FLY TIMES

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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. 39 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, 2007.

NEWS

Changes at the Helm - New Editors for the Fly Times

Art and Jeff have been putting the *Fly Times* together for the past 19 years and we feel that it is time to pass the reins over to new editors, with fresh perspectives and energy. If you want to volunteer to take on the task (along with its many honours and accolades) or have suggestions or opinions on what the future of the *Fly Times* might look like, let us know.

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5th Annual Meeting of the North American Black Fly Association (NABFA)

By Julio Rivera
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The 5th Annual Meeting of the North American Black Fly Association was held 7-9 February 2007 at the University of Georgia in Athens, Georgia. The meeting was chaired and organized by NABFA President Jay P. Overmyer. Thirty-four workers attended the meetings and 24 presentations were given. Topics included black fly control, ecology, taxonomy, systematics and biogeography. Abstracts of these presentations will be posted in the NABFA website (http://www.zoo.utoronto.ca/nabfa/NABFA.html).

Among the highlights of the meeting was a guided tour of the University of Georgia's Black Fly Colony, which has been maintained continuously for more than 20 years. Another notable event was the inaugural Mike Spironello Award, presented annually to the student giving the best talk. The award was established to honour the memory of former NABFA Secretary and black fly researcher, Mike Spironello, who passed away unexpectedly in 2006. This year's winner, was Paul Smith of the University of Georgia, who delivered a co-authored presentation on the black fly vectored disease vesicular stomatitus (full title and authorship given below). Paul was presented with a copy of Adler, Currie, and Wood's monumental book *The Black Flies (Simuliidae) of North America.*

NABFA invites all black fly researchers to join NABFA and to present their research at upcoming meetings. Students are especially encouraged to participate in the Mike Spironello Award competition. Membership is free of charge. Please visit the NABFA website or contact secretary Julio Rivera (julior@rom.on.ca) for further information.

Regular Presentations:

- Reproductive Status of Cytospecies and Cytotypes in Sympatry at Three Locations in Western Montana. Gerald F. Shields, Judith A. Pickens, Lindee M. Strizich and Gregory M. Clausen. Carroll College, Helena, MT.
- The Black Fly Genome Project Proposal: Progress Report. Charles Brockhouse. Creighton University, Omaha, NE (Presented by Peter Adler).
- What's going on in Minnesota? Black Fly Monitoring and Control in the Greater Metropolitan Area of the Twin Cities of Minneapolis and St. Paul, Minnesota, USA. John Walz, Abe Benson and Carey LaMere. Metropolitan Mosquito Control District, Black Fly Control Program, St. Paul, MN.
- Phylogeny of the black fly genus *Cnephia* (Diptera: Simuliidae). Kenneth Pruess. University of Nebraska, Lincoln, NE.
- Who's in control, the fly or the fungus? Spore shape of *Harpella melusinae* in larval black flies. Charles E. Beard and Peter H. Adler. ESPS, Clemson University, Clemson, SC.
- An overview of black fly control in Hunterdon County, New Jersey. Tadhgh Rainey. Hunterdon County Department of Health, Flemington, NJ.
- Black fly vignettes. Peter H. Adler. Clemson University, Clemson, SC
- The contribution of South- and Central American lineages of black flies (Diptera: Simuliidae) to the North American fauna. Douglas C. Currie[1,2] and Justin Ancheta[2]. [1]Royal Ontario Museum, Toronto, ON, [2]University of Toronto, Toronto ON.
- Stable isotope turnover in black fly, *Simulium vittatum* IS-7, larvae. Jay Overmyer[1], M. Aaron MacNeil[2] and Aaron T. Fisk[3]. [1]University of Georgia, Athens, GA, [2]University of Newcastle, Newcastle upon Tyne, UK, [3]University of Windsor, Windsor, ON.
- Effects of *Bacillus thuringiensis israelensis* (Bti) black fly treatments on non-target organisms in the Delaware River in Pennsylvania and New Jersey. Dave Rebuck. Pennsylvania Department of Environmental Protection, Division of Vector Management, Black Fly Suppression Program.
- The Vectobac 12AS story: how industry, academia, NGOs and governments collaborated to develop the premier black fly control larvicide. Ernest Dankwa. Valent Biosciences.
- The role of chromosome change in the evolution of black flies. Gerald Shields. Carroll College, Helena, MT.
- Molecular tools and the study of black fly-borne parasites. Will Reeves. Gainesville State College, Oconee Campus.
- Twenty-five years of black fly colonization, 1981-2006. Elmer Gray. University of Georgia, Athens, GA.

Poster Presentations:

- A Longitudinal Analysis of the Distributions of and an Assessment of the Reproductive Status of Two Siblings of the *Simulium arcticum* Complex at Little Prickly Pear Creek, Lewis and Clark County, Montana. Gregory M. Clausen and Gerald F. Shields. Carroll College, Helena, MT.
- Speciation in the Black Fly, *Simulium arcticum* Complex (Diptera: Simuliidae). Gerald F. Shields. Carroll College, Helena, MT.
- The *Simulium arcticum* Complex: Environmental Effects on Distribution of Taxa at Trout Creek and Reproductive Status of Taxa at the Blackfoot River. Lindee M. Strizich and Gerald F. Shields. Carroll College, Helena, MT.
- Reproductive Status of Cytotypes of the *Simulium arcticum* Complex at Rock Creek, Missoula County, Montana. Judith A. Pickens and Gerald F. Shields. Carroll College, Helena, MT.

