



FLY TIMES

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This issue of the *Fly Times* includes a variety of reports, from meetings to recent publications. Please remember that we need your input. We hope to hear from many of you for our next issue.

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* has been updated recently and can be accessed at the following address: <http://res2.agr.ca/ecorc/program2/entomology/diptera/dipteras.htm>

Issue No. 26 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. 26 should be sent by the end of March, 2001.

NEWS

North American Dipterists Society Informal Conference 2000: Update & Abstracts

by Scott Brooks and Jade Savage
McGill University, Ste-Anne-de-Bellevue, Quebec

Preparations for the upcoming NADS Informal Conference during early December in Montreal are progressing. The meeting has been scheduled for Tuesday, December 5 at 1:30. As mentioned in the last issue of Fly Times, the session will be divided into a systematics section featuring talks by Jeff Cumming and Miranda Smith, and a section on the use of Diptera in biotic surveys featuring talks by Brian Brown, Fiona Hunter, Steve Marshall & Brian Wiegmann (see abstracts below). If anyone needs to contact us we can be reached at either scottebrooks@hotmail.com or jsavag1@hotmail.com. See you in Montreal!

A Cladistic Classification Of The Empidoidea (Diptera: Eremoneura) by J.M. Cumming¹ & B.J. Sinclair² (¹Systematic Entomology Section, ECORC, Agriculture and Agri-Food Canada, Ottawa, Ontario, Canada K1A 0C6; ²Zoologisches Forschungsinstitut und Museum Alexander Koenig, Adenauerallee 160, D-53113 Bonn, Germany)

A phylogenetic classification of the higher taxa of Empidoidea is proposed based on a cladistic analysis of the superfamily. More than 125 characters were scored from nearly 60 exemplar taxa, including many plesiomorphic Southern Hemisphere genera that were overlooked in previously published treatments of the superfamily. Outgroups were selected from basal lineages of the Cyclorrhapha to represent the rest of the Eremoneura and from appropriate taxa of Asiloidea. Four families of Empidoidea are now recognized, namely the Empididae, Hybotidae, Brachystomatidae, and Dolichopodidae, in contrast to either the two or five empidoid families of previous classifications. Four separate lineages are additionally assigned as *incertae sedis* within the superfamily, namely the *Iteaphila* group, the *Ragas* group, *Oreogeton*, and *Homalocnemis*. The Empididae is now restricted to the Clinocerinae, Hemerodromiinae, Hilarini, Empidini, and several flower-feeding genera. The newly proposed Brachystomatidae includes the Brachystomatinae, Trichopezinae and Ceratomerinae. The Dolichopodidae is expanded to include the Parathalassiini and the relatively plesiomorphic genera *Microphor* and *Schistostoma*. The redefined Hybotidae is composed of the Atelestinae, *Nemedina*, *Trichinomyia*, Ocydromiini, *Trichina*, Oedaleini, Tachydromiinae, and Hybotinae (which now includes the *Bicellaria* group). Certain additional empidoid subfamilies will need to be recognized within this classification, either for the first time or by elevating existing tribes to subfamily level.

Molecular Systematics of *Simulium* s. str. (Diptera: Simuliidae) by Miranda Smith (Department of Entomology, Royal Ontario Museum, 100 Queen's Park, Toronto, ON, M5S 2C6, Canada)

Currently recognized species-groups of *Simulium* Latreille s. str. from the Nearctic Region (viz., *hun-teri* group, *jenningsi*-group, *malyschevi*-group, *noelleri*-group, *slossonae*-group, *tuberosum*-group, and *venustum*-group) are reasonably well supported by morphological and

cytological characters. However, data sets derived from such characters do not adequately resolve relationships among species groups. Molecular characters from the mitochondrial cytochrome oxidase II gene, the cytochrome b gene, and the nuclear elongation factor 1-alpha gene, will be analyzed in a 'total evidence' approach to phylogeny reconstruction. The inclusion of morphological-, cytological-, and molecular data in a maximum parsimony analysis is expected to (a) provide additional support for most of the currently recognized species groups; (b) resolve relationships among these groups; and (c) clarify relationships of two species that are dubiously assigned to the *Simulium tuberosum*-species group: *S. petersoni* and *S. parnassum*. A well-resolved phylogeny of *Simulium* s.str. will provide a sounder basis from which to interpret character-state evolution. Evolutionary transformations of the female tarsal claw will be discussed.

