CHIRONOMUS Newsletter on Chironomidae Research

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Metriocnemus picipes, photo © Elisabeth Stur

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CHIRONOMUS Newsletter on Chironomidae Research (ISSN 0172-1941) is published yearly in October. Submission deadline for contributions is July 1.

Contributions to *CHIRONOMUS Newsletter on Chironomidae Research* should be submitted per e-mail to: Torbjørn Ekrem: Torbjorn.Ekrem@vm.ntnu.no or Peter H. Langton: PHLangton@kylebegave.fsnet.co.uk. Please use the following formatting: Text in 12 point Times New Roman, first page must include title, name, address and email address of all authors. Headings should be bold faced. Cite relevant references in parentheses without comma between name and year [ex. (Langton 1991)]. List all references alphabetically in the format of the *Current Bibliography* at the end of the manuscript. Tables can be included directly in the text. Text should preferably be submitted as MS Word or rtf files. All figures should be supplied separately as tiff or jpg files.

Would you like to see your picture on the front page? Please send us your favourite midge photograph or drawing (Torbjorn.Ekrem@vm.ntnu.no).

Dear Chironomidologists!

As you already have noticed, *CHIRONOMUS Newsletter on Chironomidae Research* has become a small face lift. The front page has a new lay out, and the editorial information is now to be found on page two. Moreover, the text format is somewhat changed and perhaps a bit more consistent throughout the newsletter. The content will remain the same, however, and we will still publish news, announcements, current research and the current bibliography each year in October. We hope that you like the changes we have made and that you will continue to contribute the information which keeps our newsletter alive. Also, we would like to invite all of you to submit your finest chironomid photo or drawing for the front page of our next issue.

This newsletter also marks another change in *CHIRONOMUS'* history as it is the last issue which is co-edited by Ruth Contreras-Lichtenberg. We would like to use this opportunity to thank her for nine years of splendid editorship. Ruth was elected co-editor of *CHIRONOMUS* at the 13th International Symposium on Chironomidae in Freiburg in 1997, and has ever since contributed to a precise and informative news bulletin for our research community. We are indebted to her for her efforts and achievements, and hope that she despite her retirement will keep in contact and continue her fine contributions to chironomid research.

The 16th International Chironomid Symposium was held in Funchal, Madeira 24th-28th of July this year. I think all participants agreed that it was a marvellous arrangement, and some colleagues even uttered that this years event must have been one of the best symposia ever. We will get back with a more thorough review of the activities on Madeira in the next issue of *CHIRONOMUS*.

In this issue we present current research from the Aral Sea in Russia and tropical rice fields in Malaysia as well as an interesting note on a parasitic Hymenoptera on *Chironomus*. In addition we have an updated list of regional representatives, the Current Bibliography and other small notes on news and recent events. We hope that this issue will encourage you to contribute articles and notes on your current research and look forward to receive your manuscripts. Next years deadline is as usual July 1. Happy reading!

Torbjørn Ekrem *Museum of Natural History and Archaeology, Norwegian University of Science and Technology, Norway. Email: Torbjorn.Ekrem@vm.ntnu.no*

PROFESSOR TROND ANDERSEN 60 YEARS

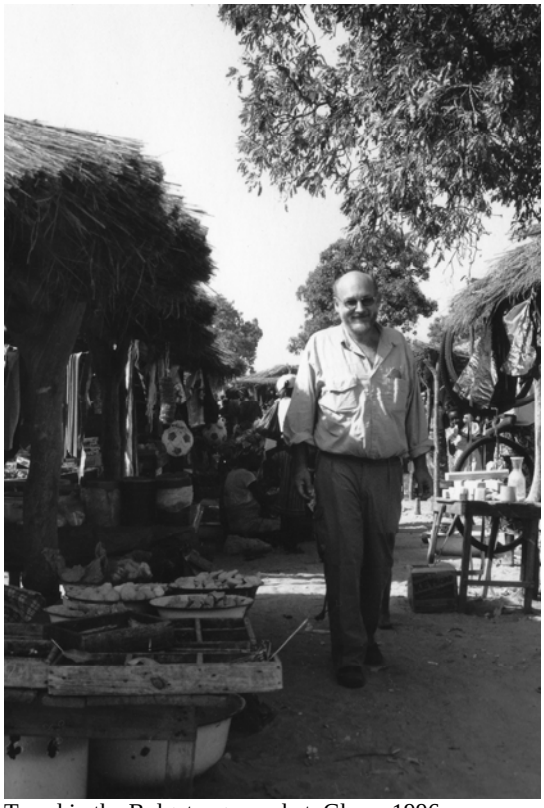
Professor Trond Andersen celebrated his 60th birthday on January 6. This is an occasion for all his friends and associates to congratulate an esteemed colleague. Although Trond is a relative newcomer to chironomids he has managed to put his mark not only on chironomid systematics and biodiversity, but also on the chironomidologist community as treasurer for the Chironomus Newsletter and more recently as the editor for chironomids in the Zootaxa journal.