Mike Spironello Award Competition:
- Black fly fauna of Nepal. Dustin A. Swanson and Peter H. Adler. Clemson University, Clemson, SC.
- Utility of the Cytochrome Oxidase I Gene for Species Recognition and Phylogeographic Analysis in Black Flies (Diptera: Simuliidae). Julio Rivera[1] and Douglas C. Currie[1, 2]. [1]University of Toronto, Toronto, ON, [2]Royal Ontario Museum, Toronto, ON.
- Effects of temperature and developmental stage on nitrogen and carbon stable isotopes in the black fly, *Simulium vittatum* IS-7. Grant Howell and Jay Overmyer. University of Georgia, Athens.
- GAA Molecular Approach to Identifying Members of the *Simulium jenningsi* species-group. Beth Alexander. University of Tennessee, Knoxville, TN.
- Vesicular stomatitus: A research prospectus; Study of disease cycle, vector transmission, and virus maintenance. Paul Smith, Danny Mead and Ray Noblet. University of Georgia, Athens, GA.

Guest Presentation:
- Small is significant, be it organism or ecosystem. Judy Meyer. University of Georgia

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Final Announcement for the 2007 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 next field meeting of the North American Dipterists Society is just months away. We are expecting a good turn-out of dipterists and hope that the diverse fly fauna of the Silver City area will meet the expectations of the participants. Details about the Silver City area, including maps, pictures, and other information, were given in the First Announcement (*Fly Times* **35**, October 2005) and Second Announcement (*Fly Times* **37**, October 2006). This final announcement provides a few specifics about registration, accommodation, and the meeting schedule.

Registration will be held in Harlan Hall (see PDF for location) on the campus of Western New Mexico University from 3:30–5:00 p.m. and from 6:30–7:00 p.m. on Monday August 13th. The fee for registration will be US$20/ person, payable in cash. Receipts will be issued at the time of payment. A registration fee of US$10 will apply to accompanying persons if they plan to attend group activities such as the BBQ at the Gomez Peak Group Picnic Area on August 14th or 15th. Information about collecting in the Silver City area will be available during registration.

Persons planning to attend the NADS field meeting are asked to inform me (Jim O'Hara) of their intention by Monday June 25th so that proper local arrangements for the meeting can be made. Anyone wishing to give an oral presentation (15 minutes including questions) is asked to send me their title by June 25th. Plan to bring your presentation to the meeting on electronic media (preferably CD or memory stick). I will send out a meeting schedule, including a list of presentations, in mid July to all persons who have indicated to me that they plan to attend. I will leave for Silver City during the first week of August and will not be reachable thereafter until the meeting begins.

There will be a presentation by a guest speaker and an orientation talk by myself on the evening of Monday August 13th. The next day will consist of collecting in the morning and afternoon and oral presentations in the evening. The last two days will consist of collecting during the day and sorting/preparing specimens in the evening, unless there are so many talks planned that they have to extend into the evening of the third day. Lab space and microscopes will be available to us in Harlan Hall for the sorting of specimens. I have booked the Gomez Peak Group Picnic Area north of Silver City for our exclusive use on days two and three of the meeting (Tuesday and Wednesday). See the Second Announcement for habitats in the vicinity of the Picnic Area. Weather permitting, we will have a BBQ in the Picnic Area during the late afternoon on one of those two days. The Picnic Area is closed to use after dark.

Meals will be the responsibility of individuals during the meeting, with the exception of the BBQ at the Gomez Peak Group Picnic Area and possibly a group dinner on the evening of the last day. There are many restaurants around Silver City to chose from and a Wal-Mart with a large grocery section on Hwy. 180 east of town.

Accommodation is also the responsibility of individuals. There are a number of hotels available, mostly on Hwy. 180 east of the town center. Silver City is not very big, but the University is on the west side of town and the hotels are mostly on the east side, so the distance between them is a short car drive or a longer walk. If you are looking for reasonably-priced accommodation with an included Continental Breakfast and such amenities as a refrigerator, microwave, coffee maker, and internet service, then a good choice is the Econo Lodge. We have been granted a group rate of $69.99 per night at the Econo Lodge – call them direct at (505) 534-1111 and mention that you are a member of the North American Dipterists Society. Best to book ahead. Cheaper accommodation, more in the $50 per night range, is available at the Motel 6 or Copper Manor Motel (Motel 8 not recommended). Check out the Internet for additional information and other options.

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Trapping a Rarely Collected Fly: *Melanderomyia kahli* Kessel

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Melanderomyia are rarely collected Platypezidae that feed on stinkhorn fungi as larvae. The CNC had only 1 specimen in the collection until BF managed to collect more. They are actually fairly easy to collect as might be expected given their predictable feeding habits. The first author was keen to get these flies for molecular phylogenetics analysis of the lower Cyclorrhapha and when BF arrived at the lab boasting about the big phallus in his yard, JS asked him to try to find and collect *Melanderomyia*. BF managed to collect a few in 2004 and has since perfected his technique.

