



FLY TIMES

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Exciting days ahead for the Dipterists community! Not only is the collecting season beginning (at least here in the far north!) but the Fourth International Congress of Dipterology is just around the corner. In this issue we have a number of reports of meetings, new projects, research reports, recent publications and more.

As noted in the last two issues, this newsletter is also now available through the ECORC website as follows: <http://res.agr.ca/ecorc/program2/entomology/flytimes/flytime.htm>

Another reminder that the *Directory of North American Dipterists* is now on the web and can be accessed at the following address: <http://res.agr.ca/ecorc/program2/entomology/diptera/dipteras.htm>

Issue No. 21 of the *Fly Times* will appear next October 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. 21 should be sent by the end of September, 1998.

News

Report on the 1997 Dipterists Informal Conference and Meeting of the North American Dipterists Society

by Brian M. Wiegmann (Organizer)

Dipterists attending the ESA Annual Meeting in Nashville last December gathered for the traditional Dipterists Informal Conference and NADS business meeting. There were 17 attendees for the Monday evening discussion followed by a mixer in the spacious hotel suite of Dr. Don Webb. The meeting began in heartfelt recognition of the conspicuous absence of our friend and colleague, Dr. Curtis Sabrosky. Curt passed away due to heart failure at the age of 87 while on a trip to Finland in 5 October 1997. Curt was a regular attendee at all Dipterological gatherings, especially ESA informal conferences. Curt played an active role throughout his career in both ESA and NADS activities; at Curt's passing we honor and admire his productivity and service to the scientific community - his career marks a milestone in the development of the science of Dipterology. We wish our careers could be as enjoyable, long, and productive into our old age as Curt's was.

General announcements were first on the agenda after roundtable introductions. First, highlights of last year's NADS field meeting in Rincon Georgia (May 1997) were described. Next, potential sites for the next NADS field meeting (1999) were announced. Two field sites are under consideration. The first, near Boone, North Carolina, is the B.H. Corpening Forestry Training Facility, Crossnore NC. This facility is located near excellent Appalachian and Great Smokey Mountain collecting sites in Western North Carolina, Tennessee, and Southern Virginia. The facility has sleeping accommodations for up to 86 people, a cafeteria serving meals, and a very affordable price --\$15 per night lodging, \$21 per day for 3 meals. Brian Wiegmann is exploring this site as one option. Alternative sites in Utah and the Western US are being explored by Riley Nelson, Univ. of Texas, Austin. A site should be agreed on soon to insure availability. Finally, attendees were reminded of important deadlines for the Fourth International Congress of Dipterology.

Following these announcements, Mike Irwin and Darlene Judd each summarized the objectives and current progress of the two NSF-PEET projects focusing on Diptera. Irwin described his project, "Towards a World Monograph of the Therevidae", that involves training 5 graduate students in the labs of Irwin, Yeates, and Wiegmann. Expeditions to important therevid habitats around the globe have been conducted over the last three years, and a comprehensive specimen and taxonomic database has been constructed. Darlene Judd summarized the Smithsonian-based PEET project, "Monographic research in the Diptera". This project targets at least three understudied groups of flies, Tanyderidae, Rhagionidae, and Aulacigastridae. Darlene is currently building a worldwide revision of tanyderids, and two new University of Maryland graduate students will conduct research on rhagionids and aulacigastrids. Darlene will soon move to Oregon State University to take a faculty position in the Department of Entomology where she will continue her tanyderid research (see announcement below).

Two informal presentations followed. Peter Adler, Clemson University, presented details of his large

collaborative project with Doug Currie and Monty Wood on North American black flies, entitled "The Black Flies of North America". This beautifully illustrated volume will include all life stages, taxonomic synopses, keys, and detailed geographic distributions of North American taxa. The writing should be completed this year and will be published by Cornell University Press. This book will surely be the definitive reference on North American blackflies for years to come.

David Yeates, University of Queensland, Brisbane, Australia presented work he and an honours student, Chris Palmer, have recently conducted on the biology and systematics of the enigmatic Australian genus *Exeretonevra*. Chris reared the previously unknown larva of *Exeretonevra* from eggs laid by gravid females and also discovered the mature larvae in the soil. Morphology of the larvae and a reexamination of adult characteristics indicates that the genus clearly belongs in the Xylophagidae. Chris and David are currently preparing a publication containing details of their findings.

