



FLY TIMES

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Welcome to the latest *Fly Times* and the last one produced by Art and Jeff (see information about new editor on following page). This issue contains our regular reports on meetings and activities, opportunities for dipterists, as well as information on recent publications.

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>. We would greatly appreciate your independent contributions to this newsletter. We need more reports on trips, collections, methods, etc., with associated digital images if you provide them. Feel free to share your opinions about what is happening in your area of study, or any ideas you have on how to improve the newsletter and the website.

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.

Issue No. 40 of the *Fly Times* will appear next April. If possible, please send your contributions by email, or disc, to the new editor Steve Gaimari at sgaimari@cdfa.ca.gov. All contributions for the next *Fly Times* should be in by the end of March, 2008.

NEWS

Change of Editors for the *Fly Times* – Jeff and Art Decide to Buzz Off!

As editors of the *Fly Times*, we are delighted to report that Steve Gaimari (California State Collection of Arthropods, Sacramento) has enthusiastically and generously agreed to take over the reins of our newsletter. All future correspondence and contributions should be sent to Steve at sgaimari@cdfa.ca.gov for upcoming Issue No. 40. The *Directory of North American Dipterists* will still be compiled by Jeff Cumming and Jim O'Hara in Ottawa and both it and the *Fly Times* will continue to be posted on the NADS website.

It is somewhat hard to believe that it was 20 years ago that the first *Fly Times* appeared. When we first started in October 1988, Volume 3 of the *Manual of Nearctic Diptera* had not yet appeared, there had been only one International Congress of Dipterology, and we hadn't yet had a NADS meeting. Brian Brown was a Ph.D. student and neither Jon Gelhaus or Greg Courtney had permanent positions. Dick Vockeroth had not yet retired from his position in Ottawa. The first 17 issues of the *Fly Times* were taped together by Art and Jeff, some articles retyped and the subsequent drafts photocopied and mailed out from Ottawa. Since then, we've switched to a web version and now no hard copies are sent out at all. Although still primarily a forum for dipterists in North America, the newsletter is now read worldwide. We've seen a remarkable array of articles, reports and other items included in the *Fly Times* and many of those articles are now cited in scientific journals. Indeed, it is still worth perusing older issues for such important information as mounting techniques, good advice on collecting, the state of certain collections and faunal lists or keys for various areas.

We thank you all for your support over the years, for the many articles and reports that were sent in and the opportunity to correspond with a few of you on a biannual basis about the state of funding sources and continuing projects (you know who you are). We wish Steve all the best in keeping the *Fly Times* up and running and providing a continuing basis for communication for the dipterists of North America - what an interesting group of people we are!

Informal Conference of Dipterists - Annual Meeting of the Entomological Society of America, December 9-12, 2007, San Diego, California

by Brian M. Wiegmann,
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Dipterists will be meeting on Tuesday, December 11, 7:00–10:00 pm at the Town & Country Resort, Sunset Room, Meeting House on the First Floor. If you have any talk or item you wish to present, please contact Brian at the email address above.

**Field Meeting of the North American Dipterists Society
Silver City, New Mexico, 13-16 August 2007**

by Jim O'Hara

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The week before the NADS meeting was a rainy one in southern New Mexico. The area does not benefit from the spring rains that bring a “desert bloom” to the southern portions of California and Arizona. Instead, the most significant rains to drop moisture on the parched lands of southern New Mexico are those of the annual “monsoon”, which typically begins at the end of July and lasts until early September. It is during this brief period of the year that vegetation becomes lush and green, and insects become uncommonly bountiful. The NADS 2007 field meeting was organized to take advantage of this expected peak in insect activity, and the timing proved to be just right. The sky cleared and excellent weather prevailed throughout our four-day meeting. Daily highs in the Silver City area were mostly in the 80s F (high 20s C) during the four days, typical for this higher elevation (6000') town.



Fig. 1. *Wyliea mydas* (Asilidae) in Cherry Creek Canyon. Photo by Steve Marshall.

The first day, Monday August 13th, was a travel day for some and a collecting day for others. Formal activities began in the early evening in a lecture room in Harlan Hall on the campus of Western New Mexico University (WNMU). Bill Norris, a botanist and faculty member with the Department of Natural Sciences, WNMU, gave a stimulating and informative introductory talk on the floristics and life zones of the Southwest. There can perhaps be no better introduction to an area for a dipterist than a talk about plants and habitats, and Bill's talk was much appreciated. Bill was responsible for hosting our meeting at WNMU, and arranged for the lecture hall and lab space that were used by our group. After Bill's talk, Steve Marshall presented Bill and his department with a copy of his recent book, “Insects: their natural history and diversity: with a photographic guide to insects of Eastern North America”. This was a gift of appreciation from NADS for Bill's efforts on behalf of our group.



Fig. 2. *Cuterebra austeni* (Oestridae) on Gomez Peak. Photo by Steve Marshall.

The second and last talk of the evening was given by myself and consisted of an illustrated review of the best places I know of for collecting Diptera in the Silver City area. Chief among the locations covered were Cherry Creek campground (Fig. 1), Meadow Creek, Gomez Peak (Fig. 2), and Signal Peak (all north of Silver City in the Gila National Forest). NADS participants made use of these localities and discovered a few new ones, most notably

the stretch of Hwy. 152 leading up to Emory Pass in the Mimbres Mtns. east of Silver City, and a lower elevation location called Granite Gap on Hwy. 80 in the Peloncillo Mtns.

On day two, participants were free to collect during the day wherever they chose. The Gomez Peak Group Picnic Area was reserved for our use on this day and the next, and a few people collected in the adjacent grassy areas or hiked to the top of Gomez Peak or nearby Eighty Mtn. for a day of hilltopping. In the evening people gathered once again in Harlan Hall, this time for the formal presentations, as listed here:

- 1) John Stoffolano (with Aaron Haselton, Kelley Downer, Awilda Acarón, & Mirela Conway [none in attendance]): “Bubbling” behavior in the Diptera.
- 2) Marjolaine Giroux: Systematics and phylogeny of the subgenus *Sarcophaga* (*Neobellieria*) Blanchard with a discussion of a new subgenus (Diptera: Sarcophagidae).
- 3) Torsten Dikow: Phylogeny and classification of Asilidae.
- 4) Chris Thompson: Status of the BioSystematic Database of World Diptera (BDWD) and our series, MYIA.
- 5) Chris Thompson: Report on current and future activities of the Diptera group in Washington.



Fig. 3. Pierfilippo Cerretti with vinegaroon at Gomez Peak Group Picnic Area. Photo by Jim O’Hara.

Announcements of various sorts were given after the formal presentations, including an update on the Manual of Central American Diptera. There was a discussion about the possible location of the 2009 NADS field meeting, with California topping the list of likely places.

Day three, Wednesday August 15th, was another day of free-choice collecting. It was followed by a late afternoon barbecue at the Gomez Peak Group Picnic Area (Figs. 3–4). A good time was had by all, and the group picture (Fig. 5) was taken before people dispersed. Some people returned later to blacklight at the Picnic Area, but with poor results. A few people took advantage of the well-equipped lab room in Harlan Hall to examine specimens under stereo microscopes that were provided, or pin their day’s catch. The lab room was available each evening from Tuesday to Thursday.