A cage was placed over the stinkhorn as soon as it was detected. The sides of the cage were propped up on pieces of wood so that the completely open bottom of the cage was about 5 cm off the ground (Fig. 1). The rest of the cage was closed. BF returned to the trap at regular intervals and collected the flies that had flown up and were crawling around the top of the cage. A more passive method might be to put a cage with a collecting head at the top over the stinkhorn; however, you may end up with a bottle of calyptrates before you catch any platypezids. Not surprisingly, this technique appears to capture predominantly females.

It would be great to get more people collecting these flies. We know little about their phenology and perhaps more than one species exists. Our specimens were collected in October 2004 and October 2006 but we suspect that they occur whenever and wherever there are stinkhorns fruiting. There are some photos of platypezids on stinkhorns on BugGuide (http://bugguide.net/node/view/19382) that appear to be *Melanderomyia* (photographed on 21 September 2004 in North Carolina). There are oodles crawling around on stinkhorns. Based on our observations and on these photos, it appears that *Melanderomyia* may be locally common, or at least are common during a very narrow window when the stinkhorn is at its peak. Try looking late in the season if you have no luck earlier in the year. These records suggest that these may be late season flies.

Incidentally, the range of *Melanderomyia kahli* is given as Kansas, Iowa, Illinois, and Ohio on the Diptera Nomenclator (http://www.sel.barc.usda.gov:591/diptera/names/searchno.htm), so our collections in Ottawa represent new records for ON and Canada.

Fig. 1. Cage placed over stinkhorn fungus used for collecting *Melanderomyia kahli*. Note that the fly on the top of the cage is not a *Melanderomyia* but is a calyptrate.

The Biosystematic Database of World Diptera in 2007

by Owen Lonsdale
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Starting this May, I am fortunate enough to begin my research as a Schlinger postdoctoral fellow in the Entomology Department of the Smithsonian Institute's Museum of Natural History. Along with Chris Thompson, I will continue to develop the Biosystematic Database of World Diptera (BDWD) and the Diptera Web Site – a comprehensive portal to knowledge about the true flies, and a framework to organize and integrate all current and future knowledge about these beautiful and highly diverse organisms. My contribution will primarily be content editing and production of the journal MYIA. I also plan to enlist the help of dipteran taxonomic specialists (such as yourselves) for peer-review, to make sure that the database meets the highest possible standards of accuracy and scientific content. As such, I strongly invite anyone developing a catalogue, taxonomic revision or faunistic review to contact us so that we may improve this resource for the dipterological community. A full description of the BDWD project can be viewed online at http://www.sel.barc.usda.gov/Diptera/biosys.htm, along with a link to the "Nomenclator", a powerful interactive tool that not only searches for dipteran references and names, but provides taxonomic and nomenclatural information about those names. Much of the database has already been developed through the efforts of Chris, Betty Thompson and Irina Brake (the previous Schlinger postdoctoral fellow who now works at the Natural History Museum in London), and I aim to have much more completed this coming year.

In addition to coordinating the BDWD, I plan to publish my revisionary work on the New World Clusiidae (Schizophora), which I defended this past April as my doctoral thesis. In the Americas, I currently recognize 362 species in ten genera, an amazing 220 of which I am describing for the first time – most of these belong to highly diverse *Sobarocephala*, a colourful genus of worldwide distribution endemic to the tropical Neotropics. While most of my revisionary work is yet to be published, some of my findings can be accessed online at the Tree of Life website (http://tolweb.org/Clusiidae). I have also posted similar pages on the families Somatiidae (http://tolweb.org/Somatiidae) and Acartophthalmidae (http://tolweb.org/Acartophthalmidae).

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Surveying Dolichopodids and Damselflies in the Society Islands, French Polynesia

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As part of the NSF-funded Arthropod Survey of French Polynesia, the Bishop Museum conducted a expedition to the Society Islands the last two weeks of March 2007. Ronald Englund, aquatic biologist, specializes in odonates and collected most aquatic invertebrates he encountered; I surveyed forests and aquatic habitats for dolichopodids, primarily of the genus *Campsicnemus*, which has undergone a

tremendous amount of speciation in French Polynesia with some 43 new species having been discovered prior to this expedition.

We arrived in a hot and muggy Papeete late in the evening of 17 March and got much needed sleep that night after a rather bumpy 5 1/2 hour flight down from Honolulu. This was my second trip; Ron had been to French Polynesia (FP) about 8 times already, but previous collecting was in the Marquesas, the Australs, and Raiatea (the last was pretty much a rain-out the previous year). This trip would key in on the islands of Raiatea (once again for Ron) and Huahine (first time for both of us). The expedition would start in Raiatea on Tuesday. Sunday and Monday would include trip preparation and a side trip to the highlands in central Tahiti Nui.

