



# ***FLY TIMES***

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We as editors have been putting together the *Fly Times* for nearly 15 years now and believe this is the first time an issue is notably late. Although we humbly apologize for our tardiness, we provide the feeble excuse that we were both at the 5<sup>th</sup> International Congress of Dipterology at the end of September (which were really super meetings!! See below). Commitments to further travel after the meetings meant that we weren't able to get at the task at hand until the first week of November.

Our rapt audience will notice that the last *Fly Times* on the web was issue 27 (Oct., 2001). A recent requirement that all documents published on Government of Canada websites be fully bilingual has meant that it will be impracticable to use the Agriculture & AgriFood website as an outlet for future newsletters. Through the generous support of the Dipterological Fund we hope to be putting the *Fly Times* on an independent server in the very near future.

At the present time some earlier issues of this newsletter are still available through the ECORC website as follows: <http://res2.agr.ca/ecorc/program2/entomology/flytimes/flytime.htm> A variety of other Diptera links, including a number of newsletters restricted to a particular family, are available at: <http://res2.agr.ca/ecorc/cnc/diptera.htm> The *Directory of North American Dipterists* is in the process of being updated and at present can still be accessed at the following address: <http://res2.agr.ca/ecorc/program2/entomology/diptera/dipteras.htm>

Issue No. 30 of the *Fly Times* will appear next April as both hard copy (for those of you without Internet access) and on the Web. If possible, please send either editor your contributions by email, or on disc; electronic contributions make putting the *Fly Times* together much faster. Those of you with hard copy contributions (last possible choice) may fax, or mail your message to Art Borkent at the above listed address. All contributions for Issue No. 30 should be sent by the end of March, 2003.

## NEWS

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### **NADS Meetings at ESA in Fort Lauderdale Nov. 17-20, 2002**

by Gary J. Steck,  
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Come join your fellow Dipterists at an Informal Conference of The North American Dipterists' Society to be held in conjunction with the annual meeting of the Entomological Society of America in Ft. Lauderdale, November 17-20, 2002. The NADS Informal Conference has been scheduled for Tuesday, November 19, 7:00-10:00 p.m. in Room 118/119 of the Greater Ft. Lauderdale/Broward County Convention Center.

Three titles have been submitted so far:

- Up-date on the Diptera Research Program in Washington DC - F. Christian Thompson
- Systematics of the *Melaloncha colossia*-group of bee-killing flies (Diptera: Phoridae) - Brian V. Brown.
- Demonstration of 'LucID key to world genera of Chironomidae' and discussion of development and dissemination of computer-based keys - Peter S. Cranston

There will be plenty of time for other presentations. Feel free to contact me to have your title or other discussion items added to the program. Details of the general ESA meeting are available at [http://www.entsoc.org/annual\\_meeting/2002/index.html](http://www.entsoc.org/annual_meeting/2002/index.html) where the entire program will be listed after about mid-September. Only the three NADS titles listed above will be included at the ESA web site, as they were the only ones submitted in advance of the ESA deadline. I can add other presentations at will to our program, for which I will keep updates available at the web site of the Florida State Collection of Arthropods: <http://www.fsca-dpi.org/>. Go to the Diptera page, and click on the button for "Diptera Notes".

Any museum-oriented Dipterist who plans to attend the up-coming annual meeting of the Entomological Society of America in Ft. Lauderdale (November 17-20, 2002) is welcome to use that opportunity to also visit the Florida State Collection of Arthropods in Gainesville. We are not exactly nearby (about 300 miles away, or 5 hours drive), but if you are driving to Ft. Lauderdale, the detour won't be so great at all. Interstate 75 goes right through Gainesville, and a detour from I-95 would add only about 1.5 hours each way. Forget flying - you can't get to Gainesville from south Florida unless you divert through Atlanta or Charlotte NC ! (Although you could fly to Jacksonville, at considerable expense, and drive another 85 miles from there.)

The museum is undergoing a major expansion of cabinets and drawers, but all of the curated collections are accessible. In fact, some hundreds of thousands of previously stored Diptera specimens are presently being organized into drawers. If you've never visited before, this might be a great time to see what we have - and we'll only get better. If not this time, keep in mind that ESA will meet in Ft. Lauderdale again in 2005. Please contact me in advance if you would like to visit.

## **15th International Symposium on Chironomidae**

by Len Ferrington  
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The 15th International Symposium on Chironomidae will be held at the University of Minnesota in Saint Paul, Minnesota on 12-14 August 2003. It will be sponsored by the Department of Entomology, and Len Ferrington will serve as the organizer and will be the contact person for inquiries. His telephone number is 612-624-3265 and his e-mail address is [ferri016@tc.umn.edu](mailto:ferri016@tc.umn.edu)

A web page will soon be available with detailed instructions for submitting abstracts, reserving accommodations and to complete and pay for registration. An announcement of the web page will be made through the Chironomidae Web Page.

The traditional Thienemann Lecture will be presented in the morning of the first day of the conference, followed by contributed papers and the business meeting. Contributed oral presentations and poster presentations will be grouped by topic into sessions.

In addition to the scientific schedule, there will be both pre-meeting and post-meeting tours. The pre-meeting tour will be held on Monday, 11 August 2003 and will be free for registered participants (delegates) of the conference. There will be a small fee for spouses and others accompanying the conference delegates. The post-meeting tour will depart from Minneapolis/Saint Paul in the AM on 15 August 2003, and will consist of travel to the Itasca Field Lab in central Minnesota, followed by travel to the Iron Range area of north-central Minnesota then along the North Shore of Lake Superior to the border with Canada, before returning to Minneapolis/Saint Paul by late PM on 19 August 2003. There will be a fee for the post-meeting tour, both for meeting delegates, spouses and other accompanying guests.

