

# Phorid Newsletter

Brian V. Brown, editor

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Welcome to the third phorid newsletter. We have added a few of new colleagues, two from Russia and one from Brazil. See the updated Phoridologist's Directory for details. I hope everyone still enjoys receiving this information; anyone with contributions is encouraged to submit them to me. The fly head is a female *Burmophora*, drawn by my illustrator Jesse Cantley.

## Hunting *Apocephalus* in Costa Rica

In March of this year, I travelled to Costa Rica to collect hosts of *Apocephalus*, subgenus *Mesophora*. I recently revised this genus, but had little host information. I knew some species were parasites of fireflies (Coleoptera: Lampyridae), one species was a parasite of soldier beetles (Coleoptera: Cantharidae) and another had been reared from spiders, bees and wasps.

One site in Costa Rica, Zurquí de Moravia, has the highest number of species in the world (about 20), so we planned to make it our primary destination. The elevation is about 1600m, and the forest type is classified as montane wet forest, or "cloud forest." This is the habitat where one finds most *Mesophora* species. Also, Zurquí has gained a reputation as one of the premiere sites for unusual insects in Costa Rica. My friend Paul Hanson of the Universidad de Costa Rica has operated a Malaise trap there for 5 years, turning up uncounted insect treasures.

My working hypothesis was that most of the flies would be attacking fireflies. March is typically the best time of year for both fireflies and *Mesophora*, so how could I go wrong? Further, two years ago I visited Zurquí briefly, and collected 50 fireflies, one of which was parasitized by a *Mesophora* species for which we had no previous information. Things looked good.

We stayed in a guest house recently put together by the owner of the property. I should point out that Zurquí is not a pristine site; it consists of a forested ravine behind a roadside restaurant, near the large, incredibly beautiful National Park Braulio Carrillo. The guest house was rustic, but comfortable, and our host made sure we had everything we needed.

To make a long story short, we collected over 500 fireflies, keeping them alive in individual vials. None were parasitized. To say I was shocked and disappointed is an understatement; surely if 50 fireflies collected a couple of years earlier yielded a parasitized individual, then 500 fireflies should show something! I know that at least four species of firefly parasites are found at this site, as well as the cantharid-parasitizing species

described from Brazil. There was lots of firefly activity, even though the evenings were rainy and cool, and our Malaise traps yielded specimens of three species of *Mesophora*. Something was off; my guess is that the weather just wasn't right for the firefly parasites.

Luckily, we watched some stingless bees (Hymenoptera: Apidae) one afternoon. One worker seemed to be acting strangely; it wandered around on the ground, and seemed unable to fly. I kept it in a vial, and three days later phorid larvae emerged and pupariated. They turned out to be immatures of *Apocephalus* (*Mesophora*) *adustus*, a species I described in my first *Mesophora* paper. At least we got one new record at Zurquí!

Our next destination was another cloud forest site: Monteverde. A friend of mine has built a field station there, and we stayed in relative luxury at bargain-basement prices. The forest at Monteverde extends from 1500m to 1700m, where it reaches the continental divide.

As at Zurquí, we continued collecting fireflies and stingless bees. This time we had better luck. From one species of *Lucidota* fireflies we reared *Apocephalus antennatus*, a well-known firefly parasite, but still a new host species record. From another *Lucidota* we reared *A. tritarsus*, which has no previous host records. Finally, we had one small cantharid beetle that was parasitized, but we were unable to rear the immatures, which died in the pupal stage. I will be looking for that one again in August, when I return to Costa Rica.

Our final site was La Selva, a hot, lowland, tropical rain forest. Here we studied an undescribed species of *Mesophora* that parasitizes male stingless bees. I found this association in 1993, but wanted to make further observations on parasitism rates.

Aside from the questionably successful *Mesophora* collections, we gathered large numbers of other parasitic phorids, especially *Acanthophorides*, *Apocephalus* and *Dacnophora* at army ant raids. Also, we reared a *Melaloncha* from stingless bees, a first for me. Although not a total success, I learned new things on this trip, and look forward to more collecting in August.

References.

#### Phorid papers from 1994

The following is a list of phorid papers from 1994. I did not include all papers that mention phorids, as there are some that are physiological or control-oriented, and thus of little interest to most of the people who receive this newsletter. If anyone has additions to this list, please let me know.

