



FLY TIMES



APRIL, 1994 - No. 12

How time flies for the Fly Times! We're entering our sixth year of production and I'd take this opportunity to do the standard editorial thing for those compiling newsletters: snivel and beg the readership for their input. So, as per usual, please folks, send in your descriptions of trips, suggestions for new techniques, new publications, comic strips, etc., etc., etc.

My thanks to Jeff Cumming for taking care of the last issue of the Fly Times during my stay in Costa Rica (report given herein). His attempts at duplicating my production techniques were partially successful but he should have used an older and more faded printer ribbon to achieve perfection.

This year is an exciting one for Dipterists, looking forward to the International Congress being held in Guelph, Ontario in August. It will undoubtedly be a stimulating and exciting event for everyone and a super opportunity to connect with colleagues. We'll count on seeing you all there!!

Issue No. 13 of the Fly Times will appear next October and all contributions should be sent by September 30, 1994 to:

Dr. Art Borkent,
2330 - 70th St. SE,
Salmon Arm, British Columbia,
V1E 4M3, Canada.

Please note my new phone number: (604) 833-0913. FAXes may still be received at (604) 832-2146.

NEWS

Third International Congress of Dipterology

ICDIII is fast approaching (August 15-19, University of Guelph). This report is an update on preparations for the Congress. Hopefully it will answer some of the questions people have been asking.

Abstracts: Over 250 abstracts have been received from all over the globe. The abstract volume is being assembled and edited by Jim O'Hara (BRD, Ottawa). By the time you read this it will be late April or early May. You may be too late to get your abstract into the volume if you have not already done so.

Registration: Over 150 people have submitted their registration forms and fees so far (early April). Those whose cheques are in the mail, who are waiting for funding, and who have been granted registration waivers, take the total up over 200. More forms are coming in every day. If you have not already submitted your forms and payment, you should do so soon. Our American colleagues should note that the pathetic state of the Canadian dollar makes this Congress a very good deal for you. The registration fee (CAD\$200) is only US\$150, a great deal compared to, say, an ESA meeting. You should also note that the deadline for early registration (CAD\$200) has been extended to an April 30 postmark. That's just the kind of guys we are.

Accommodation: Details on University accommodations were included with the second announcement. Those of you wishing to book hotel rooms should do so very soon. The reserved blocks of rooms may fill up fast. Here is an updated list of hotels, prices, and booking codes for the Congress:

- Days Inn (Biltmore Inn)* (1 block south of campus); \$53 single/\$60 double;
PHONE: 519-822-9112 or 1-800-AND-STAY; *FAX:* 519-822-5570; (quote "International Congress of Dipterology")
- Carden Place Hotel* (2-3 km from campus); \$65 single/\$79 double;
PHONE: 519-836-1331 or 1-800-567-4623; *FAX:* 519-836-9627; (quote "D71")
- College Inn* (adjoining campus); \$67 single/\$77 double;
PHONE: 519-836-1240 or 1-800-563-9240; *FAX:* 519-763-5225; (quote "confirmation 284")
- Comfort Inn by Journey's End* (5-6 mi from campus); \$60 single/double;
PHONE: 519-763-1900 or 1-800-668-4200; *FAX:* 519-894-1562; (quote "International Congress of Dipterology")
- Holiday Inn* (1.6 km from campus, shuttle service available); \$80 single/double;
PHONE: 519-836-1231; *FAX:* 519-836-5329; (quote "DIP").

Program: There have been many questions about the program. Details are tentative but here is what I can tell you. Early registration will start on Sunday (Aug. 14). The Opening Plenary session is Monday morning. Contributed paper sessions will run from Monday P.M. to Friday noon; two sections will be held in the evening (Tuesday, Wednesday). The Closing Plenary session will be on Friday afternoon. At present we have four or five concurrent sessions scheduled all week; as we get the program finalized some sections will be either compressed, combined, or cancelled and I anticipate that we will end up with only three or four concurrent sessions. I PROMISE that we will do all we can do avoid conflicts in scheduling. The poster session will run from Tuesday morning until Thursday afternoon.