The Minnesota State Fair will begin on Thursday, 21 August 2003. The state fair continues for 10 days and is one of the most celebrated social activities of summer in Minneapolis/Saint Paul, with more than 1.6 million people attending the fair. The state fair is an activity that should not be missed and we hope that people attending the International Conference on Chironomidae will try to schedule some extra days in the Twin Cities so that they can attend the fair. For more details contact Len Ferrington.

In order to participate in all meeting activities and also attend the state fair it is recommended that persons arrive by Saturday 9 August 2003 or Sunday 10 August 2003 and stay until at least 23 August 2003.

**Biting Fly Workshop - Henderson, Tennessee  
May 23-26, 2002**

by James Goodwin  
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The 2002 Biting Fly Workshop was held in Henderson, Tennessee, May 23-26. Except for the one local participant, everyone attending stayed at the Americana Motel on U.S. Hwy. 45. There were eleven participants, three accompanied by their wives.

The workshop consisted of daytime collecting, evening meetings, and eating a lot of barbeque. Collecting was done on several areas of private land, access being gained through our local colleague, Mr. Bob Finley. Collecting was also done in Chickasaw State Park and Chickasaw State Forest. Collecting was only moderately good as the week prior to arrival was the coldest week in May in recent memory with temperatures falling to freezing at night only three days prior to the workshop. Nonetheless, more than 20 species of Tabanidae and at least 14 species of Ceratopogonidae were captured.

The meetings on the first two days were held at Freed-Hardeman University with space provided by the Department of Biology. The final meeting was held at the Americana Motel. Participants provided the usual State Reports and updates on their research. All participants want to gratefully acknowledge the local assistance provided by Mr. Finley and the support from the Department of Biology at Freed-Hardeman.

The 2003 Biting Fly Workshop was discussed at the final meeting, but no final decision was made on location and dates. A final decision has not yet been reached.

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**Overview of the 5<sup>th</sup> International Congress of Dipterology  
- Brisbane, Australia, 29 September to 4 October 2002**

by Jeff Skevington  
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Nearly 250 people attended this year's International Congress of Dipterology held in Brisbane, Australia. The general consensus suggests that it was one of the best Congresses yet. There were certainly none of the equipment failures and space problems that plagued some past congresses, and presentations and posters were typically of very high quality. A general trend seen in this year's congress included a move by most participants towards Powerpoint presentations (maybe seeing slides shot across the room by projectors in Oxford caused even the ludites amongst us to consider that computer presentations could be no more dangerous than traditional slide talks). Among other noticeable trends were more richly illustrated talks and posters (thanks to the many photographers who have been sharing their resources widely) and the inclusion of molecular data as a standard in most phylogenetic studies.

Symposia organized for this Congress were varied and included: the influence of modern innovations on systematic inquiry, Diptera in biodiversity and conservation, multiple data set analyses for Dipteran phylogenetics, sperm Olympics: sperm competition, cryptic female choice and mating behaviour in Diptera, digital Diptera: fly identification in the new millennium, the genetics of biological invasions, and cataloguing and databasing. Workshops and contributed paper sessions focussed on many higher taxa of flies as well as subjects such as fossils and biogeography, behaviour and physiology, development, forensic entomology and hornfly management.

This was the first Congress that saw lunches included with the attendance fees. Food was excellent and providing it in this way increased the potential for interaction amongst all delegates. Hopefully the next Congress in Japan will follow this lead.

Conference social events were varied. Word has it that the Australian Woolshed was more than a bit hokey so those of us who went out for a much cheaper dinner and a few drinks rejoiced at the news (although, I'm sure that seeing congress organizer David Yeates cutting the rug in a hoe-down was quite a sight). In contrast, the River Queen (a paddle-wheeler cruising the Brisbane River) was the perfect venue for the conference dinner. The semi-formal atmosphere allowed delegates to enjoy their dinners and also wander around and socialize with others.

For many people, this was their first trip to Australia and presented a great opportunity to see some of the Australian flora and fauna. For those who didn't have time to explore some of Australia's parks and wild places before or after the Congress, trips to the Botanical Gardens and Lone Pine zoo provided a taste of Australia. Attendees kept the doors at Lone Pine revolving and a few people even took time to go farther afield and see wild representatives of some of the amazing mammalian fauna in Australia (for example, koalas and several species of kangaroos are common in and near Brisbane and were seen by some who made the extra effort to see them in the wild). For those of us who went on pre- or post-Congress collecting trips, collecting permits and export permits were organized by Margaret Schneider, Greg Daniels, and myself. Greg Daniels (University of Queensland Insect Collection), Chris Burwell (Queensland Museum), and John Donaldson (Queensland Department of Primary Industries) provided space and made people very welcome in their visits to the local insect collections. The University Collection certainly saw as much simultaneous visitor activity as it has ever seen during the few days of the Congress.

Unlike many big conferences it was nearly impossible to find a time when there was not something on that you wanted to see. As a result, getting out into the field to set up traps, collect, or explore Brisbane pretty much had to be done before or after the Congress. The following is my effort to provide an overview of some of the talks that sum up the Congress and may be of general appeal.