Diversity of ant-decapitating flies (Diptera: Phoridae) from the ALAS project: new results and projections by **Brian V. Brown** (Natural History Museum of Los Angeles County 900 Exposition Boulevard, Los Angeles, CA, 90007, U.S.A.)

The data from 3 years of Malaise trapping *Apocephalus* (Diptera: Phoridae) at La Selva Biological Station, Costa Rica, are analyzed and compared to published predictions based on 10 preliminary samples. Observations on rarity and practical techniques for optimizing sampling are given.

Survey of stream-inhabiting invertebrates along the Niagara Escarpment as indicators of water quality by **Fiona F. Hunter** (Department of Biological Sciences, Brock University, St. Catharines, Ontario, L2S 3A1, Canada)

Until now, sufficient base-line survey data for the aquatic invertebrate community structure of springs and groundwater seepages have been lacking. I have compiled aquatic invertebrate inventories of 10 groundwater seepages along the Niagara Escarpment in three regions (Beamer Memorial Conservation Area, Winona Conservation Area near McNeilly Road, and Woolverton Mountain Road) where groundwater quality ranges from very good (Beamer) to good (Woolverton) to fair (McNeilly). In 1996, the aquatic invertebrates were sampled from these sites once a month from May/June to November/December. In total, 33,475 invertebrates were collected and identified to Order. For the Order Diptera, which comprised 80-90% of all invertebrates collected, Family-level identifications were made. Water samples were taken twice during the season for chemical analyses (35 parameters). Correlation analyses were run in SPSS to look for within-site variability, among-site variability, and to test whether any of the common dipteran taxa could be used to predict any of the groundwater water quality parameters that are elevated above provincial potable water guidelines. Elevated conductivity, hardness, total dissolved solids (TDS), calcium, sulphate and ortho-phosphate were correlated with an increase in the number of Ceratopogonidae and Psychodidae and a decrease in the number of Stratiomyidae. Elevated turbidity and iron levels were not indicated by any of the taxa collected.

Selected Inventories And Selected Flies: Sphaerocerids and Micropezids in Temperate and Tropical Surveys by **Steve Marshall**, (Department of Environmental Biology, University of Guelph, Guelph, Ontario, N1G 2W1, Canada)

Temperate biodiversity projects, ranging from regional inventories to local habitat surveys,

typically provide opportunities to apply the results of systematic revisions to projects of local or national interest. Tropical biodiversity projects, on the other hand, are more likely to generate new material that needs to be built into still-incomplete taxonomic frameworks. Recent Canadian biodiversity projects will be briefly discussed and contrasted with ongoing projects in relatively poorly known and infinitely more diverse neotropical localities. The problems, and opportunities, presented by the Costa Rican sphaerocerid and micropezid faunas will be illustrated.

Diptera in the Great Smoky Mountains National Park ATBI: Progress and Prospecting by Brian M. Wiegmann (Department of Entomology, Box 7613, North Carolina State University, Raleigh, NC 27695, U.S.A.)

Still in its early stages, the All Taxa Biodiversity Inventory of the Great Smoky Mountains National Park is a major initiative to survey one of the richest and most diverse collections of plants and animals in the temperate world. The planning, organization, and management of this large scale project has provided unique challenges, but the project is well underway, and many TWIGS (Taxonomic Working Groups) are successfully adding to the database of known GSMNP diversity. Collection and accurate identification of the diverse Smoky Mountain insect fauna will be a large undertaking. Dipterists were among the first of the TWIGs to participate in a Nature Quest field day in the park and results from a single weekend of heavy collecting in 1998 illustrate some of the difficulties that are posed by a project as large as the GSMNP ATBI. Clearly, the success of the ATBI will require a well-organized and cooperative effort among dipterists to achieve anything close to a thorough inventory. In this talk, progress, strategies and plans for carrying out the Diptera inventory in the smokies are presented. Examples are drawn from the work of several dipterists active in the project, as well as from similar biodiversity inventory projects. Dipterists are encouraged to get involved with the project because their expertise is greatly needed, but also because this is an extraordinary opportunity to obtain access and resources to study North American Diptera. For more information and to get involved: <http://discoverlife.org>.

