



FLY TIMES

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As you all know, the electronic version of the *Fly Times* has moved from its previous location to the new North American Dipterists Society website at <http://www.nadsdiptera.org/News/FlyTimes/Flyhome.htm>. We will, of course, continue to provide hard copies of the *Fly Times* to those without web access. We would greatly appreciate your independent contributions to this newsletter. We need more reports on trips, collections, methods, etc. Feel free to share your opinions about what is happening in your arena or ideas on how to improve the site. And please send any references which you think may be of interest to your fellow Dipterists.

Our new Diptera website at www.nadsdiptera.org has been very favourably received. It has a variety of other interesting links, including those to a number of newsletters restricted to a particular family, type catalogs, and field meetings. Have a look!

The *Directory of North American Dipterists* has recently been updated and is also available at the above website. Please check your current entry and send all corrections to Jeff Cumming.

Issue No. 33 of the *Fly Times* will appear next October 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. 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. 33 should be sent by the end of September, 2004.

NEWS

Informal Conference of Dipterists - 2004 Annual Meeting of the Entomological Society of America

by C. Riley Nelson

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Come to the Entomological Society of America Annual Meetings in Salt Lake City, Utah from 14 - 17 November 2004. We will be having an informal conference for Dipterists, probably Tuesday evening, 16 November 2004. If you would like to present something in this meeting please let me know. I may be contacting you in any case. Aside from the address above, you can reach me by phone: 801-422-1345.



View from the top of Mount Timpanogos (3580m)
which overlooks the meeting site



Cyrtopogon auratus (Asilidae) with *Docosia* sp.
(Mycetophilidae) prey from Mount Timpanogos

XXII International Congress of Entomology Brisbane, Australia, 15-21 August 2004

There will be a major symposium on Diptera (Symposium Section 15) organized by David Yeates and Thomas Pape called "Global Goals & Collaboration: Diptera In The 21st Century" with the following included presentations:

1. FLYTREE: Cooperative Research in Phylogenetics and Bioinformatics
Towards a Dipteran Tree of Life: Wiegmann, Meier et al.
2. Diptera Systematics on the Web: Thompson, Evenhuis
3. Rewards and Challenges of Global, Collaborative Taxonomy: The Paradigm Shift Offered by PEET: Lambkin, Irwin et al.

4. Molecular Markers in Identification: Lessons from Tephritidae:
Armstrong, Roderick
5. DNA Taxonomy and DNA Identification in Diptera: Fuzzy Barcodes and
Failing Identification Trees: Meier, Shiyang, Vaidya and Ng
6. On-The-Fly: An Interactive Identification Key To Australian Fly
Families: Hamilton, Marshall, Yeates et al.
7. Comparative Genomics of Diptera: Mining Data Resources from Genbank to
Flybase: Moulton, Wiegmann
8. Successes and Snags of Continental Island Arthropod Inventories: Case
Studies in New Caledonia, Madagascar, and Fiji: Schlinger, Irwin et al.
9. European Diptera Diversity and Initiatives: Pape

In addition, there are a few other symposia which deal with specific groups of Diptera or include them as part of a guild. Here are some examples:

- Biting Simuliidae: Implications Of Phylogeny For Medically Important Flies
- Mosquito Olfaction: Lab Based Behaviour & Physiology Of Host Kairomones & Oviposition Stimulants
- Biology & Ecology Of Gall-Inducing Insects
- Novel Surveillance & Control Strategies For Mosquito Borne Disease
- The Yellow Fever Mosquito: An Old & A New Foe

For more details see the Congress web site at <http://www.ccm.com.au/icoe/index.html>

North American Dipterists Society, 2005 Field Meeting

by Greg Courtney

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The next NADS field meeting is tentatively scheduled for August, 2005, at Malheur Field Station in southeastern Oregon. The station is approximately 40 miles south of Burns, Oregon, adjacent to Malheur National Wildlife Refuge (<http://pacific.fws.gov/malheur/>), and a short drive from Steens Mountain (<http://www.or.blm.gov/steens/>). The area contains a wide range of terrestrial and wetland habitats, including sagebrush- and greasewood flats, aspen- and alpine meadows, cattail marshes, lowland (approx. 1200m) reservoirs, alpine lakes, cold- and hot springs, a large river, and numerous streams. Steens Mountain, with a maximum altitude exceeding 2900m, is especially rich in alpine meadows, coldwater springs, and snowfed streams and wetlands. Patches of snow typically persist throughout the summer, especially on north-facing slopes and in the many glacially-carved valleys. The latter (e.g., Kiger Gorge, Little Blitzen Gorge, Big Indian Gorge) are among many spectacular scenes on Steens Mountain. The mountain also is known for its unusual plant and animal communities, including several endemic or disjunct taxa. To the east of Steens Mountain and readily visible from East Rim is the low-lying Alvord Desert. The flat, vegetation-free ancient playa is in a geothermally active region that