Early Sunday morning we caught the ferry to Moorea and after the speedy 30 minute trip between Tahiti and Moorea were met at the dock by the expedition coordinator, Elin Claridge (a weevil specialist) of the U.C. Berkeley Gump Research Station who drove us to the lab after purchasing some needed collecting supplies and *beignet de chocolat* at the local Champion store. My job that day was to sort through the last 6 months worth of Malaise trap residues (two traps on Moorea; three on Mt. Marau on Tahiti) (Fig. 1) while Elin and Ron took advantage of the good weather to collect at Vaioro Riviere on the Tohiea summit trail that Ron had not hit in his previous trips to Moorea. The Malaise trap residues turned up a few nice surprises (the robber fly *Mesoleptogaster* - a first record of the genus and family from FP; a keroplatid (*Heteropterna*), a pipunculid, and a rhagionid (*Chrysopilus*) - also firsts for FP; and a few more specimens of some new *Campsicnemus* previously represented by only one or two specimens). In just a few hours, Ron managed to secure a potential new damselfly and also a new *Campsicnemus* by sweeping rocks in the stream and adjacent seeps. When they returned from their collecting late that afternoon, we loaded up the Gump Station Land Rover with our gear for the next 12days and drove it to the port for the ferry ride to Papeete (it would eventually be ferried from there to Raiatea and Huahine for our fieldwork on those islands).

Fig. 1. Sorting through Malaise trap residues at U.C. Berkeley Gump Research Station.

The next morning - a fair-weather one, we were met at the hotel by our good friend and botanist, Jean-Yves Meyer, deputy director for the Delegation de Recherché in FP, who drove us to a special highland bog on Tahiti called Anaorii Maracage (650 m) (Fig. 2). It is the only such high elevation bog in FP and is characterized by the endemic *Pandanus* (*P. papenooensis*). After a two-hour jeep ride up a narrow, rain-soaked, rubbly switchback road past the FP army in full camouflage (who happened to be using the road that day for a long march up the mountain), we arrived at the Maracage and hiked in through a grove of *Miconia* to a small stream that drained the bog. Here I found many specimens of a species of *Campsicnemus* that I had collected the previous trip to Tahiti that apparently restricts itself to seeps near streams; and also collected a new species of *Campsicnemus* not collected previously. We hiked into the bog, which was ankle deep in most places but knee to waist deep upon nearing the *Pandanus* that fringed the bog. After slogging through the bog and falling into waist-deep holes a few times, we made it back to our jeep and headed back down the switchbacks. Our next stop was at Lac Vaihiria (essentially a man-made reservoir slotted into the narrow valley), where we did a bit of sweep netting for flies and made some hilarious efforts at collecting the speedy *Anax* dragonflies darting along the water's edge, including (much to Jean-Yves's dismay) Ron donning snorkel and mask to "sneak up" on it from the water. After about 30 minutes, we captured one with a net for a photo op later that day back at our hotel room's jerry-rigged photo studio.

Fig. 2. Anaorii Maracage, a highland bog on Tahiti characterized by *Pandanus*.

The next morning began with a short early flight northwest from Papeete, landing on the island of Raiatea at 6:30 am where we met up with Elin and the Land Rover who had taken an overnight freighter with the truck. After a hearty breakfast and coffee at a snack shop in the main town of Uturoa, we drove to what was to be our accommodations for the next 5 days -- the Kaoha Nui Ranch Pension -- 5 km south of Uturoa past the more luxurious beach front resorts. This pension included spartan but clean bungalows amidst a horse ranch (the smell was definitely unique). The proprietor, Patrick, spoke English with a French accent but he claimed to be one of a long line of Spanish caballeros; he moved to Raiatea from

the Marquesas with 40 horses about 15 years earlier and set up a business as a guide (to the interior and the Temehanirahi summit plateau of Raiatea) as well as lead horse-back rides locally.

Ron immediately went to work setting up his mobile photo studio and once finished, we hopped in the Land Rover to scout out potential streams and waterfalls (cascades) to sample the next four days on the island. One particularly good one, the Mitimitiaute Riviere happened to be next door to the pension and had a good road to a trailhead that led to the "Trois Cascades". At the junction of the trail and the stream, we did some preliminary sweeping of stream riffles and collected a few *Campsicnemus* swarming among the more dense simuliids (this turns out to be a typical behavior for them in FP). I set up some pan traps to be collected in a few days and after hiking up stream a bit, we called it a day.

Wednesday, we drove to the west side of the island, parked the truck at the beach (where I swept the beach rubble and got a few beach simuliids), and hiked a few kilometers up a soggy road through hibiscus, then *Casuarina*, and finally a muddy and slippery rain-eroded trail through *Metrosideros* up to where the vegetation opened up and the trail crossed a *Pandanus*-lined stream cascading over weathered sandstone bedrock (Fig. 3). The stream drained the summit (Temehanirahi) plateau (about 430 m).

Fig. 3. Stream on top of Temehanirahi plateau.

We sampled the stream and vegetation and set up pan traps and a Malaise trap. A few *Chrysotus* were collected at the stream and trap site -- the pan traps (and Malaise trap) were collected a few days later by Elin but did not have any *Campsicnemus* (although collecting the previous year at the summit a few hundred meters above had them). Previous rains in the area may have scoured out the stream area since there wasn't much flying that day although we had sunny weather. The hike up and down took much of the day, so there wasn't much daylight left to collect once we got back to the beach and the truck and headed back to our bungalow.

