



FLY TIMES

ISSUE 34, April 2005

Jeffrey M. Cumming, co-editor
Invertebrate Biodiversity
Agriculture & Agri-Food Canada
CEF, Ottawa, Ontario, Canada, K1A 0C6
Tel: (613) 759-1834
FAX: (613) 759-1927
Email: cummingjm@agr.gc.ca

Art Borkent, co-editor
691 - 8th Ave SE
Salmon Arm, British Columbia
V1E 2C2, Canada
Tel: (250) 833-0931
FAX: (250) 832-2146
Email: aborkent@jetstream.net

Welcome to the latest *Fly Times*. As usual this issue contains our regular reports on meetings and activities, opportunities for dipterists, as well as information on recent and forthcoming 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 will, of course, continue to provide hard copies to those without web access. 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 make requests and to share your opinions about what is happening in your area of study, or to pass on 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. 35 of the *Fly Times* will appear next October. If possible, please send your contributions by email, or disc, to either co-editor. Those of you without internet access may fax, or mail hard copy contributions. All contributions for the next *Fly Times* should be in by the end of September, 2005.

NEWS

NADS Informal Conference - 2005 Annual Meeting of the Entomological Society of America, Ft. Lauderdale, FL, November 6-9, 2005

by Gary J. Steck

Division of Plant Industry, Florida Dept. of Agriculture & Consumer Services
PO Box 147100, Gainesville FL, 32614-7100, USA; steckg@doacs.state.fl.us

There will be a session entitled "North American Dipterists' Society" to be held at the 2005 ESA Annual Meeting and Exhibition (November 6-9, 2005) in Ft. Lauderdale, Florida. Any member who plans to attend and would like to present a talk or lead a discussion on any Diptera topic, please submit your name, affiliation and address, and topic title to this year's organizer, Gary Steck (address above; phone: 352-372-3505 x188; fax: 352-334-0737). Let me know also how much time you will need (e.g., 15 minutes) and up to two key words that you want to appear in the program index. My **deadline** for completing submission of presenters, titles of talks, and other details to the ESA organizing committee is **Thursday, 5 May 2005**, so I must have your information before then! I am sure that PowerPoint equipment will be available. If you have other audio-visual needs (e.g., slide projector), please let me know that as well. You can typically count on delightful weather in South Florida at that time of year, as attendees of 2002 will remember (and, not to worry, Hurricane season officially ends on November 1!). See you there.

North American Dipterists Society, 2005 Field Meeting

by Greg Courtney

Department of Entomology, 3222 Science II, Iowa State University
Ames, Iowa, 50011, USA; gwcourt@iastate.edu

This is a final reminder for the next NADS field meeting, which is scheduled for 5-9 August, 2005, at Malheur Field Station (MFS). MFS is in southeastern Oregon, a short drive south of Burns, adjacent to Malheur National Wildlife Refuge (<http://malheur.fws.gov/>), and near Steens Mountain (<http://www.or.blm.gov/steens/>). The area contains a wide variety of terrestrial, wetland, and aquatic habitats, including sagebrush- and greasewood flats, cattail marshes, lowland ($\approx 1200\text{m}$) reservoirs, alpine lakes, cold- and hot springs, a large river, and numerous small streams. Steens Mountain, which harbors numerous alpine meadows, aspen groves, coldwater springs, and snowfed streams and wetlands, will be a focal point for the meeting's daily activities. The mountain has a maximum altitude exceeding 2900m and typically retains patches of snow throughout the summer, especially on north-facing slopes and in the many glacially-carved valleys. The latter (e.g., Kiger Gorge, Little Blitzen Gorge, Big Indian Gorge) are among the many spectacular scenes on Steens Mountain. The mountain also is known for its unusual plant and animal communities, including many endemic and disjunct species. East of Steens Mountain

is the low-lying Alvord Desert, a flat, vegetation-free ancient playa surrounded by sagebrush communities and many hot springs. The Alvord Basin can be reached easily on a day trip from MFS, and will be another destination for meeting participants. For images of the Malheur/Steens/Alvord area, see the following URL (i.e. paragraphs 4 and 5, and links therein): <http://www.ent.iastate.edu/fieldtrips/pn2002/>. The area's diverse habitats will provide many opportunities for collecting Diptera. Also note that a team of Iowa State University dipterists will set several malaise traps a week before the meeting, so we should have plenty of interesting material to examine and identify at the start of the meeting.

Tentative schedule:

5 August (Friday): Late afternoon & evening check-in at MFS, possible collecting at Malheur Wildlife Refuge, dinner at MFS, brief introduction to Malheur Wildlife Refuge, Steens Mountain, and Alvord Basin, and... for those interested... examination of recently collected (e.g., Malaise) material.

6-8 August (typical daily schedule): Breakfast at MFS & pack lunches for a day of exploring and collecting at Malheur Wildlife Refuge, Alvord Basin, and/or Steens Mountain. Dinner at MFS, followed by informal presentations, sorting of the day's collections, and general camaraderie.

9 August (Tuesday): Breakfast at MFS and check-out.

Logistics: Participants who fly to the west are advised to fly either to Boise (Idaho), Ontario (Oregon), or Bend (Oregon), then arrange for a rental car. Burns is located on US Highway 20 approximately 130 miles from both Ontario (2.5-3 hours east of Burns) and Bend (2-2.5 hours west of Burns), and 180 miles from Boise (45 minutes beyond Ontario). MFS is approximately 35 miles south of Burns, mostly on State Highway 205. MFS supports several summer college courses in the biological sciences, and has several dormitories, classrooms, and research laboratories. Dormitories, a classroom / wet lab (w/ dissecting scopes), a conference room, and one or two 15-passenger vans will be available to NADS meeting participants. Meal plans also are available.