Other Activities: The opening reception will be on Monday evening, and the Congress banquet on Thursday evening. Post-Congress collecting trips will be on Saturday (Aug. 20). The accompanying persons program will include day trips to Niagara Falls, Toronto, and the region around Guelph (Elora, St. Jacob's, Stratford, etc.).

Resolutions: Resolutions arising from the Third International Congress of Dipterology will be voted upon at the closing Plenary Session. I am sure that the Council for International Congresses of Dipterology would appreciate notification of intended resolutions as early in the Congress as possible. You may consider yourselves warned in advance.

Other Questions: If anyone has concerns or questions about the Congress that have not been addressed please contact me (Terry Wheeler) or Steve Marshall. The fastest route for communication is through E-mail with Steve.

Steve Marshall
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A new desk, some little flies, and the fate of Malloch's orphans

Terry A. Wheeler

After a two year postdoctoral fellowship in Ottawa (Carleton University and BRD-CLBRR) I returned to Guelph last fall to work with Steve Marshall identifying Brachycera from a faunal inventory of a forest-lakeshore ecotone in Algonquin Park, Ontario. Since the end of that contract in January I have been able to get back to Diptera systematics almost full-time, courtesy of the Unemployment Insurance Commission (I prefer to think of it as a post-doc). Through the good graces of Steve Marshall (probably a perk of my involvement with the Congress) I have some research space at the University of Guelph and an institutional address for specimen loans and other official stuff. When I haven't been dealing with Diptera Congress mail or other paperwork I have been able to get back to some chloropid projects that I started in Ottawa. I have finished a revision of the Holarctic genus *Epichlorops* and am sorting on the Nearctic species of *Lasiosina* and *Pseudopachychaeta*. There are a number of undescribed or unrecorded species in both genera and *Lasiosina* may get even bigger as I go through more southwestern trap residues.

I have also been accumulating records on wing reduction in Chloropidae. There is only a single record of a Nearctic chloropid with reduced wings. Sabrosky (1987) included an unnamed micropterous *Conioscinella* in the generic key in the Manual; that species has turned out to be conspecific with a described Palearctic species. I now have material of four species in four chloropid genera with varying degrees of wing reduction and it appears that wing reduction in this family may be more common than previously noted, especially in terricolous and other cryptic habitats. If anyone has any specimens of, or information on, chloropids with reduced wings, I would appreciate hearing from them.

Most of my non-chloropid time has been spent puzzling over "Malloch's Orphans", the enigmatic acalyprate genera *Paraleucopis*, *Gayomyia*, and *Schizostomyia*. These genera have been bounced from family to family over the years, with most recent authors leaving them unplaced. I think the confusion stems from the fact that the latter two genera were known from a total of three damaged female specimens. Thanks to some dedicated collectors in Chile and Australia, I now have over 120 specimens of these two genera and a revision of the group is in the final stages. Despite the relative wealth of material I still cannot place the group in any family as currently defined, nor can I identify a sister group with any confidence. It looks like a new family may have to be proposed. I hope to have an answer in time for the Congress. Until then I will keep boiling heads and other bits. The search continues. . .

home address:
P.O. Box 12
Morrison, Ontario, Canada
N0B 2C0

address for specimen loans:
c/o Dept. of Environmental Biology
University of Guelph
Guelph, Ontario, Canada
N1G 2W1

26th Annual Biting Fly Workshop

These important meetings gather together those working on biting flies other than Culicidae and will be held June 1-3 in Easton Maryland. To register, write, phone or FAX the following before May 15:

W.L. Nicholson/Biting Fly Workshop
Dept. of Immunology and Infectious Diseases,
Johns Hopkins University School of Hygiene and Public Health,
615 North Wolfe Street,
Baltimore, Maryland, 21205.
Telephone: (410) 955-3459 (Department)
(410) 955-8898 (Laboratory)
FAX: (410) 955-0105.