Fig. 4. Jessica King and Jim O’Hara barbecuing for NADS attendees at Gomez Peak Group Picnic Area. Photo by Pierfilippo Cerretti.

Thursday August 16th was the last day of the meeting and the last collecting day. People dispersed in small groups to the better hilltops and collecting grounds to take advantage of the good weather and their last chance to collect their preferred dipterans, or in the case of Steve Marshall, to take a few more stunning images of elusive flies. The day (and meeting) ended with an optional dinner at the Jalisco Cafe, one of the better Mexican restaurants in Silver City.

NADS 2007 was attended by 38 people, including dipterists, accompanying persons, and one coleopterist

(Gianluca Nardi). Most attendees were from the United States and Canada, but there were three international participants: Mihaly Foldvari from Hungary, and Pierfilippo Cerretti and Gianluca Nardi from Italy.

Our thanks to Bill Norris and WNMU for hosting our meeting, to the staff of the Silver City Ranger District headquarters for facilitating our collecting in the Gila National Forest, and to the town of Silver City and environs for providing such a nice venue for our field meeting.



Fig. 5. Attendees at NADS 2007. Front row: Torsten Dikow, Jim O'Hara, Greg Dahlem, Jeff Skevington, Matthias Buck, Marjolaine Giroux, John Stireman, Gary Steck. Second row: Alex Marshall, Pierfilippo Cerretti, Grace Wood, Jamie Kelso, Shelah Morita, Jessica King, Fay Whitworth, Betty Thompson, John Stoffolano, Diane Mathis, Norm Woodley, Gianluca Nardi. Back row (more or less): Dick Vockeroth, Scott Kelso, Joel Kits, Steve Marshall, Mihaly Foldvari, Eric Fisher, Terry Whitworth, Chris Thompson, Monty Wood [hidden behind Chris], Jeff Cumming, Bill Grogan, Scott Brooks, Charles Grogan, Wayne Mathis, Jim Hogue. Not pictured: Susan Stoffolano (group photographer), Chris Maier, Michael Thomas (last two unable to attend last two days of meeting).

2009 Field Meeting of the North American Dipterists Society

by Peter H. Kerr

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The systematic dipterists at the Cdfa Plant Pest Diagnostics Branch look forward to hosting the 2009 NADS field meeting in California. Our group includes Eric Fisher (Asiloidea), Stephen Gaimari (Therevidae and Acalyptratae, especially Lauxanoidea), Alessandra Rung (Acalyptratae, especially Opomyzoidea), and me ("Rhagionoidea" and Sciaroidea, especially Mycetophilidae). And by 2009, we will have an additional dipterist on staff. We haven't decided on a specific destination for the NADS field meeting yet, but many possibilities exist within the state.

California is one of the most biologically diverse regions of the world and contains more unique plants and animals than any other state in the USA. Within its borders, California is host to a wide variety of habitats, including sagebrush steppe, prickly pear shrubland, coastal sage scrub, chaparral, juniper-pine woodland, upper montane-subalpine forest, alpine forest, riparian forest, cypress forests, mixed evergreen forests, Douglas fir forests, sequoia forests, redwood forests, coastal dunes, salt marshes, and desert systems. Out of the roughly 28,000 species of insects in California, it has been estimated that approximately 32 percent (~9,000) are endemic. The species in California represent about 30 percent of all known insects in the United States and Canada.

Notwithstanding, the insect fauna of California remains very poorly sampled compared to other regions of North America and much of California remains a place of opportunity for discovery, especially in Diptera.

Potential sites for the 2009 NADS field meeting include but are not limited to:

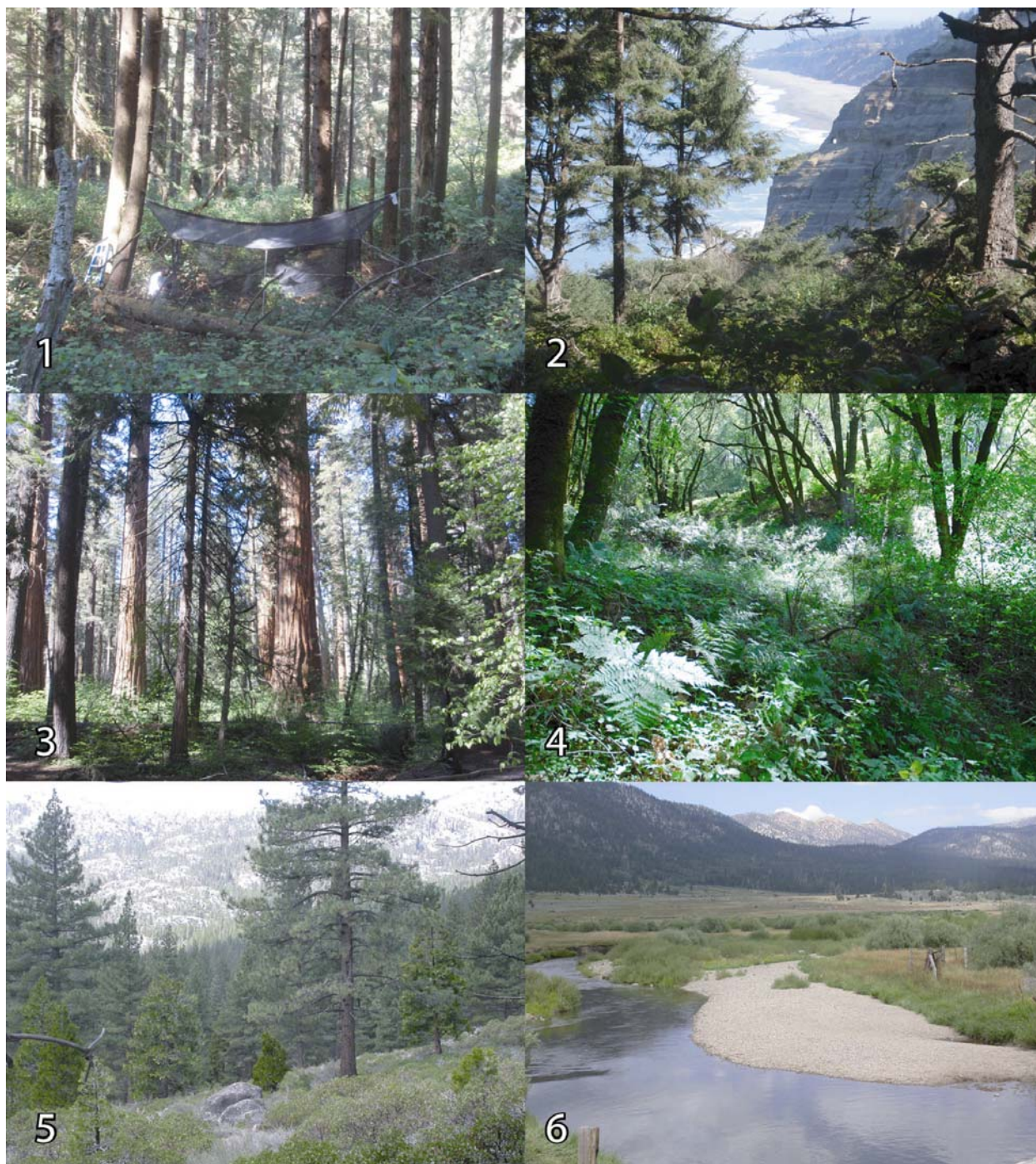
The Redwood Coast. Redwood National Park, Jedediah Smith Redwoods State Park, Del Norte Coast Redwoods State Park, Patrick's Point State Park (Figs. 1–2), and Prairie Creek Redwoods State Park form a contiguous belt of protected parklands along the north coast of California in Humboldt and Del Norte Counties. Together, these parks are a World Heritage Site and International Biosphere Reserve. These forests support a highly endemic fauna and are home to coastal redwoods, the tallest living organisms ever to live on earth and a diverse fungus community. Probably the best month for collecting is July.