Cost: Registration for the meeting will be \$45/person. Accommodation and meal costs include several alternatives. Assuming sufficient interest for a group discount, the following accommodation and meal package will be available: \$36/day/person for participants staying in the dorm, and including ALL meals (hot breakfast & dinner, sack lunch). **To receive this discount, registrants need to make reservations through Greg Courtney (gwcourt@iastate.edu).** Without the discount, the rate is \$40.50/day/person. Alternative accommodations at MFS include the following (meals NOT included): (1) kitchenettes: \$24/night/person; (2) trailers: \$40-\$80/night, depending on occupancy; (3) RV hookups: \$16/night. Arrangements for the latter three alternatives should be made directly through the MFS director (phone: 541-493-2629; email: mfs@highdesertair.com). For those who choose any of the latter options, meal plans are available as follows: breakfast (\$7.50), [bag] lunch (\$5.50), dinner (\$9.50), all meals (\$22.50). Again, these should be arranged through the MFS director. Non-MFS accommodations include several campgrounds (Page Springs CG near Frenchglen, and Fish Lake CG and Jackman Park CG on Steens Mountain) and numerous motels in Burns. More details, including registration forms and dorm/meal plan reservation forms, will be emailed to the NADS membership shortly.

North American Forensic Entomology Association

by Jeffrey D. Wells
 Department of Biology, West Virginia University,
 Life Sciences Building Room 3135, 53 Campus Drive, PO Box 6057
 Morgantown, WV 26506-6057, USA; jdwells@mail.wvu.edu

The recently formed North American Forensic Entomology Association will have its third annual meeting in Orlando, FL July 20-22. The deadline for early registration is May 15th. Questions about the conference or the organization may be sent to Jeff Tomberlin (jktomberlin@ag.tamu.edu) or John Wallace (john.wallace@millersville.edu).

Earlier meetings in Las Vegas and the University of California at Davis were well attended, and each included a strong scientific program and, shall we say, lively discussion. Of course Diptera was the dominant taxon of interest.

Additional information may be found at <http://www.msu.edu/~benbow/NAFEAWebSite.html>.

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



by Michael Spironello
 Department of Zoology, University of Toronto & Department of Natural History,
 Royal Ontario Museum, Toronto, Ontario CANADA; mikesp@rom.on.ca

The 3rd annual meeting of the North American Black Fly Association (NABFA) was held 5-7 February 2005 at the Archbold Biological Research Station in Lake Placid, Florida. The meeting was chaired by J.P. Overmyer of the University of Georgia, and organized by J.P. Overmyer and M. Spironello. Forty-seven workers attended, including two workers from outside North America. The next annual meeting will be held again at the Archbold Biological Research Station in February of 2006.

The formal launch of the NABFA website (<http://www.zoo.utoronto.ca/mspironello/NABFA>) occurred just prior to the meeting, and is now up and running as a resource for NABFA members and any other entomologists interested in simuliidology and/or the association.

The following 24 presentations were given at the 2005 meeting (abstracts can be downloaded from the NABFA website <http://www.zoo.utoronto.ca/mspironello/2005 Meeting Abstracts.pdf>)

- Yes Virginia, we already know there are black flies in Vanuatu. **Doug Craig**, University of Alberta, Edmonton, Alberta
- Feminization of larval black flies (Diptera: Simuliidae) infected with mermithid nematodes (Nematoda: Mermithidae). **Amy Sharp** and Fiona F. Hunter, Brock University, St. Catharines, Ontario
- Pennsylvania black fly suppression program control problems caused by high stream flow. **Doug Orr**, PA Department of Environmental Protection Black Fly Suppression Program
- The Caucasus: a hotspot for black fly symbiotes? **Mark P. Nelder**, Peter H. Adler, Clemson University and Eugenie A. Kachvoryan, Institute of Molecular Biology, National Academy of Science, Yerevan, Armenia
- Good species behaving badly: apparent paraphyly of black fly sibling species in the *Simulium arcticum* complex (Diptera: Simuliidae), **Mike Spironello** and Doug Currie, University of Toronto and Royal Ontario Museum, Toronto, Ontario
- Public perception of annoyance from black flies in the Twin Cities metropolitan area. **Ken Simmons**, Nancy Read, John Walz, Metropolitan Mosquito Control District, St. Paul, MN
- Black fly biodiversity and speciation from an ecological perspective. **Murray H. Colbo**, Department of Biology, Memorial University, St. John's, Newfoundland
- Spatial & temporal heterogeneity: implications for the ecology of low-gradient streams, **Len Smock**, Department of Biology, Virginia Commonwealth University, VA
- Post-translation modifications and physical characterization of larval salivary gland proteins, **Andrius Masedunskas**, Lewis Pannell and Charles Brockhouse, University of South Alabama, AL
- Black fly involvement in the epidemic transmission of vesicular stomatitis New Jersey virus. **Daniel Mead**, Southeastern Cooperative Wildlife Disease Study, College of Veterinary Medicine, University of Georgia, GA
- Black fly control in the urban west: problems and solutions at the greater Los Angeles County vector control district. **Paul F. O'Connor**, Jack E. Hazelrigg, Michael W. Shaw and Mino B. Madon, Greater Los Angeles County Vector Control District
- Sibling species of the black fly *Simulium arcticum* complex (Diptera: Simuliidae) emerge at different elevations. **Gerald F. Shields**, Christina S. Marchion, Tracy L. Michel, Kathryn C. Styren, Callie N. Riggin and Tonya D. Santoro, Department of Natural Sciences, Carroll College

