

Phorid Newsletter

Brian V. Brown, editor
Drawing of *Misotermes vicinus* Borgmeier by Jesse Cantley

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Welcome to the fourth edition of the Phorid Newsletter. Thanks to Lloyd Morrison and Matt Orr, we have our largest issue yet.

The last year was a big one for phorid publicity. The biocontrol project involving phorids and fire ants was widely popularized, as was the amazing new phorid described in *Nature* magazine (see Weissflog *et al.*, below). It is wonderful to see that phorids are assuming their proper place in the limelight of science.

It is especially gratifying to see that the pioneering work on basic ant-phorid interactions by Don Feener is now bearing fruit. The United States Department of Agriculture dismissed phorids as biocontrol agents until Don and I did a small study in Costa Rica, demonstrating that phorids disrupt fire ant foraging behavior. This work was recently replicated in Brazil and has led to the exciting project described by Lloyd and Matt, below.

There is now a Web site that has information on phorids! For those of you with internet access, check out the information at:

<http://www.lam.mus.ca.us/lacmnh/departments/research/entomology/phorids/phorspez.html>

I have posted these Phorid Newsletters, including back issues, on the Web page.

Phorid flies (genus *Pseudacteon*) as biological control agents of the imported fire ant (*Solenopsis invicta*)

by Lloyd Morrison and Matt Orr

The imported fire ant, *Solenopsis invicta*, has spread across large areas of the southeastern U.S. and dramatically decreased biodiversity in affected communities since its introduction from South America in the 1940's. It has displaced the native fire ant, *Solenopsis geminata*, over much of its range, even though the two species are very similar in morphology and life history.

Surveys of *S. invicta* populations in North and South America by Sanford Porter and colleagues have shown that *S. invicta* reaches much higher population densities in North than in South America. One hypothesis to explain this difference is that when *S. invicta* was introduced into the

U.S., it escaped its natural enemies in South America. Among these natural enemies are phorids in the genus *Pseudacteon*, which are parasitoids of fire ants. The adult fly inserts an egg into the thorax of a live worker ant. The egg hatches into a larva, which migrates to the head of the ant. At pupariation, the phorid consumes all the tissue inside the ant's head, killing the ant in the process. An adult phorid emerges from the ant's mouth about five or six weeks after the egg was laid. (Sanford Porter and colleagues have described this life cycle in detail.)

Pseudacteon phorids were screened as potential biological control agents for *S. invicta* by USDA biologists back in the 1970's, but were basically abandoned after USDA scientists found very low infection rates in ants (< 5%), and were not able to rear the flies successfully in the lab.

At the University of Texas at Austin's Brackenridge Field Station, we have recently begun to give *Pseudacteon* phorids a second look as biological control agents for imported fire ants. Our ideas date back to Don Feener's dissertation work, which showed that the presence of phorid flies could affect the behavior of ants and influence the outcome of interspecific competition. As imported fire ants marched across Central Texas and Brackenridge Field Station, Zoology Professor and Station Director Larry Gilbert began to ponder why the imported fire ants could so successfully out compete other ant species, especially native fire ants. Gilbert became convinced that phorid flies could have major effects on ant populations, and succeeded in time in acquiring the resources necessary to begin scientific evaluation of South American phorid flies as biological control agents of *S. invicta* in the U.S.

Our current research activities involve

looking at a number of different aspects of this issue. In Brazil, Matt Orr and Sergio Seike have been studying interactions between *Pseudacteon* phorids and *S. invicta*. So far, we have found that the presence of phorids inhibits fire ant recruitment to food resources and allows other ants in the community access to those resources. This tilting of the competitive balance in the ant community may have important indirect effects on *S. invicta*'s fitness. We have just been funded for three years by NSF to continue examining the influence of phorids, resources, and other ant species on the competitive success of *S. invicta* in Brazil.

One other aspect of our Brazilian research focuses on differences among *Pseudacteon* species in their attack behavior, host location behavior, and effect on fire ants. Approximately fifteen *Pseudacteon* species attack *S. invicta* in South America. We are finding large behavioral differences among species, which may make it necessary to focus on particular species or even a particular phorid community in order to achieve biological control in North America.