Calaveras Big Trees State Park. Approximately 2.5 hours southeast of Sacramento, Calaveras Big Trees State Park is a mixed conifer forest in the yellow pine belt, at mid-elevation of the western Sierra Nevada Range. The most impressive element, of course, are the towering giant sequoias, some of which are more than 2,000 years old (Fig. 3). The park is well preserved with a very diverse, active, and interesting insect fauna. Late May/June is usually the best time for collecting.

Nearby, there are additional collecting opportunities in places such as Grover Hot Springs State Park (Fig. 5), Indian Grinding Rock State Historical Park, and a multitude of other sites in the Sierra Nevadas such as Carson Pass (Fig. 6) and Butterfly Valley.

Trinity Alps area. The Trinity Alps are situated within the Klamath mountain range, approximately 3.5 hours northwest of Sacramento, and support an alpine environment that is unlike those found in the Sierra Nevada, the Coastal Range, or the Cascades. This area supports one of the most (if not the most) diverse conifer flora in the world due to its location, at the interface between the major northern and southern climatic elements. The northern species, such as alpine fir, amabilis fir, alaska yellow cedar, and englemann spruce are found here, as well as the trees from the south, such as incense cedar, ponderosa and sugar pine, plus unique populations of foxtail pine and weeping spruce. The best collecting months are July and August.

Wrightwood and surrounding area (San Gabriel/ San Bernardino Mountains). Located in the southern part of the state (San Bernadino County), this area supports a rich and highly endemic insect fauna in dry, mid- to high-elevation habitats. May and June are probably the best months for collecting.



Figs. 1-6. Potential collecting areas in California. **1-2.** Patrick's Point State Park, Humboldt County. **3.** Calaveras Big Trees State Park, Calaveras County. **4.** Annadel State Park, Sonoma County. **5.** Grover Hot Springs State Park, Alpine County. **6.** Hope Valley near Carson Pass, Sierra Nevada Mountain Range, Alpine County.

Other potential sites. These include Anza Borrego State Park (San Diego County) and the North Bay section of the Coastal Range, which contains a series of parks in eastern Sonoma and western Napa Counties (Annadel State Park – Fig. 4, Sugarloaf Ridge State Park, and Bothe-Napa Valley State Park).

The final decision on the exact place and time of the 2009 NADS meeting will be dependent on a number of factors, in addition to the attractiveness and phenology of the natural areas themselves. The availability of suitable accommodations and having facilities for hosting presentations, sorting of specimens, and general discussions, etc., are obviously critical concerns. We are at the beginning of the planning stages and these details have not yet been worked out.

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

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The blackfly folks will be meeting Feb. 6-8, 2008 at the Riverside Resort and Casino in Laughlin, Nevada. The deadline for submitting titles is December 31, 2007. Registration deadline is January 25, 2008. For more information, visit the NABFA website <http://www.zoo.utoronto.ca/nabfa/NABFA.html> or contact Jay at the email address above.

Call for Cooperation Between Dipterists! A New Communication Tool for Expert Networks Developed by the European Distributed Institute of Taxonomy (EDIT), WP6

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EDIT is a Network of Excellence supported by the European Commission and set up to integrate effort in taxonomy in Europe. One of the 'workpackages' (WP6, <http://www.editwebrevisions.info>), coordinated by NHM London, is entitled 'Unifying revisionary taxonomy' and aims to integrate effort in revisionary systematics (professional and amateur). For practical purposes we have targeted initially four exemplar taxa with the intention of attempting to encourage a more organised approach to planning revisionary taxonomy and transferring it to the internet.

Within the insect exemplar group (<http://www.edit-insects.info>) there are currently two Diptera networks: Milichiidae (<http://www.milichiidae.info>) and Sciaroidea (<http://www.sciaroidea.info>).

We would like to encourage the setting up of further networks and to facilitate this process the EDIT project has developed a new communication tool for expert networks, the so-called 'scratchpads'. Scratchpads provide you and your community of researchers a space to work on the web. They are easy to use, adaptable to reflect your needs, and provide you with powerful tools for managing your data. AND they are free for everybody.

Major features include:

- Unlimited content (pages, images, maps, bibliographies, phylogenies, DNA sequences, specimen lists, classifications, forums) or define your own content type
- Workflows for data import (includes MS Excel support) and editing
- User controlled hierarchies to classify content
- Unlimited and controllable sites membership
- Public, private and user defined access groups
- Context sensitive user profiles
- Rich text (WYSIWYG) editing & intuitive administration
- User defined web addresses

Scratchpads are independent and unconnected, allowing communities to create distinct customized sites tailored to their needs. They are built on the content management system Drupal (<http://drupal.org>), and managed on servers at the Natural History Museum, London. Content is archived such that it can be cited like a traditional publication.

For more information please visit <http://www.editwebrevisions.info/scratchpads>. You can also try out the demo version at <http://sandbox.editwebrevisions.info/> to see how easy it is to do a simple page, for example. If you would like to set up an expert network for your taxon and/or use a scratchpad please visit our website or email me at i.brake@nhm.ac.uk.

From Delbert La Rue



"Who ordered the ungulate platter?"

Concerning My Collection of Conopidae

by Sidney Camras
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This is to report that my world wide collection, begun about 1940, has been deposited in the Field Museum of Natural History in Chicago. The total number of specimens is 3,680 in 32 genera. There are 23 holotypes, 7 allotypes, 182 paratypes, and 345 species. The total number of species of Conopidae world wide is about 900.

The Sublette Collection of Chironomidae

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The Sublette Collection of Chironomidae has been given to the University of Minnesota, Department of Entomology, St. Paul, Minneapolis. Most of the collection has been transported back to the main campus by Len Ferrington and three graduate students. However, I have retained a skeleton reference collection, mostly of material from New Mexico and Colorado, and hope to continue a modest research program.

Prior to making the gift, a bulk of the Tanytarsini was loaned to Dr. Torbjorn Ekrem/Dr. Lisa Stur, Museum of Natural History and Archaeology, Norwegian University of Science and Technology, NO-7491 Trondheim, Norway, except the *Cladotanytasus* which were loaned to Dr. Wojciech Gilka, Department of Invertebrate Zoology, University of Gdansk, Al. Pilsudskiego 46, 81-378 Gdynia, Poland. Additionally, the *Bryophaenocladius* (Orthoclaadiinae) are on loan to Dr. Xinhua Wang, Life Science College, Nankai University, Tianjin, 300071 China. These loans will be returned to UMN.

The collection also contains extensive salivary gland squashes of polytene chromosomes, most with associated reared adults and immatures, from the genus *Chironomus*. These squash slides, most prepared by Mary Sublette, have the dissected larval head capsule and the terminal abdominal segments mounted on the same slide.