The next day (Thursday) Ron and I went up the road to the Mitimitiaute Riviere that led to the Trois Cascades. The stream has three forks and gets its name from the yellow hibiscus flower (*aute*) found along its shores. When the flower falls to the ground (it is said you can set your watches to it as it does it everyday at 4:00pm) it changes color to red (*miti*). After trudging through high grass and bamboo, we soon lost the trail to the cascades but spent the day sampling the north fork of the stream up to about the 180 m elevation, collecting many dolichopodids and Ron got specimens of a new *Ischnura* damselfly endemic to Raiatea he's calling the Raiatea Blue (he really wants to call it the "Sacre Bleu").

Friday morning, we met up with Ron's friend Eric Pellé, a registered guide on Raiatea (his wife is a jeweler specializing in black pearls -- a useful combo for a husband-wife team in making money on this small island!), who took us along with his day's charge (some crew of the Tahitian Princess cruise ship who got the day off while the tourists were off buying black pearls in Uturoa town). We trundled up to the Trois Cascades up the road from our pension. It was only a short way into the stream area and we slapped our heads when we saw where we should have turned yesterday to catch the trail up to the cascades (that's why you need a guide in these parts!). Another spectacular sunny day allowed us a full day's collecting along the stream and at the cascades. Ron scaled the mountain to the third cascade while I sampled the second one a few hundred meters below it. We both had great success with stream dolichopodids including a possible new species of *Campsicnemus* that may be related to the seep species found on Tahiti (mentioned earlier). Ron got more of his new Raiatea Blue. Upon hearing Ron and I were entomologists, the crew went "ooooh" and then immediately asked us how to get rid of cockroaches. Typical.

The next morning -- another sunny one -- we drove down the southern end of the island to sample the Vaitaroa Stream that emptied into the bay near the sleepy shoreline town of Opoa. The coral rubble road up the valley leads past hydroponic lettuce and vanilla farms. A short hike from the end of the road and we are at the stream, which is shaded by a mixture of Tahitian chestnut and hibiscus. We hiked up the stream to about the 80 m elevation and collected dolichopodids off of mossy covered rocks along the stream and Ron collected more damselflies as well as saldids and flies fogging the mossy seeps with a pyrethrin room fogger. After the flies and damselflies pretty much shut down activity after 2:00 pm, we headed back to our bungalow and watched as black rain clouds filled the sky. After about two hours straight of thunder and lightning and seemingly solid curtains of rain, the grounds were thoroughly soaked and what used to be a nice path to our bungalow became a river of muddy water. But that's OK. We weren't collecting on Raiatea anymore. We were off the next day to Huahine. We slept that night to the constant sound of rain hitting the tin roof of the bungalow.

Sunday morning the rain let up and we drove down to the dock to load the truck (and us) onto the copra freighter *Vunatea* for the 2-hour trip to Huahine. The trip over choppy waves was met with ominous black cloudy skies when we arrived in Fare, the port town of Huahine. We stocked up on groceries for our 4-day stay on the island and headed to the Fare Maeva pension situated on the beach between the town of Fare and the airport. While the team settled into the bungalows, I walked a short distance to the beach and waded through the shallow tidal pools with skittish small electric blue damselfish and made it to the splash zone and swept the exposed coral reef for beach flies. Despite the dark, overcast skies, ephydrids abounded on the exposed coral in between the splashing waves. Also there was a new species of *Cymatopus*, which I had collected the previous year on Tahiti and Moorea. Ron also had collected it in the Australs a few years previous so its presence here shows that it is a fairly widespread species in French Polynesia [no one has checked for it yet in the Tuamotus or the Marquesas]. With a few hours of sunlight left, we hopped into the Land Rover and drove around Huahine Nui (the older northernmost

of the two islands -- Huahine Nui and Huahine Iti, which are separated by a short bridge over a shallow lagoon) to check out potential spots for collecting the next day. The coral road from our pension along the motu that connects the northern part of Huahine Nui has a number of *marae* near the town of Maeva. We crossed the bridge there to the main island and continued down through the interior at the town of Faie. Here, a bit up the valley, was a stream (Vaiumete) that contained a number of large freshwater eels that are a favorite of tourists. We stopped at the requisite tourist spot (complete with sign, map of the island, and picnic table) to see them but they had retired to a spot underneath a large rock bench in the narrow channel by the tourist stop and just their heads poked out like puppets having trouble breathing. We continued across the island -- up and over the high mountain ridge between Moua Tapaau and Moua Rua and over to the west side of the island to a belvedere with a spectacular view of the bay and lagoon below and verdant spires of both islands. We stopped in town for dinner at the local *roulats* (mobile "lunch wagons" common throughout FP that specialize in grilled meats with large amounts of *pomme frit*). That night it rained a bit on the tin roof of our bungalow but not enough to squelch our hopes for good collecting the next day.