In Texas, Gilbert, along with Lloyd Morrison, have been involved with three primary lines of research. First, in laboratory tests we have been evaluating various *Pseudacteon* species from South America (which are known to be specific to *Solenopsis* ants) to see which species will attack only *S. invicta* and ignore other *Solenopsis* species. We have identified a number of *Pseudacteon* species which attack *S. invicta* while ignoring its congener, *S. geminata*. We have obtained USDA permission to release these species and plan to do some releases this spring and summer.

Second, we are studying the growth and development of phorids and have been

successful in rearing some through to the adult stage in the lab, although mortality of the developing phorids has been very high. Sanford Porter, our colleague at the USDA Lab in Gainesville, FL, (formerly a post-doc at Brackenridge Field Station) has also had limited success in rearing phorids in the lab. (Porter has also studied host-specificity of *Pseudacteon* phorids in Brazil.) Porter is currently in Brazil, studying phorid growth and development and working on improving rearing techniques.

Third, we are studying the interaction between native and imported fire ants. There are native *Pseudacteon* species (*P. crawfordi* and *browni*) which attack the native fire ant, *S. geminata*, and ignore the imported fire ant, *S. invicta*. We have found that the presence of these phorids can decrease the food acquisition of *S. geminata*. When phorids are active, *S. geminata* individuals curl up in a defensive posture and stop foraging. (Feener and Brian Brown found this was also the case for *P. arcuatus* and *P. browni* on *S. geminata* in Costa Rica.) This puts the native fire ant at a competitive disadvantage, and allows the imported fire ant to acquire more resources. Our current research is aimed at elucidating just how much of an effect phorids have on the different mechanisms of interspecific competition between these two species.

We are currently planning the construction of a large greenhouse at Brackenridge Field Station which will allow us to conduct controlled experiments under semi-natural conditions and to rear *Pseudacteon* phorids in large numbers for field releases.

In addition to the work in Texas and Brazil, we have a colleague in Argentina, Patricia Folgarait, who is studying *Pseudacteon* phorids there. The focus of her

work has been the effects of climatic variation on the activity of phorids. Successful biological control may require the introduction of a number of different *Pseudacteon* species, and since imported fire ants inhabit a relatively large area in the U.S., we may need to import species from different areas of South America which are at similar latitudes and have similar climates as targeted North American release sites.

In summary, phorid flies in the genus *Pseudacteon* appear to be promising biological control agents of imported fire ants in the U.S. Their main effect is not direct mortality of the ants, but rather an indirect effect of behavior modification, which allows competing ant species to acquire relatively more resources. At present, the imported fire ant in the U.S. is not attacked by *Pseudacteon* phorids, while the native fire ant is host to at least two species. If we can successfully introduce *Pseudacteon* species into the U.S. that are specific to *S. invicta*, we may be able to remove *S. invicta*'s competitive advantage and restore a sense of parity to our native ant communities.

Phorid literature for 1994 - update

Henry Disney suggested that the following non-taxonomic papers from 1994 also had significant interest for phorid enthusiasts. I will take his advice and cite all such papers in future lists.

Kovac, D. (1994) Die Tierwelt des Bambus: ein Modell für komplexe tropische Lebensgemeinschaften. *Natur und Museum, Frankfurt*, **124**, 119-136.

Majer, J.D., Recher, H.F., & Postle, A.C. (1994) Comparison of arthropod species richness in Eastern and Western Australian canopies:

contribution to the species number debate. *Memoirs of the Queensland Museum*, **36**, 121-131.

Sandoval, C.P. (1994) Plasticity in web design in the spider *Parawixia bistriata*: a response to variable prey type. *Functional Ecology*, **8**, 701-707.

Stark, A. (1994) Zum Beutespektrum und Jagdverhalten von Fliegen der Gattung *Platypalpus* (Empidoidea, Hybotidae). *Studia dipterologica*, **1**, 49-74.

Traut, W. (1994) Sex determination in the fly *Megaselia scalaris*, a model system for primary steps of sex chromosome evolution. *Genetics*, **136**, 1097-1104.