### **Broad appeal - some fancy Australasian flies**

Claire Baker's presentation on Australian glow-worm (Keroplastidae: *Arachnocampa*) systematics and ecotourism presented a novel side to Diptera that was unfamiliar to many delegates. Gary Dodson's talks on antler flies, the conference emblem (Tephritidae: *Phytalmia*) provided great insight into the ecology of this fantastic group of flies. Gary Taylor outlined his research on the only known mutualistic association between flies and nematodes; explaining the co-evolution between gall-flies (Fergusoninidae: *Fergusonina*), nematodes (*Fergusobia*) and their myrtaceous hosts.

### **Regional and global biodiversity**

On a habitat-diversity scale, Dan Bickel presented data on Diptera diversity on tree trunks. Comparison of the extant arthropod communities that he sampled to communities known from Baltic amber collections provided interesting possibilities for discussion. Several talks discussed Diptera diversity at regional levels. Of these, talks on Hawaiian Biodiversity by Neal Evenhuis and on Namibian Diptera by Ashley Kirk-Spriggs were particularly noteworthy. Most authors exploring regional biodiversity attempted to provide total estimates of species diversity. Almost all of the methods for estimating this diversity were different. David Yeates presented a novel method in his estimates of Dipteran species-richness in Australia based on extrapolation from the rate of species discovery in recent revisionary work.

### **Morphological phylogenetics**

Although most phylogenetic studies now incorporate molecular data, several authors provided great insight into groups based solely on morphology. In this way, they illustrated that there is still a lot of data available to be analysed morphologically. Steve Gaimari's talk on the Lauxanioidea presented his discovery of new characters which suggest sinking the enigmatic families Eurychoromyiidae and Celyphidae into Lauxaniidae. Margaret Schneider's talk on new concepts within the Conopinae emphasized Australia's importance to the understanding of this large group of acalyptate flies and Terry Wheeler's talk on the genera of Chloropidae revealed that many of the currently recognized genera are not monophyletic and that recognition of numerous small genera renders larger genera paraphyletic.

### **Combined morphological and molecular phylogenies**

Many talks and posters on Diptera phylogenetics encompassed both morphological and molecular data. Presentations of the broadest general appeal included those by Greg Courtney (Nematocera phylogenetics), Brian Wiegmann (phylogeny and time scale for Brachyceran evolution), and Jeff Skevington (relationships of Eremoneura). Papers exploring areas of recent contention or of general interest included those by Peter Hibbs (phylogeny of Rhagionidae *sensu lato*), Rudolf Meier (relationships of the Sciomyzoidea) and Gunilla Stahls (syrphid phylogenetics).

### **Interactive keys**

This Congress saw the use of many new or developing electronic innovations in systematics. Amy Lawson presented an overview of her work on 'Dorsalis - an interactive key to fruit flies of the *Bactrocera (Bactrocera) dorsalis* complex'. This appears to be one of the best uses of interactive keys yet and should revolutionize the way that non-systematists approach identifications of this difficult group of flies. David Yeates presented an exciting preliminary plan to produce an interactive key to fly families of the world. This project will use many of the impressive images that were show-pieced during this Congress and should bring the family-level identification of Diptera to a new plateau.

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### **Past Words of Wisdom?**

"Flies are so mighty that they win battles, paralyse our minds, eat our bodies ...." Pascal (1623-1662) (in his *Pensées*, Section 1, II. Vanity. Penguin Books, 1966 translation by A.J. Krailsheimer)

## **Bush Flies and Billabongs: Collecting in the Australian Outback**

by Jade Savage

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Following the Fifth International Congress of Dipterology, in early October, a team of 17 dipterologists left Brisbane on a ruthless hunt for two-winged trophies. Canadians made up the majority of this death squadron, with Jeff Skevington (California Department of Food and Agriculture) as our expedition leader. Managing a group of that size, especially when composed of spirited entomologists, requires both patience and leadership. Luckily, these are two qualities Jeff has in abundance. The other Canadians were Jim O'Hara, Jeff Cumming, Monty Wood and Grace Wood, all from the Canadian National Collection, Steve Marshall (Guelph University, Canada), Brad Sinclair (Alexander Koenig Museum, Germany), Stéphanie Boucher, Scott Brooks, Carole Chénard and myself, all from the Lyman Entomological Museum. The remaining members included three Americans, Dan Hansen (University of Minnesota), Brian Wiegmann (North Carolina State University) and John Moulton (University of Tennessee) as well as Michael von Tschirnhaus (University of Bielefeld, Germany), Mihály Földvári, (Hungarian Natural History Museum), and Thomas Pape (Swedish Museum of Natural History).

Saturday October 4, day one of our journey, was a smooth ride north from Brisbane to Noosa Heads, with the Cooloola section of the Great Sandy National Park as our destination. A pause was taken by all on Mount Tinbeerwah, where the flies were rather scarce. However, this might have had something to do with the fact that Monty had reached the summit a good hour before the rest of us.

Next stop, Noosa Heads, where we planned to take the beach road to Freshwater Creek Camping Area before sunset. Off-road driving in Australia requires three major skills: audacity, self-control (or the capacity to forget all about that enormous deposit you had to cough up before driving away from the rental agency), and the ability to interpret road signs. You eventually must learn that when a sign says "4WD only after this point", it should automatically be translated to "Mate, you'll never make it unless you're driving a tank." And like most other lessons in life, this one had to be learned the hard way.