Manual of Central American Diptera

Volume 1 of the *Manual of Central American Diptera* has been critiqued by two reviewers designated by the National Research Council of Canada Research Press and both reviews were extremely positive. There were very few errors and these will be corrected by Brian Brown. We are hoping that authors will see galleys near the end of the year. Volume 2 is being reviewed by the editors at the present time and we believe that it will be submitted to NRC Research Press early in the new year.

The Biosystematic Database of World Diptera

by Owen Lonsdale & F. Christian Thompson
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The Biosystematic Database of World Diptera remains alive, but continues to struggle under the massive burden of too many fly names and too little support. Version 9.5 was put online in July, and version 9.75 was placed online in October, as well as being passed on to the Annual Checklist of the Catalogue of Life produced by Species2000. This is the largest and most comprehensive set of names now available anywhere online for a group of organisms. The database was synchronized with the Zoological Record as of the end of 2006 and includes many (433) species for 2007. The version contains 156,868 valid species, although some 2,112 are considered dubious, with an additional 37,218 junior synonyms, homonyms, and misspellings included. For higher groups, there are 22,870 genus-group names and 4,645 family-group names. The main living contributor to Diptera species is Ding Yang, with over 600 species (precise count is not yet available as we have not completely sorted the 1,605 recent species attributed to Yang or to the various appropriate Yangs), with Dan Bickel (487 species, 491 names) in second place, and Neal Evenhuis, third (389 species, 506 names).

Plans for the future include the completion of the reference database (now included 25,230 records) and linkage of the references to the names. The whole database also needs to be migrated from the obsolete FileMakerPro version 5 format to the current version 9 format. With this migration, we plan to complete the species interface and add a Diptera Bank feature to allow the integration of geo-referenced specimen data. This feature will ensure that for each available fly name that there will be at least one point (the type-locality) on maps generated from such online sources as the Global Biodiversity Information Facility (GBIF) and Discover Life. Priority for data verification will continue to follow an ad hoc approach depending on funding and the willingness of specialists to help. So, if you have money or want to contribute your expertise, please get in contact with us.

With the transition between Irina Brake and Owen Lonsdale as the Schlinger Foundation Postdoctoral Fellow in support of BDWD, some aspects have been delayed. We hope to complete volume 12 of the *MYIA* series by the end of the year. This volume will include a number of family treatments (World Carnidae (Brake); Coelopidae (Mathis & McAlpine); Diastatidae (Mathis & Barraclough); Dryomyzidae

(Mathis & Sueyoshi); Helcomyzidae, Heterocheilidae and Perscelididae (Mathis), Odiniidae (Gaimari & Mathis), Xylomyidae and Xylophagidae (Woodley)) as well as supporting works (a new checklist of Nearctic Ceratopogonidae (Borkent et al.), dates for various serials (Evenhuis), an overview of Kowarz (Pont) and a conspectus of Neotropical Conopidae (Camras et al.)). Future volumes will be devoted to the Therevidae and Acroceridae, but we welcome contributions from all specialists. Just write us.

Black flies (Simuliidae) of New Zealand: Some Ghosts of Gondwana.

by Doug Craig

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Yes, one can teach old dogs new tricks. During my many collecting trips for Simuliidae in the Pacific, it was mainly a matter of heading to the nearest waterfall, or cascade and taking larvae and pupae from the fastest water one could find. Imagine my chagrin while first trying to collect *Austrosimulium* from a pristine higher altitude stream (Fig. 1) on the Coromandel Peninsula, North Island, New Zealand. Zip, nada, nothing! Well, not nothing because all the other torrential aquatic insects were there, just no simuliid larvae. No female adults biting either, a fact my wife Ruth and I came to appreciate later.

Luckily I recalled a comment by Trevor Crosby, Landcare Research Inc., who had invited me to commence a taxonomic revision of the New Zealand *Austrosimulium*, that *Aust. australense*, the most widespread North Island species, occurred in mature rivers flowing through farmland. And indeed that is where we found them, in lower velocities and on leaves and trailing vegetation – all a bit of a come down from what I'd expected. A tinge of embarrassment there too, since I am an ex-New Zealander and did my Ph.D. degree on torrential aquatic insects, albeit in the South Island. I should have remembered. From then on no search image as to habitats – see running water and look on everything! And we learned to ignore waterfalls.

Why should one worry about simuliids in New Zealand? Well, nothing in large part had been done since Dumbleton's monograph in 1973, although Trevor Crosby had done some significant work on one species and described another – as good reasons as any to have another look? Simuliids, or 'sandflies' as they are unfortunately known there, are iconic for New Zealand. Canadians may have a song about them, even a National Film Board cartoon which



Fig. 1. Webb Stream, Coromandel Forest Park, North Island. Not a New Zealand simuliid habitat.

includes that song. But how many statues are there? In New Zealand there are at least three, two very fine brass sculptures on the walls of the Tourist Board building at Milford Sound and a monstrous two meter effort at Pukekura on the West Coast (Fig. 2). All startlingly accurate too! Mind you, it is mainly the tourists who go back home and snivel about the attacks of the sandfly adults. Most New Zealanders comment that one should dress more sensibly and slap on repellent. There is a bit of the ‘stiff upper lip – suck it up mate’ involved there too. Also there is a bit of ‘Everybody talks about them, but nobody does anything about them’. Having been well bitten as youngsters, neither Ruth nor I reacted too badly to bites (Fig. 3). I note that *Austrosimulium* females seem to neither inject much in the way of anaesthetic materials, nor anticoagulants, so one can feel them biting and you don’t bleed too much afterwards – if at all.



Fig. 2. Giant Sandfly, Pukekura, West Coast, South Island.

So, how does one commence a full taxonomic revision of New Zealand Simuliidae? One place to start was the New Zealand Arthropod Collection (NZAC), held in trust as a National Treasure by Landcare, largely in the Tillyard Vault in Auckland (Fig. 4). An interesting place – kept at a constant temperature of around 18°C and with low humidity, one chilled off after a few hours of microscope work. I took to wearing gloves and a toque, but did adapt in the end. Further, the fire suppression system was a bit scary. There is no point having a water sprinkler system in the vault – one might as well let the collection burn. So, instead, the vault floods with a fire suppressant gas. Rules of the game were simple, hear a fire alarm and get your backside out the door and do it within 30 seconds – no questions, just do it! Didn’t happen, but I always wondered.



Fig.3.Female *Austrosimulium tillyardianum* biting the author’s foot.

Most of the simuliids in the NZAC were collected by L. J. Dumbleton over a considerable period – from the 1940’s until a few years before he died in 1976. The material consisted of a large number of jars containing hundreds of shell vials of alcohol material. Although very well curated now, much of it in poor condition, being bleached, poorly labelled by Dumbleton, or not of a stage that could be used. A major taxonomic problem with New Zealand *Austrosimulium* is that most of the species’ diagnostic characters are found, in the main, on pupae and sometimes on last instar larvae. Lack those and, at present, it is very difficult to identify material. Furthermore, none of it was suitable for DNA or chromosome analysis, both deemed necessary by Trevor Crosby and myself to help clarify some of the more difficult species complexes. So, apart from some months in the Tillyard vault familiarizing ourselves with existing collections, Ruth and I hired a camper van and set off to crisscross the North and South Islands, visit Stewart Island in the far south and to collect new material.