contains many hot springs. The Alvord Basin, which could be reached easily on a day trip from Malheur Field Station, contains several other destinations (e.g., Pike Creek, Borax Lake, and Cottonwood Creek) that might be of interest to meeting participants. The wide range of habitats and altitudes should provide a variety of opportunities for collecting Diptera. Because of proximity to Malheur Wildlife Refuge, Steens Mountain, and the Alvord Basin, Malheur Field Station is an ideal location for a NADS meeting, partly. The station, a converted Civilian Conservation Corps facility, supports several summer college courses in the biological sciences, and has several dormitories, classrooms, and research laboratories. Meal plans also will be available. Alternatively, there are several campgrounds (CG) in the area, including Page Springs CG near Frenchglen, and Fish Lake CG and Jackman Park CG on Steens Mountain. For images of the area, please see the following URL (i.e., paragraphs 4 and 5, and links therein): <http://www.ent.iastate.edu/fieldtrips/pn2002/>

In case you are a new member of NADS or a member unfamiliar with NADS field meetings, these gatherings are held every two years at different venues in North America. Meetings provide an excellent opportunity for a small group of Dipterists (usually 30-50) to collect flies in an interesting location, and to exchange ideas during informal oral and poster presentations.

International Congress of Dipterology - 2006

It is not too early to be thinking about attending the ICD6 in Fukuoka, Japan. Specific dates have not yet been set. More information on Dipterological congresses is available on our website at <http://www.nadsdiptera.org/ICD/ICDhome.htm>

Diptera Data Dissemination Disk, Volume 2

by Allen L. Norrbom & F. Christian Thompson
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At long last, the second volume of the Diptera Data Dissemination Disk has been published. The official publication date was 29 March 2004 and copies have been sent out to some 160 leading dipterists worldwide. A limited number of copies are still available from the Systematic Entomology Laboratory.

This volume contains an archive version of various Diptera Websites, including Jim O'Hara's Tachinidae Resource Website, Mike Irwin & Gail Kampmeier's Stiletto Fly Website and the Diptera Web site. Databases include Kevin's Holstein's Systematic Database of Therevidae names, Allen Norrbom's Host plant database for *Anastrepha* and *Toxotrypana* (Diptera: Tephritidae), John Strazanac's Electronic database and revision of Arnaud's Host-Parasite catalog of North American Tachinidae, and new versions of the Dipterists' Directory and BioSystematic Database of World Diptera. A new Window's based version (INTKEY) of the Pest fruit flies of the World is included and Allen Norrbom

provides updates to his Tephritidae database through 1999. Finally, a special treat is Gail Kampmeier's MANDALA, a database system for systematics and biodiversity studies.

We plan to maintain a regular schedule now. So, if you have digital works about flies (Diptera) that you want published let us know. Our next volume will be issued as soon as sufficient new material is received or by the latest, March 2005.

Neotropical Diptera at Utah State University

by D.J. Bickel

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I would like to alert Dipterists to the existence of a large and significant collection of Neotropical Diptera at Utah State University, Logan. This collection has been overlooked and little publicised, but it has more unsorted Neotropical material than many well-known North American institutions.

I first became aware of this collection during a conversation with Frank Parker, a retired Utah State bee taxonomist, who was returning from a collecting trip in Western Australia. When I told him of my interest in Costa Rican Dolichopodidae, he told me that he had collected extensively in Costa Rica, and that all the specimens were deposited at Utah State, which had a very large Neotropical collection. This was news to me, as I thought I had seen most of the important collections.

So I wrote to Dr. Wilford Hanson, emeritus curator of the USU Collection, and he replied that several USU staff (primarily George Bohart, Frank Parker and Wilford Hanson) had collected many times in South and Central America, and as a result, USU had amassed a large Neotropical collection. The material was all mounted and sorted to family, and he estimated there was about 12-13,000 Dolichopodidae. There was no question, I had to visit.

