

FLY TIMES



APRIL, 1992 - No. 8

As noted in earlier issues, please check your entry in the last directory of North American Dipterists and submit any corrections or an update of your current projects to the editors for inclusion in the next directory (see last page of this newsletter).

Issue No. 9 of the Fly Times will appear next October and contributions should be sent by September 30, 1992 to:

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

Remember, we will include virtually any item that you may care to send!

NEWS

The First International Symposium on Tipulomorpha

This symposium, jointly organized by the Institute of Animal Systematics and Evolution and the Polish Academy of Sciences, took place in Krakow, Poland, in September 9-13, 1991. It was attended by 20 specialists on this infraorder of the Diptera from 11 countries (Germany, Great Britain, Japan, Lithuania, Netherlands, Poland, Sweden, Switzerland, USA, Russia and Czechoslovakia), who read 18 lectures. The Symposium was especially concerned with systematics and phylogeny but other research fields likewise were covered by the papers presented, such as zoogeography, morphology, ecology, fossil records, etc. Most of the contributions, including some submitted by mail, will be published in Poland as a separate volume. In addition, information was provided on the Catalogue of Palaearctic Tipulomorpha (authors: Oosterbroek, Theowald, Soos, Savchenko and Stary), now in press and being released also on computer disk.

Also, a revision of Brauer's "Susswasser Fauna" for the Tipulomorpha is underway; the Tipulidae s.s. chapter (author: Oosterbroek) is finished, with the Limoniidae chapter (authors: Geiger, Reusch) due to be completed by 1993. This will cover all of Europe, with keys, illustrations and short descriptions for adults, larvae and pupae.

Informal discussions focused on some more detailed problems and, above all, on a still persisting dissention, namely the family concept within the Tipulomorpha. On the other hand, supported by cladistic evidence based on both adult and larval characters, agreement was achieved in understanding the Trichoceridae as an integral part of the infraorder. The Symposium succeeded in reflecting the present state of knowledge of craneflies, provided inspiring ideas for future work and served as a basis for coordination of scientific activities. It was highly appreciated by all participants as an excellent opportunity for the exchange of research results and for personal contact among cranefly students.

There still was time for sightseeing in Krakow and a trip into the Pieniny Mountains. The organizers, Drs. Ewa and Wieslaw Krzeminski, are warmly congratulated on the great success of the Symposium. Another is to be held in the Netherlands in three years time.

J. Stary (Czechoslovakia)
Jon K. Gelhaus

The Annual Biting Fly Workshop

This year's meeting will take place in Rome, Georgia on May 19-22 and is being organized by Frank French, Sturgis McKeever and Daniel V. Hagan. If interested contact the following:

Dr. D.V. Hagan,
Dept. of Biology,
Institute of Arthropodology and Parasitology,
Georgia Southern College,
Statesboro, Georgia,
30460-8042, USA.

Report on Dipterist's Informal Conference and North
American Dipterists' Society at
the ESA meetings in Reno, Dec. 8-11, 1991

Gregory W. Courtney and Neal L. Evenhuis
- Coorganizers and Moderators

The Dipterists attending the ESA meetings in Reno were treated to another splendid selection of papers dealing with Diptera systematics and an opportunity to hear about progress in a number of current projects. The papers were:

Phylogenetic relationships of the Nymphomyiidae - G.W. Courtney.
Systematics of the Nearctic species of Stegopterna (Simuliidae)
- D.C. Currie.

Phylogenetic relationships of the superfamily Asiloidea, with
special reference to the Bombyliidae - D. Yeates.

Phylogenetic relationships and hosts of Apocephalus, subgenus
Mesophora (Phoridae), parasites of cantharoid beetles - B.V.
Brown.

Beach flies and phylogeny - W.N. Mathis.

Problems with Phthitia (Sphaeroceridae) - S.A. Marshall.

A recurring theme in most of the talks was the difficulty of interpreting homoplastic character states. It was encouraging to see that most contributors were able to resolve numbers of phylogenetic problems because they had obtained additional data through their morphological studies. Because of the many changes made to previous hypotheses of relationships, it was clear from the talks that the Diptera continue to provide a wonderful research area for those interested in the study of evolution.