Trond was born in Tønsberg in south-eastern Norway on the western side of Oslofjord, in an area containing one of the most diverse fauna of insects in Norway. He maintains a cottage at Tjøme and spends much of his summer vacation collecting insects in the area. Trond started his study at the University of Bergen in 1966 and after a couple of years as a high school teacher he became scientific assistant in varying projects, substitute in positions as associate professor and university lecturer up to 1984 when he received a permanent position as librarian at the Science Library at the University of Bergen. In the meantime he had graduated in zoology with a thesis concerning the caddis fly fauna of Osterøy, a large island just north of Bergen. In 1987 he received a position as associate professor at the Museum of Zoology, University of Bergen, with responsibility for the public exhibitions. He still is in the same position, but due to reorganization the position presently is at The Natural History Collections, Bergen Museum, University of Bergen.

Trond has published on phenotypical variation in butterflies, epigenetic and morphometric variations in mammals, Scandinavian moth flies (Psychodidae), new species of cockroaches, new species of dance flies (Empididae), and done inventories of rare and threatened butterflies and other insects. His main area of interest, until introduced to the intricacies of chironomids, was systematics, faunistics and biodiversity of caddis flies. He maintains his interest in caddis flies describing new species and genera from all over the world, doing inventories and writing checklists.

In 1988 Trond initiated an expedition to the Eastern Arc Mountains in Tanzania, one of several international expeditions and projects designed to examine and describe the fauna of tropical *hot spots*, especially threatened areas in need of preservation. I had the pleasure of being partly involved in this project. The material from Tanzania contained numerous new species and genera and led to the involvement by Trond in the description and co-authoring of new chironomids including the new subfamily Usambaromyiinae and the new genera *Lerheimia*, *Lobosmittia*, *Colosmittia* and *Ionthosmittia*.

The next large cooperative project concerned the freshwater entomology of Ghana and lasted from 1992 until 2000. In addition to collecting we were teaching courses every autumn in freshwater entomology, phylogeny and biogeography not only to students from Ghana, but also to students from surrounding West African countries. Our Norwegian graduate students partook as well. Other cooperative expeditions and projects have been to China, Australia, Thailand and Costa Rica.



Trond in the Bolgatanga market, Ghana 1996.
Photo: Torbjørn Ekrem.

For the last few years Trond has had projects primarily in South and Central America (Chile, Brazil, Costa Rica, Guatemala, Mexico and Venezuela). He twice has had sabbatical at

Department of Entomology, University of Minnesota and has been teaching courses at Universidad de Sao Paulo, Ribeirao Preto, Brazil. He has held guest lectures at Nankai University, Tianjin, China; Institute of Hydrobiology, Wuhan, China; University of Minnesota, St. Paul, Minnesota, USA; Universidad Nacional Autónomia de Mexico, Mexico City, Mexico; and Universidad Central de Venezuela, Maracay, Venezuela.

Trond always has been an excellent field man. He never overlooks even the tiniest midge in an insect net

Also he has always been a collector of almost anything, from African masks and artefacts to recent and ancient coins. He has even written an article on ancient Chinese coins in the Yearbook of Bergen Museum.

This year Trond became the editor for chironomids in the fast printing journal Zootaxa. Hopefully this will not impede his high productivity and he will continue his effort in elucidating the tropical fauna of chironomids for many years to come.

Ole A. Sæther *The Natural History Collections, Bergen Museum, University of Bergen, Norway, Email: Ole.Sather@zmb.uib.no*

List of publications on Chironomidae

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In press

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Mendes, H.F. and Andersen, T. (in press). Two new Brazillian species of the *Axarus "rogersi*–group" (Diptera: Chironomidae). Pp. 00–00 *in*: Ferrington, L. C. Jr. (ed.). *Proceedings from the XV International Symposium on Chironomids.* University of Minnesota, USA.

PROFESSOR DR. MANABU SASA (1916-2006)

Prof. Sasa at Toyama Medical and Pharmaceutical University.

Professor Dr. Manabu Sasa died of pneumonia on April 10, 2006.

Dr. Sasa was first interested in medical bacteriology and studied at the Institute for Infectious Disease, Tokyo Imperial University, after graduation. Soon after, he was appointed naval medical officer as most of the graduates at that time. Later in his essay, he recalled that time as the start of his adoration for the tropics and recognition of the threats of tropical diseases transferred by invertebrate vectors to human beings. While he was staying in Penang (Malaysia) in 1942, he realized, from the British literature kept there, the importance of species-specific information on mosquitoes as vectors of malaria. Thereafter he returned Tokyo and published several research papers at the Naval Medical College on the prevention of malaria and dengue fever. In 1946, he resumed his position at the Institute for Infectious Disease at Tokyo Imperial University and started his career of tropical medicine and sanitary zoology, on which he received 13 awards including the Purple Ribbon Medal. He published more than 400 original articles covering malaria, filaria, acarology, and since 1977, on chironomid taxonomy. These topics were relatively minor in medical science at the start of his career but become major later in all research areas, especially with the glorious success in the eradication of human filariasis and mite disease from remote islands.