Traut, W., Traut, G., Mertl, H.G., & Egelhaaf, A. (1994) New mutants and their chromosome assignment in the fly *Megaselia scalaris*. *Journal of Heredity*, **85**, 218-221.

Yakovlev, E.B. (1994) *Palaearctic Diptera associated with fungi and myxomycetes (in Russian)*, Karelian Research Center, Russian Academy of Sciences Forest Research Institute, Petrozavodsk, 128 pp.

and here are some more I came across:

Asquith, A. and Kido, M. (1994) Native hawaiian insects attracted to the semiochemical methyl eugenol, used for male annihilation of the oriental fruit-fly (Diptera, Tephritidae). *Environmental Entomology*, **23**, 1397-1408.

Miller, M.L., Lord, W.D., Goff, M.L., Donnelly, B., McDonough, E.T. and Alexis, J.C. (1994) Isolation of amitriptyline and nortriptyline from fly puparia (Phoridae) and beetle exuviae (Dermestidae) associated with mummified human remains. *Journal of Forensic Sciences*, **39**, 1305-1313.

Worthen, W.B., Mayrose, S. and Wilson, R.G. (1994) Complex interactions between biotic and abiotic factors - effects on mycophagous fly communities. *Oikos*, **69**, 277-286.

Phorid literature for 1995

Below is a list of all the taxonomic papers and as many other publications about (or prominently mentioning) phorids that I have on record. Please send me any additions for future versions of this list.

Brown, B.V. (1995a) Response to Disney. *Journal of Natural History*, **29**, 259-264.

Brown, B.V. (1995b) Review of the species of *Anevrina* Liroy (Diptera: Phoridae), with a new species and a revised world key. *Entomological Problems*, **25** (1994), 1-10.

Brown, B.V. (1995c). Ant-decapitating flies: nature's executioners. *Terra*, **32**, 4.

Brown, B.V. (1995d). Review of "Scuttle Flies: the Phoridae." *Bulletin of the Entomological Society of Canada*, **27**, 41-42.

Brown, B.V. (1995e) Comments on the proposed conservation of *Sphaerocera* Latreille, 1804 and *Borophaga* Enderlein, 1924 (Insecta, Diptera). *Bulletin of Zoological Nomenclature*, **52**, 182-183.

Brown, B.V. & Feener, D.H., Jr. (1995) Efficiency of two mass sampling methods for sampling phorid flies (Diptera: Phoridae) in a tropical biodiversity survey. *Contributions in Science*, **459**, 1-10.

Cumming, J.M., Sinclair, B.J., & Wood, D.M. (1995) Homology and phylogenetic implications of male genitalia in Diptera - Eremoneura. *Entomologica Scandinavica*, **26**, 120-151.

Cumming, M.S. (1995) Activity patterns of termite-eating land planarians *Microplana termitophaga* (Platyhelminthes, Tricladida). *Journal of Zoology*, **237**, 531-542.

Disney, R.H.L. (1995a) Cave Phoridae (Diptera) of Trinidad. *Giornale italiano di Entomologia*,

6 (1993), 417-436.