Next year's ESA meeting will be held in Las Vegas, Nevada, 8-12 Nov. 1998. Stephen Gaimari, Department of Entomology, University of Illinois, Urbana- Champaign will organize next years Dipterists Informal Conference, contact him by email: gaimari@uiuc.edu.

**Fourth International Congress of Dipterology,
Oxford, England on September 6-13, 1998**

See the October, 1997 issue of *Fly Times*, or visit <http://www.nhm.ac.uk/entomology/diptcong.html> directly, for pertinent information.

1998 Biting Fly Workshop

The 1998 Biting Fly Workshop will be held June 13-15, 1998. See the October, 1997 issue of the *Fly Times* for further information.

\$1,500 Research Competition

Competition for the 1998 Orkin Livestock Entomology Award was recently announced by the sponsor, Orkin Agribusiness Services. This annual award of \$1,500 will be given to a U.S. or Canadian Ph.D. candidate engaged in research in livestock entomology that shows potential benefit or significant contribution to integrated pest management.

The award will be presented to the recipient at the 1998 Livestock Insect Workers Conference, to be

held in July in Alberta, Canada. Deadline for submission of application materials is May 1, 1998. For more information and to download an application form, visit Orkin Agribusiness Services' Web site at <http://www.orkin-ag.com/award1.html> or contact:

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Discover Life In America

by Peter Adler, Steve Marshall and Chris Thompson

All-Taxa-Biodiversity-Inventory (ATBI) was an idea generated by Dan Janzen and developed at a NSF workshop at University of Pennsylvania (16 April 1993, see *Science* 30 April 1993, p. 620). The first ATBI was shortly thereafter proposed for the Guanacaste Conservation Area in Costa Rica. While more than 20 millions dollars were raised for this ACG ATBI, the political climate was not quite right and that effort died (19 Nov 1996, see *Science* 9 May 1997, p. 893). The following spring President Clinton visited Costa Rica, taking with him a number of US policy makers. Among those were US National Park people who met with their Costa Rican counterparts. The seed of an ATBI was passed and last December was firmly planted in the Great Smoky Mountains National Park. We had a general workshop to discuss the desirability and feasibility of a GSMNP ATBI (*Science* 12 Dec 1997, p. 1871). John Pickering of University of Georgia provided the initial scientific leadership, but all the activists were there. So, the conclusion was never in doubt, the Americans would do the first ATBI. (We use the term Americans broadly as we do for NADS to include all interested in the Nearctic fauna, etc.). Since then there has been much additional planning. For example, the idea was presented to the President at a meeting of the Office of Science and Technology Policy at the Old Executive Office Building on 17 February and an appropriate non-profit corporation has been set up to handle the finances, etc. The first public announcement will be on 24 April at the park.

This ATBI effort, however, will differ significantly from its Costa Rican predecessor as indicated by its official banner- Discover Life in America. While the scientific effort to discover, name, describe, etc., all living organisms in a large diverse area, remains the CORE activity, much more emphasis is being placed on education and outreach. This is the opportunity to let all Americans know how little is truly known of the important critters which sustain their planet, to educate them on the critical tasks and contributions of systematic biology, to encourage them to increase their support (\$\$\$) for our efforts, etc. And this effort will also be a showcase for demonstrating new technologies for the dissemination of biosystematic information. So do not despair when the publicity you see seems to speak of other things for if these other efforts succeed, then we will see the support we need, etc.

Where are the dipterists in all this? We want to be ready to be the first megadiverse taxon to get going, to generate significant products, etc. And for us, this also represents an opportunity to return focus to some of our large-scale projects, like the Checklist of Nearctic Diptera and Flies of Nearctic Region as well as our major monographic efforts such as the Black flies of North America. We see connecting our research proposals to this effort may well be very helpful. (For the US readers, we would remind them that the new (nominated) head of NSF, Rita Colwell, is not only the first biologist to head this funding agency but was one of those who attend that first ATBI workshop in Philadelphia.) We are planning a small organizational meeting for early this summer in GSMNP to set up our Taxonomic Working Group (TWIG), seeking funding, set goals, etc., so we can have a full meeting of the NADS community in 1999. We suggest that the 1999 field meeting of NADS use GSMNP as its site. We will set up a LIST-SERVE for this effort and make a place for it on our Diptera WWW site (at <http://www.sel.barc.usda.gov>). The general site for *Discover Life in America* is currently at University of Georgia (<http://dial.pic.uga.edu/sites/gsmnp-atbi>).