While conducting applied and basic research, Sasa also published many readable essays and supervised award-winning educational films. Through these media he drew people's attention to neglected organisms, making people realize the importance of basic science for coping with medical and environmental issues. These also helped his junior researchers' activities.

What, then, was chironomid science to him and to us compared with the applied areas of medical sciences? To answer this question, let me introduce my personal experience during his directorship at the National Institute for Environmental Studies (NIES), Tsukuba, when I was a freshman researcher working under him in the Biology Division.

In 1976, he and his NIES colleagues started to study the ecosystem of nearby Lake Kasumigaura as part of a lake environmental management project. They recognized a mass colonization of large, red chironomid larvae in the muddy lake bottom as well as larvae of numerous other species. Dr. Sasa decided to start on the taxonomy of chironomids at the age of 60 to promote ecological studies based on taxonomical knowledge. He was a man of quick decision and drove his Toyota Corona Van to visit Prof. Masaaki Tokunaga at his home in the vicinity of Kyoto. 'Prof. Tokunaga was very much pleased to know that I was starting to study chironomids and he offered us a complete set of his valuable collection of books.' (Sasa, 1985 "Shizenkoso-waga-shi = Nature is my true teacher"). He made a checklist of Japanese chironomids with Dr. Masaru Yamamoto next year and in 1978, described nine Japanese *Chironomus* species and named the chironomid found abundantly in Lake Kasumigaura as *Tokunagayusurika akamusi* (revised as *Propsilocerus* by Saether and Wang, 1996). I was very lucky that taxonomic information was ready for use when I was appointed to NIES in 1978. Since NIES had facilities for rearing aquatic organisms, his early studies on chironomid taxonomy covered mature and immature stages. This was very useful for the ecological studies on chironomids.

Sasa was my boss for only two years at NIES but had a strong impact on us through his eagerness to study nature. He never complained about his busy position, saying 'There're so many people who complain that they are too busy. But you can do your research at any time you like.' Actually,

he installed microscopes and an IBM typewriter in the director's room and used them in his spare time. He often visited laboratories to ask young researchers what they were studying. He was very polite to everybody but criticized those who wasted time as he appreciated the accountability of research that depended on taxpayers. This personal experience was not specific to me but probably common to all his junior researchers. Sasa was a sincere student of nature throughout his life. We would like to express our deepest thanks to him for teaching us what a real researcher is.

All the mounted specimens he collected and described are now preserved as the "Sasa Collection" at the National Science Museum, Tokyo. Dr. Tadashi Kobayashi (tadkoba@k.email.ne.jp) looks after this collection for the use of researchers. A total of 1105 items of literature collected by Dr. Sasa (except his own publications) are now kept at the laboratory of Dr. Kimio Hirabayashi, Shinshu University (kimio@giptc.shinshu-u.ac.jp).

Toshio Iwakuma, Faculty of Environmental Earth Science, Hokkaido University, Japan. Email: iwakuma@ees.hokudai.ac.jp

Positions held and institutional affiliations

1940 B.M., Tokyo Imperial University.

1940 The Institute for Infectious Disease, Tokyo Imperial University.

1940-1945 Naval Medical Officer.

1946-1947 The Institute for Infectious Disease, Tokyo Imperial University.

1947-1958 Associate Professor, the University of Tokyo. Established Department of Sanitary Zoology.

1948-1949 Visiting Researcher, Johns Hopkins University.

1958-1974 Professor, the University of Tokyo.

1958-1968 Head, Department of Parasitology, the Institute for Infectious Disease, the University of Tokyo.

1968-1974 Director, the Institute for Infectious Disease, the University of Tokyo.

1974-1977 Vice Director, National Institute for Environmental Studies.

1977-1980 Director, National Institute for Environmental Studies.

1980-1981 Professor, Tokyo University of Agriculture.

1981-1982 Professor, Faculty of Medicine, Teikyo University.

1982-1988 President, Toyama Medical and Pharmaceutical University.

1990-1995 President, Toyama University of International Studies.

1995-2006 Director, Institute for Environmental and Social Welfare Studies.

Some major publications

Sasa, M. 1957. *Jintai-byogai-doubutsugaku (A textbook on harmful animals to human beings*). Igaku-Shoin, Tokyo, 390p. (in Japanese, 2nd ed. in 1966, 3rd ed. in 1969, 4th ed. in 1978).

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CURRENT RESEARCH

CHIRONOMIDS OF THE ARAL SEA

Larisa Nazarova[1, 2]

[1] *Kazan State University, Russia (permanent). Email: nazarova_larisa@mail.ru*
[2] *Alfred-Wegener-Institute for Polar and Marine Research. Potsdam, Germany (current)*

The Aral Sea once was the fourth-largest lake in the world, but since about 1957 has been drying up as more and more water is diverted to irrigate cotton and other thirsty crops. The Aral Sea is a terminal lake in an arid region, therefore is affected by environmental changes in the catchment area more than other lakes.

In spite of the long history of hydrobiological investigations in the Aral Sea, no special taxonomic study of chironomids has been performed. The group has been taken into account mainly as one element in productivity estimations of benthic communities as a food source for fishes. Here we present an overview of the available Russian literature containing information on the chironomid fauna of the Aral Sea.