- Disney, R.H.L. (1995b) Comments on the proposed conservation of *Sphaerocera* Latreille, 1804 and *Borophaga* Enderlein, 1924 (Insecta, Diptera). *Bulletin of Zoological Nomenclature*, **52**, 181-182.
- Disney, R.H.L. (1995c) Comments on the proposed conservation of *Sphaerocera* Latreille, 1804 and *Borophaga* Enderlein, 1924 (Insecta, Diptera). *Bulletin of Zoological Nomenclature*, **52**, 336-337.
- Disney, R.H.L. (1995d) Convergent evolution between *Echidnophora* and Termitoxeniinae (Diptera: Phoridae). *Systematic Entomology*, **20**, 195-206.
- Disney, R.H.L. (1995e) Further new species of aquatic Phoridae (Diptera) from Malaysia and Brunei. *Aquatic Insects*, **17**, 205-213.
- Disney, R.H.L. (1995 f) A new species of aquatic fly (Diptera: Phoridae) from Temengor Forest Reserve, Hulu Perak, Malaysia. *Malayan Nature Journal*, **48**, 271-279.
- Disney, R.H.L. (1995 g) New synonyms and a key to species of *Plethysmochaeta* Schmitz (Diptera, Phoridae). *Bonner zoologische Beiträge*, **45**, 259-263.
- Disney, R.H.L. (1995 h) Reply to Brown. *Journal of Natural History*, **29**, 1081-1082.
- Disney, R.H.L. (1995i) Two new species of *Megaselia* (Diptera: Phoridae) from Europe. *British Journal of Entomology and Natural History*, **8**, 113-119.
- Disney, R.H.L. (1995j) The type species of *Megaselia* Rondani (Dipt., Phoridae). *Entomologist's Monthly Magazine*, **131**, 167-170.
- Disney, R.H.L. & Bartareau, T. (1995) A new species of *Dohrniphora* (Diptera: Phoridae) associated with a stingless bee (Hymenoptera: Apidae) in Australia. *Sociobiology*, **26**, 229-239.
- Disney, R.H.L. & Kistner, D.H. (1995) Revision of the Afrotropical Termitoxeniinae (Diptera: Phoridae). *Sociobiology*, **26**, 117-225.
- Downie, J.R., Disney, R.H.L., Collins, L., & Hancock, E.G. (1995) A new species of *Megaselia* (Diptera, Phoridae) whose larvae prey upon the eggs of *Leptodactylus fuscus* (Anura, Leptodactylidae). *Journal of Natural History*, **29**, 993-1003.
- Engel, M. & Prescher, S. (1995) Erstnachweis von *Megaselia mcleani* Disney, 1987 (Diptera, Phoridae) für die Bundesrepublik Deutschland. *Studia dipterologica*, **2**, 153-155.
- Feener, D.H., Jr. (1995) Headless hosts, legless guests. *Nature*, **378**, 129.
- Gotwald, W.H. (1995) *Army ants: the biology of social predation*, Comstock Publishing Associates/ Cornell University Press, Ithaca and London, xviii + 302 pp.
- Liu, G. & Zeng, Q. (1995a) A further new species of *Trophithauma* from China (Diptera: Phoridae). *Zoological Research*, **16**, 349-351.
- Liu, G. & Zeng, Q. (1995b) A new species of the new-record genus *Borophaga* Enderlein (Diptera: Phoridae) from China. *Entomotaxonomia*, **17**, 125-128.
- Melzer, R.R., Panzinger, A., Reckel, F, Smola, U. (1995) Central nervous system of brachyceran larvae (Insecta, Diptera). *Zoologischer Anzeiger*, **234**, 113-123.
- Michailovskaya, M.V. (1995a) New species of the genus *Puliciphora* Dahl (Diptera, Phoridae) from the Russian Far East. *Far Eastern Entomologist*, **17**, 1-4.
- Michailovskaya, M.V. (1995b) A review of the eastern Palearctic species of the genus *Pseudacteon* Coquillett (Diptera, Phoridae). *Far Eastern Entomologist*, **18**, 1-4.
- Mohan, S., Mohan, S, and Disney, R.H.L. (1995) A new species of scuttle fly (Diptera,