Before arriving in Huahine, we asked Patrick, the owner of the Kaoha Ranch pension on Raiatea about what waterfalls there were on Huahine. He said he did not think any even existed on that island. At the *roulats* in the town of Fare on Huahine we asked about waterfalls and the people there said there weren't any. A few days later when we were visiting a small historical museum in Maeva and told the woman there we were collecting at waterfalls, she was surprised to know that Huahine had any. Apparently, few people -- even Huahine residents -- knew of any waterfalls on that island. However, we evidently had better local intelligence handy, and the next morning, following the manager of our pension, we drove to her relative's house a few kilometers away. The owner had some grazing land along a stream in the Faahiti Valley on the north end of the island and said there was a cascade at the head of the valley (Fig. 4).

Fig. 4. Stream in Faahiti Valley.

We drove as far as the Land Rover could take us on a muddy road and then hiked along muddy cattle trails through hibiscus and brush along the stream until coming to a point above the weir (*captage*). I stayed here in the partly cloudy, partly rainy weather and swept the riffle for flies. Elin and Ron went on and found the cascade about a kilometer further up stream. Ron collected a female of a new species of *Ischnura* damselfly but was only able to make a quick sweep of the cascade wall when a huge downpour forced us to find dry ground (me under a large boulder) and wait out the storm. The amount of water coming down caused the stream to rise dramatically, so we cursed the rain gods, abandoned collecting for the day, and promised ourselves we would come back. We decided to spend the rest of the day driving to Huahine Iti to see if it had any good streams for collecting, found a couple of potential candidates, and headed back to our beach bungalow where I did a bit more shoreline collecting. Despite the overcast and/or rainy weather the flies are happy to bounce around in the splash zone of the waves hitting the reef. I got a few more *Cymatopus* and some ephydrids for my trouble.

The following morning Ron and I headed out to one of the streams on the southern island of Huahine Iti, the Mahuti Riviere, which emptied into -- surprise -- Mahuti Baie. A well-graded coral road led quickly upslope and into good vegetation at about 80 m elevation with the stream within a few meter's walk. The weather was partly sunny, partly cloudy, and we hoped it would warm up enough to give the insects a chance to come out before another rainstorm hit. We lucked out and it remained partly sunny most of the day and flies and damselflies were out. Two different species of *Chrysotus* hopped along the mossy rocks in the stream in the dappled sunlight and Ron was able to get a few males and more females of his new yellow Huahine *Ischnura* we informally were calling the "Huahine Jaune". We stayed here the entire day and got in generally good aquatic collecting.

With only one day of collecting left before we had to head back to Papeete, we were hoping for good weather and to return to Faahiti. Unfortunately, a huge downpour in the early morning cancelled those plans as the rivers throughout the area were high and raging -- leaving little hope that the long hike to the cascade in Faahiti Valley would produce anything. Instead, Ron and I used the day to visit the many *marae* in the Maeva village area, many of which had been excavated and studied by Bishop Museum anthropologist Yosi Sinoto in the 1970s and 1980s. A small museum there had an excellent display of the history of the island and the *marae*. The woman volunteering there that day was an American who had moved to Huahine 30 years before, so we had a good talk with her and discovered how little natural history of the area is known to residents. She was keen to learn that Huahine had endemic insects and hoped that we could provide her with stories and images that she could use in the museum and start up a natural history section.

Thursday was travel day back to Papeete. We hopped on our flight back to Papeete mid-morning and arrived a noon. After dropping off our gear, we headed back to Papeete to visit the Delegation de Recherché to give a report of our collecting to the director, Tea Frogier, drop off some reprints, get some clean maps (our rain-soaked ones needed replacement), and make plans for the next trip to FP in June.

Friday morning gave us another remarkably sunny day and the Land Rover had by then been ferried over to Papeete to meet us. Elin, Ron, and I took advantage of the good weather and headed to a small stream on Tahiti Iti to sample for aquatic insects there. A short drive upslope on a one-laned cement-paved road and we found the stream (same one at which I had collected with Patrick O'Grady during an overcast day last July). Ron and I collected males and females of yet another new *Ischnura* and I stuck around the riffles to collect numerous dolichopodids, ephydrids, muscids, and simuliids that skipped around the wet, mossy rocks, staying close to the splash zone of the rocky stream.

After the flies and damselflies stopped flying in mid-afternoon, we decided to drive back to Papeete via the eastern and northern route around Tahiti Nui so we could check out the possibility of a place called Cascades de Tefauromai, where three fairly large waterfalls were situated within a short drive and walk. We arrived at around 4:00 pm and were glad to see that the recent rains had not caused a substantial rise in stream height. Collecting the following day would be possible pending good weather (I crossed my fingers since the previous July, our collecting trip included two visits to the falls -- both on rainy days). We returned to our hotel that evening where Ron took photos of the damselflies recently collected.

The next day was Saturday, our last day in French Polynesia. Late that night we would be heading home, so we hoped when we awoke that the weather outside would be accommodating. From our hotel room on the northwest corner of the island it is impossible to predict what the weather will be like on the other side of the island where the waterfalls were, but when we got up and looked outside, it was sunny with only a few clouds. Ron's friend Phil, who works in Papeete came to pick us up in his 4WD and drove across the island, through central Papeete (that was experiencing a flag-waving march by the Tahitian independence movement that day) and on to the Cascades de Tefauromai. After an hour of driving we arrived at the Cascades. It was still sunny but dark clouds were moving in!