- More on sibling species diversity within the *Simulium arcticum* complex (Diptera: Simuliidae) in Montana. **Gerald F. Shields**, Department of Natural Sciences, Carroll College
- Experiences in black fly research program in the region of Novi Sad (Serbia and Montenegro) and control by application of B.t.i. **Aleksandra Ignjatovic Cupina**, Dusan Petric, Aleksandra Konjevic, Marija Zgomba, and Dusan Marinkovic University of Novi Sad, Serbia and Montenegro
- Just a little southeast of Nome: the black flies of East Beringia, **Peter H. Adler**, Clemson University and Doug C. Currie, University of Toronto and Royal Ontario Museum
- Distribution, life history and pest status of the *Simulium jenningsi* species group in Pennsylvania, **Dave Rebuck**, Pennsylvania Department of Environmental Protection, Division of Vector Management.
- Alimentary system of larval black flies (Diptera: Simuliidae): structure and phylogeny **Samkyu Kim** and Peter H. Adler, Department of Entomology, Soils and Plant Sciences, Clemson University
- A genetic look at the black flies of the Galapagos, **Gillian Richard**, Charles Brockhouse, University of South Alabama, Cecilia Coscaron-Arias, Darwin Foundation
- Notes on trichomycetes: development, growth and a few new tricks, **Svjetlana Vojvodic**, John McCreadie, University of South Alabama, AL
- Barcodes for black flies: can COI sequence data accurately distinguish species? **Doug Currie**, University of Toronto and Royal Ontario Museum and Peter Adler, Clemson University
- Landscape features and species assemblages - the big, big picture, **John McCreadie**, University of South Alabama, and Peter Adler, Clemson University
- Molecular phylogeny of *Cnephia*, **Kenneth Pruess**
- West Virginia Department of Agriculture Black Fly Control Program, **Lois E. Swoboda**, West Virginia Department of Agriculture
- Mitigating the effects of algae on *B.t.i* efficacy: exposure concentration and time, **Jay Overmyer**, Elmer Gray, and Ray Noblet, University of Georgia, GA
- Black flies, tanning, and health concerns **Eddie Beard**, Clemson University, SC

Sixth International Congress of Dipterology, Fukuoka, September 2006

The ICD6 will be held from the 23rd to the 28th of September, 2006 in Fukuoka, Japan. For important information about the Congress visit the ICD6 website at <http://apollon.nta.co.jp/6icd>. This site can also be accessed through our NADS website at <http://www.nadsdiptera.org/ICD/ICDhome.htm>.

Great Smoky Mountains National Park - All Taxon Biological Inventory (ATBI) Diptera Update

by Gary J. Steck & Bruce Sutton
Florida State Collection of Arthropods
Division of Plant Industry, Florida Dept. of Agriculture & Consumer Services
PO Box 147100, Gainesville FL, 32614-7100, USA
steckg@doacs.state.fl.us; suttonb@doacs.state.fl.us

The Diptera TWIG (Taxonomic Working Group) of the ATBI came to life with the first (and only) Diptera blitz in 1999. At that time, attending Dipterists estimated that the Park was likely home to some 5,000 species of flies. Major achievements following the blitz include substantial accountings of diversity of several groups, such as the biting flies (Reeves et al. 2004), Tephritidae (Steck & Sutton 2005), Chironomidae (Epler & Caldwell), and Tipulidae (Peterson). Will Reeves, under the TWIG leadership of Peter Adler and with input of numerous Diptera specialists, ultimately compiled a database of nearly 1,400 records comprising approximately 650 Diptera species for the Park.

Since 2003, activities of the Diptera TWIG have seriously flagged. Becky Nichols (National Park Service) has requested that we assume leadership of the Diptera TWIG to ensure that it remains an important component of the ATBI. Towards this end, we have compiled a preliminary Diptera checklist (Steck & Sutton 2004, unpublished), based on Reeves's data, the substantial holdings in the Park's collection at Sugarlands (data provided by A. Mayor), and our own records. Further, we successfully solicited the assistance of several specialists among the *Fly Times* readership to add records, and validate the taxonomy and nomenclature of their groups. Presently, the checklist comprises nearly 1,500 names - a surprisingly large number, almost as large as the Coleoptera checklist! Clearly, fly diversity is very high in GSMNP. For example, about 50% of all Tephritidae species known from east of the Mississippi River can be found in the Park; many are considered very rare, and a few are undescribed. If initial estimates of total fly diversity in the Park are correct, this leaves us with a knowledge of only about 1/4 to 1/3 of the Diptera species actually present. The preliminary checklist provides us with a solid basis for targeting various families for greater emphasis in the future.

Since Bruce and I attended that first Diptera blitz in 1999, we have accumulated over 1,000 bulk samples from 6-meter Malaise traps at various locations in the Park and many hand-collected specimens. The bulk samples are unique for several reasons: (1) Most trapping was done at meadow-forest ecotones and in large open areas that are relatively rare in the heavily forested mountains of the Park; these areas were almost totally neglected in the ATBI "structured samples"; (2) 6-meter Malaise traps are far more productive of Diptera than the 6-foot Malaise traps used in ATBI structured samples; (3) Traps were run dry (no alcohol), emptied every 2-3 days, then frozen, specifically to facilitate preparation and identification of Diptera (but, yes, Lep scales are a nuisance in some samples); (4) Traps were run continuously for long periods (e.g., March-October of 2004) and over several years at some sites, for a total of over 2,000 trap-days; the largest number of samples originated in western Cades Cove (ca. 1,500' elevation) and The Purchase (4,800'); a smaller number of samples are from Twin Creeks Resource Center, and a very few samples are from Newfound Gap, Oconaluftee, and Balsam Mountain.

Bulk samples are stored in freezers at the FSCA. Approximately 1/4 of the samples from 2003-2004 have been sorted to order by FSCA staff (all Leps removed!) and many of the Diptera selected for pinning and

labeling. To date, approximately 2,000 Diptera of miscellaneous families have been pinned and labeled separately from the target species (tephritoids, Tabanidae) of our work. We are soliciting new funding from Discover Life In America (DLIA) to allow continued sorting of specimens to family, pinning, labeling, and distribution to specialists for identification, followed by entry of label data into the ATBI database. We are certain that these samples contain hundreds, if not thousands, of new Park records across all Orders, rare species, and species new to science, as has already been amply demonstrated for tephritids and other groups.

OK, is anybody interested? We cannot realistically sort everything, but we will extract and pin/label specimens of families for which we can get serious “takers” from among the readership. Please contact us if you are willing and able to identify any of this material to species level, and can provide substantial results within a year’s time. You may retain the major portion of the identified material for your own institutional collection; however, we expect that label data be provided for retained specimens, and a synoptic collection be returned for deposition in the FSCA and GSMNP museums.