So, last October, en route to the eastern U.S., I stopped at Salt Lake City, rented a car and drove up to Logan, Utah, about 1 ½ hours north of the airport. Logan is the principal city in the Cache Valley and adjoins National Forest in the Wasatch Range. I spent three days at the collection, more or less flat out, sorting Neotropical Dolichopodidae to subfamily or genus.

The specimens are nicely mounted, pinned or glued to sides of pins, and sorted to family in unit trays and Cornell drawers. They comprise mostly Malaise trap material from dry heads. The dry catches were layered in the field and brought back to Logan for subsequent mounting and labelling. I was particularly pleased to see a lot of tiny Dolichopodidae (less than 2.0 mm), suggesting that a fairly complete representation of the Malaise trap material had been mounted.

Will Hanson told me a collecting party would often stay for some two weeks in ecotourist hostels adjacent to unmodified habitat, and trap nearby. Many of the sites were visited repeatedly over the years at different seasons. The collection, roughly in order of decreasing abundance, comprises material from

sites in Costa Rica (much material), Brazil (Rondonia, Minas Gerais, & São Paulo), Ecuador, Mexico (several states) Belize, Honduras, Peru, Jamaica, and other countries. The Rondonia material (from seven collecting trips) is particularly valuable, not only because that state is rarely represented in collections (at least outside of Brazil), but Rondonia is undergoing rapid agricultural transformation and much of its natural habitat has disappeared.

Most of the USU material is from lowland sites (< 500 m), and while sorting I obtained a certain “feel” for what comprised the lowland dolichopodid fauna spread across much of Central and South America. Certainly I found this material quite different in generic composition to what I am used to seeing from say, Monteverde in Costa Rica.

My efforts were well rewarded. For example, in the Sciapodinae I borrowed, I have found three new Costa Rican species that weren’t represented in collections from INBio or elsewhere.

This is an important collection of Neotropical Diptera. It is mostly unsorted beyond family level, but if my experience with the Dolichopodidae is any indication, the USU collection is a gold mine. For families with large or medium sized holdings, I recommend a visit of one or two days for basic sorting, even extractive sorting, since sending large volumes is a heavy curatorial load on a small staff. And, a visit is certainly worthwhile since the personnel are most helpful and the adjacent ranges of northern Utah offer many opportunities for exploration.

For more information on the Utah State University Insect Collection, contact:

Dr. Carol D. von Dohlen, Director (cvond@biology.usu.edu)

Dr. Wilford J. Hanson, Professor Emeritus, Curator (insect@biology.usu.edu)

Mr. Colin Brammer (Ph. D. candidate), Graduate Assistant (flygene@biology.usu.edu)

The Black Flies (Simuliidae) of North America

A massive, superbly illustrated tome on the black flies of North America by Peter Adler, Doug Currie and Monty Wood was published by Cornell University Press and the Royal Ontario Museum in April 2004 (see entry in Books and Publications below). A book launching was held in Ottawa, with Adler



giving a departmental seminar to local and visiting entomologists on the current state of knowledge of this now very well known family of flies for the region.

Doug Currie, Peter Adler and Monty Wood at the Canadian National Collection of Insects in Ottawa, April 2004

Diptera from Kenya available for Systematic studies

by Bradley J. Sinclair

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For a number of years, colleagues of mine at Museum Koenig (ZFMK) have been involved in biodiversity surveys of Kakamega Forest in Kenya. This forest represents the eastern-most branch of the Guineo-Congolian rainforest block, situated at 1400 to 1700 m a.s.l. in western Kenya. The area has protected status as National Forest Reserve and includes both primary and secondary rainforest, as well as several isolated fragments. For more information on the site see: http://www.biota-africa.org/1024/biota_east/structure_east.htm.

Some of the Diptera from these surveys is now available for further study, collected primarily by malaise and coloured pan traps. The Diptera has been separated from other insects and is stored in ethanol. If you are interested in material from this locality, please contact me (b.sinclair.zfmk@uni-bonn.de) and we can discuss how to proceed. Some of the material is in poor condition, but there are long series available. Material includes a good range of calyptrates, acalyptrates, Syrphidae, Pipunculidae, some Dolichopodidae, Empididae s.l., Stratiomyidae, and misc. nematoceros Diptera.