Tabanomorpha Phylogeny

by Jack Zloty and Gordon Pritchard

Several collections of an aberrant fly larva have been made from fast-flowing streams in the Rocky Mountains from Montana to Yukon. These larvae are uniquely defined by two pairs of very long, crocheted prolegs ventro-laterally on abdominal segments 2-7, and a short pair on the dorsum of abdominal segments 6-7. They have been variously identified as athericids or tabanids (Webb 1994 *J. Kansas ent. Soc.*; Teskey, Sinclair, Burger, Courtney *pers. comms.*), but in the absence of associated adults their status remained uncertain. We have now obtained adults from these larvae, and it is clear that, apart from being an undescribed species and genus, they are neither athericids nor tabanids as these two families are currently recognized (Woodley 1989 *Manual of Nearctic Diptera*). In fact, the adults have a mixture of pelecorynchid, athericid, and tabanid characters. For example, male genitalia have aedeagal tines similar to Athericidae, Tabanidae and *Bolbomyia*, but the

hypandrium is free from the gonocoxites, a condition found in the Pelecorhynchidae, but not in the athericids and tabanids. Female cerci are two-segmented as in Rhagionidae and Pelecorhynchidae. The metathoracic post-spiracular scale, considered to be a synapomorphy of Athericidae + Tabanidae (Woodley 1989), is not present in the new adults. In larvae, the presence of poison glands has been considered to be the only synapomorphic character for the Pelecorhynchidae + Athericidae + Tabanidae (Woodley 1989; Sinclair et al. 1994. *Ent. Scand*). However, whereas this new larva certainly does have poison glands, larvae of *Glutops* (Pelecorhynchidae) do not. Contrary to the interpretation of the mandibular groove in *Glutops* (Sinclair 1992 *Syst. Ent.*) and in *Pelecorhynchus* (Sinclair et al. 1994), we find that the groove in *Glutops* is not partially enclosed. Furthermore, *Glutops* larvae have no poison glands and prey is not immobilized quickly on insertion of the mandibular hooks as it is in *Atherix* and *Tabanus* (Stuckenberg 1973 *Ann. Natal Mus.*). We are in the process of describing all stages of this new species and are attempting to determine its placement in the Tabanomorpha. To do this we need to make a thorough comparative study of the morphology of larvae and adults of tabanomorphs, but are currently lacking some material. We are searching for larvae of *Bolbomyia*, *Pseudoerinna*, *Litolepsis*, *Spania*, and *Arthroceras* through rearing and electrophoresis. In addition we need adults of *Bolbomyia* and larvae of *Rhagio* or *Symphoromyia*. If anyone can donate or lend specimens, we would be eternally grateful. Please contact us at:

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Status of the Diptera collection at the Cleveland Museum of Natural History

by Joe B. Keiper

The insect collection at the Cleveland Museum of Natural History (CMNH) is strong in specimens from the Lake Erie region, but also enjoys a variety of material from around the world. Thanks to the superb efforts of the previous curator, the late Dr. Sonja Teraguchi, our collection is boasts a vast array of Lepidoptera taken during long term studies and donations from world travellers. As the new curator of invertebrates with a strong proclivity for flies and their maggots, I give this brief account of the modest dipteran materials at CMNH so that the specialists among the readers of Fly Times may participate in the improvement of our collection. I am willing to give any fly a good home here, trade materials, and loan material for study. If any among you wish to have a look at our undetermined material, please contact me at jkeiper@cmnh.org.

At the time of this writing, I begin only my third week here at the museum, so I can only give a rough idea of the numbers of undetermined specimens from each family. Much of the material was taken in Ohio and Pennsylvania, but many areas of North America are represented. Most of the undetermined materials are brachycerous Diptera; a variety of families not listed are present in low

numbers. The families I am currently working on (both identifying what we have as well as incorporating my personal research collection) are marked with an asterisk (*).

Bibionidae	25	Therevidae	30
Trichoceridae	25	Asilidae	500
Anisopodidae	25	Bombyliidae	200
Culicidae	100*	Empididae	80
Tabanidae	300*	Dolichopodidae	200
Rhagionidae	150	Conopidae	30
Xylomyidae	50	Sphaeroceridae	75
Stratiomyidae	200	Calyptrate muscoids	500

Our collection does enjoy a fairly nice assemblage of identified Syrphidae (ca. 1000 specimens), but there is a moderate amount of undetermined material. Most of the acalyptrates were previously identified by Dr. Ben Foote of Kent State University, and includes Tephritidae, Otitidae, Platystomatidae, Sciomyzidae, Opomyzidae, Dryomyzidae, Pyrgotidae, and Ephydriidae; he also identified our Tipulomorpha.