A Fly Spec

by Greg Ballmer and Rudi Mattoni

Our work with Diptera has largely been focused on conservation issues with the recently federally listed endangered species *Rhaphiomidas terminatus abdominalis* (Mydidae), the only fly recognized under the Endangered Species Act. A major problem with conservation planning for the fly, however, is our almost complete ignorance of its early stages. Not long after the fly was discovered on remnant dune fragments in the towns of Colton and Rialto in San Bernardino County, California, by Rick Rogers in the mid 1980's, several of us turned our attention to determination of its life history. Rogers and Mattoni (1993) summarized what was known of *Rhaphiomidas* life histories to that time. Little more has been added to what amounts as not much. Our early stage observations have been sporadic because of the short adult flight period. When we can get in the field at appropriate times, we use any species available (*Rhaphiomidas* work has not been a mainstream project, as most of you can appreciate). Although females will oviposit in captivity, success is variable, and fecundity low. We only once obtained more than 20 eggs from a confined female. In the field the only consistent observations are that oviposition takes place between 1400 and 1600 hours in the shade of larger plants on the sites. No other correlations were noted, including plant species specificity. Shade seems the key factor here. Once eggs were obtained, we have had no success in rearing the resultant larvae. Neonate larvae are quite large, 4-6 mm long. They have small mouth hooks, but the mouthparts do not appear suitable for carnivory, which we had always assumed from what has been reported from other Mydids and for the possibly related genus *Apiocera*. In our prior attempts to feed them, we have tried several native and agricultural roots, small beetle larvae screened from sites, *Drosophila*, larvae, immature sand roaches, and several kinds of synthetic diets including both bean based and with supplemented comminuted ant brood. None were accepted. The first instar larvae always remain above the sand. When eggs are left beneath, or larvae are covered by sand, the larvae always bore up to the surface and move about. Larvae never attempt to burrow. From our earliest work, we found this behavior inconsistent with the assumption of a fossorial predator. This fall Ballmer obtained a few larvae of *Rhaphiomidas trochilus*. Struck again by the weak

mouthpart anatomy for such a massive neonate larva, he attempted feeding by micropipette using synthetic hemolymph. One larva seemed to imbibe some fluid and simultaneously excreted a droplet. The larva subsequently molted, but within a few days, and unsuccessful further feeding attempts, died. In another trial Mattoni noted a few *R. parkeri* that lived ten days longer than controls on fresh daily synthetic diet. No actual feeding as observed, however, and the larvae never remained near the food cubes that had been placed on their sand substrate. An observation by Ballmer this past spring may provide a relevant insight into the life history of giant flower-loving flies. After abandoning feeding attempts, a neonate *R. parkeri* larva was placed within the foraging range of a colony of the harvester ant *Messor* sp. After a few minutes, a worker picked up the larva and took it at once into the ant-nest. Although the larva was not attacked or bitten, there was no evidence of drumming or other investigative activities by the ant on the larva. The above evidence has led us to speculate that *Rhaphiomidas* are obligatory myrmecophiles which have adapted to becoming ant tended from the first instar. We hypothesize that upon hatching, neonates are taken into the ant colony and there are fed and tended as brood, probably initially fed regurgitated material. We now have no suggestion of whether this feeding pattern continues as the larvae mature, or if the now larger larvae feed directly on the colony resources or on the brood itself. When the *Rhaphiomidas* larvae are full grown, they likely have one hundred times the mass of these hypothesized hosts. If our general myrmecophile hypothesis is not rejected, the pathway of follow-up questions is fertile with dichotomies. We will conduct tests with the first flying species this spring and will hopefully be back with preliminary results for the next *Fly Times*. The effort may be challenging, as our sole reference to *Messor* colonies tells the story digging to an 11 ft depth in sand and not finding brood chambers. Are there any miners out there who would like to help? Your comments, suggestions, etc. would be welcome. If our hypothesis is correct this will be quite a story.