Once we reached the beach trail, we went by the book, lowering our tire pressure and listening to the contradictory advice of a few well-intended Aussies. On our way we went...only to realize a few minutes into the drive that the tide was much higher than expected, and that the Boucher/Savage/von Tschirnhaus mobile was not going to make it. As the water began to lick the wheels, a nice smiling man in a huge truck offered to give us a hand...a \$20 hand that is. And that was when we saw the others, less than 200 meters away from our stranded vehicle. More smiling men, all sitting in their trucks with a visible "\$20 tow" sign posted on the windshield...

So, with only our ego bruised, we finally ended up in a nearby caravan park, having chosen on a different route to Freshwater Creek for the next morning. This change in plans proved positive to Michael who collected a number of fergusoninids at the camp site. While much longer, the alternative road seemed fairly inoffensive for at least the first 30-40 km, until the same vehicle that was rescued from being lost at sea

made an unfortunate close encounter with a tree. Yet again, the incident resulted only in a lost but soon to be found hubcap, and after much pushing, pulling and cursing, the whole convoy finally made it to our destination.

Following a good night's rest, spirits were high and all nets ready to fly. Armed with an impressive artillery of killing jars, nets, photo-electors, aspirators and other deadly devices, we finally invaded Freshwater Creek. With forested surroundings and proximity to a magnificent sandy beach, this camp site provided us with a variety of habitats to choose from. From this area I collected a number of calliphorids and platystomatids, and Scott got a number of *Tachytrechus* (Dolichopodidae) at a nearby freshwater stream. Jeff Cumming collected a number of tachydromiine and hybotine empidoids and the Australasian coastal endemic genus *Thinempis* (Empidinae). Jim even found a nice small hill, on top of which both him and Dan managed to bake their necks and arms to a nice crisp. Monty also installed a Malaise trap at his camp site, which will undoubtedly yield many interesting specimens, and soon after sunset Dan hung up a white sheet near a battery operated blacklight, attracting in this manner a number of different taxa, including a variety of lacewings, mantispids, and a real treat, some itthonids.

While one would expect that a group entirely devoted to Diptera should be fairly homogenous in their collecting techniques, it was quite surprising to see the variety of killing agents and killing jar designs we had brought on this trip. Ethyl acetate, cyanide, 1-2 dichloroethane and chloroform were all used to kill large specimens, while smaller flies were generally preserved in absolute or diluted ethanol. In addition to the great collecting, much wildlife was seen at this location, and many of us had the chance to observe breaching humpback whales, spotted eagle rays, bottle-nosed dolphins, green sea turtles, as well as numerous sea birds. We also had encounters with a few large lace monitors, carpet pythons and some ravenous brush turkeys who raided our camp for bread and macaroni.

It soon appeared, after these first few days of collecting, that many groups were not going to be as abundant as expected. The drought seemed to be responsible for the surprising low diversity of a number of taxa, especially syrphids, which are normally a significant part of the late winter and spring fauna of Queensland. Muscids were also surprisingly scarce, excluding of course, the ever numerous and annoying bush flies. Although flowering should have been near peak in most heath habitats around Cooloola, the low rainfall had left us only with a few patches of blooming *Leptospermum* to collect from. This, unfortunately, made for a relatively low number of nectaring species among our catches.

On Tuesday morning, we left the beach to begin our journey inland, after saying goodbye to Brian and Kevin, as well as Monty and Grace who had decided to extend their stay in Cooloola. While our ultimate destination was Carnarvon National Park, we had all agreed on spending a night at Cania Gorge (250 km northwest of Freshwater Creek) to observe nocturnal mammals. More truck troubles, this time in the form of an exploded tire on the Brooks/Chénard/Hansen and Földvári vehicle held us behind schedule, and it was not until a few hours after dark that we finally got to turn the spotlights on. Wild echidnas, greater and yellow-bellied gliders, rufous bettongs, red-necked and black-striped wallabies, grey kangaroos and common brushtail possums were a first for many in our group. A rather startled wallaby even gave us a full demonstration of the strength of those powerful legs by jumping over our shoulders!

Early on Wednesday we headed west for Carnarvon, following an hour wait around a perfectly rectangular pond hoping in vain to see a platypus. As we drove further inland, the landscape slowly began to change, going from baked pastureland with the occasional acacia tree, to burnt pastureland with the occasional baobabs. However, once we reached the park, pastures slowly yielded the way to more

forested dry sclerophyll habitats, dominated by a variety of *Eucalyptus* and *Angophora* species, as well as numerous cycads and grass trees.

The last hundred kilometres to Carnarvon should be renamed either “blow fly heaven” or “kangaroo hell”, as the dusty trails to the park are littered with dozens of carcasses of the unfortunate marsupials. This grim spectacle, no matter how sad, sure illustrates the need for those peculiar “roo bars”, affixed to the front of most 4WD vehicles to prevent extensive damage in the event of such a collision. Like a contestant in a ghastly video game, our lead vehicle had to do some fancy manoeuvring to avoid literally hundreds of swamp, pretty-faced, red-necked wallabies and grey kangaroos.

Stiff and tired, we eventually made it to our final destination, where we were pleased to discover that we had full access to the visitor’s cabin, a luxurious two bedroom camp equipped with electricity, appliances and even a hot shower! After filling the refrigerator with as much food and beer as was possible, most of us started taking turns at the pinning table in order to get rid of the backlog of specimens accumulated over the last few days. With the sun going down around 6:00 pm., it had been very difficult to process our material at the previous campsites, unless one was willing to work under the neon light of the public washrooms.