Cost of registration is \$15 and lodging is available for \$5 per night or free if you bring your own sleeping bag!

redacted Far Side, 5/7/1993

Report on the Phylogeny of the Diptera Project - Art Borkent

The reviewing process has begun on the manuscripts sent in by a number of contributors but some authors have not yet sent in their chapters. Letters were recently sent providing a further prod to those who have been negligent.

Chapters sent in so far have generally been excellent and I have the highest expectation that this book (possibly 2 or more volumes) will be of the highest quality.

Dispersing Dipterist

Dr. Carol D. Pappas has moved to Georgia. Here's the new address:

Dept. of Biology,
Valdosta State University,
Valdosta, Georgia,
31698, USA.

Request for Info from Rich Merritt

Dr. Ken Cummins and I are starting a revision of our textbook, "An Introduction to the Aquatic Insects of North America". We are planning on updating the Ecological Tables and Additional Taxonomic References for the Aquatic and Semi-aquatic Diptera chapter. I would appreciate receiving any post-1984 references for listing in either of the above sections for any family of Aquatic or Semi-aquatic Diptera. I would like to receive a reprint or a reference citation if you would like to see it included in the bibliography. Also, if you have new data on trophic relationships of Aquatic Diptera to add since the last addition, feel free to xerox a page from the book table with your added input, and send it along to us. You will be acknowledged in the book for your contribution. Thank you in advance.

If you can help out, contact Rich at the following address:

Dr. R.W. Merritt,
Dept. of Entomology,
Michigan State University,
East Lansing, Michigan,
48824, USA.

Costa Rica - 9 Months Looking for No-see-ums!

by Art Borkent

There are few biologists who are entirely unfamiliar with the wonders of biodiversity in Costa Rica. Although this country is small, only the size of Vancouver Island or West Virginia, it is strikingly diverse in topography, climate and biota. There are about 820 species of birds, over 1000 species of orchids and five species of monkeys. Perhaps most important, Costa Rica has a wonderful park system covering about 10% of its land and wide array of habitats. The parks are generally quite accessible and well protected by permanent staff (unlike many parks in other Central American countries). And Costa Rica is a safe country to live in with a wonderful and generous people. All of this means that it is a super place to study the tropical representatives of our groups.

My family and I left Canada by car on May 28, 1993 (my wife Annette and our three children, Chris, Mike and Lydia aged 16, 13 and 10, a car top carrier and utility trailer included). We travelled through the USA, Mexico, Guatemala, Honduras (avoiding El Salvador) and Nicaragua to reach Costa Rica in about three and a half weeks, taking time to experience a few ruins and Guatemalan markets along the way.

Our first stop was the cloud forest reserves at Monteverde at about 1400 m in the mountains. Although the area looked like it should be rich in ceratopogonids, being sopping wet, I found the collecting to be rather poor in terms of both numbers and species (including adults and immatures). This may have partially been due to the fact that it was well into the rainy season, as collecting with a light trap at the end of August produced substantially more specimens (although sweeping and the search for larvae was unrewarding). After a week at Monteverde, we headed on, sampling habitats primarily on the west coast and around Buenos Aires in southern Costa Rica for another couple of weeks. Because I found the lowland forests to be exceptionally rich for no-see-ums, it became clear that I needed easy access to such habitat without having to continuously live under such hot and humid conditions (i.e. we found it difficult to sleep at night). We decided to rent a house in Atenas, at 740 m, just about halfway between San Jose and the Pacific Ocean (great town). Although I collected in many of the National Parks in Costa Rica as well as in numerous other protected areas, I spent a great deal of my time at Reserva Biológica Carara, located about 20 km north of Jacó on the west coast, about 35 minutes away by car. This reserve, created in 1978, includes 11,609 acres of what is predominately rainforest with a lesser percentage of deciduous dry forest species. Most is primary forest but areas with secondary growth are also represented. Carara encompasses a wide array of freshwater habitat including a portion of the Tarcoles River (polluted but with a population of crocodiles) and associated flood plain, a large (600 X 40 meter)

pristine lagoon with floating mats of water hyacinth and Salvinia (a fern), numbers of seeps, lots of streams (both permanent and temporary), a couple of large crystal clear creeks, lots of bromeliads and water-filled treeholes. In addition several types of flowers (e.g. Heliconia) hold water with ceratopogonid larvae living there. Because some ceratopogonids larvae also live in decaying, wet vegetative matter, I also sampled numerous types of fruits, wet leaf mats, etc. for larvae.