Some 16,000 km later we are fairly pleased with what we got. The North Island ended up being

somewhat boring in that there appears to only be four species present; with *Aust. australense*, the first simuliid ever described for New Zealand in 1868, being wide spread. Hence we were rather pleased to discover other species when we approached the volcanic plateau, the central highlands on the North Island. A more than interesting place, being a bit too volcanically active for my liking. Since we returned to Canada in March 2007, there has been a major lava flow and late this last September, an eruption on Mount Ruapehu, around and up which we collected.

So, our days on the road consisted pretty much of getting up in the morning, doing things by numbers, since the camper van was a smaller one, consulting the map and seeing where the next stream or river was. We kept in mind to try and spread the collecting localities out evenly, paying attention to where type localities might be – not always successfully I might add. Find a stream, screech to a halt and throw ourselves at the water. Ruth is an excellent field assistant and we work together as smooth as silk. An hour allows us to collect sufficient material for any analysis. Three tubes and we have it all – alcohol collection for morphological and DNA work, Carnoy's for chromosome work and live pupae for reared adults. Hard to beat. We took photographs, water quality details and other physical parameters, including GPS and altitude. Gone are the days when a label might say only 'Auckland' and you'd get away with it. Back into the vehicle and off to the next site, and so on. But, hang on a minute!!! It did not take long to find out that five sites a day was the maximum that we could deal with. Why? Well, alcohol material for DNA analysis needs to have about three washes to get rid of the water that leaches out of the larvae. Similarly any material fixed in Carnoy's. Oh, and then there are the semi-permanent labels, which include the latitude, longitude and other details. Live pupae needed to be put into separate rearing tubes. The time for working at the locality and driving between them and then that processing of material all adds up. You do the arithmetic. Hmm, and then there is entering information from the field note book into a computer data base and field diary - oh, and dealing with the images too. So, the evenings which started at about 4:30pm consisted of me entering data into my laptop computer, writing permanent labels, flushing collections and so on. Ruth would sort the material a bit and make preliminary identifications and then start cooking supper. Somewhere about there a bottle of wine would be cracked. Wash dishes, clean up, do things by numbers in reverse, read for a while and go to sleep about 10:00pm. I spent quite a bit of time reading a recently (2006) published book by George Gibbs, titled "Ghosts of Gondwana" where he considers the historical biogeography of New Zealand biota. In part, that biota is not as ancient as it might appear at first blush.

Very regular hours and then up and at it the next day again. We usually stayed at what are called 'holiday camps', specifically set up for the RVing crowd. Rarely had a bad one, indeed some we didn't



Fig. 4. Ruth Craig at work sorting New Zealand simuliids. Tillyard Vault, Landcare Research Inc., Auckland, New Zealand. Notice the jars full of shell vials on the bench to the left – not all by any means.

want to leave. Otherwise we did what was termed ‘free camping’. The Department of Conservation (DOC) in New Zealand provides primitive campsites in many places and these are supplied with, at minimum, a one-holed toilet. A modest fee of a few dollars and you can stay pretty much as long as you like in such campsites. We had some wonderful times with just ourselves and the black flies (Fig. 5).

A sad aspect of this modern day and age, where data is more valuable than most other things, is that, when we could, we chose a holiday camp that had wireless broadband access to the internet. I would upload all the information to the server at Landcare in Auckland. Worked very well most of the time. We had good reason to be a bit paranoid since we have had experience with vehicle break-ins while in New Zealand. Indeed this time the van was too, but luckily nothing stolen.

So, all was clearly not beer and skittles, and the driving was onerous at times on the back roads. While these got us to interesting and undisturbed places, they could be dangerously windy and narrow, to the point at times where I wondered just what in the devil I’d do if I met another vehicle. Further, Ruth became seriously ill for a while in the South Island and we got to see New Zealand’s medical system up close – pretty good actually. Then while she recovered, I went down for the count. Whatever it was, and we still do not know (leptospirosis maybe), it walloped the living daylight out of us and dogged us with after affects for a month or more. So, while we survived, we lost about a month in total. Hence the South Island was collected in haste – we didn’t even glance at Stewart Island as we drove by. Too, we unknowingly drove right past some type localities – but what great excuses for a return expedition.

When we arrived in New Zealand early in October 2006, it should have been a nice spring. Nah, nothing doing! We ran into one of the now, all-too-common, late, wet snowy springs. Try collecting aquatic insects in a raging torrent at 1,000m in a blizzard of wet snow. Flooding was a major problem for us in the early period in the North Island. So, then, guess what? We had a drought! Around East Cape of the North Island we drove over a number of substantial river beds that were bone dry and looked like they had been so for quite a while. Others that still had water, were full of algae. Still we did pretty well all-in-all. Oh yes, that region is good wine country.

The South Island is in my mind the better place to be, mind you I am biased – I grew up in Nelson, Ruth too. Moreover, there are more species of simuliid there and the geology is quite fascinating. Remember that New Zealand is a small splinter of Gondwana. Indeed, at a place called Curio Cove, between Dunedin and Invercargill, one can walk across a fossilized forest that is of Jurassic age. Hence the title for this article, modified from that of Gibbs’ book regarding the Gondwanan component of New Zealand biota and of which *Austrosimulium* is one. Well, the genus does occur in Australia and Tasmania and its sister taxon *Paraustrosimulium* is in South America.



Fig. 5. Primitive(?) camping. Cobb River, NW South Island.

Much of the West Coast is granite from the Australian Plate pushing up against, and sliding along more recent rocks of the Pacific Plate to the east – thence the spectacular Southern Alps. Have no doubt, this is a geologically active place. So, when the weather was fine, we got to see some of the best scenery this planet has to offer – mountains rising out of sea level plains, glaciers almost reaching the coast, rugged sea coasts, unusual geological formation, ancient podocarp forests, weird birds such as the kea - a mountain parrot. Spectacular destructive clowns would describe these rather large birds. For fun, so it appears, they will pull the foam rubber out from your vehicle’s door surrounds, rip the windscreen wipers off and then cackle as they fly away – Grrrrr!

We climbed a few mountains. Some familiar, such as up to Temple Basin, Arthurs Pass, South Island. Can’t figure out why, but it seemed a lot further than it did 40 years ago. And we didn’t get the simuliid species we were looking for. Great scenery though (Fig 6). Another site that took our breath away was both being lowered together in a bucket from a bungee-jumping bridge into what is called Gravity Canyon (Fig. 7), on the Rangitikei River in the North Island. Good collection of *Aust. tillyardianum* too.