Behning (1936) reported the Sea, especially the muddy bottom of its northern part, to be inhabited by massive quantities of *Chironomus behningi* Goetghebuer. Larvae of this species numbered up to 1630 individuals/m^2 and 25-30 g/m^2; its different life stages formed the main food source for the members of various fish and bird species. Behning illustrated the rear end of the larva, and identified the latter as the form "designated by the larvae researchers as >Chironomus Plumosus Reductus<" (op.cit.: legend to Fig. 1).

From the mid 1940s to the end of the 1970s, macrozoobenthos was investigated regularly across all of the Aral Sea. As a result, species composition and quantitative characteristics of the community at that relatively stable stage of the lake's development and during the initial phases of its salinization are relatively well documented (e.g. Yablonskaya 1960a, 1960b; Yablonskaya et al. 1973; Andreeva 1978, 1983, 1989). However, data on macrobenthos species richness during that time vary rather widely: from 50 to 95 species according to different authors (Khusainova 1958; Zenkevich 1963). In any case, it is clear that species lists were not complete. Moreover, the taxonomy of most groups, especially of the Chironomidae, has changed considerably since then, which makes comparisons of those investigations with later ones very difficult.

Surveys of benthic communities of the Karabaili Archipelago (southeastern part of the Aral Sea) in the summer seasons of 1951 and 1954 (Dengina 1959) showed chironomid distribution to be strongly limited by salinity levels. Maximal abundance and biomass were found in those parts of the archipelago where salinity did not exceed 20 ‰. The most abundant species were reported under the contemporary larval names *Tanytarsus* gr. *gregarius*, *Cryptochironomus* gr. *defectus*, *Tendipes (Chironomus)* f.l. *plumosus*, *T. (C.)* f.l. *plumosus-reductus*, *T. (C.)* f.l. *bathophilus-reductus*, *Cricotopus* gr. *silvestris*, and *Procladius* sp. In salinity above 20 ‰, only *T. (C.)* f.l. *salinarius*, *Tanytarsus* gr. *exiguus* and *Cryptochironomus sp*. were found.

The most detailed description of the Aral Sea chironomid fauna so far has been presented by Konstantinov and Belyanina (1974), who summarised results of previous investigations and gave an illustrated identification key as well as some species-specific information on ecology and habitat. The larvae of 18 chironomid species, mostly Chironomini, are recorded as inhabiting the Aral Sea. The drawings and morphological characteristics facilitate determination of the corresponding species names in current taxonomy.

A rare case of a karyological study in the area is the description of the karyotype of *Chironomus behningi* from the Aral Sea (Belyanina and Kolosova 1979).

Carnivorous invertebrates – in Chironomidae: *Pelopia vilipennis* Kieffer, *Procladius ferrugineus* Kieffer, and *Cryptochironomus* gr. *defectus* – were never numerous in the benthos of the Aral Sea, but by the beginning of the 1980s under pressure from the increasing salinization, even these few species had disappeared (Andreeva and Andreev 1990).

Compared to earlier years (before 1971), in 1976-1977 and 1980, when salinity rose above 15 ‰, only 2 species remained in the lake's bays: *Ch. salinarius* and *Ch. halophilus* (Andreeva 1989). Other species disappeared from the benthic communities (Aladin and Potts 1992). At the end of the 1980s, a drastic lowering of the Sea level made further studies in the open sea impossible. Rare investigations took place in the littoral zones only (Filippov 1995). In 1990, the productivity of benthic assemblages in the coastal zone of the Small Aral Sea was found to be 2.4 times those in the Large Aral Sea (Filippov 2001, 2002). Chironomids, however, were found in the Syr Darya River only and represented by a single freshwater species, *Polypedilum nubeculosum* Meigen - it was very rare and present in very low numbers only.

Currently, only *Chironomus salinarius* can be found in the western basin of the lake (Mirabdullayev et al. 2004).

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I will be very grateful to everyone sending me any information about investigations of Aral Sea chironomids, references or papers, which are missing, in the presented overview.

Table 1. Chironomid taxa recorded from the Aral Sea.