General background: While we were involved with biological studies, the massive destruction of the little remaining Delhi Sands habitat continued unabated. As a consequence of our concerns, but largely through the efforts of Ballmer, the environmental community was mobilized. On September 23, 1993, after acrimonious proceedings, the Fish and Wildlife Service listed Delhi Sand giant flower-loving fly as endangered and conferred some protection on the animal. While attempting to preserve the species we have become heavily involved in policy matters involving small town politics, national politics, money, ethics, PR, polemics with "consultants," etc. To this end we have placed the emphasis of our plan on saving a core habitat of some 300 contiguous acres, land representing less than 1% of the historic 40,000 acres of the inland Delhi Sands. If our hypothesis is correct, the fly story will provide a great rejoinder to the maggots for jobs sector.

Moving and Shaking in Washington, D.C. (recent happenings at the U.S. National Museum)

by Chris Thompson

Hollman-Schirmacher collected on the North Island of New Zealand in January. Ray Gagne was off in Australia for a few weeks in January also. Allen Norrbom and Lynn Carroll did a fruit fly workshop in Mexico in February and I stayed home trying to take care of urgent identifications, etc.

We are about 90% complete with the species inventory of the USNM, with some 50,464 species represented at last count. The actual number will probably be around 55,000, about 1/2 the species recorded worldwide. By the time *Fly Times* hits the street, I should have the files updated at our WWW site. Our Diptera WWW was selected by *Science News Online* (the WWW version of *Science News*) for its scientific safari feature. So, we must be doing something right!

Tachinids, Lepidoptera and Phylogeny

by John O. Stireman III

I am a graduate student at the University of Arizona in Tucson. I have developed a keen interest in the biology of tachinid flies, especially in their evolutionary and ecological interactions with host species. My thesis research is focused on the ecological and evolutionary determinants of host range in the Tachinidae, and how host range and host location strategies are shaped by one another. I am taking a multidisciplinary approach toward understanding this relationship by examining the behavior of individual flies, the patterns of parasitism in a local lepidopteran community, and the evolutionary patterns of host range in a subgroup of the Tachinidae.

I have begun conducting behavioral assays with two local species (*Exorista mella* and *Carcelia reclinata*) to examine how they locate their shared host, the arctiid moth *Grammia geneura*. I have also sampled the lepidopteran community at several sites in mesquite-oak grassland habitats here in southern Arizona, and I am building a tachinid-host database that includes information concerning parasitism rate, what the parasitized hosts feed upon, their density, microhabitat, and other ecological variables. Preliminary examination of this data indicates that ecological factors such as microhabitat of the host profoundly influence their susceptibility to various tachinid species.

At a larger scale, I plan to examine the evolution of characters concerning host range, host location, and reproductive strategies within a subset of the macrotype Goniinae. This will be accomplished by reconstructing the evolutionary relationships of included genera using molecular and perhaps genitalic characters. The boundaries of the group to be examined must be determined by a preliminary analysis due to the lack of phylogenetic resolution within the Goniinae. I plan to focus on the tribes Exoristiini, Winthemiini, and/or Eryciini, with perhaps 20-25 taxa total to reconstruct a somewhat skeletal phylogeny. Though I can collect many specimens locally for this analysis, there are many taxa that should be included that I probably will not find, or do not exist locally. I would greatly appreciate any donations of specimens within these groups from those of you who collect or rear tachinids. Specimens in alcohol (100%) are best suited for DNA extraction and amplification, though I have successfully extracted usable DNA from dried, pinned specimens. If you are interested in donating any specimens please contact me (Stireman@u.arizona.edu, or see directory for address). It is my hope that this preliminary phylogenetic reconstruction will not only allow me to examine patterns of character evolution, but also provide a framework for tachinid systematists to work with, and improve upon.

Sagebrush and glaciers: collecting flies in the Yukon

by Stephanie Boucher and Terry Wheeler

Department of Natural Resource Sciences, McGill University

It is no secret that the Yukon Territory has a unique insect fauna. The recent publication of "The Insects of the Yukon" has called attention to the diverse fauna of this region, and its glacial and postglacial history (for more information on this book see the Biological Survey of Canada's Web site at <http://www.biology.ualberta.ca/esc.hp/bschome.htm>). Most people who collect in the Yukon are attracted by the "typical" habitats of Beringia - the tundra up the Dempster highway, the mountains around Kluane National Park, the extensive peatlands, rivers and lakes, etc., but there are a lot of smaller, unusual and often overlooked habitats in the Yukon with their own particular Diptera fauna. We spent seven weeks in the Yukon in the summer of 1997 in search of the flies in some of these habitats.