I intend to continue building the Diptera collection here at CMNH. I am currently working on synopses of the Tabanidae and the Sciomyzidae of Ohio (the latter with Ben Foote), and our holdings of these two families will grow. I will also be involved in survey work of the museum's land holdings in northeastern Ohio, and will focus much attention on the areas around streams, lakes, and wetlands. Therefore, our holdings of families abundant in and around aquatic ecosystems will increase. However, I would like to see a better representation of identified material from other dipteran groups in our collection as well. I invite other Dipterists to help CMNH with their taxonomic skills and donations, and to take advantage of us as a resource while furthering the understanding of dipteran biology, taxonomy, and systematics.

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Biting Fly Workshop - 2000

by Jeff Freeman
Department of Natural Science, Castleton State College, Castleton, Vermont

The Biting Fly Workshop (BFW) for the Year 2000 met at Craigville, Cape Cod, Massachusetts, USA from 17 to 20 July. There were 24 people attending and weather, greenhead horse flies, and

ceratopogonid biting midges all cooperated at this, the peak of greenheads and tourists on the Cape. The Biting Fly Workshop had its start in 1969 in New Jersey to exchange information and coordinate efforts to manage greenhead horse flies on coastal salt marshes from New Jersey to South Carolina. The black fly and mosquito researchers had their groups. The Livestock Insects meetings did not adequately address tabanids. Elton Hansens at Rutgers in New Jersey, the late Paul Catts of Delaware, Dick Axtell at NC State, and the late Ted Adkins of Clemson, South Carolina shared problems and approaches to trapping greenheads and advancing research on both horse flies and deer flies in their areas. Later the ceratopogonid workers joined the tabanid folks for the BFW.

The year 2000 meeting featured talks by Bruce Sutton from Gainesville, Florida about the use of cuticular hydrocarbons in working out the puzzle of "greenheads" along the Atlantic and Gulf Coasts. This problem was sketched out by G. B. "Sandy" Fairchild. John Stoffolano of University Massachusetts gave a review of research accomplishment regarding salt marsh greenheads over the past half century of work on these flies and presented some challenges for the future.

Alan Grant of American Biophysics in Rhode Island demonstrated what is called the Mosquito Magnet (Amer. Bioph. 2240 So. County Trail, E. Greenwich, RI 02818). This trap also catches bags full of ceratopogonids. Mosquito Magnet burns propane catalytically to produce carbon dioxide, heat, water vapor and, with a fuel cell, electricity to operate a fan. Alan presented data on the sensory physiology of ceratopogonids in which he used microelectrodes implanted in sensillae responding to carbon dioxide and other materials. Monty Wood gave us a review of INBio, an effort to list and document insects of Costa Rica. He and others have been working on this effort recently, group by group.

Field trips included local collecting areas, both upland woods and salt marsh and a field demonstration of the "NZ-1" blue and white fabric trap by Dan Kline of the U. S. Dept. of Agriculture. Dan had to leave early due to a meeting at Yale University relating to West Nile Virus. We also visited the shop where the current Cape Cod box traps are made and maintained by the Cape Cod Mosquito Control Project (CCMCP). About 700 traps are deployed each year on Cape Cod salt marshes. Gabrielle Sakolsky maintained a busy summer work schedule and still provided us with guidance, maps, and background information.

The CCMCP with John Doane as Director is celebrating 30 years of work on Cape Cod. Our goal was to have our BFW on the Cape in July at the peak of salt marsh greenhead season for a reasonable cost. It worked out well at the Craigville Conference Center near Hyannis.

We are planning our next Biting Fly Workshop in the Davis Mts. of southwestern Texas, with the hope NADS will join the BFW for a joint field meeting. For information for BFW-2001 call Frank French (french@gasou.edu). F. French, Dept. of Biology, P. O. Box 8042, Georgia Southern Univ., Statesboro, TX 30460. The southwestern Texas venue will deal with an area that has been much less collected than elsewhere. The Davis Mts. area is within Jeff Davis County while Alpine, TX, home of Sul Ross University is in Brewster County. Supplement 20, Dec. 1996, *Southwestern Entomologist*, The Horse and Deer Flies of Texas, by Jim Goodwin and Bart Drees uses shading of counties rather than approximate dots for collection locations. Brewster County is about 800 square miles, has 2 towns, 5 highways and Big Bend National Park. Jim Goodwin will guide us to best

collecting in the smaller Jeff Davis County in early summer.