Reeves, W. K., P. H. Adler, W. L. Grogan, and P. E. Super. 2004. Hematophagous and parasitic Diptera (Insecta) in the Great Smoky Mountains National Park, USA. *Zootaxa* 483: 1-44.

Steck, G. J. and B. D Sutton. 2005. New records of Tephritidae (Diptera) from Great Smoky Mountains National Park - III: with a checklist of the species. *Insecta Mundi* (ms Jan 2005)

Surviving Vanuatu

by Doug Craig,

Department of Biological Sciences, University of Alberta,
Edmonton, T6G 2E3, CANADA; d.craig@ualberta.ca

No, we did not go to Vanuatu to see where the reality TV show was produced, although there is quite the trickle of tourists who do go there for that. Our visit was an opportunistic one following the International Congress of Entomology in Brisbane in August, 2004. On the Sunday after the Congress I flew to Port Vila and my wife Ruth flew up later that day from Auckland, where she had been visiting our daughter. Meeting in such a far flung place, where the possibility of flights not arriving is moderate, was a bit fraught with anxiety, but the connection was achieved without trouble.

When going on an expedition such as we were, it well behooves one to read John Steinbeck’s “Log of the Sea of Cortez”. In that work, he asks some very pertinent questions, the first of which is “Why go?” For us it was to collect Simuliidae to allow a taxonomic revision of the somewhat unusual subgenus *Hebridosimulium*, found both in Vanuatu and Fiji. Further, *Hebridosimulium* appears related to the subgenus *Wallacellum* found to the west in Sulawesi and north in the Philippines, but oddly not in Papua New Guinea, or the Solomon’s. So, then “Whom do you take with you?” Well, for me that is a given – my wife Ruth is one of the best field assistants one could have. In large part this is because she has been in the field many times before and when the chips are down is mentally and physically tougher than I am. Then “What gear should you take?” In large part, again, this is a given - we take collecting gear

that we know has worked elsewhere. Sometimes, however, equipment does change and for the first time I took a digital camera in addition to a back-up film camera. Also, a lap-top computer. Both these items introduced, however, a problem of going to places where there was no electricity. So, extra batteries were required and consideration as to how long the electronics would work before one got to a place where they could be recharged. Clothing for tropical climates is always problematic. One wants to be well protected from cuts and scrapes and biting insects, yet not overheat. We started off trying to keep well covered, but after yours truly collapsed on one collecting trip from heat exhaustion, we tended to dress a little lighter and take the consequences. Two items stood out as truly useful. One for me was a folding Buck sheath knife that I use for cutting trailing vegetation in streams. With a fine edge and just the right size, I found it indispensable. Not bad for spreading butter and picking one's teeth either. The other most useful gizmo was a LED head light that operated for weeks on three AAA batteries. Indeed, the best \$30Cn that I think I have ever spent. Useful, because many place we visited had only kerosene lanterns or candles. Then finally, Steinbeck suggests that having been on the expedition and trying all of the gear (and people) out, one should do the expedition again, this time properly! We thought of that many times over the next few months.

To conduct biological research in Vanuatu requires permits from the Department of Environment, Port Vila and this is expensive. At the going rate of exchange in September, 2004, that set us back \$350US! The people concerned with that were, however, very pleasant and competent and provided letters to the Chiefs of the various villages we were to visit. And if necessary, the Department will actually organize the trip for you. Considering ourselves experienced travelers, we slugged through that ourselves and in the end had to almost totally reorganize it all right there in Port Vila. Vanair, the locally-run and internal airline, kept on changing their schedule.

Ruth and I were not newcomers to Vanuatu, having been there in the early 1980's. We might have well been though, because so much had changed. Very little if anything was recognizable. Mind you, we also did not have two young children with us. Oddly enough though, getting things done this time seemed much more difficult than it did back then.

The Government of Vanuatu, up until a few years ago, did not encourage tourism to the outer islands, that is, anything other than Efate, Santo and Tanna. So, accommodations in outer islands consists of privately run bungalows. Basic in nature, they are however, entirely adequate, although it pays to take a sleeping sheet and a mosquito net. We found the bungalows to be just fine. Certainly the owners try and make sure that there is good drinking water available and meals were almost always adequate. Sometimes they were superb. Ever eaten manioc chips? If somebody could commercialize those they'd have a winner on their hands. Elsewhere in the Pacific I have learned to despise taro as a form of carbohydrate. In Vanuatu we were more often than not supplied with 'water' taro, grown in irrigated plots. Apart from the fact that the tuber is bluish in colour, it tasted just fine and I learned to look forward to it. Yes, old dogs can learn new tricks.

Our accommodation was organized by Island Safaris, Port Vila, run by an association of the bungalow owners on the islands. We found them by accident in the pages of Lonely Planets' guide to Vanuatu - serendipity. As an aside, don't leave home without that book, even if it does advise you to take rice and phone cards as gifts for the village Chief. Phone cards work reasonably well, rice is an insult, money is the way to go. Island Safaris contacted all the bungalows, kept tabs on the flights and supplied us with vouchers for the various accommodation, meals and transportation we required. That certainly helped solve a problem of carrying major amounts of cash. Yes, there is nothing in the way of ATM's except

on two of the main islands. The bungalow owners then were reimbursed on presentation of the voucher back to Island Safaris in Port Vila. The system worked pretty well, with only the occasional problem.

So for us then life for the next six weeks became waiting at airports with the live luggage of pigs and chickens, hopping into mainly Twin Otters, and yes, in the end I was proud to be a Canadian. Those are wonderful planes and when we heard one coming into land we knew we were going to get off the island. We would land at a primitive grass landing strip, be picked up (most of the time) and while traveling to the bungalow try and arrange somebody to take us to a stream or a river. At the bungalow sometimes we had problems because we were the nine-day-wonders and everybody wanted to have a look at us as the only westerners on the island. This can be a bit galling – you try eating your supper with eight people looking at you and discussing every mouthful you take!!! Mind you that was offset a bit by having a young child run screaming from me in abject terror, as if I were a boggy man – a pinnacle in my career? Perhaps I really am ugly?