Stephanie's goal was the *Artemisia*-grassland community found on warm south-facing slopes in several locations in the southern Yukon. This community of xeric-adapted plants occurs in relict patches north of the prairies in the Peace River valley of Alberta, northern British Columbia, the southern and central Yukon and central Alaska. These sage-grass communities may be a relict of the widespread arctic steppe of Beringia, or they may be disjuncts of southern prairie ecosystems that expanded their range northward into this region during the Hypsithermal warming interval. What is potentially interesting to dipterists is that these slopes contain a few species of insects that are endemic to the region as well as a number of species with some interesting disjunct distributions. Stephanie's M.Sc. project involves a faunal inventory of the Brachycera of these slopes and an analysis of their zoogeographic affinities.

We flew to Edmonton (it's much cheaper than flying to Whitehorse) in late May and rented a car for the drive to the Yukon (an unlimited mileage rental deal is very important on a trip like this; we clocked almost 15,000 kilometers). In addition to the cheaper flight, driving to the Yukon from Edmonton gave us the opportunity to collect at some interesting spots along the way in northern Alberta and British Columbia. Three days of driving/collecting got us into the Yukon where the search for good sites started. It was not difficult to find suitable *Artemisia*-grassland sites - they are quite numerous in the Yukon River valley along the Alaska and Klondike highways and many decent sites are accessible from the road. Proximity to the highways is also good because the sight of two entomologists running around with sweep nets on a 45 degree slope gives the Winnebago drivers some entertainment on their way to Dawson. Six primary sites were chosen for a survey using pan traps and sweep net collecting. Three were located on the Klondike highway south of Carmacks, one on the Alaska Highway west of Whitehorse near the Takhini River, one at the north end of Little Atlin Lake just south of Jakes Corner (cheapest gas in the Yukon, by the way) and one just outside of Carcross at Nares Lake. We collected in a few other similar sites on an irregular basis. To be honest, these sites look pretty barren, dry and windswept and at first we didn't expect a lot of diversity or abundance in the Brachycera. We were wrong. In the first season, we collected about 16,000 specimens of Brachycera from the study sites, representing 29 families. The species identifications are still going on but we estimate that there are at least 150 species. The most abundant family by far was the Chamaemyiidae (about 45% of all the specimens collected) followed by the Chloropidae, which is probably the most diverse family with almost 30 species identified to date. Dolichopodidae, Tephritidae, Agromyzidae, and Pipunculidae were

also quite abundant, with a lot of species diversity in the last three families. The phytophagous families and genera seem to be the most diverse, and are showing the most interesting geographic distributions. Saprohagous groups like Sphaeroceridae, Carnidae, Phoridae and Ephydriidae were not as abundant or diverse as in many other habitats and certainly less common than we expected. This probably has a lot to do with the fact that these slopes are so dry that decaying organic material isn't a major food source. Dead things just seem to dry up and blow away.

Saprohagous flies were more common in the sites sought out by Terry. His goals were more broad-ranging but he was mainly driven by a desire to build up the Lyman Museum's small collection of phytophagous and saprohagous acalyptrates, especially Chloropidae. The northwest Nearctic is turning out to be an interesting area for chloropid zoogeography and existing collections are not that rich in material from the region. That situation has now been at least partially rectified and we are in the process of sorting and mounting tens of thousands of specimens from habitats as varied as the Carcross "desert", warm springs, beach dunes, river margins, pine forests, salt flats, hilltops, peatlands, tree trunks and small dead animals.

All in all the Yukon turned out to be an excellent place to collect. The Diptera diversity is higher than many people realize and there are many undescribed and unrecorded surprises turning up as we deal with the material. There are a lot of excellent collecting sites within a short walk of the highway, but we had very few problems with disturbance of our traps. Other than a few traps stepped on by inconsiderate large grazing mammals, we only lost two traps to human activity - a paranoid local resident thought that his evil neighbours were trying to poison his dogs and our yellow pans were arrested by the RCMP.

A real advantage of summer collecting in the Yukon is that it stays light until well after 11:00 p.m. in June, quite convenient for evening pinning, sorting trap residues and beer drinking (although we must admit that the expedition team discovered Okanagan Black Cherry Cider quite early in the trip, which, although it seemed at first too much like a "girl drink", was found to be an acceptable Dipterological beverage when taken in moderate quantities). Restricting a lot of our collecting activities to drier, windswept habitats had the added advantage of keeping us away from the mosquitoes and blackflies for much of the trip.