From our first day in Carnarvon, we had the chance to meet with the park rangers, Ross Perry, Dave, and Craig Eddie. These guys dedicated a lot of their time to our group by leading some of our day trips and sharing some of our evening merriments ( I am still convinced that wine in a bag is poisonous). Most mornings, Craig would stop by the camp to show us his bat catch of the day, and we had the chance to observe live specimens of *Rhinolophus*, *Mormopterus*, *Vespadelus* and *Scotorepens*, off of which he and Mihály even collected a few nycteribiids.

The first collecting event in Carnarvon was a joint expedition to “the tombs”. This site consists of an enormous sandstone outcrop, that served in the past as an aboriginal burial site and still displays a number of cave paintings. We were hoping to find permanent water in the area, but as the park had not received rain in over 3 months, the stream bed was completely dried out. However, in spite of the drought, collecting at this site turned out to be a great experience, as many of us had the chance to catch their first mydids and apiocerids.

Later that same day, we stopped by Moffatt Top Camp to pay a visit to Steve, Brad and Thomas, who had so far traveled separately from our group. They had already established camp at this site in order to begin their ascent of Mount Moffatt early the following morning. To the joy of the empidoid workers, this site offered permanent water and hosted an entirely different fauna than the tombs. The two Jeffs and Scott put out an impressive array of Malaise and pan traps along the permanent water sites. Among the more noticeable finds in this area were thousands of chloropids of the genus *Apotropina* found swarming in a small rock shelter and a number of peculiar yellow dolichopodids collected off an exposed tree trunk by Brad, Scott and Carole. In the smoke of a campfire, Brad and Jeff Cumming collected several *Microsania* (Platypezidae) and Brad also got a single male *Hormopeza* (Empididae) previously known from Australia from two males collected in Tasmania.

The Consuelo Tableland was another site that offered permanent water, but only as a reward to those willing to hike a long way to the upper Carnarvon Creek. Brad collected there a number of *Clinocera rubriventris*, *Ceratomerus* sp. and *Asymphyloptera* sp. (all empidids) along the cliffs of the gorge, as well as a single larvae of *Austrothaumalea* (Thaumaleidae). All of these findings represent new records for

Carnarvon National Park. For those not so inclined towards a long walk, the grassy meadow of the Tableland also yielded great numbers of acalyptrates, including many chloropids, agromyzids and cryptochetids collected by Stéphanie, Michael and myself.

For the length of our stay in Carnarvon, group rotations had to be established for most of the hilltopping sites, only large enough to host 3-4 people. While it was still early in the season, most hilltops in the area yielded amazing numbers of flies. One of the most productive spots was a small unnamed hill, quickly baptized “Fly Hill”, where in a single afternoon Jim collected 193 male tachinids, representing at least 75 species! These numbers are quite impressive when compared with the usual 20-25 tachinids that can be expected in one day from a productive hilltop in North America.

Mount Sugarloaf and Mount Moffatt were also very prolific both in terms of abundance and diversity. Between these two hilltops and a dead dingo, Thomas collected over 20 species of sarcophagids, half of which are apparently undescribed. While tachinids and pipunculids were probably the most abundant families on Sugarloaf, Mt. Moffatt offered a different assemblage of taxa, with bombyliids probably ranking first for diversity, followed by pipunculids, tachinids and sarcophagids. Jeff Skevington collected many rare pipunculids on these hilltops, including 3 specimens of *Jassidophaga* and 7 specimens of *Clistoabdominalis dasymelus*. A few scenopinids and acrocerids from Mt. Moffatt were also brought back to camp, as well as two specimens of *Ironomyia*, representing a considerable range extension inland for ironomyids.

Collecting in Carnarvon was quite productive overall, considering that most days were overcast at least in the morning. We also managed to get soaked by the first rainstorm in months, and quickly came to the conclusion that sand, really is a fairly decent driving substrate when compared to wet clay! But the rain was much needed and might have helped to increase the diversity of species we encountered in the following days. Following ten days of entomological discoveries, we finally headed out for a long but uneventful ride back to Brisbane. Many of us left for home the following morning, completely exhausted but already excited by the perspective of trading nets for microscopes!

Pictures from the trip can be seen at: <<http://ecol1.bio.u-szeged.hu/~foldvari>>

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### **Biography of Dr. Sturgis McKeever, Professor Emeritus of Biology**

by Dan Hagan

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Sturgis McKeever, Ph.D. aged 80, died April 26, 2002 after a short illness. He is survived by Kay M. McKeever, his wife of 55 years; and a sister Mrs. D. Lester (Carol) Gibbs of Oxford, Penn.

Sturgis was born September 6, 1921, to Mamie Nicholas and Giles Seward McKeever and had 8 brothers and 4 sisters. He was born at home, near the town of Renick, WV (which was near the earlier WV town of Falling Spring). Both these towns were near a town called Droop. The house where Sturgis was born is still standing in 2002. At age 1 and a half, the family moved to Frankfort, WV (about 2 mi. away) to the farm

that became the McKeever home place. It was in Frankfort that Sturgis attended elementary and high school (in the same building).

In 1939, he entered West Virginia University to study Forestry and studied there for 2 and a half years. During his 1941 Fall semester the United States became involved in WWII and his parents insisted that he leave WVU and come home to help run the family farm. He worked there until Nov. 1944 at which time he enlisted in the U.S. Navy. Sturgis had already had 2 years of ROTC at WVU. He was trained in radar and advanced to the rank of Seaman First Class. He was assigned to a naval base in Oregon, and was on the crew of the aircraft carrier being constructed in the Willamette River. He served aboard a small aircraft carrier. At the end of his last sea duty, he was stationed at NAS Detachment St. Simons, GA. While there he met the love of his life, Miss Kay Murphy. He was discharged in June 1946. Sturgis McKeever and Kay were married July 27, 1946, in an outdoor ceremony on the campus of Kay's alma mater McDonald College, in Red Sulphur Springs, NC.