Brown, B.V. (1994a) Another generic synonym resulting from

- sexually dimorphic Phoridae (Diptera): *Psyllomyia* Loew (1857) and *Multinevra* Disney (1979). *Proceedings of the Entomological Society of Washington*, **96**, 764.
- Brown, B.V. (1994b) Descriptions and subfamily classification of some unusual Phoridae (Diptera). *Canadian Entomologist*, **126**, 703-707.
- Brown, B.V. (1994c) Life history parameters and new host records of phorid parasites of fireflies. *Coleopterists Bulletin*, **48**, 145-147.
- Brown, B.V. (1994d) A replacement name for a species of *Megaselia* (Diptera: Phoridae). *Proceedings of the Entomological Society of Washington*, **96**, 176.
- Brown, B.V. (1994e) Revision and new species of the *Apocephalus* (*Mesophora*) *truncaticercus*-infragroup (Diptera: Phoridae). *Natural History Museum of Los Angeles County Contributions in Science*, **449**, 1-7.
- Brown, B.V. & Sabrosky, C.W. (1994) *Sphaerocera* Latreille, 1804 and *Borophaga* Enderlein, 1924 (Insecta, Diptera): proposed conservation; *Sphaerocera curvipes* Latreille, 1805 and *Phora flavimana* Meigen, 1830; proposed conservation of the specific names. *Bulletin of Zoological Nomenclature*, **51**, 312-315.
- Buck, M. (1994a) Community structure and niche partitioning of Diptera breeding in small-sized and buried carrion (Phoridae, Sphaeroceridae). *General submitted paper at 3rd International Congress of Dipterology*. [this is not really a publication, but Matthias gave me a printed version at the meeting]
- Buck, M. (1994b) Sphaeroceridae and Phoridae (Diptera) collected by emergence traps from various terrestrial habitats in Southern Germany. *Studia Dipterologica*, **1**, 93-106.
- Disney, R.H.L. (1994a) A new species and new records of Phoridae (Diptera) from New Zealand. *Giornale italiano di Entomologia*, **6** (1992), 119-124.
- Disney, R.H.L. (1994b) A new species of *Triphleba* (Diptera: Phoridae) from France and the subfamily assignment of this genus. *Giornale italiano di Entomologia*, **6** (1992), 135-139.
- Disney, R.H.L. (1994c) *Scuttle flies: the Phoridae*, Chapman and Hall, London, xii + 467 pp.

- Disney, R.H.L. & Kistner, D.H. (1994) A new species of *Dicranopteron* (Diptera: Phoridae) associated with a termite (Isoptera: Termitidae) in Malaysia. *Sociobiology*, **23**, 315-320.
- Disney, R.H.L. & Shaw, M.R. (1994) The ant host (Hym., Formicidae) of a *Microselia* (Dipt., Phoridae) from France. *Entomologist's Monthly Magazine*, **130**, 227-228.
- Disney, R.H.L., Majerus, M.E.N., & Walpole, M.J. (1994) Phoridae (Diptera) parasitising Coccinellidae (Coleoptera). *Entomologist*, **113**, 28-42.
- Grisham, J. (1994) Attack of the fire ant. *BioScience*, **44**, 587-590.
- Johal, K. & Disney, R.H.L. (1994) Phoridae (Diptera) as pests of cultivated oyster mushrooms (Agaricales: Pleurotaceae) in India. *Bulletin of Entomological Research*, **84**, 247-254.
- Lewis, S.M. & Monchamp, J.D. (1994) Sexual and temporal differences in phorid parasitism of *Photinus marginellus* fireflies (Coleoptera: Lampyridae). *Annals of the Entomological Society of America*, **87**, 572-575.
- Liu, G. & Io, C. (1994) The genus *Phora* Latreille (Diptera: Phoridae) from China. *Entomotaxonomia*, **16**, 63-70.
- Pfeil, R.M., Walsh, R.A. & Mumma, R. 1994. Scanning electron-microscopic examination of the putative olfactory structures possessed by the phorid fly, *Megaselia halterata* (Diptera: Phoridae). *Scanning Microscopy*, **8**, 687-694.
- Prescher, S. & Bellstedt, R. (1994a) Beitrag zur Kenntnis der Buckelfliegenfauna Thürigens (Dipt., Phoridae). *Entomologische Nachrichten und Berichte*, **38**, 45-51.
- Prescher, S. & Bellstedt, R. (1994b) Bermerkenswerter Fund einer Buckelfliege (Diptera, Phoridae) in Thüringen. *Entomologische Nachrichten und Berichte*, **38**, 62.
- Wakeford, T. & Disney, R.H.L. (1994) A Cuban *Megaselia* species (Diptera: Phoridae) with wing-spots. *Entomologica scandinavica*, **25**, 227-230.