Fig. 1. Luke and Ruth collecting black fly larvae in pouring rain. Warbot River, southern Pentecost, Vanuatu.

Travel to collecting sites could be easy, occasionally just a matter of walking to the nearby stream or river, preferably a cascade where we could find high velocity flow. We were, however, rarely without a guide. To try and spread wealth around, and because every inch of land is owned by somebody or other, we almost always were required to pay a small amount for ‘guides’ and for going onto land. This was rarely more than \$5-15Cn. It also appeared that the Ni-Vanuatu (the term for locals) were truly concerned about us and never let us out of their sight. Our guides were usually very helpful and after being shown (Fig. 1) what we were looking for, often became quite galling in that they were better than us at finding black fly larvae and pupae. Vehicular transportation was, however, another matter. The cost of running a vehicle on such islands is hair raising and on Malekula, for example, to hire a truck for a day cost over \$400Cn. So, although we did get very good collections then, each larva can be well and truly priced. The most expensive black fly larvae from the whole trip were two from the Banks Islands that are worth at least \$50 each. One memorable trip was out of Wuro Village, Craig Cove, Ambrym. After we had agreed to rent the only available truck, just about the whole village wanted to come - well, let’s face it, a free trip. So off we went with some 14 people in the tray of the vehicle and because we were going onto another village’s land, picked up another two enroute. We had to wade for about 20 minutes to get upstream far enough for running water and I felt a little like “Out of Africa” (Fig. 2). As

it was there were no simuliids, indeed nothing of any kind, but that was to be expected since there is an active volcano on the island and all is covered to some depth by volcanic ash (Fig. 3). Not to mention serious problems with acid rain on Ambrym.



Fig. 2. Wading expedition. Un-named stream south of Lalinda, Ambrym, Vanuatu.

We never spent more than a few days on any island. This did cause the occasional problem when it wasn't as easy to get to rivers and streams as we might have wished. So, for some of the larger islands, in particular Malekula and Santo, a week or more would have been advantageous to organize more distance collecting trips. Similarly for getting to Maewo that had few and far between flights and we just couldn't fit it in - pity since it has black flies too!



Fig. 3. Typical ash clogged river, Ambrym, Vanuatu. Mount Benbow, an active volcano is in the background.



Fig. 4. Mele Cascade, near Port Vila, Efate, Vanuatu.

We first went north from Port Vila, Efate, spent a day or so in Luganville, Santo and then off to the Banks Islands, that apart from the Torres Islands is about as far North as one can go in Vanuatu. Then back to Santo and off to Malekula, Epi, Ambrym and back to Santo. Yes, the traveling salesman's paradox certainly applied here. Epi did not appear to have simuliids, but we turned up one trichopteran larva, so the island might be worth another visit. Back to Santo for a day or so, then off to Ambae that lacked running water at the time, so we just relaxed while there. Then to Pentecost, the original home of bungy-cord jumping. Rained hard there for three days and nights and there were worries about getting off the island, since it only has a grass landing strip. Got simuliids, however, even if the rivers were flooded - a new island record. But the Twin Otter came through and we were off to Port Vila for a overnight stay and thence to Erromango and then Tanna. This later island is of interest in that it has Yasur volcano where one can essentially drive to the summit. Twenty years ago while there we had scrambled up the side of its cone of ash, dodging the volcanic bombs. No, not really, albeit people are killed there every so often. South of Tanna and within view, is the enigmatic island of Anetyium, where Eveyln Cheesman reported serious biting by simuliids when she was there in the 1930's. With a single flight a week to the island and now short on time, we just couldn't get there – another excuse for a return visit to Vanuatu?

Did we get bitten by simuliids while in Vanuatu? No! Indeed, there is no common name for simuliids in Ni-Vanuatu languages, although there may be one on Anetyium. If black flies were a problem elsewhere in Vanuatu they probably would be called 'Black Little Fellas' in Bislama, the official national language of Vanuatu, a mixture of pidgin French and English and other languages. That simuliids do not bite is intriguing since in some places they occur in astronomical numbers. On Efate at the Mele Cascade (Fig. 4) where travertine is precipitated out of the extremely hard water, the smooth edges of the travertine terraces were often grey with larvae. None of the local Ni-Vanuatu had any idea that there were insects living in the water. Another interesting problem, is that most localities had larvae living exclusively on trailing vegetation such as roots and leaves. At other, places, however the situation was reversed with larva only on the rock substrate. Different species, or different environmental conditions?

Collecting was generally very satisfying. By that I mean there were enough larvae to collect into 100% ETOH for morphological and molecular analysis, and also enough for preservation in Carnoy's for analysis of chromosomes. Further, at most sites pupae were collected so that adults could be reared. Three tubes and we had it all – beat that with your favourite insect.

So then, a bit of spoiling at a resort in Tanna, back to Port Vila to hand in a preliminary report to the Department of Environment (and yes, they do require that – or else...and a final report too) and we were off to New Zealand for a spot of collecting other insects and thence to Fiji for simuliid collecting there. That, however, is another story. All in all, quite a good five month adventure and scientifically very satisfying with perhaps three new species *Hebridosimulium* and good enough material obtained to allow different types of analyses to be done on relationships within that subgenus and to its sister taxon.

Hispaniolan Diptera

by Chen W. Young

Section of Invertebrate Zoology, Carnegie Museum of Natural History,
4400 Forbes Ave., Pittsburgh, PA 15213-4080, USA; youngc@carnegiemnh.org

For more than a decade the Section of Invertebrate Zoology at Carnegie Museum of Natural History (CMNH) has been studying and documenting invertebrates (especially insects) in the Caribbean with special emphasis on Hispaniola. In the last two years funding from the National Science Foundation has allowed an increased rate of collection for many lineages with strong emphasis on montane regions of high endemism on all mountain ranges of the Dominican Republic. These efforts have led to many discoveries already published by various specialists borrowing CMNH specimens, especially the nearly 130 systematists who provided messages of support for our NSF grant request. In addition to specimens collected by CMNH specialists, a special arrangement has been made to transport and circulate to experts most of the insect material in the largest Dominican insect collection, that at the Museo Nacional de Historia Natural in Santo Domingo.