There are other habitats very near Carara which provided further collecting opportunities. There is a ranch (owned by Alvaro Vargas) which abuts the west border of Reserva Carara and includes somewhat different habitat (being more flat), including some wonderful springs very rich in Ceratopogonidae and other aquatic groups. The Vargas family has also preserved a good sized portion of primary forest on a part of their ranch. Also nearby to Carara is the small town of Tarcoles, located right on the ocean; just north of its center are some extensive mangrove swamps with an abundance of life (lots of Jesus lizards and birds) and where I had excellent collecting. There is also a large pond in good condition, which in Costa Rica is a relatively scarce type of habitat. Finally, the road north of Tarcoles leads to the estuary of the Tarcoles River (where I got very little).

Further south along the coast is Manuel Antonio National Park, comparatively small with only 1686 acres, but including some super habitat, including a small creek, several streams and an interesting mangrove swamp.

On the east coast, I collected several times at Cahuita National Park, which incorporates a really super swamp forest. The park is unusual in having excellent camping facilities which made it really easy to sample for an extended period of time. The camp spots are in a canopy of trees bordering a long beach and back on the swamp forest and so it was easy to run the light trap as well. Lots of goodies were discovered there. There are some trails available in the park but these skirt the swamp forest itself; I spent a lot of my time there sloggng through knee deep water and working my way through the vines and lianas. Good rubber boots or hipwaders are important equipment here! The park also protects a reef which we found to be the best in Costa Rica in that it was in reasonable shape (many are dead or dying elsewhere) and could be accessed from the shore (wade in thigh deep water). We spent more than a few hours snorkelling there and, aside from buckets of small colorful fishes (lots of species!!), saw barracuda, a shark (sand), an octopus, cuttlefish, and lots of other molluscs.

I made a number of excursions to the northwest corner of Costa Rica where dry deciduous forest predominates (Santa Rosa, Nicoya Peninsula) and collecting was good.

Other habitats sampled included mid elevations and highlands and collecting results varied tremendously. For example, just before the entrance to Volcán Poás National Park there is a large and extensive bog/wet meadow. My initial response to seeing this

was to drool, as a comparable sight in North America guarantees many ceratopogonids. Over four hours of sampling here, however, failed to locate even one specimen! Other groups too, seemed very sparse and I wonder where the area has been cleaned out by past eruptions of the volcano. I found a similar pattern at a lake near the base of Volcán Arenal where collecting was pretty bad (including sweeping, light trapping, substrate searches for larvae and pupae). In other areas, however, collecting was exceptional. At Tapantí National Park, 15 km SE of Cartago and at about 1800 m, there is some really wet habitat (they get about 6.5 meters of rain/year) with a large, beautiful crashing river. Lots of excellent collecting here although the rain was a problem when sweeping vegetation.

Having a rented home in Atenas was a good strategy for our stay in Costa Rica. I had enough room to set up an office for my dissecting microscope (vital for working on no-see-ums!) and my rearing program, with many petri dishes containing growing larvae and containers with various substrates. I had easy access to a wide array of habitats (0-2700 meters) within a 40 minute drive and in addition, the immediate environs of the town provided some good collecting sites. Because of a good road system and the small size of Costa Rica it was also easy to leave for mini-expeditions for 3-5 days at a time and reach virtually every corner of the country.