In September 1946, Sturgis entered North Carolina State University. He and Kay spent the summer of 1947, in a 45' Fire Tower in Oregon, at 5,000 ft. elevation between two snow covered mountains (Mt. Jefferson to the south and Mt. Hood to the north). Both Sturgis and Kay had to go to Fire School to learn how to use the Alidade Fire Finder, and plot exact fire/ smoke locations by counting the ridges and direction to find the distance the fire was away. They lived in a 14' by 14' room, and had a 2' wide cat walk around the top of the 45' fire tower.

Sturgis earned his B.S. in Forestry in 1948 and was then admitted to graduate school at NC State in the Animal Ecology department. He completed requirements for the M.S. in Zoology in 1949. Sturgis began his first job July 1, 1949 with the Pittman-Roberts Program of the WV Conservation Commission and he was Team Leader of the Mammals of WV in the Pittman-Roberts program. He was able with approval of his major professor, Dr. Zeno Payne Metcalf at NC State to use the data from the Mammals of WV study for his doctoral dissertation. His committee recommended that he go to the Duke Marine Station, for study the summer of 1951. Sturgis spend 2 summers in Alaska, at Point Barrow the northern-most point of the United States and was also associated with the Aeromedical Lab of Ladd Air Force Base. He finished his dissertation in 1954, and graduated June 1955. His dissertation was the largest submitted to NC State library to that time. He worked at the NC State Museum and mounted a variety of large mammals, including a sperm whale.

He took a position at the Centers for Disease Study (CDC) Newton Field Lab, in west Georgia, in 1955. Dr. McKeever worked there 2 and half years. Dr. McKeever named his first species novum after Dr. Metcalf. In 1957, Sturgis began a 6 year assignment (1957-63) at the University of California, Davis -Experiment Station, and worked some at Susanville, a forestry site. He worked on a project to reduce the feeding of rodents on pine seeds.

In 1963, he and Kay took a professorship on the Biology faculty in Statesboro, at Georgia Southern College teaching General Biology, Human Anatomy, Vertebrate Zoology, etc. He authored numerous articles in refereed scientific journals on a broad range of biological topics from the scanning electron microscopy of Ceratopogonidae and Corethrellidae, to new species of cestode worms, to his world class photographs of plants, mammals, and insects. He is known across the globe for his macrophotography of tiny insects, orchids, and pitcher plants. He retired from Georgia Southern University in 1989, but remained active in teaching and research until his death.

### **Passing of Elmo Hardy**

by Neal Evenhuis  
Bishop Museum, 1525 Bernice Street, P.O. Box 19000A,  
Honolulu, Hawaii, 96817 0916, USA

Entomology Emeritus Professor D. Elmo Hardy passed away Oct. 17, 2002 from complications related to pneumonia. Elmo had been hospitalized for the previous six weeks. He was born in 1914, and retired from the University of Hawaii in 1981, although he has remained quite active through the past two decades. Elmo published 235 papers and books on dipteran systematics, described over 1900 new species, and has received numerous awards, including the ESA Excellence in Research Award in 1976, and the University of Hawaii Board of Regents Medal of Distinction in 1998. He had also been a Research Associate with the Bishop Museum for almost 20 years.

Elmo is survived by his grown children and his wife, Ilse.

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### **New address and Workplace for Jeff Skevington**

Jeff Skevington has completed his NSERC postdoctoral fellowship at the Canadian National Collection of Insects and McGill University (with Jeff Cumming) and has moved to a permanent position as a systematist with the California Department of Food and Agriculture in Sacramento. Jeff's new position allows him to continue his research on systematics of Pipunculidae and phylogenetics of Eremoneura but will also entail responsibilities for identification and research on Auchenorrhyncha. Linking research on pipunculids and their hosts isn't a huge jump, but learning to identify leafhoppers and their relatives will be a challenge. Jeff can be contacted at the following address:

California Department of Food and Agriculture  
Plant Pest Diagnostics, 3294 Meadowview Road  
Sacramento, California, 95832-1448, USA  
Phone: 916-262-1148, FAX: 916-262-1190  
e-mail: [jskevington@cdfa.ca.gov](mailto:jskevington@cdfa.ca.gov)  
<http://www.cdfa.ca.gov/phpps/ppd/>

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### **New Locality Label for Graham Griffiths**

We have moved from Collingwood Cove to Athabasca. My postal address is Box 1380, Athabasca, Alberta T9S 2B2, Canada. My wife Deirdre and I are for the time being occupying two house trailers, while we watch for the next downturn in the market for lakeside retreats. Since the trailers are on different lots, they have different phone numbers. The phone for my workplace is (780) 675-3424; for Deirdre's workplace (780) 675-8880. Please ring the appropriate number first, then the other if you get no response.

## Dipterology Fund

by Terry Wheeler

### Report on 2002 Grants Competition

Three applications for Student Research and Travel Grants were supported in the 2002 grants competition. **Scott Brooks** and **Jeff Skevington** both received support to attend the Fifth International Congress of Dipterology and to participate in post-congress collecting trips in eastern Queensland. **Kevin Holston** also received support for travel to the Russian Far East in search of elusive Palearctic Therevidae. Congratulations to this year's grant recipients. As always, we encourage applications for support of field work and conference travel from students of Dipterology anywhere in North America.