Recorded as	**Reference**	**Present estimate** (no material studied; names not necessarily valid nomenclaturally or taxonomically)
Ablabesmyia gr. *lentiginosa* Fries.	9	*Ablabesmyia lentiginosa* group sensu Chernovsky (1949)
Procladius ferrugineus Kieff.	14	*Procladius (Holotanypus) ferrugineus* (Kieffer, 1918)
Procladius sp.	9	*Procladius sp.*. sensu Chernovsky (1949)
Pelopia vilipennis Kieff.	5, 14	*Tanypus (T.) vilipennis* (Kieffer, 1918)
Corynoneura sp. Tschern.	14	*Corynoneura* sp. sensu Chernovsky (1949)
Cricotopus gr. *algarum* Kieff.	9	*Cricotopus (Cricotopus) algarum* (Kieffer, 1911)
Cricotopus gr. *silvestris* F.	9, 14	*Cricotopus (Isocladius) sylvestris* group sensu Chernovsky (1949)
Chironomus halophilus Kieff.	4, 11, 14	*Chironomus (C.) aprilinus* Meigen, 1818
Tendipes / *Chironomus* f. l. *bathophilus-reductus*	9	?*Chironomus (C.)* f. l. *bathophilus* sensu Chernovsky (1949)? AND/OR *C. (C.)* f. l. *reductus* sensu Chernovsky (1949)?
Chironomus behningi Goet.	6, 7, 14	*Chironomus (C.) behningi* Goetghebuer, 1928
Tendipes / *Chironomus* f. l. *plumosus*	9	*Chironomus (C.)* f. l. *plumosus* sensu Chernovsky (1949)
Tendipes / *Chironomus* f. l. *plumosus-reductus*	9	*Chironomus (C.)* f. l. *plumosus-reductus* sensu Chernovsky (1949)
Chironomus salinarius Kieff.	4, 9, 15	? *Chironomus (C.)* f. l. *salinarius* sensu Chernovsky (1949) ?OR? *C. (C.) salinarius* Kieffer, 1915 ?
Cryptochironomus gr. *viridulus* F.	14	*Cladopelma viridulum* group sensu Chernovsky (1949)
Cryptochironomus gr. *defectus*	9, 14	*Cryptochironomus defectus* group sensu Chernovsky (1949)
Cryptochironomus sp.	9	*Cryptochironomus sp* sensu Chernovsky (1949)
Cryptochironomus supplicans Meig.	14	*Cryptochironomus supplicans* (Meigen, 1830)
Limnochironomus nervosus Staeg.	14	*Dicrotendipes nervosus* (Staeger, 1839)
Glyptotendipes gripekoveni Kieff.	9, 14	*Glyptotendipes (G.) cauliginellus* (Kieffer, 1913)
Glyptotendipes glaucus Mg.	14	*Glyptotendipes (G.) glaucus* (Meigen, 1818)
Cryptochironomus gr. *conjungens*	14	*Microchironomus conjungens* group sensu Chernovsky (1949)
Polypedilum nubeculosum Meig.	10	*Polypedilum (P.) nubeculosum* (Meigen, 1804)
Polypedilum gr. *scalaenum* Schr.	14	*Polypedilum (Tripodura) scalaenum* grp. sensu Chernovsky (1949)
Tanytarsus gr. *lauterborni* Kieff.	9	*Paratanytarsus lauterborni* group sensu Chernovsky (1949)
Tanytarsus gr. *exiguus* Joh.	9, 14	*Rheotanytarsus exiguus* group sensu Chernovsky (1949)
Tanytarsus gr. *gregarius* Kieff.	9, 14	*Tanytarsus gregarius* group sensu Chernovsky (1949)
Tanytarsus gr. *lobatifrons* Kieff.	14	*Tanytarsus lobatifrons* group sensu Chernovsky (1949)

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FIRST RECORD OF A LARVAL PARASITOID PERILAMPIDAE (HYMENOPTERA) LIVING ON AN ADULT CHIRONOMIDAE FROM THE ATLANTIC FOREST, BRAZIL

Fabio de Oliveira Roque[1] & Susana Trivinho-Strixino[2]

[1] *Laboratório de Entomologia Aquática, Depto de Biologia, FFCLRP, USP, Brazil*
E-mail: chironomidae2005@yahoo.com.br
[2] *Depto de Hidrobiologia, Universidade Federal de São Carlos, Brazil*

Although chironomids are known to be parasitized by a variety of taxa including mermithid nematodes, water mites, fungi and microsporidians (Steffan, 1967; Tokeshi, 1995), until now they have not been reported as potential hosts for Hymenoptera parasitoids.

Here we report the occurrence of a Perilampidae larva (Hymenoptera: Chalcidoidea**)** living on the head of a male adult *Chironomus* (Diptera: Chironomidae) for the first time. The specimens were collected using a Malaise trap in the Brazilian Atlantic forest, in the State of São Paulo, Cananéia, (S 24°53'03" W 47°51'22"). The organisms are deposited in the collection of the Laboratório de Entomologia Aquática da Universidade Federal de São Carlos, SP, Brazil.

Perilampidae larvae are encountered mainly as hyperparasites of Lepidoptera, Diptera and Hymenoptera species (Smith, 1912; Clausen, 1940; Heraty and Darling, 1984). In addition to the records as a hyperparasite, several species of the genus *Perilampus* are listed as primary parasites of Lepidoptera, Coleoptera, Hymenoptera, and Neuroptera. In general, females of Perilampidae deposit their eggs away from the host in or on leaves or buds, in cracks in the bark, or under lichens on trees. An egg hatches into a planidium type larva that attempts to attach itself to almost any moving object. Thus, attachment to an appropriate host, or to an intermediate carrier that will transport the planidium into a gallery or nest where there are appropriate hosts, is serendipitous. A planidium that attaches itself to a secondary host burrows into the body and searches for a tachinid (Diptera) or ichneumonoid primary host, which if found will also be entered. A planidium that attaches itself to a primary host may remain external, but in both instances the planidium becomes dormant until the primary host pupates.