Ron and I jumped out to dash to the closest cascade (Vaimahuta) and swept the adjacent seeps as well as the splash zone of the main falls. Ron was unable to spot the damselflies that frequented the seeps the preceding year, but we both found a number of seep-loving flies including *Limnophila*, a few ephydrids, and some *Chrysotus*. No *Campsicnemus*. The walled arena of the waterfall offered as number of seeps to sample and we checked them all. The stream itself had a number of riffles teeming with black flies that immediately swarmed over us as we stood in the stream to collect. They did not bite, but were a general nuisance, often getting into the eyes and nostrils -- and in your mouth if you kept it open long enough. I held my breath and swept through the swarms of simuliids in the frothing riffles in hopes of getting *Campsicnemus* as we had done on Raiatea. But no such luck this time.

After an hour's collecting at Vaimahuta, I hiked up the short distance toward the second of the three cascades (Haamarere Rahi) and stopped at an open area well below the cascade with good vegetation in dappled sunlight and mossy rocks in the stream. Sweeping the dark boulders overhanging the stream I was able to get the seep-inhabiting new species of *Campsicnemus* found the previous year throughout Tahiti Nui. This was the first record of it from these falls but it was expected to be here given that it occurred widely throughout Tahiti Nui in areas that had flowing seeps and large vertical wet rocks.

After that success, I decided to head back to the stream draining the Vaimahuta cascade and focus on a thin cascade downstream a bit from the walled arena of the main falls. I swept the cascade and surprisingly came up with a third new species of seep-inhabiting *Campsicnemus* (easily distinguished by a spot on the apex of the wing). This one had striking yellow lateral markings on the second and third abdominal tergites (the other two had all dark abdomens). We continued throughout the rest of the day to sample the lowermost two of the three cascades and Ron eventually got more damselflies and I collected a few more *Campsicnemus*. A great finish to a successful trip to collect dolichopodids and damselflies in the Society Islands.

When we returned to our hotel room, we already started thinking about the next trip in June, which will be to Tahaa (the northern Island of the Raiatea group), Bora Bora, and a return trip to Huahine to sample the cascades there that were abandoned due to heavy rains on this trip.

Ode to Chaoborus

by Art Borkent
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I always knew that *Chaoborus* larvae were beautiful and inspiring but I was surprised to learn that a musical score has been composed by David Heuser entitled "Chaoborus". The composer was kind enough to send me a recording of the 8 minute piece and I found it rather fascinating (but then again, I've always been enthralled by these phantom midges). The score is available but there are no publically available recordings of the piece. I wonder whether this is the first genus of Diptera to be used as a title for a musical composition.

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S.W. Williston Diptera Research Fund and Others

by F. Christian Thompson
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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 opened 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 the Diptera Web site and look under opportunities (http://www.sel.barc.usda.gov/Diptera/willisto.htm)

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New Dipterist in Ottawa

Brad Sinclair moved back to Ottawa in January, 2007 to take up the new Diptera position with the Canadian Food Inspection Agency (CFIA). He left Museum Koenig (Bonn, Germany) with many mixed feelings and has slowly re-adjusted to the Canadian winter! Brad's office is in the Canadian National Collection of Insects (CNC) where he will have various curatorial duties in addition to his new responsibilities with CFIA. In addition to numerous identifications of plant pest flies and various interceptions by customs, Brad will be able to continue his research on Empidoidea and Diptera phylogenetics. Initial plans to start up a minor research program on Cecidomyiidae are in the developmental stages.

Brad's new contact details are in the Dipterist Directory.

His former position as Diptera curator at Museum Koenig has been advertised. Please visit the Zoologisches Forschungsmuseum Alexander Koenig website for further information: http://www.zfmk.de/web/Ueberuns/offeneStellen/index.en.html

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Announcing the Canadian Journal of Arthropod Identification

by Steven A. Marshall
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Every reader of this newsletter is probably at least a local expert on some group of flies, able to identify all of the species in one or more families in one or more areas. It is likely that your expertise is unique, in that there are no readily accessible and generally user-friendly identification tools that would allow non-specialists to identify "your" group of flies. If that is the case, please consider taking advantage of new digital tools to translate your expertise into a regional identification guide for publication in the Canadian Journal of Arthropod Identification, a web-based journal devoted to the publication of works that contribute significantly to the recognition and documentation of Canada's arthropod fauna. Instructions for authors and more information about this fully refereed journal recently launched by the Biological Survey of Canada can be found at http://www.biology.ualberta.ca/bsc/ejournal/ejournal.html

The Canadian Journal of Arthropod Identification encourages the submission of digital keys and associated products that facilitate the identification of arthropod groups that include Canadian species. The Canadian Journal of Arthropod Identification is fully reviewed, not only to ensure uniformly high standards, but also to see that contributing authors' efforts are appropriately recognized as refereed publications. Manuscripts will be evaluated by two reviewers who will assess the significance and quality of the work, its suitability for publication, and any required revisions to the manuscript. Reviewers will be selected by the appropriate member of the editorial board (see below), who may also choose to seek additional reviews of a manuscript or have a resubmitted manuscript reviewed again.