### Call for Applications - 2003 Grants Competition

Applications will be accepted for the 2003 competition of the Dipterology Fund until 01 March 2003. Up to four grants of CAN\$1000 each will be awarded. For details of eligibility and instructions, please see Fly Times Issue 25 (October 2000). Previous recipients of Dipterology Fund grants may submit applications for a second grant, as long as they are not in consecutive years, and not for the same project. Decisions on repeat funding will be at the discretion of the Grants Committee. Repeat applicants should note any previous Dipterology Fund grants on their application.

Dr. Terry A. Wheeler (Chair, Dipterology Fund)  
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 Ste-Anne-de-Bellevue, QC, H9X 3V9, CANADA  
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## Books and Publications

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

Ansorge, J. 2002. Revision of the "Trichoptera" described by Geinitz and Handlirsch from the Lower Toarcian of Dobbertin (Germany) based on new material. *Nova Supplementa Entomologica*.15: 55-74.

Beckemeyer, R.J. 2001. A literature-based checklist of Kansas robber flies (Diptera: Asilidae). *Prairie Naturalist* 33: 65-92.

Biodiversity Vol. 3(4): 1-48 (2002). <http://tc-biodiversity.org> A substantial portion of the last issue of this journal was devoted to a series of articles dealing with Diptera, giving an excellent overview of the group. Here are the articles included:

Exploring the diversity of flies (Diptera) - J.H. Skevington and P.T. Dang

Introducing the ubiquitous Diptera - J.R. Vockeroth

Audacious predacious lifestyles - S.E. Brooks

Intimate neighbours: parasitoids and parasites - J.H. Skevington

Cleaning up the world: Dipteran decomposers - J. Savage

Going vegetarian: plant and fungus feeding - S. Boucher and T.A. Wheeler

Flowers, pollination, and the associated diversity of flies - P.G. Kevan

Flies as vectors of disease - D.H. Foley

When being a maggot is a good thing: the role of Diptera in forensic science - A. McDowell

Molecular systematics of flies (Diptera) - S.L. Winterton

Dipteran glow-worms: marvellous maggots weave magic for tourists - C.H. Baker

Cannings, Robert. A. 2002. The Systematics of *Lasiopogon* (Diptera: Asilidae). Royal British Columbia Museum, Victoria, B.C. 356 pp, 6x9", hardcover, b/w illustrations, photographs, maps. ISBN 0-7726-4636-8.

Send orders to: Royal Museum Shop, 675 Belleville Street, Victoria, B.C., Canada V8W 9W2. e-mail: [shop@royalbcmuseum.bc.ca](mailto:shop@royalbcmuseum.bc.ca) <<mailto:shop@royalbcmuseum.bc.ca>> Phone: 250-356-0505. Fax: 250-387-2361. In North America, add \$5 postage and handling for the first book ordered and \$2.50 for each additional book; overseas, add \$10 for the first book and \$5 for each additional book. In Canada, add 7% GST to the total, including postage and handling. Total price for a single book (pay in Canadian dollars): In Canada: \$65 + \$5 (S&H) = \$4.90 (GST) = \$74.90 CAN. In the USA: \$65 + \$5 = \$70.00 CAN. Elsewhere: 65 + \$10 = \$75.00 CAN

The genus *Lasiopogon* is a speciose and widespread group of robber flies (Diptera: Asilidae) inhabiting the north temperate parts of the Earth. It is the most northerly ranging genus of asilid flies and the relationships of the species on either side of the Bering Strait offer excellent opportunities for biogeographical research. Although the author examined and identified all the material assembled (he recognizes 118 species), and documented 49 new species, only about a quarter of the genus was revised at the species level. The study includes a cladistic overview of the defined species groups and a detailed taxonomic and phylogenetic analysis of the seven species groups and 29 species in the monophyletic and derived *opaculus* section, which is distributed in North America and East Asia. Fourteen new species are described and the others are redescribed. The male and female genitalia of each species are illustrated and the geographical distribution of the species is mapped. The phylogenetic hypothesis of the genus as a whole is treated by employing putative species groups defined by exemplar species.

The identification keys cover all known North American species and those in Asia east of 60°E longitude. Europe contains many undescribed species and the bulk of the fauna there was not studied in great detail. The three keys contain undescribed species as well as described ones allowing accurate identification of all known species. The morphology of *Lasiopogon* is detailed; special attention is paid to the dissected male and female genitalia, which have been little used in previous taxonomic works on the genus. For the first time, the gonostylus, phallus, subepandrial sclerite, basal epandrial sclerite and spermathecae are considered especially important structures. The description

and analysis of morphology will be useful to other students of the Asilidae.

The placement of *Lasiopogon* in the Stichopogoninae is upheld; it is considered the sister group to the remainder of the subfamily. The possibility that the Stichopogoninae is linked to the Stenopogoninae through the australasian genus *Bathypogon* is explored. *Lasiopogon* consists of two main clades: the *cinctus* clade is predominantly West Palaearctic; the *bivittatus* clade is mainly Nearctic. The *opaculus* section, the main object of this study, is a monophyletic, derived lineage in the *bivittatus* clade. The younger clades of the *opaculus* section live in the East Palaearctic.