More research is necessary to affirm if the Chironomidae are accidental, secondary or primary hosts of Perilampidae larvae.

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CHIRONOMIDS OF TROPICAL RICE FIELDS IN THE NORTH MALAYSIAN PENINSULA

Salman Al-Shami[1,2], Che Salmah Md Rawi[1], Siti Azizah Mohd Nor[1] and Abu Hassan Ahmed[1]

[1]*School of Biological Sciences, University Sains Malaysia (USM), 11800 Penang, Malaysia*
[2]*Biology Department, Faculty of Science, Ibb University, Ibb 70270, Yemen*
Email: alshami200@yahoo.com

Introduction

Tropical rice fields have a diverse insect fauna, which serves as an important food source for fishes (Ali and Ahmad 1988; Che Salmah and Abu Hassan 2002). Chironomidae have been recorded in rice fields throughout the world including many countries such as India, Australia, and the USA (Martin and Porter 1977; Chaudhuri and Chattopadhyay 1990; Stevens 1995; Stevens et al. 2002, Stevens and Warren 2003). However, in the Malaysian peninsula, very little is known about distribution, taxonomy, biology, and ecology of Chironomidae in rice fields. Nevertheless, some pioneering studies on rice field Chironomidae have been conducted in several rice fields in Kedah and Selangor states (Lim 1990; Rizana 2001; Che Salmah and Abu Hassan 2002; Madziatul 2004).

Knowledge of the Chironomidae fauna in the oriental region is comparatively low compared to the Holarctic and Afrotropical regions (Ashe 1990). Among Chironomidae subfamilies, only Tanypodinae, Orthocladiinae, Chironominae, and Diamesinae are known from the Oriental region (Cranston 2004).

In the southeastern part of Asia very little is known about Chironomidae. Cranston (2004) documented that the first known Chironomidae species from South East Asia was the Javanese *Tanypus crux* (Wiedemann). Karunakaran (1974) studied Chironomidae in Singapore and contributed more information about Chironomidae in this region. He reported many species from the subfamily Chironominae such as *Chironomus apucatus*, *C. crassiforceps*, *C. costatus*, *C. stupidus*, *C. tumidus*, *C. incertus*, *Polypedilum convexum*, *P. anticus*, and *Tanytarsus sp*, and from the subfamily Tanypodinae, *Tanypus kraatzi*.

However, the most valuable information comes from the study of Ashe (1990). A huge number of specimens were obtained during the 1985 Royal Entomological Society "Project Wallace" expedition to Sulawesi, Indonesia. The output of this study was the reporting of around 31 genera of Chironomidae from Sulawesi. Five years later, Murray (1995) reported *Conchapelopia insolens* as a new species of the subfamily Tanypodinae from Sulawesi. Ashe and O'Connor (1995) reported a new species of *Sublettea* from northern Sulawesi, Indonesia. Ekrem (2002) investigated *Tanytarsus* from different areas of South and East Asia.

Bishop (1973) recorded three subfamilies, Chironominae, Tanypodinae, and Orthocladiinae, from the small river Sungai Gombak in peninsular Malaysia. In addition, a single species of Diamesinae was recorded from high elevation (above 3000 m) on Mount Kinabalu in Sabah, Malaysia (Cranston 2004). Bishop (1973) pointed out that larvae of the *Cryptochironomus* complex were the most conspicuous and showed a succession of various types. Siregar et al. (1999) studied the distribution of aquatic insects in five streams in the Kerian River Basin along the Kedah- Perak border. They recorded that the Chironomidae was one of the most dominant families in all streams. Similarly, Che Salmah et al. (1999) recorded that Chironomidae made up most of the collection during the sampling of the aquatic insects In Kedah River Basin.

Materials and methods

Chironomidae larvae were collected from the rice fields at Bukit Merah Rice Research Station, in Permatang Pauh, Seberang Perai, Pulau Pinang. The larvae were sampled using a long handle aquatic net with 15 X 15 cm frame and 30 cm long net of approximately 300µm mesh size (Storey and Pinder 1985). The aquatic net was dragged for a distance of one meter on the sediment floor collecting chironomid larvae in an area of 15 X 100 cm. The sediment sample with chironomid larvae in it was placed into a plastic bag with a waterproof label of date and location number. The bag was fastened securely with an elastic band and kept in a cool Coleman® chest during transportation to the laboratory.

The sediment sample was washed in a sieve with a mesh size of 300 µm, and transferred into a

white plastic basin filled with water. The larvae were sorted and preserved in 80% EtOH. Chironomid larvae were identified using keys of Cranston (2004), Morse et al. (1994), Merritt and Cummins (1996) and Epler (2001). The sclerotized head capsule was very important for larval identification. Figure 1 shows the common characters of the ventral side of the head capsule of a chironomid larva. The chironomid identifications were verified by Professor Ole A. Sæther, Professor Trond Andersen, Dr. Humberto Mendes (University of Bergen, Norway) and Professor Xinhua Wang (Nankai University, China).