Some recent papers that included material from past survey years include:

Brake, I. & Freidberg, A. (2003): Revision of *Desmometopa* Loew (*Litometopa* Sabrosky) (Diptera: Milichiidae), with descriptions of six new species. Proceedings of the Entomological Society of Washington 105: 265-282.

Scarborough, A.G. & Marascia, C.G. (2003): Revision of *Ommatius* Wiedemann (Diptera: Asilidae). IV. *Pygommatius* subgen. nov. with twenty-five Afrotropical species. Zootaxa 228: 1-94.

Biosystematic Database of World Diptera

by Irina Brake & F. Christian Thompson

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We are pleased to announce a major expansion of the BioSystematic Database of World Diptera. We have just uploaded version 6.1 of the Nomenclator and 3.0 of the Reference database. Go to: <http://www.sel.barc.usda.gov/Diptera/biosys.htm> This version went online in February and is available on volume 2 of the Diptera Data Dissemination Disk.

The *Nomenclator* now contains the basic information on 198,773 fly names, and the Reference database has 11,868 citations. While some fossil names are included and a few non-Diptera names, which once were applied to flies, the majority of names relates to extant flies of 151 families, 10,793 genera and 144,

383 species. See our status table: <http://www.sel.barc.usda.gov/Diptera/NAMES/bdwdstat.htm>

We have almost completed phase One, the capture of all names from secondary sources, such as the regional Diptera catalogs and the Zoological Record. Only some names of Bombyliidae and Sarcophagidae and from 2003 Zoological Record need to be added.

We hope to have another version online by June, completing phase One. Then the challenges will be the completion of the Reference database, building the Species Interface and to put online our tool set.

Also, the names information now is being distributed to specialists world-wide for review and revision. More than 60 international specialists are now working with us. See <http://www.sel.barc.usda.gov/Diptera/NAMES/BDWDpeop.HTM>

We expect to publish two volumes of the MYIA series in the coming year, one on mosquitoes produced by Rick Wilkerson and the Walter Reed BioSystematic Unit and a general volume including a diverse array of articles related to the BDWD.

So, if you want to check fly names, or know a little about flies, visit our Diptera WWW site. <http://www.sel.barc.usda.gov/Diptera/diptera.htm> or <http://www.diptera.org/>

Diptera from India

by Kumar Ghorpade

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I have a large collection of Diptera from the Indian sub-continent (110,000+ specimens). Specimens of families (or lower taxa) are on offer as a loan to specialists who may want to study them for identification and naming. Those interested are requested to contact me at the address above.

D.L. Deonier Collections and Library

The teaching and demonstration specimens used by Dr. D.L. Deonier in his classes at Miami University (Ohio), Itasca Field Biology Program of University of Minnesota, and the Department of Entomology, University of Florida (Gainesville) have been divided in a fashion between the Departments of Biology at Pittsburg State University and Emporia State University. The professional library of Deonier has been mostly deposited in the special collections and the university archives under the direction of Dr. Randy Roberts, Pittsburg State University Axe Library. The person receiving the material at the Emporia State University is Dr. John Richard Schrock, entomologist and professor of biology, Emporia State University, Emporia, Kansas. Announcements regarding the disposition of research specimens at the University of Minnesota Insect Collection, St. Paul have already been made in earlier issues of the *Fly Times*.

New Dipterist Curator in Sao Paulo

by Dalton S. Amorim

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This is to announce that Carlos Lamas is the new curator at the Diptera collection at the Museu de Zoologia in Sao Paulo. He has a Masters degree from the Museu Nacional in Rio, working with Marcia Couri, and his Ph.D. working with Nelson Papavero. He has published mainly on the Bombyliidae, but he will be in charge of the entire Diptera collection in Sao Paulo. The five members of the selection committee were unanimous in appointing him for the position. I am sure he will make his new e-mail available to all when he arrives officially at the Museum.

More Comings and Goings

Shaun Winterton has taken a permanent position at the California Department of Food and Agriculture in Sacramento to work with Steve Gaimari, Eric Fisher and Peter Hibbs Kerr. **Jade Savage** recently received her Ph.D from McGill University and has accepted a faculty position at Bishop's University in Lennoxville, Quebec, which she will start in July. **Scott Brooks** has just submitted his Ph.D. thesis at McGill and will be taking a permanent position in Ottawa to work with Jeff Cumming on Empidoidea. Further afield, rumour has it that **Thomas Pape** has accepted a position at the Zoologisk Museum in Copenhagen. Finally, **Art Borkent** has moved 20 km north to Salmon Arm (see address on front page), apparently in response to global warming.