I alluded to natural justice at the beginning and both Ruth and I left a considerable amount of blood in New Zealand, albeit in exchange for thousands of simuliid specimens. Usually this involved *Aust. unguatum*, the main biter in the South Island. After some lousy weather as we approached the Milford Sound area, we were rewarded by a stunningly sunny, dry day in the Eglington Valley. A DOC campground and nobody else there – wonderful! I’m working on data entry, Ruth is reading and we have the sliding side door on the camper van open. What we didn’t notice was that the female simuliids were sneaking in over the door sill and accumulating in the wheel wells and anywhere else it was dark. Come sundown they arose and we were smote mightily! Yes, *Austrosimulium* females will bite at night and inside a vehicle! Next morning there were at least 50 blood-fed females on the windows trying to get out of the van. Smashed dead flies were many and then, as at other times, they formed drifts on the floor. Such reintroductions to New Zealand sandflies have altered our perceptions regarding biting rates. We admit to being far far less tolerant now. To cut to the chase – biting by black flies on the West Coast of New Zealand is a major deterrent to tourism. But, hey, not to worry, there are

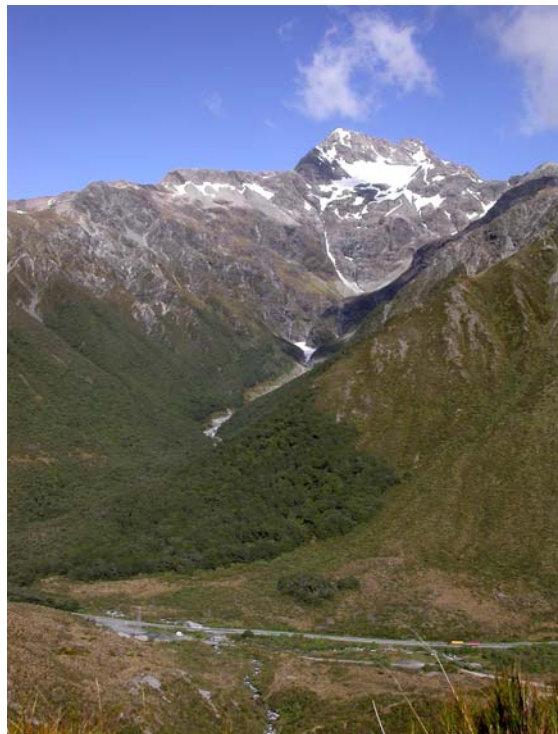


Fig. 6. View of Mount Rolleston, Arthurs Pass, South Island, from Temple Basin track.

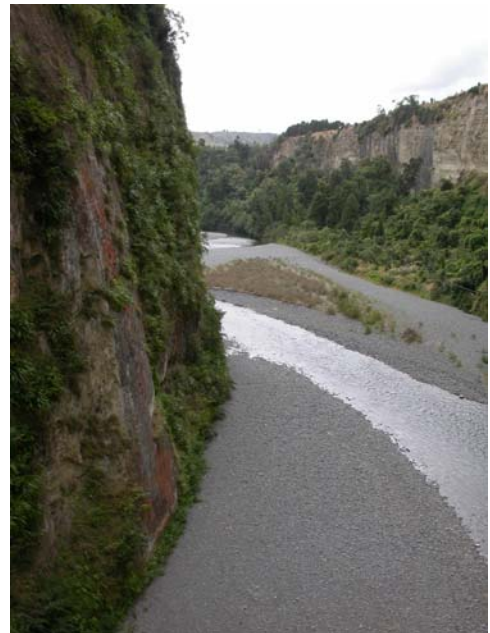


Fig. 7. Gravity Canyon, Rangitikei River, North Island. A fairly typical *Aust. tillyardianum* locality.

fresh tourists each year – an interesting attitude – accurate though!

So enough! Ruth and I are slugging away at the material we collected. She is sorting the some 120 tubes from the South Island and trying to make sense of it – up to four species per collection. We either have some very variable species, or have species complexes of some sort or other. Me, well, I am trying to keep up and do full descriptions of what we deem to be definitive species – the difficult stuff can wait. That includes doing despicable things to the nether ends of adults. I am getting really good with a hypodermic needle – if only the public knew. But then I have to draw these private parts of both sexes – some 30-40 illustrations – not so much fun.

This is going to probably be a 3-4 year job, but should end up resulting in a monograph in the Fauna of New Zealand, a series that Landcare publishes. Of course we will have to go back and fill in some gaps and we plan to do that at the end of 2008 and into 2009. There are still many New Zealand wines we didn't taste. I didn't mention the stunning cheeses – did I? Worth a trip just for those.

Global Warming - If Only Everyone Did Their Bit!



Art Borkent at the foot of Angel Glacier in Jasper National Park, Alberta, helping to keep it together.

Sphaerocerids from Iran

by Mehrdad Parchami-Araghi

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I have started working on sphaerocerid fauna of Iran now that I have returned to that country. Despite the recently imposed fuel rations in Iran, I managed to travel to the western provinces of Zanzan, Lorestan and Kurdistan where I was amazed by the Zagros Mountains scenery. The insect fauna of Kurdistan is almost unknown thanks to Iran-Iraq war and armed activities of Kurd separatists in this area. I was able to collect a significant number of sphaerocerids and other saprophagous acalyptrate families (Fig. 1). At the moment, I am removing the specimens from alcohol using HMDS. I am planning to provide an interim report including some of my interesting findings for the next issue of *Fly Times*.



Fig. 1. The author collecting flies on cattle dung in Saral green pastures (Divandarreh, Kurdistan province) while being warmly received by the inhabitants! (July 2007).

New Canadian Diptera Students Studying Systematics or Conducting Biodiversity Surveys

by Jeff Skevington

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There are several new Diptera Systematics and Biodiversity students on the scene in Canada this year. Please welcome them to the community and help them out when you can. They work on a variety of different taxa and are certainly eager to obtain additional material for their projects.

Matthew Bergeron, M.Sc. candidate, University of Guelph. Supervised by Steve Marshall. Matthew did his undergraduate thesis on a small group of limosinine sphaerocerids (a species group in the giant genus *Pterogramma*), and he has since started his M.Sc. work on a more manageable limosinine genus, *Coproica*. Matt can be reached at bergeron@uoguelph.ca.

Dave Cheung, M.Sc. candidate, University of Guelph. Supervised by Steve Marshall.

Dave has been working in the Marshall lab since early 2004 and started his M.Sc. project this September. He led the development of a web key on the Mecoptera of Ontario as an extension of his undergraduate thesis (http://www.biology.ualberta.ca/bsc/ejournal/cmw01/cmw_01.html). For his M.Sc. research he is proposing to develop a digital key for commonly encountered nursery pests. Contact him at dcheung@uoguelph.ca.

Hui Dong, Ph.D. candidate, University of Guelph, Co-supervised by Ding Yang and Steve Marshall. Hui will be spending one year at Guelph working on the Pacific sphaerocerid genus *Biroina*, beginning in early October. Hui's excellent and detailed drawings of fly bits and pieces have graced several recent papers on Oriental Diptera, and we look forward to her work on the large number of Pacific limosinines in the Guelph collection. Contact her at fishdh@gmail.com.

Joel Gibson, Ph.D. candidate, Carleton University. Co-supervised by Jeff Skevington and Stewart Peck. Joel did his M.Sc. on Blephariceridae at Iowa State University with Greg Courtney. He has made a shift to higher flies for his Ph.D. and started working on systematics of Conopidae this fall. Joel plans to revise the higher classification of conopids and present a phylogenetic hypothesis for the genera based on molecular and morphological data. He also intends to focus on some problems within *Stylogaster*. This will include a study of species group relationships of *Stylogaster* and the revision of the species in at least one species group. He welcomes material collected in 95% alcohol for his project. Contact him at gibsonj@agr.gc.ca.