On the basis of my experience, here's some suggestions for others who are considering collecting in Costa Rica:

- start the process of obtaining collecting permits early on. I started my communications 6 months before we left and, as it turned out my final submitted forms, sent registered mail, were never received and so, when we arrived, I ended up spending a total of four days (over the space of 2.5 weeks) getting my permit.
- collectors now need a special permit to take their preserved specimens out of Costa Rica. Some have been stopped at the airport on their way out and their specimens confiscated!
- bring lots of extra bags for your aerial net. The tropics are filled with thorny plants and others which seem absolutely forgiving. My wife Annette graciously spent a substantial amount of time regularly sewing up the 5 bags I'd taken with me.
- use only stainless steel pins for your specimens (unless you're there for only a few weeks). A number of my black japanned pins rusted, causing alot of grief and extra work.
- take ziplock bags for just about everything you take outside. During the rainy season (April - Dec./Jan.) I generally collected until the afternoon rains appeared and then got absolutely, 100%, down to the underwear, sopping wet as I walked back to car or home.
- considering buying anti-venom as protection against Terciopelo (fer-de-lance) bites. These are available from veterinarians in Costa Rica along with syringes. Although I never saw one alive, they are around as evidenced by the occasional road kill.

- be aware that many of the parks charge 1400 colones (= \$10 US) per day for scientific researchers. This make not make much difference to you if you're only there for a couple of weeks, but it really added up during our stay there. The word from the local staff was that the administration was considering reducing this in the future but who knows when.
- there are alot of Costa Rica travel guides and some of them are really bad. I recommend the following: The New Key to Costa Rica by Beatrice Blake and Anne Becher.
- if you're thinking of being in Costa Rica for more than 3 months, write to me. There are a number of restrictions and regulations for visitors who stay longer and it took us some work to figure it all out, especially regarding keeping a car in the country for more than that period of time.
- learn a little Spanish before you go. Costa Ricans are wonderful people to begin with but if you can say that you'd like to collect on their land in Spanish, I found they were really delighted to help out. Learning a little Spanish will also mean that you can eat in "sodas" (small cafes where food is great and half price of restaurants) and generally get around alot easier. Bus service throughout the country is excellent (cheap, on time and efficient) and I wouldn't hesitate to take my gear on the bus to get around.

A number of people have asked us about the advisability of driving to Costa Rica. A significant percentage of our extended families thought we were nuts. Nevertheless, we found the journey to be safe and more or less trouble free. Border crossing, which generally took 1.5-2.5 hours (to leave one county and enter the next) were no problem, with just alot of forms to fill out! We travelled only during daylight hours (absolutely mandatory: many Mexicans and Central Americans travel in vehicles without lights) and stayed only in hotels with locked compounds for the car. The only problems we encountered was car difficulties in Mexico which were resolved because, fortunately, our mechanic in Canada had put together a CARE package with the needed parts before our trip down.

Overall this trip was absolutely wonderful. It was great to spend that amount of time in the tropics and I really stretched my understanding of both my own group and of other lifeforms. Aside from oodles of new species, I was able to rear out, for the first time, a wide array of ceratopogonids and obtain those associations of larva-pupa-adult so important in increasing our understanding of phylogenetic relationships (and making a generic key to larvae and pupae). In addition, there were a number of really interesting discoveries regarding adaptations and bionomics (e.g. a ceratopogonid pupa which uses its respiratory horns to tap oxygen from the roots of submerged aquatic plants; a species which lives in the debris cast out by one ant species; a species which sucks blood from iguanas; etc. etc.). Now all I have to do is sit down and publish the results of all that collecting!!

Lest some of you think that Diptera can only be a source of amusement, I've included the following poem by Karl Shapiro. This poet spent time in the South Pacific during World War II as a sergeant in the US army. His experiences there provided a basis for much of his writing which is often characterized by a tough worldliness. Read on!