#### Phoridologists' Directory

The following is a list of the names, addresses and

interests of phorid workers in my mailing list. Any additions, corrections or updates would be greatly appreciated. Those wanting to discuss their projects and interests at even greater length are welcome to do so.

**Jeffery K. Barnes**, Biological Survey, Rm.3132, Cultural Education Center, Albany, NY, 12230, U.S.A. Telephone (518) 486-2004.

**Brian V. Brown**, Entomology Section, Natural History Museum of Los Angeles County, 900 Exposition Boulevard, Los Angeles, CA, 90007, U.S.A. Telephone (213) 744-3363. FAX (213) 746-2999. E-mail [brianb@mizar.usc.edu](mailto:brianb@mizar.usc.edu). *Interests*: Taxonomy, evolution, reconstructed phylogeny, biogeography and natural history of world Phoridae. Currently I have a long-term project to revise the New World, ant-decapitating genus *Apocephalus*; also I am beginning to prepare the phorid sections for the series *Flies of the Nearctic Region*. I am interested in collecting methods for phorids, and in biodiversity surveys, especially those conducted in the tropics.

**Matthias Buck**, Dept. Ecology and Morphology of Animals, University of Ulm, Albert-Einstein-Allee 11, 89069 Ulm, GERMANY. E-mail [meyer\\_eb@dulruu51.bitnet](mailto:meyer_eb@dulruu51.bitnet). *Interests*: Ecology and biology of Phoridae (PHD Thesis, to be finished by April 1995); community structure; ecology and biology of small saprophagous (especially necrophagous) Diptera breeding in small-sized and buried vertebrate and invertebrate carrion. Other interests are anatomy of the reproductive organs, larval morphology, phylogeny and hymenopterous parasitoids of small, necrophagous Diptera. So far, I have only worked in the Palaearctic Region. Future aspirations include a postdoctoral fellowship, or curatorship of Diptera at some natural history museum.

**R. Henry L. Disney**, Dept. Zoology, University of Cambridge, Downing Street, Cambridge, CB2 3EJ, United Kingdom. Telephone 0223 336654. FAX 0223 336676. *Interests*: Biology, taxonomy, phylogenetic reconstruction of world Phoridae. Currently revising Termitoxeniinae, including *Alamira* and *Perissa*.

**Donald H. Feener, Jr.**, Department of Biology, University of Utah, Salt Lake City, UT, 84112, U.S.A. Telephone (801) 581-6444. FAX (801) 581-4668. E-mail [feener@bioscience.utah.edu](mailto:feener@bioscience.utah.edu). *Interests*: Ant-phorid interactions in general. Specific projects include: 1) chemical ecology of host location in phorid parasitoids of ants; 2) phorid parasitoids as biological control agents of pest ants; 3) evolution of host specificity of phorid parasitoids; 4) behavioral ecology of ant defenses against phorid parasitoids. I work mostly in the New World temperate and tropical regions, especially the southwestern U.S.A. and Central America (Costa Rica, Panama).

**Tadao Gotô**, Central Forest Research Lab and Training Center, Royal Forest Department, Bangken, Bangkok, 10900 Thailand

**David H. Kistner**, California State University, Chico, CA, 95929-0515, U.S.A. Telephone (916) 898-5116. FAX (916) 898-6804. *Interests*: Mostly interested in Phoridae inhabiting the nests of social

insects or preying on social insects. I am interested in all biogeographic regions, but have minimal taxonomic interests. I am currently working in collaboration with Henry Disney on Termitoxeniinae and a study of Phoridae of the upper Sacramento River, based on cantara spill collections.