Some advice for those planning a trip: buy a copy of *The Milepost* - it is an indispensable guide to side roads, kilometre markings, campgrounds, showers, coffee, cinnamon buns, and it makes good reading for rainy days. Whitehorse has all the necessities for a long term stay - groceries, hardware, mechanics (including windshield replacement), restaurants (all you can eat Mondays at Pizza Hut in 1997!), pharmacies, laundry, hotels, some surprisingly good bookstores and an odd assortment of bars. As with so many other parts of the world now, paperwork is required for scientific fieldwork in the Yukon but this is minimal: a Scientists and Explorers License is required for any fieldwork. Applications can be obtained from The Director, Heritage Branch, Department of Tourism, Government of the Yukon, Box 2703, Whitehorse, YT, Y1A 2C6 Canada (allow three months to process the paperwork). Additional paperwork is required for work in National Parks, reserves and certain areas under jurisdiction of First Nations. The application package for the Scientists and Explorers License includes a Guidebook on Scientific Research in the Yukon that lists all the relevant requirements, contacts and quite a bit of useful extra information on facilities and resources (if only all places in the world were this cooperative).

We've never met anyone who collected in the Yukon once and didn't want to go back. We are no different - we're headed north again this summer. There are some spots we never got around to last year.

Tanyderid News Flash

by Darlene Judd

Darlene Judd, Norm Woodley and Andrew Brower travelled to Chile in January/February in search of tanyderids. The larval life stage was not known for the three monotypic genera occurring in southern Chile. But once again, our success at locating these rare flies has exceeded our expectations. Larvae for two of the species were collected and in addition, we were able to triple the world's collection of adults for *Araucoderus gloriosus*. We had hoped to obtain adult specimens of *Tanyderus pictus* (see SEL web page) which were last collected in 1954. However, only second instar larvae were found. We also visited the insect collections at the Museo Nacional de Historia Natural in Santiago in hope of finding the Philippi holotype of *T. pictus*. Unfortunately, the holotype no longer appears to exist. We have tentatively scheduled a second collecting trip for December 1998.

Directory of South American Dipterists on the Web

by Claudio Jose Barros de Carvalho
Universidade Federal do Parana, Curitiba, Brasil

The Directory of South American Dipterists <<http://zoo.bio.ufpr.br/diptera/south/index.html>> is now available. Please visit it!

New Positions in Diptera Systematics

Darlene Judd has recently accepted a tenure-track position in Diptera Systematics in the Department of Entomology at Oregon State University. Darlene will join Andy Brower (husband and Lepidopterist) as the second systematist hired by the department in the academic year of 1997-98. She will remain active on the Monography of the Diptera project (NSF-PEET, Mathis & Judd) based at the Smithsonian through her research on tanyderids. However she plans to begin her duties (research, teaching, and collections) at OSU on 1 July 1998. After June 1 all correspondence should be sent to: Department of Entomology, 2046 Cordley Hall, Oregon State University, Corvallis, OR, 97331-2907, USA; email: judd@bcc.orst.edu, Phone: 541-737-4733, and FAX: 541-7373643.

Sonja Scheffer, from Stony Brook and NC State University, has accepted the SEL molecular position in Beltsville, MD, starting May 26, 1998. She will be developing a research program on the Agromyzidae, and working with SEL staff on various collaborative projects.

Retiring Dipterist

by Doug A. Craig

I retired as of the 1st of July 1997 and started two years of half time teaching. I had completed 31 years at the University of Alberta and decided enough was enough. However, little has changed as far as my research is concerned. I'll be found pupated one day in front of my beloved computer and/or microscope. Or failing that I'll fall down a cascade in Tahiti. I plan to spend a fair amount of time there in the next few years to try and finish up the biogeography of the Polynesian Black Flies. As you may have seen in the June issue of Canadian Journal of Zoology, I essentially finished up the taxonomic revision of the darling little things. Indeed I am gearing up to do the morphological phylogeny right now. Doug Currie is going to help me with the more technical bits. Hawaiian *Drosophila* move over!