Predator-Prey Database for the family Asilidae (Hexapoda: Diptera)

by Robert Lavigne

This asilid predator/prey database began life in the original dBase and subsequently evolved through dBase II into dBase V. It was then transformed into Paradox versions 7, 8 and currently 9. In order that it be readily available on different platforms, it has been exported from Paradox 9 to dBase III. The database currently contains 11,129 records, most of which were derived from searching through the literature. Within these records, 3117 Diptera were recorded as prey.

A few individuals, such as Dr. Geller-Grimm, have kindly provided me with unpublished records. The database will be intermittently upgraded, as well as corrected, as more prey records becomes available. It can be downloaded and imported into dBase IV & V, in Paradox 7, 8, 9, in Excel '97 and in Access (MS Office 2000). It is a searchable database with 14 fields as follows: PREDATOR, PREDSPECIES, ORIGDESIGN, ORDER, FAMILY, GENUS, SPECIES, COMONAME, PREDSEX, SOURCE, SOURCE2, COUNTRY, NO.EATEN, CANNIBALISM. Thus, 1/ PREDATOR refers to the genus of the present genus of the asilid, 2/ PREDSPECIES refers to the species and authority of the asilid, 3/ ORIGDESIGN provides the name of the asilid in the original publication, 4-7/ ORDER, FAMILY, GENUS, SPECIES refer to the species of prey [where I am aware that names have changed it is so indicated in this column], 8/ COMONAME refers to common name of the prey [and is not complete], 9/ PREDSEX refers to the sex of the predator [where indicated in the original publication], 10/ SOURCE refers to the original publication, 11/ SOURCE2 contains secondary sources for the same record which was published in a subsequent publication, 12/ COUNTRY refers to the country in which individual records were obtained, 13/ NO.EATEN is included where there are multiple records provided by the original author, 14/ CANNIBALISM is included since there have been many cases of males and/or females feeding on members of the same species. Complete literature citations can be obtained by visiting the University of Wyoming web site: at www.uwyo.edu/ag/ces/rangemgt.htm and downloading SM-36 and SM-55. You would need Acrobat Reader to read the files, but that can be downloaded free.

Lavigne, R., S. Dennis and J. A. Gowen. 1978. Asilid literature update 1956-1976 including a brief review of robber fly biology. University of Wyoming Agricultural Experiment Station Science Monograph 36. 134 pp. [Revised slightly in 2000]

Lavigne, R. J. 1999. Bibliography update 1977-1995 for the Asilidae (Insecta: Diptera), including short translations from Japanese and Russian. University of Wyoming Agricultural Experiment Station Science Monograph 55. 91 pp.

Complete literature citations are also available in Dr. Geller-Grimm's literature database, but as of this date, June 2000, multiple publications in the same year are not alphabetically designated, making it impossible to determine which publication contains the prey record. This will be rectified

some time this year. It is also hoped that the database will be published on a CD Rom in the future.

Tips: Once downloaded, the database can be searched for individual words by search engines, using the convention: ..word.. In the various versions of Paradox, a 'Query' can be initiated to sort for specific groupings, such as all prey records for a particular family or genus. In Access 2000, if you right click field title and click on column width, a box appears with a "best fit" option. By clicking on the "best fit" option, all the data in the column becomes visible.

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Dating of Publication date of Xue, Wanqi and Chao Chienming (eds.), *Flies of China*

by Graham Griffiths
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I think some comment needs to be made on the question of when this work was published, a matter of some importance since it contains descriptions of new taxa. Neal Evenhuis seems to have been unaware that there was a problem of dating when he wrote his review for the April issue of *Fly Times*, since he cites the publication date as December 1996.

The 1996 date printed on the reverse of the Chinese title page was a "scheduled" date, not the actual date of publication according to coeditor Xue's statement in a letter in late 1999 to Prof. Masaaki Suwa. Unfortunately, Xue has not responded to requests that he state the actual date, so we have to infer this from other evidence. There seems to be a problem that some Chinese workers are so deferential to administrative authority that they are reluctant to admit that anything is ever done behind "schedule".