Our funded project continues for another two years on Hispaniola, and considering the large number of specimens prepared, study of this material will continue for decades. Many insect groups have been circulated to experts, with special regard for those individuals who offered letters of support at the time of the original grant request, but we are now aggressively engaging all remaining persons that were originally contacted, and are seeking additional experts in as many groups of insects where we have specimens for study, description, revision, or identification.

Simply put, we have prepared here in Pittsburgh, fly specimens that are ready for lending and study that may be of interest to you and your research program. A few groups turn out to be just widespread species known elsewhere in the Caribbean or Neotropics, but in most of the insect lineages studied to date, new species, new genera, and unique lineages are being discovered, making study of the highly endemic fauna of Hispaniola of great potential value to specialists.

Therefore, we are asking dipterists if they have interest to borrow and study this material. As a rule, we have been lending all Caribbean material available at CMNH, not just material from Hispaniola, as having comparative material from other islands is often essential for interpreting Hispaniolan taxa or for understanding the Caribbean fauna as a whole.

Borrowers are encouraged to publish their findings on these specimens in some useful way and in as broad a context as possible, revising or reviewing the Caribbean or Hispaniolan fauna for the lineage in question, providing illustrated keys, and describing new or little known taxa as appropriate. Publication without page charges of short papers may be possible in the *Annals of Carnegie Museum* (contact Dr. John Rawlins at rawlinsj@carnegiemnh.org).

If you have interest in borrowing any of this material, please let me know by contacting me at youngc@carnegiemnh.org.

Biosystematic Database of World Diptera

by Irina Brake & F. Christian Thompson
Systematic Entomology Lab., USDA c/o Smithsonian Institution, MRC-0169 NHB,
PO Box 37012, Washington, DC, 20013-7012, USA
ibrake@sel.barc.usda.gov; cthompso@sel.barc.usda.gov

We are pleased that in October 2004 we reached the number of 150,000 valid species in the BDWD. The master data files now include 210,596 name records representing 188 families, 11,527 genera and 150,235 species as well as 19,540 references (this includes some fossils, although we have not completed data capture for all fossils).

Version 7 of the database was put online at the end of 2004. In November, our Diptera Web site (<http://www.sel.barc.usda.gov/Diptera>) as well as that of the Assembling the Diptera Tree of Life (<http://www.inhs.uiuc.edu/cee/FLYTREE/>) were rewarded with a major splash in SCIENCE magazine (vol. 396, p. 1269).

The Species 2000 and ITIS Catalogue of Life has reached the half million mark in their Annual checklist with the addition of 136,000 species from the BDWD, the largest contributor. The new 2005 checklist should be available by mid-April, so watch for it at <http://www.sp2000.org/AnnualChecklist.html>.

We only have web pages or links to them for about 10 % of the currently recognized fly families (19 out of 150 extant families). We should be able to produce a minimal page for each family of Diptera by the end of this year. Generic and species pages are even fewer, but we should try to generate more of them. Most of our colleagues still think in terms of papers like my old professor wrote, "New and little-known crane flies ..." and how many and how fast they can publish new species. Unfortunately, that is the past and the future is building a new digital Systema Naturae with taxon web pages. As an encouragement to workers to do so, we will start a system like Zootaxa where we will publish paper versions so that new taxonomic information can be validated when prepared as taxon web pages (that is, we will freely distribute to a core set of libraries paper archive copies of the new taxon web pages we post at the Diptera Web site). We are now working on the new standards for these pages, but Irina's milichiid site is a good example. Go to <http://www.sel.barc.usda.gov/Diptera/milichid/mi-home.html>

Our principal tasks remain those outlined in the previous *Fly Times*: production of *MYIA* volumes, finishing data-capture of primary references, complete the Species Interface, and putting online our tool set. And to continue seeking review and verification of the BDWD by specialists.

While the BDWD remains incomplete and not critically reviewed by specialists, we feel it is a useful tool even in its current state. So, if you are working on a catalog, faunistic list or what ever, please get in touch with us. We want to work with you so that we can improve our BDWD and perhaps help you, too.

World Diptera Systematists Website Update

by Neal L. Evenhuis
1525 Bernice Street, Honolulu,
HI 96817-0916, USA; neale@bishopmuseum.org

The World Diptera Systematists Website (<http://hbs.bishopmuseum.org/dipterists/>) was created 7 years ago as an information center on people who have described new taxa in Diptera. This ongoing project will ultimately lead to an author authority file for the BDWD project co-edited by F. Christian Thompson and myself and advised by a steering group of representatives from all biogeographic regions of the globe. I am in the process of doing a facelift and huge update of the website and am in need of photos (portraits) for those who are not yet shown on the website. Of the almost 4,800 people who have described new taxa of Diptera, I have portraits for just over 1,000 of them. There are plenty still needed. Please feel free to take a look at the site and see if information on names, birth and/or death dates, and country is correct. Any corrections or additions are welcome. The criteria for inclusion is being an author or coauthor of a new name at the family-, genus-, or species-group level in Diptera. Please send correct information and 300 dpi photos to: neale@bishopmuseum.org (my inbox can handle emails with attachments of up to 8 MB each).

Request for *Spiniphora spinulosa* Malloch (Phoridae) Distributional Data

by William F. Rapp
87 South Main Street, Pittsford, NY 14534-2128, USA; billrapp@frontiernet.net

I have collected a number of *Spiniphora spinulosa* Malloch (Phoridae) in pit fall traps which I have run in the deciduous woodlands in the Finger Lakes region of New York. I need data on the distribution of this species. If you have ever collected this species or have it in your collection please let me know.

Bot Fly Information Requested

by James L. Castner
1930 NW 40th Terrace, Gainesville, FL 32605, USA; jlcastner@aol.com

I am an entomologist and tropical biologist living in Gainesville, Florida. I am trying to discover if there are currently ANY live colonies of ANY species of bot fly being maintained ANYWHERE in the world. If anyone out there has heard of such a colony and has contact information, or can put me in touch with someone who might know, I would appreciate it very much. I am also interested in any locations where adult bots can be captured on a predictable basis. Thanks for your help.

