., S.C. Tsaur, D.W. Webb, D.K. Yeates, B.K. Cassel. 2000. Monophyly and relationships of the Tabanomorpha (Diptera: Brachycera) based on 28S ribosomal gene sequences. *Annals of the Entomological Society of America* 93:1031-1038.

Submission Form for Directory of North American Dipterists

For those who have not yet sent in a synopsis of their interests for the *Directory of North American Dipterists*, the following form is provided. Please restrict yourselves to no more than 20 words when listing the titles of your major projects and the animals you work with. Should any of you like to expand or modify your entries from the last list, use the form to indicate the changes.

The information can be emailed, or the form completed and faxed or sent to the following address:

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Systematic Entomology Program, ECORC
Agriculture & Agri-Food Canada,
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Email: cummingjm@em.agr.ca

Full name: _____ **Address:** _____

_____ **Telephone Number:** _____

FAX Number: _____ **Email:** _____

Projects and taxa studied: _____