The work was certainly not yet published on May 1, 1997 (stated by Xue in an e-mail of that date to Adrian Pont). The first persons outside China to receive copies, so far as I am aware, were Adrian Pont and Michael Ackland, both of whom received copies of both volumes in Oxford at the beginning of July, 1999. If we assume that delivery from China takes at least a month, then the work was certainly published in the sense of the Code by the beginning of June, 1999.

Was the work already published earlier? If any Dipterists have any proof of earlier publication, I would be grateful if they would contact me. Unless I receive any evidence to the contrary, I will cite the probable publication date of this work as May, 1999.

Dating Problem with Flies of China

from Neal Evenhuis
Bishop Museum, 1525 Bernice Street, Honolulu, Hawaii

Neal wrote to point out that apparently two versions of this book were published. The first was the one Neal reported on in the last issue of the *Fly Times* with a publication date of December 1996. A second printing was dated December 1998. Without checking with the editors or publishers, we can only assume that the first "printing" had the publication date printed as "1996" in error and that this was corrected in the second "printing".

The Dipterology Fund

by Terry A. Wheeler

Report on 2000 Grants Competition

Three applications were received for funding in the 2000 competition. The Grants Committee recommended one of these for support. We are pleased to announce that this year's recipient is **Scott Brooks** (McGill University) who received support for museum visits to Belgium, France and England to study types of Dolichopodidae. The number of applications to the Fund continues to be low, and the success rate is under 50%. We know that there are students out there doing good work on Diptera systematics, faunistics and ecology and we would encourage them to apply for support. Potential applicants should spend the appropriate amount of time and effort to ensure that their applications are complete and well-justified.

Call for Applications - 2001 Grants Competition

The Dipterology Fund provides up to four grants each year (maximum value of CAD\$1000) in support of research on North American Dipterology. Preference will be given to studies involving whole-organism biology in the fields of systematics, faunistics, ecology and related areas.

Student Research and Travel Grants are available to students or postdocs in dipterology and may be used to support travel to conferences, museums or other research institutions, or field work for collecting or study. **Development Grants** are for proposals in areas other than those described above. This would include, but not be restricted to, grants to bring visiting scientists to North American Diptera collections, and to support research activities of individual dipterists who are not full-time students and who lack other conventional means of research support.

Applications must include a 1-2 page research proposal or justification of the proposed activities and an estimated budget for the proposed research or activity (including consideration of funding available from other sources). Applicants must also include a 1-2 page CV. Applications for the

2001 competition must be submitted to the Chair of the Grants Committee by email (as Word or WordPerfect attachments) on or before 01 March 2001. All applications will be reviewed by a Grants Committee made up of six dipterists who will transmit their rankings and comments to the Chair. Decisions will be announced as soon as possible thereafter. Any questions regarding the application procedure or The Dipterology Fund should be directed to the Chair:

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New Editor for the Ceratopogonidae Information Exchange

Steve Murphree (Biology Department, Belmont University, Nashville, Tennessee) has assumed responsibilities for this newsletter. The new web address for the Ceratopogonid Information Exchange is: <http://www.belmont.edu/Science/Biology/cienews/cie.html>

Loic Matile Has Passed Away

We have received word from friends at the Museum National d'Histoire Naturelle in Paris, France that Loic Matile died June 10, 2000. He was a specialist of the Mycetophiloidea and especially of the family Keroplatinae and had many connections with our North American community of Dipterists. He will be sorely missed.

5th International Congress of Dipterology

September 30 - October 5, 2002, the University of Queensland
 Brisbane, Queensland, Australia

INVITATION

On behalf of the Council of the International Congresses of Dipterology, the Congress organising committee and The University of Queensland, we extend a warm invitation to you to attend the Fifth International Congress of Dipterology in Brisbane, Australia, in 2002. The Congress will bring together hundreds of researchers from a broad range of disciplines to discuss the latest research on Diptera (true flies). The Program will be designed to provide a unique environment in which to

discuss current research and delegates will be able to participate in sessions relevant to their areas of interest and expertise.