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@sel.barc.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 any dipterist. 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.

Recent grants include support for Amnon Friedberg, Tel Aviv University, Israel, to study the Diptera collections in Washington; Daniel Perez, Smithsonian, to conduct field work in the Dominican Republic; Zuleica Borges, University Federal Rio de Janeiro, Brazil, to study flower fly types in London, New York and Ottawa; Marjolaine Giroux, McGill University, Ste Anne-de-Bellevue, to study sarcophagid vouchers in Washington. Historically, the Williston Fund has supported the travel of students to the International Congresses of Dipterology. Four students were supported for travel to Brisbane, 5th Congress.

Support may be requested at any time. The selection committee meets a couple of times a year or as needed to evaluate proposals. Next year, however, there will be a special competition for student travel grants for 6th ICD in Japan. We plan to award up to 4 grants of \$3-4,000 USD to cover the basic travel, per-diem and student registration. For complete information about these funds, go to the Diptera Web site and look under opportunities (<http://www.sel.barc.usda.gov/Diptera/willisto.htm>)

Myia

by Irina Brake & F. Christian Thompson
Systematic Entomology Lab., USDA c/o Smithsonian Institution, MRC-0169 NHB,
PO Box 37012, Washington, DC, 20013-7012, USA
ibrake@sel.barc.usda.gov; cthompso@sel.barc.usda.gov

MYIA, a traditional print publication, has made a step towards the future with a new online presence. Please go to its new web page at: <http://www.sel.barc.usda.gov/Diptera/Myia/myia.htm>.

For various articles in forthcoming volumes, we will make copies available as soon as those papers are accepted for publication. A few printed copies will be distributed to key libraries and made available to the author, with an online, downloadable Adobe pdf copy available at the *MYIA* web page. This will solve a critical problem in the long delays, which sometimes happened due to production of *MYIA* volumes containing contributions of a number of authors.

The first article to be handled this way was Paul Arnaud's fine obituary and summary of the accomplishments of Fred Harmston. Printed copies were distributed last September and the article is available now at: <http://www.sel.barc.usda.gov/Diptera/Myia/myia7.htm>. Paul is working on the rest of volume 7 now.

We are working on volume 12, which will include a number of contributions to the Biosystematic Database of World Diptera. Those include a couple of monograph catalogs (Asteidae, Carnidae, Coelopidae, Diastatidae, Dryomyzidae, Heterocheilidae, Helcomyzidae, Odiniidae), a few catalogs (Xylomyiidae, Xylophagidae), a regional treatment (Neotropical Conopidae), a checklist (Nearctic Ceratopogonidae), a couple of author treatments, one comprehensive (Kowarz) and the other brief (Hendel), and even an article on serial dating by Neal Evenhuis. The whole volume should be ready by summer. Future volumes in support of the BDWD include a World Catalog of Acroceridae with revision of the Central American Fauna (Schlinger), World Catalogs of the Mosquitoes (Wilkerson), and maybe even a Nearctic catalog of flower flies!

Finally, we here acknowledge the generous support of the Schlinger Foundation for publishing *MYIA*. The Foundation has provided support for the next 3 volumes, so we should be able to continue to hold the publication price of the printed version to about \$100. USDA provided support for volumes 9-11 & 13, as well as both volumes of the Diptera Data Dissemination Disk.

Pest Fruit Fly Adult and Larval Interactive Identification Keys

by Allen Norrbom

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

New versions of the pest fruit fly adult and larval interactive identification keys have been posted to the web on the delta site (see http://delta-intkey.com/ffl/www/_wintro.htm). The keys include Intkey, Lucid 2, and Lucid 3 versions for both the adult and larval systems, so users can choose whichever one they prefer. Both systems are updates of the keys produced by Thompson et al. (1999), which became obsolete (they used a DOS based program). The adult system, which includes the 193 species that are most significant as pests or most commonly intercepted at ports of entry, has been available on the web since 2003, but we have added new or improved images for many species. The larval system, largely produced by Lynn Carroll, is available via the internet for the first time. It includes data and images for about 80 species.

Books and Publications

(with thanks to Chris Borkent, Victoria, B.C., for completing a literature search)