In addition to the talks, the "Business Meeting" covered a number of matters of interest to Dipterists. Chris Thompson discussed progress on the North American Checklist of Diptera, Steve Marshall discussed progress on the next International Congress of Dipterology to be held at Guelph, Ontario, August 15-19, 1994, and Art Borkent provided a progress report on the "Phylogenetic Relationships of the Diptera" project.

True to expectations, the meeting was concluded with an invitation to regroup at a local bar where huge advances were temporarily made in our understanding of Diptera systematics.

This year's program is being organized by Terry Wheeler (see below for more details).

North American Dipterists' Society
Informal Conference
Baltimore, MD, December 1992

As has become traditional, the North American Dipterists' Society will be holding an informal conference at this year's ESA Annual Meeting in Baltimore. This year's gathering is being organized by Terry Wheeler. The format for the evening will probably be similar to that in Reno last year, with 5 or 6 short research presentations, followed by an informal business meeting with news, announcements, and updates of all the things we usually update at these meetings. If anyone has questions, suggestions (bizarre or otherwise), or would like to reserve a block of time for your favorite subject, please contact Terry at the Department of Biology, Carleton University, Ottawa, Ontario, Canada, K1S 5B6 as soon as possible.

frit flies and s**t flies

It seems lately that the Sphaeroceridae have gotten almost as crowded as the empidoids. This unfortunate state of affairs prompted me to abandon the little rot-hoppers recently and dive (bellyflop?) into a postdoctoral project on the Chloropidae. (It may be considerably more difficult escaping the 'doids, especially here in Ottawa). I'll be charging into the chloropids as soon as the living nightmare that is Rachispoda is finished up (any month now).

What I hope to do in the early stages of the chloropid work is to get a handle on the family by revising a couple of small and hopefully uncomplicated genera. My initial project will be a revision of the genus Epichlorops, a small group of quite large chloropids (some of these monsters get up to 6-7 mm) that are often associated with wetland/peatland areas. I am interested in looking at as much material as I reasonably can. I am, however, not interested in looking at the 47 drawers of miscellaneous chloropids that you all have stashed somewhere (at least, not yet). If anyone does have material that they would be willing to send, I would be happy to provide a quick and dirty diagnosis (no microscope required!) for the groups I am after, in return for at least partial curation of your material.

Terry A. Wheeler
Dept. of Biology
Carleton University
Ottawa, Ontario, Canada
K1S 5B6

Collecting flies in Argentina Steve Marshall

When I accepted an invitation from Manfredo Fritz, the director of INESALT (the entomological institute in Salta, Argentina) I only had plans to fly to Buenos Aires, then proceed to Salta to spend a couple of weeks collecting flies in the diverse and exciting habitats of northwestern Argentina. As the trip fell into place, however, I found that it was the same price to fly into Santiago and into Buenos Aires as to fly in and out of Buenos Aires, and at the same time I received a long awaited permit to collect flies on Juan Fernandez Islands. I therefore flew into Santiago, spent a week on Juan Fernandez Islands, then went on to Argentina for the month of February. My plans had been further altered when I found out that Aerolinas Argentina Airpass, purchased outside Argentina, costs less than a ticket from Santiago or Buenos Aires to Salta. In the end, I bought an airpass good for 8 flights anywhere in the country, and made short collecting trips to the subtropical forests of northeastern Argentina, the dusty patagonian coast, and the frigid shores of the Beagle Channel. If you plan to collect in any or all of these places you might find my experiences of interest.

Puerto Iguazu

We arrived in Puerto Iguazu a bit depressed, having been robbed of my photography equipment in Mendoza. We had bussed over the Andes from Santiago to Mendoza, where we started our Argentine Airpass. Things improved upon the discovery of a rural hotel, right on the border of Iguazu Falls National Park, with a congenial proprietor and good habitat right on the property. Hotel Las Orquideas was perfect for our purposes. It was relatively cheap at 35\$ per night, it had private forest out back in which I was encouraged to place my malaise traps, and there was regular bus service to the National Park Headquarters. Early February is a poor time for fly collecting there, as it is very hot, very dry, and there is little blossom, but nonetheless I filled a schmidt box with tachinids and managed to scare up a few sphaerocerids. I highly recommend Puerto Iguazu as a collector's destination, and recommend the Hotel Las Orquideas. The folks in the National Park are inflexible about permits, so if you plan on working inside the park get a permit.