**Victor A. Kolyada**, Department of Entomology, Zoological Museum of the Moscow State University, 6 Herzen Str. Moscow 103009, Russia. *Interests*: Taxonomy of the genus *Megaselia* and its fauna in the Palaearctic Region. Interested in exchanging for determined specimens from other biogeographical regions. Also interested in collecting methods.

**Guangchun Liu**, Dept. Plant Protection, Shenyang Agricultural University, Shenyang, Liaoning 110161, P.R. China. Telephone (024) 282-5074. *Interests*: Taxonomy of phorids; Chinese phorid fauna; phorids associated with mushrooms in China.

**Marina Michailovskaya**, Laboratory of Insects, Gornotaezhnaya Station, AN RAN, Ussurijsk District, Primorye Territory, 692533, Russia. *Interests*: Taxonomy of phorids; Far East phorid fauna, including Primorskiy krai, Chabarovski krai, Sachalin, Kamchatka; phorids associated with dead animals.

**Mikhail B. Mostovski**, Arthropod Laboratory, Palaeontological Institute, 123, Profsoyuznaya Str., Moscow, 117647, Russia. Telephone (095) 467-2340. FAX (095) 339-0622. E-mail [rasna@glas.apc.org](mailto:rasna@glas.apc.org). *Interests*: Phorid fauna of former USSR.

**E. Hugh A. Oliver**, 172 Upper Dinsdale Road, Hamilton, New Zealand. Telephone 84 79541. FAX 64 7 838 5085. *Interests*: New Zealand phorid taxonomy and natural history.

**Matt Orr**, Division of Zoology, University of Texas, Austin, TX, 78712, U.S.A. Telephone (512) 471-2825. FAX same as telephone. E-mail [morr@emx.cc.utexas.edu](mailto:morr@emx.cc.utexas.edu). *Interests*: Influences of phorids on ant foraging ecology, especially pest ants. Ant taxa of interest include *Atta*, *Solenopsis*, and *Linepithema* [formerly *Iridomyrmex* - ed.].

**Sanford D. Porter**, USDA-ARS, MAVERL, 1600 SW 23rd Drive, P.O. Box 14565, Gainesville, FL, 32604, U.S.A. Telephone (904) 374-5914. FAX (904) 374-5818. E-mail [sdp@gnv.ifas.ufl.edu](mailto:sdp@gnv.ifas.ufl.edu). *Interests*: Ant-parasitizing phorids, especially *Pseudacteon*: oviposition behavior, growth and development of larvae and pupae, host specificity, responses of ant hosts, biocontrol.

**Sabine Prescher**, Hinter der Masch 26, 38114 Braunschweig, Germany. Telephone 05 31 - 57 90 92. *Interests*: Palaearctic Phoridae, especially ecology of various species. Current projects include determination of specimens and evaluation of the results of Phoridae collected in: 1) the nature preserve area "Apfelstedter Ried" in Thuringia (Germany) with moist meadows; 2) moist meadows, dry meadows, wheat fields and maize fields at the village Limpach near Zürich, Switzerland; 3) caverns in Rhineland-Pfalz, Germany; and 4) a gravel pit near the city of Köln, Germany (now finished; a paper is expected at the end of the year).

**Athayde Tonhasca**, Universidade Estadual do Norte Fluminense,  
Centro de Ciências e Tecnologias Agropecuárias, Avenida  
Alberto Lamego, 2000, Campos dos Goytacazes, RJ, Brazil.  
*Interests*: Phorids attacking leaf-cutting ants.

**Holger Triltsch**, Federal Biological Research Center for  
Agriculture and Forestry, Institute for Integrated Plant  
Protection, Stahnsdorfer Damm 81, D-14532, Kleinmachnow,  
Germany. Telephone 033 203/22423-5, /48 300. FAX 033  
203/22278. *Interests*: Species of *Phalacrotophora* Enderlein as parasites  
of Coccinellidae, especially *Coccinella septempunctata* L.; factors which  
determine the degree of parasitization; distribution in cereal fields and  
farmland.

**Sven-Olof Ulefors**, Department of Environmental Biology,  
University of Guelph, Guelph, ON, Canada, N1G 2W1. Telephone  
(519) 824-4120, ext. 2582. *Interests*: Canadian species of *Megaselia*;  
separation of *M. pulicaria*-group species.

Axel Froese and Bill Robinson have both informed me that  
they no longer work on phorids