Herbert Joseph Teskey: June 9, 1928 - February 16, 1998

by J. Richard Vockeroth

A great loss was experienced by the family, friends and colleagues of Herb Teskey, who died after a long illness. He was a kind, generous, unassuming man; because of these qualities his scientific contributions were perhaps somewhat underrated. I think his character was best described by his son and daughter in a memorial tribute: "Dad epitomized honesty, integrity and humility. He was a gentleman through and through He believed that if a job was worth doing, it was worth doing well." The famous Canadian author W.O. Mitchell, who had been one of Herb's teachers, said to one of his children "Your Dad never thought much of his own abilities and would always undersell himself, but your Dad had a tremendous amount to offer." Herb was a highly competent and very productive entomologist but had also many other interests. First among these was his family - his wife Barbara, his two children, and his grandchildren, to whom he was completely devoted. He was an excellent athlete and had won many awards in basketball, baseball and curling. He was a fine craftsman, and many beautiful furniture pieces were created in his workshop. He had a great interest in geography and maps - sadly, his hope of extensive travel after his retirement was reduced by his poor health to one trip to Europe with his wife.

Herb was born in Grand Prairie, Alberta in 1928. His degrees were B. Sc., Alberta, 1951; M.S.A., Toronto, 1955; Ph.D., Cornell, 1967. From 1951 until 1963 he studied the face fly and warble flies at the Agriculture Canada Veterinary Entomology Laboratory in Guelph, Ontario; when that lab closed he

went to Cornell and then to the Entomology Research Institute in Ottawa. The subject of his thesis was a study of the larval taxonomy of North American Tabanidae - all subsequent work owes much to this classic contribution. These larvae remained his primary interest, but his scope broadened to include all immature Diptera, especially of families previously unknown in these stages. His other major contributions were keys to the families, and general morphological descriptions, of the larvae and pupae in the Manual of Nearctic Diptera; a comprehensive study of larvae of Diptera associated with trees (1976); and, after his retirement in 1987, a beautifully illustrated handbook for the identification of the 145 species of Tabanidae known to occur in the Canada and Alaska (1990).

I agree with W.O. Mitchell that Herb "would always undersell himself". However, I think at most, only one or two other recent Dipterists have contributed as much as did Herb to our knowledge of immature flies. He will be missed.

In Memoriam Janice Marie Gillespie (1945-1997)

By Paul H. Arnaud

Janice Marie Gillespie, Economic Entomologist and Diptera Taxonomist, was born in Phoenix, Arizona, on October 24, 1945, and died of complications of lung cancer at Scottsdale, Arizona, on March 14, 1997. As Johnson (1997) has written "She is fondly remembered for her intelligence, her energy, and her exuberance for life." Janice was one of five children of George Edward Gillespie ((1913-1952) and Elaine Morris Gillespie. She had a fraternal twin Daniel, a brother Gary, and two sisters, Rita Carlson and Sandra Lee Hunter (deceased 1993).

In 1964 Janice enrolled at Arizona State University, Tempe, and her first class in General Entomology decided her future graduate major. It was necessary that she personally finance the cost of all of her higher education by working and with scholarships. With summer evening sessions taken in 1965 and 1966 at Phoenix Junior College, Janice was able to receive a B.S. degree in Zoology from ASU in 1967. Janice then majored in Entomology, with a minor in Zoology, at the University of Idaho, Moscow, under the direction of Dr. William F. Barr, receiving her M.S. degree in 1970, with the thesis "Bionomics of Insects Associated with a North Idaho Pond." Her doctorate thesis entitled "A Biosystematic Study of Idaho Chironomini (Diptera: Chironomidae)," 395 pages, was completed in 1974. It was in this period that she pioneered the study of western American larval Thaumaleidae and completed studies that were delayed in publication by circumstances beyond her control.

Janice had a special interest in aquatic insects, and her collection of these, numbering about 10,000 specimens (according to Membership Record with the Pacific Coast Entomological Society), are deposited in the collections of the William F. Barr Entomological Museum, University of Idaho (Chironomidae and other aquatic insects), and the Department of Entomology, California Academy of Sciences (Thaumaleidae). Collections were made primarily in western North America and secondarily in Appalachia.