Patagonian Steppe

We stopped two days in Trelew, primarily because I know of no existing collections of seaweed flies along the Patagonian coast, and I needed material for my ongoing work on *Thoracochaeta*. Renting a car, brutally expensive at 150\$US per day for a beat up Volkswagen, was the only way to access habitat. Our first destination was the famous protected peninsula, the Peninsula Valdez. Despite the natural beauty and rich vertebrate life of the peninsula, access to habitat was quite difficult. Furthermore, the public campground on the Peninsula Valdes is a crowded, unfriendly, faeces-strewn sandpit for which you pay 10\$ per night. Better habitat, and pleasant, remote campsites are to be had along the coast about 50km south of Puerto Madryn. Collecting on the steppe can be tremendously exciting in spring (November), but in February dipteran activity seems concentrated on the seacoast and along the muddy bottoms of dried up seasonal lakes. If I were to return to Argentina to collect on the steppe, I would go in November and collect in the western steppe as I did in 1989. La Rinconada, near San Martin de Los Andes, has an inexpensive Automobile Association motel plunked right in the middle of excellent steppe habitat.

Tierra del Fuego

Ushuaia, the southernmost city in the world, contrasts with Trelew in every way. There is plenty of reasonably priced accommodation, good habitat is easily accessible by foot or bus, and its rich, moist environs harbour lots of flies. Admittedly, the flies were mostly sphaerocerids, but the odd syrphid and tachinid kindly braved the rain, snow and wind to grace my nets and traps. It can snow any day of the year in Ushuaia, and often does. Nonetheless, I highly recommend the place, and further recommend that you have permits to collect Tierra del Fuego National Park, reached twice daily by a 5\$ shuttle bus. Guidebooks still list a hotel right in the park, but it has burned down and apparently will never be replaced. There are campsites in the park, unlike Iguazu Park. The park has magnificent turbales, or bogs, which are remarkably like bogs in North America, complete with Sphagnum moss and sundews. The park also sports lakes, streams, seaweed strewn coastline, and dark and gloomy forests with some of the biggest *Nothofagus* trees I have ever seen.

Some of my best collecting on Tierra del Fuego was along a little stream about 3 miles east of the city. To get there, you turn up a small dirt road just before the first bridge on route 3 out of Ushuaia. Locals will tell you that it is the road to 7 sisters waterfalls. The road turns into a cowpath along a beautiful little creek, complete with torrent ducks and lush valley forest. This path is said to lead above the treeline, but 3 hours of walking and collecting my way up the stream kept me in valley forest. I never did collect in the alpine during my short visit to Tierra del Fuego, and that is a priority for me if I ever am lucky enough to return. The best access to alpine habitat is in the Garibaldi pass, on route 3 some 53 km east of Ushuaia. The Rio Grande bus goes through the pass daily. A good strategy for the collector unwilling to spend 150\$ per day on a rental car would be to take the Rio Grande bus to Lago Escondido, about 2 km past

the Garibaldi pass. There is a delightful, inexpensive, Automobile Association hotel on the shores of Lago Escondido. From this hotel, called Hosteria Petrel, you could walk to good forest, alpine, and bog habitats. The hotel is about 2 km from where the bus drops you off, but if you have heavy equipment you can arrange with Rumbo Sur tours, in Ushuaia, to be taken there by van.

Northwestern Argentina

We arrived in Salta in the middle of a national panic about a Cholera epidemic sweeping the northwest, but soon forgot about such worrisome subjects as we basked in the generous hospitality of the entomologists at INESALT. After a month of taxis, hotel, and uncertain habitat access, it was paradise to be met at the airport and installed in INESALT's comfortable headquarters, which just happens to be a converted hotel. There we indulged in the luxury of joining hymenopterist colleagues from Italy and Argentina on daily expeditions with INESALT's field vehicle. Within a few hours drive of Salta, one can access the the southernmost version of Andean cloud forest, replete with odd species in cloud forest genera such as the new sphaerocerid genus Sclerocoelus. Good forest vestiges can be found quite close to Salta, but the best forests we saw were on the old Salta - Jujuy road, quite close to Jujuy. The hymenopterists were more interested in very high, dry sites so we spent most of our time at or above 3,000m where fly collecting so late in the season is very slow. Nonetheless, two weeks in Salta yielded half a dozen pinning boxes of field pinned flies (tachinids, syrphids, strats, bombyliids etc.), as well as an extensive alcohol collection of really interesting flies (sphaerocerids). If you want to collect in the Salta area, your best bet is to make some arrangement with INESALT. Barring that, there is a hotel just north of Jujuy with good forest access (Gran Hotel Termas de Reyes, not as expensive as it sounds, can be reached by bus from Jujuy). On one of our excursions from Salta we stayed a night at a town in the altiplano, in a town called Abra Pampa at about 3,500m about 100km south of the Bolivian border. Both residenciales in town are pretty basic, but habitat access is not difficult.