- Phoridae) that is a pest of oyster mushrooms (Agaricales, Pleurotaceae) in India. *Bulletin of Entomological Research*, **85**, 515-518.
- Mostovski, M.B. (1995). New taxa of ironomyiid flies (Diptera: Phoromorpha: Ironomyiidae) from Cretaceous deposits of Siberia and Mongolia [in Russian]. *Paleontologicheskii Zhurnal*, **4**, 86-103. [not a work on phorids, but of interest to those of us working on higher classification of Phoridae]
- Orr, M., Selke, S.H., Benson, W.W., & Gilbert, L.E. (1995) Flies suppress fire ants. *Nature*, **373**, 292-293.
- Pesquero, M.A., Porter, S.D., Fowler, H.G., and Campiolo, S. (1995) Rearing of *Pseudacteon* spp (Dipt, Phoridae), parasitoids of fire ants (*Solenopsis* spp) (Hym, Formicidae). *Zeitschrift für Angewandte Entomologie*, **119**, 677-678.
- Porter, S.D., Fowler, H.G., Campiolo, S., & Pesquero, M.A. (1995a) Host specificity of several *Pseudacteon* (Diptera: Phoridae) parasites of fire ants (Hymenoptera: Formicidae) in South America. *Florida Entomologist*, **78**, 70-75.
- Porter, S.D., Pesquero, M.A., Campiolo, S., & Fowler, H.G. (1995b) Growth and development of *Pseudacteon* phorid fly maggots (Diptera: Phoridae) in the heads of *Solenopsis* fire ant workers (Hymenoptera: Formicidae). *Environmental Entomology*, **24**, 475-479.
- Porter, S.D., Vander Meer, R.K., Pesquero, M.A., Campiolo, S., & Fowler, H.G. (1995c) *Solenopsis* (Hymenoptera: Formicidae) fire ant reactions to attacks of *Pseudacteon* flies (Diptera: Phoridae) in southeastern Brazil. *Annals of the Entomological Society of America*, **88**, 570-575.
- Roces, F. and Hölldobler, B. (1995) Vibrational communication between hitchhikers and foragers in leaf-cutting ants (*Atta cephalotes*). *Behavioral Ecology and Sociobiology*, **37**, 297-302.
- Triltsch, H. (1995) *Phalacrotophora fasciata* (Fallén) (Diptera: Phoridae) als Parasit der Puppen von *Coccinella septempunctata* L. (Coleoptera: Coccinellidae). *Studia dipterologica*, **2**, 93-96.
- Weber, G. & Prescher, S. (1995) Die Mücken und Fliegen eines klärschlammgedüngten Ackers. *Agrarökologie*, **15**, 1-100.
- Weissflog, A., Maschwitz, U., Disney, R.H.L., & Rosciszewski, K. (1995) A fly's ultimate con. *Nature*, **378**, 137.
- Wetterer, J.K. (1995) Forager size and ecology of *Acromyrmex coronatus* and other leaf-cutting ants in Costa Rica. *Oecologia*, **104**, 409-415.

Phoridologists' Directory

The following is a list of the names, addresses and interests of phorid workers on 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.

Forbes P. Benton, CEPLAC/CEPEC/SECEN, Caixa Postal 7, CEP 45600-000, Itabun, Bahia, Brazil. Telephone (073) 214 3250. FAX (073) 214 3204. Email maxmz@ax.apc.org. *Interests*: Natural History, identification and faunistic surveys of Brazilian Phoridae. Elucidation of phorid life cycles. Behavioral interactions between parasitic species and their hosts.

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. *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. *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 Palearctic 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. *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).

Mauro Gori, Via Del Cronaca 19, 50142 Firenze, Italy. Telephone 055/700588. *Interests*: Italian

phorid fauna; life histories.

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, Chabarovskiyy krai, Sachalin, Kamchatka; phorids associated with dead animals.

Lloyd Morrison, Zoology Department, University of Texas, Austin, TX, 78712, U.S.A. Telephone (512) 471-2825. FAX same as telephone. E-mail lmorrison@mail.utexas.edu. *Interests*: Effects of phorid parasitoids (genus *Pseudacteon*) on ant foraging and interspecific competition (genus *Solenopsis*); ant host species-specificity of *Pseudacteon* phorids; introduction of South American *Pseudacteon* species to the U.S. (Texas) as biological control agents against the imported fire ant, *S. invicta*.

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. *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. *Interests*: Influences of phorids on ant foraging ecology, especially pest ants. Ant taxa of interest include *Atta*, *Solenopsis*, and *Linepithema*.

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. *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 Agropecuarias, 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, Nordanväg 18 A, 244 38 Kävlinge, Sweden. *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.

Next issue!

In the next newsletter I will report on my upcoming phorid-collecting expedition to Ecuador in May of 1996. Also, I will list the cataloged phorid holdings of Los Angeles County Museum (which are already available on the Web page).

If anyone would like to contribute an article like that by Lloyd and Matt, or any other information of phoridological interest, please let me know.