THE VENUE

Brisbane, the third largest city in Australia, is the capital of the State of Queensland and boasts a population of more than one million people who enjoy a temperate to subtropical climate all year round. The beautiful University of Queensland St Lucia Campus is situated on the Brisbane River just 7 km from the city centre and 18 km from the Airport. The University is one of Australia's oldest and most prestigious campuses with over 25,000 students and 2,000 academic staff. Taxis and regular bus and river-boat services connect the campus to the city centre in 15 minutes. Brisbane usually has little rain and mild (25 degrees celcius maximum) temperatures during the season of the Congress.

ORGANISING COMMITTEE

Dr Dan Bickel	Dr Tony Clarke	Dr Ian Dadour	Mr Greg Daniels
Dr Marlene Elson-Harris	Dr Des Foley	Ms Chris Lambkin	Dr David Merritt
Dr Margaret Schneider	Mr Jeff Skevington	Dr David Yeates (Chair)	

WEB SITE

The Congress Web site is at <http://www.uq.edu.au/entomology/dipterol/diptconf.html>. Bookmark the site and check for upcoming announcements and progress details.

SOCIAL PROGRAM

The social program will include a welcome cocktail and registration evening on Sunday 29 September, a Conference Banquet and a social hour at the conclusion of each day.

SCIENTIFIC PROGRAM

The scientific program will include symposia, workshops and poster sessions. Themes of the scientific sessions will include:

Morphology, physiology and ultrastructure	Biodiversity and Conservation
Medical, veterinary and forensic Diptera	Systematics and Phylogeny
Agricultural Diptera	Genetics and Genomics
Behaviour and Ecology	Collections and Databases

The Committee welcomes suggestions from the dipterological community for Congress Symposia. Proposals for symposia should include a title, justification, keynote speaker and up to 8 other contributors. Please indicate whether the proposed speakers are able to attend the Congress. Please email your Symposium ideas to David Merritt <dmerritt@ento.uq.edu.au> for assessment by the Scientific Program Working Group.

Taxon-based workshops will be arranged as in previous Congresses. Those wanting to hold workshops during the Congress should also contact David Merritt.

CONGRESS LANGUAGE

The Congress language will be English.

ACCOMMODATION

Accommodation will be at a University College within walking distance of the Congress venue. A range of student study-bedrooms will be available. Hotel accommodation will also be available if required.

MEETINGS

All congress sessions will be held on the University of Queensland campus in modern, well equipped lecture theatres.

COST

Preliminary budget estimates indicate that registration could be as low as \$400 Australian dollars, and college accommodation \$60-70 dollars per night. At present the Australian Dollar is worth approximately \$0.52 US Dollars.

FIRST ANNOUNCEMENT

The Organising Committee anticipates that the first Announcement for the Congress will be distributed early in 2001.

TO REGISTER YOUR INTEREST IN ATTENDING THE CONGRESS IN BRISBANE

Please register your interest in the congress with: The ICD5 Congress Secretariat, Sally Brown Conference Connections, PO Box 108, Kenmore, Queensland, Australia 4069, Fax to (61 7) 3201 2809 or email to sally.brown@uq.net.au.

Books and Publications

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.

Contributions to a Manual of Palaearctic Diptera (with special reference to flies of economic importance). Appendix. 2000. Eds. L. Papp and B. Darvas. Science Herald, Budapest, Hungary. 604 pp. £140 GBP (British Pounds), = \$202.95 US, \$304.42 CAN.

There are 16 chapters in this volume dealing with many of the families that were missed in Volumes 2 and 3 namely, Blephariceridae, Axymyiidae, Cramptonomyiidae, Sciaroidea, Culicidae, Chironomidae, Diopsidae, Cryptochetidae, Piophilidae, Sepsidae, Chloropidae, Scathophagidae, Fanniidae, Gasterophilidae, Oestridae, and Hypodermatidae. The book is available from Pemberly Books (www.pembooks.demon.co.uk) and E.W. Classey.

- Bernasconi, M.V., C. Valsangiacomo, J.C. Piffaretti, P.I. Ward. 2000. Phylogenetic relationships among Muscoidea (Diptera: Calyptratae) based on mitochondrial DNA sequences. *Insect Molecular Biology* 9:67-74.
- Moulton, J.K. 2000. Molecular sequence data resolves basal divergences within Simuliidae (Diptera). *Systematic Entomology* 25:95-113.
- 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.

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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FAX Number: _____ Email: _____

Projects and taxa studied: _____