Fly-By Dissection

From Mike Borkent (another F1 of Art Borkent's)

So there are three men practising sword fighting: an Hymenopterist, a Lepidopterist, and a Dipterist. They were all trying to show off to each other. A fly came into the room. The Hymenopterist said "Watch this," swung his sword and the fly fell in half onto the floor. The Lepidopterist said "Oh, yeah," and swung at another fly that was in the room, cutting it into four pieces. They felt they had both outdone the Dipterist, but he had to give it a try. The next fly came into the room, the Dipterist went swish-swish-swish, and the fly kept on flying. The Dipterist seemed proud of himself. The Hymenopterist and Lepidopterist said "Hey, why are you so happy? You didn't kill it!" But the Dipterist just smiled, leaned on his sword, and said "Oui, but he'll never mate, again!"

(the original nationalities have been changed to protect the culturally sensitive)

Graduate Assistantship: Biodiversity & Phylogenetics of Diptera

Full-year assistantship available to study the diversity and phylogenetic relationships of true flies (Diptera). The project is part of a massive National Science Foundation program called Assembling the Tree of Life. Research team includes entomologists, biologists, and geneticists from Iowa State University, North Carolina State University, Wayne State University, Australia's Commonwealth Scientific and Industrial Research Organization, the National University of Singapore, and several other collaborating institutions. Depending on interests and experience of applicant, the student will focus on the phylogenetics of lower Diptera (*aka* "Nematocera"). Competitive stipend, including summer support. Applications for either M.Sc. or Ph.D. accepted, Ph.D. preferred. Starting date summer or fall 2004.

For more details about the Tree of Life project, other research in the Courtney lab, and general information about the Department of Entomology and the Ecology & Evolutionary Biology interdepartmental graduate program, contact Greg Courtney, Department of Entomology, 3222 Science II, Iowa State University, Ames, Iowa, USA 50011; TEL 515-294-4017; FAX 515-294-5957; e-mail gwcourt@iastate.edu; website <http://www.ent.iastate.edu/dept/faculty/courtney.html>

Application forms for admission to the Graduate College are available at <http://www.grad-college.iastate.edu/forms/forms.html>. Also required are official GRE scores (including Biology subject test), official transcripts, three letters of recommendation, and a formal statement of research interests.

Books and Publications

(with thanks to Chris Borkent for completing a literature search)

- Adler, P.H., D.C. Currie and D.M. Wood. 2004. The black flies (Simuliidae) of North America. Cornell University Press, Ithaca. 941 pp. ISBN 0-8014-2498-4. US \$99.95 plus \$5.00 for postage and handling. Order from publisher at orderbook@cupserv.org or by fax at 1-800-688-2877 or by phone at 607-277-2211. This book treats each of the 255 species of black flies known from America north of Mexico, including 43 new species. The book is copiously illustrated with more than 1100 figures, including colour drawings of larvae and adult scutal patterns. Introductory chapters include history of research, techniques, morphology and cytology, economic impact and pest management, as well as phylogeny and classification.
- Blagoderov, V. and D. Grimaldi. 2004. Fossil Sciaroidea (Diptera) in Cretaceous ambers, exclusive of Cecidomyiidae, Sciaridae, and Keroplatidae. *American Museum Novitates* 3433:1-76.
- Brown, B.V. 2003. In memory of Laurence W. Quate (1925-2002). *Studia Dipterologica* 10:353-356.
- Chubareva, L.A. and N.A. Petrova. 2003. Karyotypes of blackflies (Diptera, Simuliidae) of the world fauna. *Entomologicheskoe Obozrenie* 82:157-222.
- Gagne, R.J. 2004. A catalog of the Cecidomyiidae (Diptera) of the world. *Memoirs of the Entomological Society of Washington* 25:1-408. US \$50.00 plus \$5.00 for postage and handling. Order from mpogue@sel.barc.usda.gov This catalog lists the 5,451 species and 598 genera of living and fossil Cecidomyiidae or gall midges of the world. It provides information

on species distribution, hosts, and types, and original and subsequent helpful references. Within subfamilies, genera are listed in alphabetical order, but each are cross referenced in an appendix where the genera are arranged in an annotated classification. One new species is named, many new names, new synonyms, and new combinations are proposed, and several type species are designated, all listed in a separate appendix. An index lists all names including hosts, with family given for plant hosts, family and order for animal hosts, and order for fungal hosts. One genus and 49 additional species have been added that were published since the manuscript went to the publisher. A yearly update on the web is planned.