The Fly

O hideous little bat, the size of snot,
 With polyhedral eye and shabby clothes,
 To populate the stinking cat you walk
 The promontory of the dead man's nose,
 Climb with the fine leg of a Duncan-Phyfe
 The smoking mountains of my food
 And in a comic mood
 In mid-air take to bed a wife.

Riding and riding with your filth of hair
 On gluey foot or wing, forever coy,
 Hot from the compost and green sweet decay,
 Sounding your buzzer like an urchin toy —
 You dot all whiteness with diminutive stool,
 In the tight belly of the dead
 Burrow with hungry head
 And inlay maggots like a jewel.

At your approach the great horse stomps and paws
 Bringing the hurricane of his heavy tail;
 Shod in disease you dare to kiss my hand
 Which sweeps against you like an angry flail;
 Still you return, return, trusting your wing
 To draw you from the hunter's reach
 That learns to kill to teach
 Disorder to the tinier thing.

My peace is your disaster. For your death
 Children like spiders cup their pretty hands
 And wives resort to chemistry of war.
 In fens of sticky paper and quicksands
 You glue yourself to death. Where you are stuck
 You struggle hideously and beg
 You amputate your leg
 Imbedded in the amber muck.

But I, a man, must swat you with my hate,
 Slap you across the air and crush your flight,
 Must mangle with my shoe and smear your blood,
 Expose your little guts pasty and white,
 Knock your head sideways like a drunkard's hat,
 Pin your wings under like a crow's,
 Tear off your flimsy clothes
 And beat you as one beats a rat.

Then like Gargantua I stride among
 The corpses strewn like raisins in the dust,
 The broken bodies of the narrow dead
 That catch the throat with fingers of disgust.
 I sweep. One gyrates like a top and falls
 And stunned, stone blind, and deaf
 Buzzes its frightful F
 And dies between three cannibals.

Books and Publications

Cooper, B.E. and J.M. Cumming. 1993. Diptera types in the Canadian National Collection of Insects. Part 2: Brachycera (exclusive of Schizophora). 112 pp.

This book provides a listing of 819 holotypes, 241 associated allotypes, 10 lectotypes and 4 associated allolectotypes. An additional 149 species are represented by syntype material. Each original reference is given, including citation of valid lectotype designations. An addendum to Part 1 which dealt with the Nematocera is included as well.

If you want a copy send \$24.95 CAN (only from within Canada, in which case you also have to add \$3.50 in shipping and handling fees + 7% GST if applicable) or \$32.45 US (from outside Canada) to the following address, citing the following catalog number: A53-1896/1993.

Canada Communication Group,
Publishing,
Ottawa, Ontario,
K1A 0S9, Canada.

Sinclair, B.J., J.M. Cumming, and D.M. Wood. 1994. Homology and phylogenetic implications of male genitalia in Diptera - Lower Brachycera. *Entomologica Scandinavica* 24:407-432.

Foote, R.H., F.L. Blanc and A.L. Noorbom. 1993. Handbook of the Fruit Flies (Diptera: Tephritidae) of America North of Mexico. Cornell University Press, Ithaca, New York, xii + 571 pp., \$105 US.

Carpenter, F.M. 1992. The treatise on invertebrate paleontology, Part R, Arthropoda 4, Volumes 3 and 4, Hexapoda. Series edited by R.L. Kaesler. The Geological Society of America, Boulder, Colorado, 655 pp. \$87.50 for both volumes.

Clements, A.N. 1992. The biology of mosquitoes, Volume 1: Development, nutrition and reproduction. Routledge, Chapman and Hall, New York, New York, xxii + 509 pp. \$99.50 US.

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.

The completed form may be sent to Jeff Cumming at the following address:

Dr. J. M. Cumming,
Centre for Land and Biological
Resources Research,
Agriculture Canada,
K.W. Neatby Building,
Ottawa, Ontario,
K1A 0C6, Canada.

Should any of you like to expand or modify your entries from the last list, use the form to indicate the changes.

Full name: _____

Address: _____

Telephone Number: _____

FAX Number: _____

BITNET: _____

Projects and taxa studied: _____