A biogeographic hypothesis of the history of *Lasiopogon* suggests that *Lasiopogon* may have originated in Laurasia as early as the late Jurassic, although the phylogeny of the modern fauna correlates best with geographical events beginning in the Tertiary. The *cinctus* and *bivittatus* clades perhaps diverged at the onset of Oligocene climatic cooling. In the Miocene, populations of the *opaculus* section were continuous across Beringia and into Asia. Almost all the extant East Asian species groups originated at that time. One species, *L. hinei*, recolonized North America in the Pleistocene.

- De Jong, H. 2002. The types of Diptera described by J.C.H. De Meijere. Entomologist's Monthly Magazine 138 (1652-1655): 14.
- Disney, R.H.L. 2001. Sciadoceridae (Diptera) reconsidered. Fragmenta Faunistica Warsaw 44 (2): 309-317.
- Greathead, D.J. and N.L. Evenhuis. 2001. Annotated keys to the genera of African Bombylioidea (Diptera: Bombyliidae; Mythicomyiidae). African Invertebrates 42: 105-224.
- Greenberg, B. and J.C. Kunich. 2002. Entomology and the Law: Flies as Forensic Indicators. Cambridge University Press. \$95 US.  
Available from Amazon at the following link: [http://www.amazon.com/exec/obidos/tg/detail/-/0521809150/qid=1034078633/sr=8-1/ref=sr\\_8\\_1/103-5296950-2744607?v=glance&n=507846](http://www.amazon.com/exec/obidos/tg/detail/-/0521809150/qid=1034078633/sr=8-1/ref=sr_8_1/103-5296950-2744607?v=glance&n=507846).
- Han, H.Y., K.E. Ro, D.S. Choi and S.K. Kim. 2002. Molecular systematics of the Tephritoidea (Insecta: Diptera): Phylogenetic signal in 16S and 28S rDNAs for inferring relationships among families. Korean Journal of Biological Sciences 6(2): 145-151.
- Jaschhof, M. and R.K. Didham. 2002. Rangomaramidae fam. nov. from New Zealand and implications for the phylogeny of the Sciaroidea (Diptera: Bibionomorpha). Studia Dipterologica Supplement 11: 1-60.
- Mason, F., P. Cerretti, A. Tagliapietra, M.C.D. Speight and M. Zapparoli (eds.). 2002. Invertebrati di una foresta della Pianura Padana Bosco della Fontana. Primo contributo [Invertebrates of a Padana Plain forest Bosco della Fontana. First contribution]. Conservazione Habitat Invertebrati 1: 1-175 [in English and Italian].  
Free copies are available from Dr Franco Mason, National Centre for Study and Conservation of the Forestry Biodiversity, Verona-Bosco della Fontana State Forestry Corps, Via Carlo Ederle 16/a, I-37100 VERONA (Italy), tel. + 39 45 8345445, fax + 39 45 8341569 email: [fmason@tin.it](mailto:fmason@tin.it)

This attractively produced study of the invertebrates of a small nature reserve in northern Italy is of interest because the area surveyed represents one of the few relatively undisturbed fragments of primary woodland which originally covered the Padana Plain. The survey is of particular interest to dipterists because the order is dealt with more comprehensively than other groups. For example of the 28 excellent coloured figures of insects contained within the volume, 22 are of Diptera. Direct collecting and a diverse series of trapping methods were used, including rearing. Forty eight families of Diptera were covered by 19 specialists, however four to five thousand trapped specimens belonging to nine families (namely Mycetophilidae, Cecidomyiidae, Psychodidae, Culicidae, Ceratopogonidae, Carnidae, Milichiidae, Anthomyiidae and Fanniidae) were not identified and formally treated in the study.

- Mathis, W.N. and T. Zatwarnicki. 2002. A phylogenetic study of the tribe Dryxini Zatwarnicki (Diptera: Ephydriidae). *Smithsonian Contributions to Zoology* 617: i-ii; 1-101.
- McAlpine, D.K. 2001. Review of the Australasian genera of signal flies (Diptera: Platystomatidae). *Records of the Australian Museum* 53 (2): 113-199.
- Papavero, N. and S. Ibanez-Bernal. 2001. Contributions to a history of Mexican Dipterology. Part I. Entomologists and their works before the *Biologia Centrali-Americana*. *Acta Zoologica Mexicana Nueva Serie* 84: 65-173.
- Pont, A. 2002. The Fanniidae (Diptera) described by J. W. Zetterstedt. *Insect Systematics and Evolution* 33(1): 103-112.
- Studia dipterologica* Vol.9(1): 1-368 (2002). <http://www.studia-dipt.de/index.html> Thirty three articles, five faunistic notes; one referee's comment and authors' response; information on meetings; new books.
- Schawaroch, V. 2002. Phylogeny of a paradigm lineage: The *Drosophila melanogaster* species group (Diptera: Drosophilidae). *Biological Journal of the Linnean Society* 76(1):21-37.
- Whiting, M.F. 2002. Phylogeny of the holometabolous insect orders: Molecular evidence. *Zoologica Scripta* 31: 3-15.
- Yeates, D.K. 2002. Relationships of extant lower Brachycera (Diptera): A quantitative synthesis of morphological characters. *Zoologica Scripta* 31(1): 105-121.

## Submission Form for Directory of North American Dipterists

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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,  
 Systematic Entomology Program, ECORC  
 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](mailto:cummingjm@agr.gc.ca)

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**Full name:** \_\_\_\_\_ **Address:** \_\_\_\_\_

**Telephone Number:** \_\_\_\_\_

**FAX Number:** \_\_\_\_\_ **Email:** \_\_\_\_\_

**Projects and taxa studied:** \_\_\_\_\_

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