Following the completion of her doctorate, Janice was employed as an Agriculturist in Laboratory Research with The American Cyanamid Company, in Princeton, New Jersey. After several years she then worked for Boyle-Midway, in Phoenix, Arizona, as she preferred outdoor field work. From 1991-1996 Janice was Vice-President in charge of Research for Consep Membranes, Inc., of Bend, Oregon, in the use of pheromones in insect control.

In March, 1996, Janice was diagnosed with lung cancer, and after treatment her health improved sufficiently that she was able to make a tour of Egypt and Israel from January 31 to February 23, 1997, with a friend, Dr. Janet Moore, of Waldport, Oregon. Janice died less than a month later, at Scottsdale, in her 51st year. Janice had smoked extensively, but had given up smoking in the last decade of her life. She is buried at Paradise Valley Memorial Garden Cemetery in Scottsdale. Janice is survived by her mother, Elaine Wren, two brothers, and one sister, and three nephews and one great nephew and one great niece.

Bibliography of Taxonomic Publications of Janice M. Gillespie

1973. The larva and pupa of the predaceous water beetle, *Hygrotus sayi* (Coleoptera: Dytiscidae). Proceedings of the Biological Society of Washington, 86(12):143-151, figures 1-11. (by Paul J. Spangler and Janice M. Gillespie).
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1994. External structure of larval *Thaumalea buckae* Arnaud and Boussy (Diptera: Thaumaleidae). Myia, 5:195-201, figures 1-4. (by Ian A. Boussy, Janice M. Gillespie, and Paul H. Arnaud, Jr.).

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Acknowledgments

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Miscellaneous

The following poem, written by J.G. Needham in the 1930's, was published in 'Cornell Plantations' and 'Ontario and Other Verses'.

Chrysops

Beautiful flies
With shining eyes
Of deep green hue and marvellous size
With golden sheen
On bars of green
And depths opalescent that glow between:
Such are the eyes
Of these beautiful flies.

Beautiful wings!
The green-head sings
A silent song as she swings and swings
And circles about
Now in, now out.
So swift that their pattern flutters out
In vanishing rings -
Oh, beautiful wings!

Beautiful feet
So trim, so neat
So lightly bearing her form petite
As light as air
So unaware
They rest unnoticed upon a hair:
Such are the feet
Of this being petite.

Beautiful sprite
Of form so light
So trim, so airy, so expedité
So big a terror
For such a mite
So quick to see, so prone to bite
How does she carry
Her appetite?

Books and Publications

Friedrich, M. and D. Tautz. 1997. Evolution and phylogeny of the Diptera: a molecular phylogenetic analysis using 28s rDNA sequences. *Systematic Biology* 46:674-698.

Matile, L. 1997. Phylogeny and evolution of the larval diet in the Sciaroidea (Diptera, Bibionomorpha) since the Mesozoic. *Memoires du Museum National d'Histoire Naturelle* 173: 273-303.

Papp, L. and B. Darvas (Eds). 1997. Contributions to a manual of Palaearctic Diptera. Volume 2. Science Herald, Budapest. Available from E.W. Classey. £138.

This second volume of a proposed three volume set (plus Appendix) appeared this past year. Chapters include the following: Introduction, Deuterophlebiidae, Nymphomyiidae,

Pachyneuridae, Hersperinidae, Bibionidae, Sciaridae, Cecidomyiidae, Psychodidae, Trichoceridae, Anisopodidae, Mycetobiidae, Scatopsidae, Canthyloscidae, Tanyderidae, Ptychopteridae, Dixidae, Chaoboridae, Corethrellidae, Thaumaleidae, Simuliidae, Ceratopogonidae, Xylomyidae, Rachiceridae, Stratiomyidae, Xylophagidae, Coenomyiidae, Pelecorhynchidae, Rhagionidae, Athericidae, Vermileonidae, Nemestrinidae, Acroceridae, Bombyliidae, Hilarimorphidae, Therevidae, Scenopinidae, Mydidae, European Asilidae. The volume is indexed. Chapters are modelled on those in the Manual of Nearctic Diptera.

Rognes, K. 1997. The Calliphoridae (blowflies) (Diptera: Oestroidea) are not a monophyletic group. *Cladistics* 13: 27-66.

Submission Form for Directory of North American Dipterists

For those who have not yet sent in a synopsis of their interests for the Directory of North American Dipterists, the following form is provided. Please restrict yourselves to no more than 20 words when listing the titles of your major projects and the flies 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.

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