Gil Felipe Gonçalves Miranda, Ph.D. candidate, University of Guelph. Co-supervised by Steve Marshall and Jeff Skevington.

Gil is from Brasil and he has worked with Syrphidae (Diptera) since his undergraduate years. He started working on a syrphid survey in a park in the state of Paraná. During the survey, identification of syrphid specimens was shown to be rather problematic. Afterwards, Gil was determined in solving some of the identification problems and delved into systematics hoping to understand more and facilitate species identification in the group. As a MSc. candidate in the Universidade Federal do Paraná (UFPR), his project involved the problematic genus *Ocyptamus* trying to sort out the sub-groupings through cladistics. The results led to his current project that includes the revision of the genus *Salpingogaster* and a broader cladistic analysis involving it and *Ocyptamus*. He started his Ph.D. this September. Contact him at ggoncalv@uoguelph.ca.

Morgan Jackson, M.Sc. candidate, University of Guelph. Co-supervised by Steve Marshall and Jeff Skevington.

Morgan has worked in the Guelph systematics lab since September 2006. He has worked on digital keys to both Ontario Stratiomyidae and Tephritidae. Watch for these in the future in the *Canadian Journal of Arthropod Identification*. His M.Sc. commenced in September and will delve into systematics of Micropezidae. Specifically, he intends to revise *Taeniptera* and explore the relationships of this genus with *Poecilotylus*. As it stands, these taxa may not be monophyletic so he will be producing a phylogenetic hypothesis based on morphological and molecular data to test this. Contact him at jackson@uoguelph.ca.

Joel Kits, Ph.D. candidate, University of Guelph. Supervised by Steve Marshall.

Joel is not really a new student, since he was previously a M.Sc. student at University of Guelph looking

at the sphaerocerid genus *Archiborborus*. He is, however, new to the doctoral program as of this summer. He is still working with the sphaerocerid tribe Archiborborini but he will be taking a somewhat broader look at the group than was possible in the Master's program. Joel has also been working on a review of the northeastern Bombyliidae, a project that developed from his undergraduate thesis on *Villa*. Watch for his new key in the *CJAI*. Joel can be reached at jkits@uoguelph.ca.

Anais Renaud, M.Sc. candidate, University of Manitoba. Co-supervised by Rob Roughley and Jade Savage.

Anais is working on a survey of the Muscidae and Fanniidae of Churchill (MB) to determine the species diversity and abundance of Arctic Diptera. Changes that have occurred since 1965 will be the focus of her survey. Some specimens will be sent to the Polar Barcode of Life. She conducted her first field season this summer and officially started her M.Sc. this fall. Contact her at anais_renaud@umanitoba.ca.

New Dipterist at the California Department of Food and Agriculture, Sacramento

Alessandra Rung has taken a position as an Associate Insect Biosystematist in the Plant Pest Diagnostics Branch of the California Department of Food & Agriculture in Sacramento. Although her diagnostics responsibilities are for Auchenorrhyncha, she is free to pursue whatever dipterological endeavors she may wish! She follows two other dipterists who have held this post – first Jeff Skevington (now in Ottawa) and more recently Shaun Winterton (now in Brisbane, Australia). Third time's the charm!

Alessandra's new contact details are in the *Directory of North American Dipterists* and you can learn more about her at: <http://www.cdfa.ca.gov/phpps/ppd/staff/arung.html>

Master's student sought at Wright State University, Ohio

by John O. Stireman III
 Department of Biological Sciences
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 Dayton, Ohio 45435, USA; john.stireman@wright.edu

I am seeking a student to pursue a MSc degree in Biological Science at Wright State University focused on the systematics and biology of tachinid flies. This position is supported as part of a larger NSF-funded biological surveys and inventories project to document the diversity of Lepidoptera and parasitoid taxa and their interactions in the montane rainforest of Ecuador. We have collected and reared (from Lepidoptera) an enormous diversity of tachinids from Ecuador, many of which are undescribed. The student will work with me (as well as apprenticing with J.E. O'Hara, Agriculture & Agri-Food Canada, Ottawa) to select a manageable taxon to revise and analyze phylogenetically, as well as contribute to research analyzing ecological associations and patterns of diversity of Ecuadorian tachinids.

The project will involve travel to and collecting in Ecuador, travel to the Canadian National Collection (Ottawa), and travel to the United States National Museum (Washington) for museum work. Funds are available to support travel and research and partial stipend support, but the student is also expected to spend at least one year as a teaching assistant for various biology courses at Wright State University and must be academically competitive to obtain these assistantships. Stipend and teaching assistantship support are ca. \$US4000/quarter.

If interested, please send your curriculum vitae and a statement of interests to me at the e-mail address above.

S.W. Williston Diptera Research Fund and Others

by F. Christian Thompson

Systematic Entomology Lab., USDA, c/o Smithsonian Institution, MRC-0169 NHB,
PO Box 37012, Washington, DC, 20013-7012 USA; cthompso@ars.usda.gov

The Diptera group in Washington is fortunate to have two small endowment funds to support Diptera Research. The first, the S.W. Williston Diptera Research Fund, was established in the 1970s and is open to further donations to its principle by anyone. The principle has been slowly increasing over the years by donations from local dipterists, such as Norman Woodley, Steve Gaimari, Darlene Judd, and others. About \$5,000 is available annually to support current activities. A second fund, the Curtis W. Sabrosky, was established by Curt's will and is a closed fund (no new contributions accepted). From the Sabrosky Fund, about \$4,000 is available annually. Support may be requested at any time. The selection committee meets a couple of times a year or as needed to evaluate proposals. For complete information about these funds, go to our Diptera web site and look under opportunities (<http://www.sel.barc.usda.gov/Diptera/willisto.htm>).

Recent awards have been made to Mihaly Foldvari of Hungary to study pipunculids at the USNM; Tadeusz Zatwarnicki of Poland to study ephyrid types in various European museums; Elizabeth Quisberth of Bolivia to study fruit flies (Tephritidae) under Allen Norrbom at USNM; and Torsten Dikow to attend the 2007 field meeting of the North American Dipterists Society in New Mexico.

Tony Adisoemarto Passes Away

We regret to report that Tony Adisoemarto passed away this year at the age of 71. Tony spent most of his career at the Bogor Museum in Indonesia, but did his graduate work on Asilidae in Alberta (M.Sc) and Ottawa (Ph.D.). He published five papers on Diptera and described 28 species.

Worth a Read

by Art Borkent
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This past summer I was able to put my feet up and read a few good books. One of these was “Apollo’s Arrow, the Science of Prediction and the Future of Everything” by David Orrell. He examines the modelling used in predicting weather, economic patterns and health and suggests that current models, in spite of billions of dollars of financing, are fatally flawed. His witty and readable interpretation of how reductionist science has generated models in these areas that cannot interpret emergent patterns makes this book worth buying. As biologists it behoves us to remember that, as the author states, “living things have properties that elude prediction.”

DNA Barcoding Identification Success in Diptera

There have been numbers of papers arguing the theoretical aspects of barcoding and the contribution it should or could make to interpreting the diversity of life on our planet. The paper cited below is an important contribution to this area of science because it provides empirical analysis of how well barcoding works and the future prospects of using this technique to describe and identify species. The authors investigated 1333 mitochondrial COI sequences for 449 species of Diptera and found a relatively low identification success rate (< 70%) based on tree-based and newly proposed species identification criteria. Even when two COI sequences were identical, there was a 6% chance that they belonged to different species and they also found that 21% of all species lacked unique barcodes.