- Borkent, A. and D.A.Craig. 2004. *Austroconops* Wirth and Lee, a lower Cretaceous genus of biting midges yet living in western Australia: a new species, first description of the immatures and discussion of their biology and phylogeny (Diptera: Ceratopogonidae). *American Museum Novitates*: 3449: 1-67.
- Borkent, A. and D.A.Grimaldi. 2004. The earliest fossil mosquito (Diptera: Culicidae), in mid-Cretaceous Burmese amber. *Annals of the Entomological Society of America* 97(5): 882-888.
- Brooks, S.E. 2005. Systematics and phylogeny of Dolichopodinae (Diptera: Dolichopodidae). *Zootaxa* 857: 1-158.
- Evenhuis, N.L. and A.C. Pont. 2004. The Diptera genera of Jacques-Marie-Frangile Bigot. *Zootaxa* 751: 1-94.
- Griffiths, G.C.D. 2004. *Cyclorrhapha* II (Schizophora: Calyptratae) part 2: Anthomyiidae. No. 15. Flies of the Nearctic Region 8(2): 2485-2635.
- Harbach, R. E. 2004. The classification of genus *Anopheles* (Diptera: Culicidae): a working hypothesis of phylogenetic relationships. *Bulletin of Entomological Research*: 94(6): 537-553.
- Hippa, H. and P. Vilkkamaa. 2004. The genus *Xylosciara* Tuomikoski (Diptera, Sciaridae): phylogeny and review of the species. *Acta Zoologica Fennica* 22: 214: 1-38.
- Hurley, R.L., J.B. Runyon and P.H. Arnaud. 2004. Fred Carl Harmston (1911-1915). *Myia* 7(1): 1-39 [\[http://www.sel.barc.usda.gov/Diptera/Myia/myia7_1.pdf\]](http://www.sel.barc.usda.gov/Diptera/Myia/myia7_1.pdf)
- Krzeminski, W. and E. Krzeminska. 2003. Triassic Diptera: descriptions, revisions and phylogenetic relations. *Acta Zoologica Cracoviensia* 46: 153-184.
- Lukashevich, E.D. and D. Azar. 2003. First Eoptychopteridae (Insecta: Diptera) from the Early Cretaceous Lebanese amber. *Acta Zoologica Cracoviensia* 46: 195-204.
- Marquardt, W.C. (ed.) 2005. *Biology of Disease Vectors*, 2nd edition. Elsevier Academic Press, xxiii + 785 pp. \$99.95 US. This multi-authored book has 57 chapters grouped into the following 7 areas: Introduction and vectors; Epidemiology and surveillance; Physiology of insects and acarines; Vector Genetics; Molecular biology of insects and acarines; Control of insects and acarines; Special methods as applied to vectors of disease agents. Although many of the chapters include various aspects pertaining to Diptera, the chapters dealing with specific families give nice summaries of the diseases transmitted by Diptera. The following will be of particular interest to Dipterists: 8. Introduction to the Diptera; 9. Mosquitoes, the Culicidae; 10. The Biting Midges, the Ceratopogonidae (Diptera); 11. Black Flies, the Simuliidae; 12. Phlebotomine Sand Flies, the Psychodidae; 13. Tsetse Flies, the Glossinidae, and Transmission of African Trypanosomes; 24. Mosquito endocrinology; 26. Osmotic and ionic regulation by mosquitoes; 31. Genome evolution in mosquitoes 39. Virus-induced, transient expression of genes in mosquitoes; 43. Biological control of mosquitoes; 53-57. Care, maintenance and experimental infection of each biting fly family.
- Moulton, J.K. and B.M. Wiegmann. 2004. Evolution and phylogenetic utility of CAD (rudimentary) among Mesozoic-aged Eremoneuran Diptera (Insecta). *Molecular Phylogenetics and Evolution* 31(1): 363-378.
- Nagatomi, A., A. Tanaka and K. Kanmiya. 2004. The aedeagus of basal Brachycera (Diptera). *Entomologist's Monthly Magazine* 140: 131-189.
- Oosterbroek, P. 2005. Catalogue of the Craneflies of the World (Insecta, Diptera, Nematocera, Tipuloidea). Online at <http://www.science.uva.nl/zma/> and at <http://ip30.eti.uva.nl/ccw/>

- Panagiotakopulu, E. 2004. Dipterous remains and archaeological interpretation. *Journal of Archaeological Science* 31(12): 1675-1684.
- Podeniene, V., S. Podenas and J.K. Gelhaus. 2004. First record of a crane fly larva (Diptera, Limoniidae: Chioneinae) from Baltic amber. *Annals of the Entomological Society of America* 97(6): 1126-1128.
- Rafael, J. and J.M. Cumming. 2004. The Neotropical genera *Macrostomus* Wiedemann and *Porphyrochroa* Melander (Diptera, Empididae, Empidinae). *Revista Brasileira de Zoologia* 21(3): 439-448.
- Reinert, J.F., R.E. Harbach and I.J. Kitching. 2004. Phylogeny and classification of Aedini (Diptera: Culicidae), based on morphological characters of all life stages. *Zoological Journal of the Linnean Society* 142(3): 289-368.
- Saether, O.A. and F. de O. Roque. 2004. New Neotropical species of *Nandeva* (Diptera: Chironomidae), with a phylogeny of the Tanytarsini. *Tijdschrift voor Entomologie* 147(1): 63-80.
- Savage, H.M. and D. Strickman. 2004. The genus and subgenus categories within Culicidae and placement of *Ochlerotatus* as a subgenus of *Aedes*. *Journal of the American Mosquito Control Association* 20(2): 208-214.
- Scheffer, S.J., R.M. Giblin-Davis, G.S. Taylor, K.A. Davies, M. Purcell, M.L. Lewis, J. Goolsby and T.D. Center. 2004. Phylogenetic relationships, species limits, and host specificity of gall-forming Fergusonina flies (Diptera: Fergusoninidae) feeding on *Melaleuca* (Myrtaceae). *Annals of the Entomological Society of America* 97(6): 1216-1221.
- Serna, E., E. Gorab, M.F. Ruiz, C. Goday, J.M. Eirin-Lopez, and L. Sanchez. 2004. The gene Sex-lethal of the Sciaridae family (order Diptera, suborder Nematocera) and its phylogeny in dipteran insects. *Genetics* 168(2): 907-921.
- Stahls, G., J.-H. Stuke, A. Vujic, D. Doczkal and J. Muona. 2004. Phylogenetic relationships of the genus *Cheilisia* and the tribe Rhingiini (Diptera, Syrphidae) based on morphological and molecular characters. *Cladistics* 20(2): 105-122.
- Szadziewski, R. and A. Arillo. 2003. The oldest fossil record of the extant subgenus *Leptoconops* (*Leptoconops*) (Diptera: Ceratopogonidae). *Acta Zoologica Cracoviensia* 46: 271-275.
- Vilkamaa, P. and H. Hippa. 2004. The genus *Xenosciara* gen. n. and the phylogeny of the Sciaridae (Diptera). *Zootaxa*. 699: 1-24.
- Yule, C.M. and H.S. Yong. 2004. *Freshwater Invertebrates of the Malaysian Region*. Academy of Sciences Malaysia, vii + 861 pp. \$60US plus \$35 shipping to Canada or Mexico, \$20 to USA. Ordering information from aurapro@tm.net.my. Pages 610-851 deal with Diptera, with individual chapters treating each of 25 families.
- Zhang, J.-F. 2004. First description of axymiid fossils (Insecta: Diptera: Axymiidae). *Geobios (Paris)* 37(5): 687-694.



New Ohio licence plate for Greg Dahlem
(Northern Kentucky University)

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: _____