- Geller-Grimm, F. 2003. Fotoatlas und Bestimmungsschlüssel der Raubfliegen Deutschlands/ Photographic atlas and identification key to the robber flies of Germany (Diptera: Asilidae). CD-ROM, Ampyx-Verlag, Halle (Saale), ISBN: 3-932795-18-0. 25.00 Euro. Order from publisher, Dr. A. Stark: stark@ampyx-verlag.de or by fax at 0049/345/5226726. This CD-ROM is in both German and English. The atlas contains more than 1900 photographs of 81 robber fly species. The identification key is applicable to all species of Asilidae found in Belgium, Denmark, Germany, United Kingdom, Netherlands, and Sweden.
- Grichanov, I.Y. 2004. Review of Afrotropical Dolichopodinae (Diptera: Dolichopodidae). St.Petersburg: VIZR RAAS, 2004. 244p. (Plant Protection News, Supplement). Can be ordered from author: grichanov@mail.ru or grichanov@hotmail.ru
- Laamanen, T.R., F.T. Petersen and R. Meier. 2003. Kelp flies and species concepts: The case of *Coelopa frigida* (Fabricius, 1805) and *C. nebularum* Aldrich, 1929 (Diptera: Coelopidae). Journal of Zoological Systematics and Evolutionary Research 41:127-136.
- Lambkin, C. L. and D.K. Yeates. 2003. Genes, morphology and agreement: Congruence in Australian anthracine bee flies (Diptera: Bombyliidae: Anthracinae). Invertebrate Systematics 17:161-184.
- Mohrig, W. 2003. Black fungus gnats of Central America. Part I. (Diptera, Sciaridae). Beitrage zur Entomologie 53:1-69. Includes discussion of zoogeographic affinities.
- O'Hara, J.E. and D.M. Wood. 2004. Catalogue of the Tachinidae (Diptera) of America north of Mexico. Memoirs on Entomology, International 18. 410 pp. This hardbound book is available from Associated Publishers for US \$75.00; e-mail assopubl@yahoo.com or visit <http://www.mapress.com/AP/index.html>
- Pollet, M.A.A. S.E.Brooks and J.M.Cumming. 2004. Catalog of the Dolichopodidae (Diptera) of America north of Mexico. Bulletin of the American Museum of Natural History 283: 1-114.
- Pratt, H.D. 2003. The winter crane flies of North America north of Mexico (Diptera: Trichoceridae). Proceedings of the Entomological Society of Washington 105(4):901-914. Includes a key to 28 species, drawings of male genitalia, and distribution data; 17 species occur in Canada.
- Savage, J. 2003. Revision of the genus *Thricops* Rondani (Diptera: Muscidae). Insect Systematics and Evolution Supplement (61):1-143.
- Spironello, M and D.R. Brooks. 2003. Dispersal and diversification: Macroevolutionary implications of the MacArthur-Wilson model, illustrated by *Simulium (Inseliellum)* Rubstov (Diptera: Simuliidae). Journal of Biogeography 30:1563-1573.
- Wagner, R. 2003. Remarkable abdominal appendages of female Empididae and male Dolichopodidae (Diptera: Empidoidea). Entomologia Generalis 26:253-258.
- Wheeler, T.A. and J. Forrest. 2003. The Chloropidae (Diptera) of the Galapagos Islands, Ecuador. Insect Systematics and Evolution 34:265-280.
- Whitworth, T.L. 2003. A key to the puparia of 27 species of North American Protocalliphora Hough (Diptera: Calliphoridae) from bird nests and two new puparial descriptions. Proceedings of the Entomological Society of Washington 105: 995-1033.

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:

Dr. J. M. Cumming,
Invertebrate Biodiversity
Agriculture & Agri-Food Canada,
K.W. Neatby Building, C.E.F.
Ottawa, Ontario, CANADA, K1A 0C6

FAX: (613) 759-1927

Email: cummingjm@agr.gc.ca

Full name: _____ **Address:** _____
_____ **Telephone Number:** _____

FAX Number: _____ **Email:** _____

Projects and taxa studied: _____