A couple of more tips if you go collecting in Argentina: Take as much cash as possible, because US dollars are accepted on par with the peso and travellers cheques are difficult and expensive to cash. Costs are generally higher than North America. Preservative alcohol is sold everywhere.

Some useful addresses: Direccion de manejo de recursos naturales, Av. Anta Fe 690, Piso 3, C.P. 1059, Buenos Aires (request permits at least 6 months in advance). Instituto de Investigaciones Entomologicas (INESALT), Casilla de Correo 3, 4405 Rosario de Lerma, Salta.

redacted Far Side, 7/1/1988

redacted Far Side, 8/25/1988

Lactic Acid as an Agent for Macerating Diptera Specimens

by Jeff Cumming

Although use of lactic acid as a general macerating agent is well known among certain specialists (e.g. acarologists), its use by dipterists has been quite limited. Here in Ottawa, Monty Wood, Brad Sinclair, Terry Wheeler and myself are now routinely macerating both male and female terminalia, as well as other structures, in lactic acid rather than in the more generally employed NaOH or KOH solutions.

Lactic acid has many advantages over other caustic agents. The foremost of these, is that because it acts primarily as a macerating agent rather than a clearing agent, lactic acid removes soft tissue without over clearing the sclerotized portions of the structures being studied. Lightly sclerotized structures and membranes are not eaten away, and components such as connective tissue attachments between muscles and apodemes, tracheae, and certain types of glandular epithelia are preserved. The second major advantage correlated with this, is that the reaction continues only until all the soft tissues are dissolved. The reaction does not proceed further and therefore there is no danger of damaging the sclerites. Unlike other caustic agents, the reaction does not need to be neutralized, and structures dissected and placed in microvials will not continue to clear over time, as they often do with KOH or NaOH preparations (despite acetic acid rinses). Dissections of male terminalia in the Canadian National Collection of Insects prepared using lactic acid over 20 years ago are virtually identical to newly dissected material.

Specimens that have been dry mounted or alcohol preserved are easily prepared by placing the dissected portions directly into a crucible of 85% (i.e. full strength) lactic acid, which is then gently heated for 10 - 15 minutes depending on the size of the specimen. For preparation of male terminalia, subsequent removal of the hypopygium from the remainder of the abdomen often facilitates more efficient maceration. Because lactic acid is fully miscible with glycerin, specimens can be easily examined in a depression slide containing glycerin, manipulated if necessary, and can be returned to lactic acid for further maceration. For large specimens, maceration can be assisted by physically removing or pushing internal oils, eggs, and muscle tissues out with a fine probe. When maceration is complete the specimen should be transferred to clean glycerin for examination and eventual storage.

Used lactic acid need not be discarded immediately, and can be used repeatedly for up to about 10 preparations on average, before losing most of its strength. If heavily pigmented sclerites still require some clearing after maceration, they can be briefly transferred from lactic acid to KOH or NaOH (after a quick rinse in water) and then transferred back to lactic acid again (after rinsing), which will neutralize the alkaline solution.

The only disadvantage we've found in using lactic acid is that the technique doesn't relax membranous connections between the sclerites as well as NaOH or KOH, so that a particular manual arrangement of structures may be more difficult to achieve. Lactic acid is also somewhat slower than either KOH or NaOH on larger air dried specimens, although less so for critical point dried or alcohol preserved specimens. In addition, because soft tissues tend to hydrate and swell rather quickly when first immersed in lactic acid, some care is initially required when heating certain structures to avoid breaking sclerites.