Results

This study was a preliminary investigation comprising morphological diagnosis of the larval stage of Chironomidae found in rice fields in Permatang Puah, Seberang Perai, Penang, Malaysia. Five species belonging to two subfamilies were identified from this rice field. Three species of the subfamily Chironominae, *Chironomus kiiensis* Tokunaga, *Polypedilum trigonus* Townes and *Tanytarsus formosanus* Kieffer. Two species of subfamily Tanypodinae *Clinotanypus sp,* and *Tanypus punctipennis* Meigen were also recorded from this rice field.

Figure 1. *Chironomus kiiensis* Tokunaga, 4th instar. Photo: Salman A. Alshami.

Chironominae

***Chironomus kiiensis* Tokunaga, Figure 1**

Material examined: 41 larvae, the mean body length was 13.1 mm (n = 41) Permatang Pauh, Seberang Perai, Penang 2004

Distribution: Japan Hirabayashi et al. (2004), Korea Jeong et al. (2004), Malaysia (present record).

***Polypedilum trigonus* Townes**

Material examined 18 larvae, the mean body length was 4.8 mm (n = 18) Permatang Pauh, Seberang Perai, Penang 2004.

Distribution: Tropical water in Borneo (Cranston, 2004), Malaysia (present record).

***Tanytarsus formosanus* Kieffer**

Material examined: 22 larvae, the mean body length was 5.2 mm (n = 22) Permatang Pauh, Seberang Perai, Penang 2004

Distribution: Japan Hirabayashi et al. (2004), South and East Asia including Sumatra and Thailand Ekrem (2002), Malaysia (present record).

Tanypodinae

***Clinotanypus* sp. Kieffer**

Material examined: 7 larvae, the mean body length was 10.6 mm (n = 7), Permatang Pauh, Seberang Perai, Penang 2004.

Distribution: The larvae are predators, eurythermic and tolerant to organic pollution (Cranston 2004), and recorded from Bangladesh and India (Chaudhuri and Chattopadhyay 1990) Sumatra Cranston (2004), Malaysia (present record).

***Tanypus punctipennis* Meigen**

Material examined: 14 larvae, the body length mean was 6.3 mm (n = 14) Permatang Pauh, Seberang Perai, Penang 2004.

Distribution: The larvae likely to be present in warm shallow pools, especially those with high nutrient loading (Cranston 2004), Malaysia (present record).

Discussion

The preliminary investigation presented in this paper is based on the morphological diagnosis of the larval stage of Chironomidae found in rice

fields in Permatang Puah, Seberang Perai, Penang, Malaysia. Five species belonging to two subfamilies were identified from this rice field. Three species of subfamily Chironominae, *Chironomus kiiensis* Tokunaga, which also has been reported from Korean rice paddies (Jeong et al. 2004), *Polypedilum trigonus* Townes, one of the common genera in tropical waters including those of Borneo (Cranston 2004) and *Tanytarsus formosanus* Kieffer. Ekrem (2002) emphasized that the distribution of *Tanytarsus formosanus* may include many countries including some places in Southeast Asia such as Sumatra and Thailand. Two species of subfamily Tanypodinae *Clinotanypus sp,* and *Tanypus punctipennis* Meigen 1818 were recorded from this rice field. *Tanypus punctipennis* has been reported from the warm shallow pools with high nutrient loadings in Sumatra (Cranston (2004). The populations of these five species vanished when the field was dry.

The agronomic practices change the physical, chemical and biological conditions in the rice ecosystem, making them less favourable for certain organisms and temporarily more favourable for others (Heckman 1979; Bambaradeniya and Amerasinghe 2003). Rice agroecosystem have a great variety of aquatic organisms, well adapted to this temporary and highly manipulated ecosystem that is periodically disrupted by various agricultural practices (Bambaradeniya and Amerasinghe 2003). Temporary drying was a major factor that reduced the abundance of the recorded species.

Chironomidae are known as early colonizers in paddy fields (Che Salmah and Abu Hassan 2002), and appear in the rice field as soon as the water sets in. This was also obvious in this study. Colonization from micro-refugia such as soil cracks or the space among dense rice tillers may have contributed to their prompt appearance in the fields.

The presence of submerged terrestrial plants in the aquatic environment as in the rice field provides a great number of microhabitats for a variety of chironomid taxa (Petr 1972). The most dominant species was *Chironomus kiiensis* perhaps because of its ability to adapt to the different physical and chemical conditions of the field. Moreover the genus *Chironomus* has been known to colonize rice fields more rapidly than other taxa (Stevens et al. 2006). Petr (1972) stated that *Chironomus* abundance seems to be determined by two factors: the presence of fine mud particles for construction of tubes, which they inhabit, and quiet, non-agitated water. Such conditions can be found within the rice field ecosystem.

Chironomidae species are distributed widely in Asian rice fields, and further studies on the taxonomy of all life stages of chironomids in Southeast Asia, in particular in Malaysia, is needed in order to get more accurate identifications.

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SHORT COMMUNICATIONS

18th International Symposium on Chironomidae in 2011?