Meier, R., K. Shiyang, G. Vaidya, & K.L. Ng. 2006. DNA barcoding and taxonomy in Diptera: a tale of high intraspecific variability and low identification success. *Systematic Biology* 55: 715-728.

Get a copy and read this informative publication. It’ll make you rethink the likelihood that we will all be walking around in a few years with handheld tricorders identifying those little life forms.

Books and Publications

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

Agnarsson, I. & M. Kuntner. 2007. Taxonomy in a changing world: Seeking solutions for a science in crisis. *Systematic Biology* 56: 531-539.

Amorim, D. S. & E. Rindal. 2007. Phylogeny of the Mycetophiliformia, with proposal of the subfamilies Heterotrichinae, Ohakuneinae, and Chiletrichinae for the Rangomaramidae (Diptera, Bibionomorpha). *Zootaxa* 1535: 1-92.

- Amorim, D.S. & D. Yeates. 2006. Pesky gnats: ridding dipteran classification of the Nematocera. *Studia Dipterologica* 13: 3-9.
- Bernasconi, M.V., M. Pollet & P.I. Ward. 2007. Molecular systematics of Dolichopodidae (Diptera) inferred from COI and 12S rDNA gene sequences based on European exemplars. *Invertebrate Systematics* 21: 453-470.
- Blagoderov V., D.A. Grimaldi & N.C. Fraser. 2007. How time flies for flies: diverse Diptera from the Triassic of Virginia and early radiation of the order. *American Museum Novitates* 3572: 1-39.
- Bonneton, F., F.G. Brunet, J. Kathirithamby & V.A.D. Laudet. 2006. The rapid divergence of the ecdysone receptor is a synapomorphy for Mecoptera that clarifies the Strepsiptera problem. *Insect Molecular Biology* 15: 351-362.
- Brown, B.V. 2007. A further new genus of primitive phorid fly (Diptera: Phoridae) from Baltic amber and its phylogenetic implications. *Contributions in Science* 513: 1-14.
- Buck, M. & S.A. Marshall. 2006. Revision of the Neotropical family Inbiomyiidae (Diptera, Schizophora). *Contributions in Science Los Angeles*. 513: 1-30.
- Cameron S.L., C.L. Lambkin, S.C. Barker, & M.F. Whiting. 2007. A mitochondrial genome phylogeny of Diptera: whole genome sequence data accurately resolve relationships over broad timescales with high precision. *Systematic Entomology* 32: 40-59.
- Cumming, J.M. 2007. *Baeodromia*, a new genus of Tachydromiine fly from the New World (Diptera: Empidoidea; Hybotidae). *Journal of the Entomological Society of Ontario* 137 (2006): 41-49.
- Gaimari, S.D. 2007. Three new Neotropical genera of Odiniidae (Diptera: Acalyptratae). *Zootaxa* 1443: 1-16.
- Gibson, J.F. & G.W. Courtney. 2007. Revision of the net-winged midge genus *Horaia* Tonnoir and its phylogenetic relationship to other genera within the tribe Apistomyiini (Diptera: Blephariceridae). *Systematic Entomology* 32: 276-304.
- Harzsch, S. & G. Hafner. 2006. Evolution of eye development in arthropods: Phylogenetic aspects. *Arthropod Structure & Development* 35: 319-340.
- Huber, B.A., B.J. Sinclair & M. Schmitt. 2007. The evolution of asymmetric genitalia in spiders and insects. *Biological Reviews* 82: 647-698.
- Joy, J.B. & B.J. Crespi. 2007. Adaptive radiation of gall-inducing insects within a single host-plant species. *Evolution* 61: 784-795.
- Kerr, P.H. 2007. Revision of the Holarctic genus *Novakia* Strobl (Diptera: Mycetophilidae). *Zootaxa*: 1554: 27-40.
- Lonsdale, O. & S.A. Marshall. 2006. Redefinition of the Clusiinae and Clusioidinae, description of the new subfamily Sobarocephalinae, revision of the genus *Chaetoclusia* and a description of *Procerosoma* gen. n. (Diptera : Clusiidae). *European Journal of Entomology* 103: 163-182.
- Lukashevich, E. D., D.-Y. Huang, & Q.B. Lin. 2006. Rare families of lower Diptera (Hennigmatidae, Blephariceridae, Perissomatidae) from the Jurassic of China. *Studia Dipterologica* 13:127-143.
- Masters, J. C. 2007. Taking phylogenetics beyond pattern analysis: Can models of genome dynamics guide predictions about homoplasy in morphological and behavioral data sets? *Journal of Human Evolution* 52: 522-535.
- Meier, R., K. Shiyang, G. Vaidya, & K.L. Ng. 2006. DNA barcoding and taxonomy in Diptera: a tale of high intraspecific variability and low identification success. *Systematic Biology* 55: 715-728.
- Michelsen, V. 2006. Annotated catalogue of the Anthomyiidae, Fanniidae, Muscidae and Scathophagidae (Diptera: Muscoidea) of Greenland. *Steenstrupia* 29: 105-126.
- Moulton, J.K. & B.M. Wiegmann. 2007. The phylogenetic relationships of flies in the superfamily Empidoidea (Insecta: Diptera). *Molecular Phylogenetics & Evolution* 43: 701-713.

- Oosterbroek, P. 2006. European families of the Diptera: identification, diagnosis, biology. KNNV Publishing, Utrecht. 205 pp.
- Post, R. J., A. Krueger, & S.B. Somiari. 2006. Laser-assisted microdissection of polytene chromosomes from Diptera for the development of molecular markers. *Molecular Ecology Notes* 6: 634-637.
- Sinclair, B.J. & J.M. Cumming. 2007. *Leptopezella*, a new Southern Hemisphere genus of Ocydromiinae (Diptera: Empidoidea: Hybotidae). *Zootaxa* 1629: 27-37.
Contains an appendix with several corrections to Sinclair & Cumming (2006) "The morphology, higher-level phylogeny and classification of the Empidoidea (Diptera). *Zootaxa*: 1180: 1-172."
- Sinclair, B.J., A. Borkent & D.M. Wood. 2007. The male genital tract and aedeagal components of the Diptera with a discussion of their phylogenetic significance. *Zoological Journal of the Linnean Society* 150: 711-742.
- Sultana, F., Y.-G. Hu, M.J. Toda, K. Takenaka, & M. Yafuso. 2006. Phylogeny and classification of *Colocasiomyia* (Diptera, Drosophilidae), and its evolution of pollination mutualism with aroid plants. *Systematic Entomology* 31: 684-702.
- Sundermann, A., S. Lohse, L.A. Beck, & P. Haase. 2007. Key to the larval stages of aquatic true flies (Diptera), based on the operational taxa list for running waters in Germany. *Annales de Limnologie* 43: 61-74.
- Szakacs, T.A., P. MacPherson, B.J. Sinclair, B.D. Gill & A.E. McCarthy. 2007. Nosocomial myiasis in a Canadian intensive care unit. *Canadian Medical Association Journal* 177(7): 719-720.

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: _____