Books and Publications

Rohdendorf, B.B. (ed.) 1991. Fundamentals of Paleontology. Volume 9. Arthropoda, Tracheata, Chelicerata. Smithsonian Institution Libraries and the National Science Foundation, Washington, D.C., xxxi + 894 pp. Cost = ?

This book is a translation of the original 1962 volume published in Russian. The portion dealing with Diptera (pp. 444-502) includes a number of newly proposed (i.e. in 1962) family group names.

The general editor of this English translation was D.R. Davis.

Copies are available from National Technical Information Service, Springfield, Virginia, 22161, USA.

Oosterbroek, P. and B. Theowald. 1991. Phylogeny of the Tipuloidea based on characters of larvae and pupae (Diptera, Nematocera) with an index to the literature except Tipulidae. Tijdschrift voor Entomologie 134:211-267.

This is an important and valuable contribution to our understanding the cladistic relationships of the tipuliids. Lots of new information and hypotheses!

The First International Symposium on Tipulomorpha: Systematics and Phylogeny. Published as an issue of Acta Zoologica Cracoviensia 35(1). 202 pages of information on the systematics of tipuliids. Contact either Dr. E. Krzeminska or Dr. W. Krzeminski at the following address to make arrangements on how to get a copy:

Polska Akademia Nauk,
Instytut Systematyki i
Ewolucji Zwierząt,
ul. Slawkowska 17,
31-016 Krakow, Poland.

Meillon, B. de and W.W. Wirth. 1991. The genera and subgenera (excluding Culicoides) of the Afrotropical Biting Midges (Diptera: Ceratopogonidae). Annals of the Natal Museum 32:27-147.

A wonderful synopsis of African no-see-ums (and even some you can see!). Includes a broad introduction, discussion of taxonomic features, key to all genera, diagnoses of all genera and most subgenera of Ceratopogonidae (including larvae and pupae!!), and lists of included species in each genus.

Aside from its inherent value, there is much information in this publication that is of direct significance to our understanding of the Nearctic fauna.

THIRD FIELD MEETING OF NADS

The 1993 meeting for the North American Dipterist Society will be held at Piney Woods Conservation Area, Stephen F. Austin School of Forestry near Lufkin, Texas. The site is located approximately one hour southeast of Lufkin on a peninsula in Angelina National Forest. The exact dates have not been set, although early May would probably be best for collecting. Anyone having a problem with this time should contact Brian or Darlene immediately.

The area surrounding the facility is composed of longleaf pine, blackjack oak, and hackberry. The forest has not been cut since the early 1930's and a thick mat of pine needles covers the ground. Within one hour driving distance of the facilities are some very distinctive east Texas habitats. Many of the areas have been designated Wilderness Area and have stands of beech, magnolia, and cypress. In addition, pitcher plant bogs, sundews, palmetto, and blackbottom creeks dot the landscape.

Facilities include two dormitories, lecture halls, dining facilities, and a lake full of catfish. Each dorm holds up to 32 people with 2 people per room. Two rooms share a bathroom. In addition, a classroom large enough to hold our participants is located in the center of each dormitory. The cost/person/night will be \$15.00 lodging, \$5.00 linen fee, and \$18.00 for three meals (total \$38.00/day). Two campsites are located near the Piney Woods Conservation Area for those wishing to stay elsewhere. For those who choose to stay in the campsites meals can be purchased separately from Piney Woods.

The site is located 3 hours east of College Station, 3 hours northeast of Houston, and 3 hours southwest of Shreveport, LA. Airfares for Delta and American airlines are usually identical for destinations to College Station or Houston. This may be of interest for those wishing to work in the A&M collection. I am also checking if the Department of Entomology at Texas A&M University would be willing to supply our group with a large passenger van for transportation and collecting trips. However, car rental agencies are located at all airports.

For more information contact:

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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.

The completed form may be sent to Dr. J.M. Cumming, Biosystematics Research Centre, Agriculture Canada, Research Branch, Ottawa, Ontario, K1A 0C6, Canada.

Should any of you like to expand on your interests and projects, feel free to send in a contribution that can be inserted into the next newsletter as a separate item.

Full name: _____

Address: _____

Telephone Number: _____

Fax Number: _____

BITNET: _____

Projects and Taxa Studied: _____