Scope

Contributions must review the taxonomy and identification of one or more groups of terrestrial arthropods for all or part of Canada. Each contribution is expected to include novel and fully illustrated identification guides to at least one taxon for a significant geopolitical region, habitat, or ecozone. Contributions must deal with the Canadian fauna, but need not be restricted to Canada, and we welcome more inclusive submissions covering areas including all or part of Canada (such as the Great Lakes region, eastern North America, or the entire continent) or habitats of significance to Canada (such as North American spruce forests or the Great Lakes). Contributions can be at any taxonomic level.

Criteria for publication

Contributions to the journal must include useful tools for arthropod identification, must be original, and must not have been offered for prior or simultaneous publication elsewhere. Most authors will include printable dichotomous keys, but alternative key formats are encouraged to supplement or replace

traditional dichotomous keys. We strongly encourage authors to include links to regional databases, maps, and related products, and we insist that all submissions to this series include high-quality illustrations and/or photographs (see instructions to authors on the website for technical recommendations regarding format, image size, etc).

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Good News! Re: Manual of Central American Diptera

The editorial board has been hard at work this winter and springtime on the completion of the Manual. Final stages of editing are nearly finished and authors will be receiving a version of their chapter(s) at the beginning of May for final, minor, adjustments. Volume 1 will be submitted to the National Research Council of Canada in May for publication and it is expected that Volume 2 will be submitted by this fall. At the present time we are uncertain as to what the volumes will cost but will keep you informed. The end is near!

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Awesome Book

by Art Borkent
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I just finished reading “Endless Forms Most Beautiful” by Sean B. Carroll (2005) and want to recommend this book to all Dipterists. It provides an overview of the connection between genes and the form of organisms, explaining how genes end up providing the structure and organization of the organisms many of us study. The processes of development, including the underlying organizational processes that produce a complex organism, are explained in plain language, with plenty of examples

and illustrations, that is a pleasure to read. I recommend it to anyone who wants to better understand the area of evolutionary development (don't we all?). It certainly helped me to think more deeply about how gene sequences are translated into the synapomorphies I use to build my phylogenies of Ceratopogonidae and other Diptera.

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Books and Publications

(with thanks to Chris Borkent, McGill, Montreal, Quebec, for completing a literature search)

Brooks, S.E., J.M. Cumming, J.E. O'Hara, J.H. Skevington and B.E. Cooper. 2007. Diptera types in the Canadian National Collection of Insects. Supplement. Third edition. North American Dipterists Society Website [http://www.nadsdiptera.org/Catalogs/CNCtypes/suppl.htm].

Cameron, S. L., C.L. Lambkin, S.C. Barker, and W.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.

Dittmar,-K., M.L. Porter, S. Murray, and M.F. Whiting. 2006. Molecular phylogenetic analysis of nycteribiid and streblid bat flies (Diptera: Brachycera, Calyptratae): Implications for host associations and phylogeographic origins. Molecular Phylogenetics and Evolution 38:155-170.

Green, A.J. and M.I. Sánchez. 2006. Passive internal dispersal of insect larvae by migratory birds. Biology Letters 2:55-57. [description of live chironomid larvae being passed by black-tailed Godwits]

Lonsdale, O, and S.A. Marshall. 2006. Redefinition of the Clusiinae and Clusiodinae, 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.

Roháček, J. 2006. A monograph of Palaearctic Anthomyzidae (Diptera), Part 1. 16.5 x 24 cm, 326 pages, 661 black-and-white illustrations. Published as supplement 1 of the Časopis Slezského zemského muzea, Vol. 55. ISSN 1211-3026, ISBN 80-86224-57-0. Price (including postage and bank transfer taxes) 35 Euros. Orders should be sent to: Slezské zemské muzeum, Tyršova 1, 746 01 Opava, Czech Republic or by e-mail to mikulcova@szmo.cz, or david.fiser@szmo.cz

All the Palaearctic taxa of Anthomyzidae are monographed. In the first part of the monograph, the history of taxonomic investigations on the Palaearctic Anthomyzidae, the morphology of preimaginal stages (egg, larva, puparium) and adults, and the systematic position and higher classification of Anthomyzidae are reviewed. The systematic treatments of all taxa (including fossil ones) of Anthomyzidae recognized in the Palaearctic Region are presented, with most complete data dealing with nomenclature, type material, taxonomy (diagnoses and redescriptions, keys, illustrations of taxonomically important structures and diagnostic features), preimaginal stages, relationships, biology and distribution. Two subfamilies, Protanthomyzinae (with one fossil genus and one species) and Anthomyzinae (with 11 extant genera and 42 species), are recognized in the region. Keys to the identification of all recognised taxa are presented.

Stevens, J.R. and J.F. Wallman. 2006. The evolution of myiasis in humans and other animals in the Old and New Worlds (part I): phylogenetic analyses. Trends in Parasitology. 22:129-136.

Stevens, J.R. and J.F. Wallman, D. Otranto, R. Wall, and T. Pape. 2006. The evolution of myiasis in humans and other animals in the Old and New Worlds (part II): biological and life-history studies. Trends in Parasitology 22:181-188.

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.

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:_____
_____
_____
_____