The current three year cycle of the International Chironomidae symposium unfortunately collides with the three year cycles of the International Paleolimnology Symposium and the International Congress of Dipterology. Several of our colleagues have expressed a wish to shift the cycle of the Chironomidae Symposium to make participation in two or more of these arrangements easier. At the recent symposium in Funchal, Madeira, the possibility of arranging the 18th International Symposium on Chironomidae in 2011 (i.e. in five years time rather than six) was briefly discussed. There were no objections to this idea, but we would like to invite you to post your opinion on the chironomid listserver Chironomidae-L@Cardiff.ac.uk to ensure that all arguments regarding this matter are heard. We are looking forward to your response.

Torbjørn Ekrem & Peter H. Langton

Chris Madden to produce LucID key on Australian Chironomidae larvae

Chris Madden was successful in obtaining ABRS (Australian Biological Resources Study) residual funding from 2005/2006 to produce an illustrated key for Australian chironomid larvae using whole animal characteristics so that head mounts are not required on a routine basis. The key will cover the genera that occur in South Australia, Victoria, New South Wales, Tasmania and south-east Queensland. Hopefully more funds may be forthcoming at a later date to produce a key to cover the western, northern, central and tropical parts of the continent. Pete Cranston has generously volunteered his time to take photographs for the key, which will be LucID based and delivered on CD and website. Hard copy production is a pipedream at the moment but possible arrangements will be explored. Specimens will be sourced from ecological workers in the relevant parts of Australia. The key will be completed by December 2007. This means that the new shed that Chris has been working in at home as a consultant (since leaving SA Water) can now be officially christened "The Chironomid Palace" as suggested by his wife, Shari.

Chris Madden

REGIONAL REPRESENTATIVES 2006

AFRICA

Amakye, Josef S., Institute of Aquatic Biology (C.S.I.R.), P.O.Box 38, Achimota -Accra, Ghana. **Regional representative for West Africa**

Harrison, Arthur, 8 - 7847 East Saanich Road, Saanichton, B.C. V8M 2B4, Canada. Email: harrisona@shaw.ca **Regional representative for South Africa**

AMERICAS

Masaferro, Julieta, Department of Entomology, Natural History Museum, Cromwell Road, London SW7 5BD, U.K. Email: J.Massaferro@nhm.ac.uk **Regional representative for Argentina**

Callisto, Marcos, Universidade Federal de Minas Gerais, ICB, Depto. Biologia Geral, Lab. Limnologia/Ecologia de Bentos, CP. 486, CEP. 30.161-970, Belo Horizonte, MG, Brazil. Email: callisto@mono.icb.ufmg.br **Regional representative for Brazil**

Walker, Ian R., Biology and Earth & Environmental Sciences, University of British Columbia Okanagan, 3333 University Way, Kelowna, British Columbia, Canada V1V 1V7 Email: ian.walker@ubc.ca **Regional representative for Canada**

De la Rosa, Carlos, Catalina Island Conservancy, P. O. Box 2739, Avalon, California 90704, USA. Email: cdelarosa@catalinaconservancy.org **Regional representative for Central America**

Alcocer, Javier, UNAM Campus Iztacala, Limnology Lab, Environmental Conservation & Improvement Project, Universidad Nacional Autonoma de Mexico, Calle 15, #51 San Pedro de los Pinos, Mexico City, D.F. 03800, Mexico. Email: jalcocer@unamvm1.dgsca.unam.mx **Regional representative for Mexico**

Burgos, Arnoldine, Bureau voor Openbare Gezondheidszorg, Centraal laboratorium, Rode Kruislaan 13 Postbus 1911, Paramaribo, Suriname. **Regional representative for Suriname**

Ferrington Jr., L.C., Department of Entomology, Hodson Hall, 1980 Folwell Avenue, University of Minnesota, St. Paul, MN 55108, USA. Email: ferri016@umn.edu **Regional representative for USA**

ASIA

Wang, Xinhua, Department of Biology, Nankai University, Tianjin, 300071 China. Email: xhwang@nankai.edu.cn **Regional representative for the P. R. of China**

Mazumdar, Abhijit, Dept of Zoology, University of Burdwan, Burdwan 713 104, W.B., India Email: abhijitau@rediffmail.com **Regional representative for India**

Mousayi, Seyed Karim, University of Tromsø, Institute of Clinical Medicine (IKM), KK Lab, Brevika Centre, N-9037 Tromsø, Norway. Email: karimm@fagmed.uit.no **Regional representative for Iran**

Kugler, Jehoshua, Dept of Zoology, Tel-Aviv University, Tel-Aviv 69978, Israel. **Regional representative for Israel**

Iwakuma, Toshio, Hokkaido University, Kita-Jujo-Nishi 5, Kita-ku, Sapporo, Hokkaido, 060 Japan. Email: iwakuma@ees.hokudai.ac.jp **Regional representative for Japan**

Ismail, A.R., Jabatan Biologie, University Pertanian Malaysia, 43400 UPM Serdang, Selangor, Malaysia. **Regional representative for Malaysia**

Makarchenko, Eugenyi A., Laboratory of Freshwater Hydrobiology, Institute of Biology and Soil Sciences, Far Eastern Branch of the Russian Academy of Sciences, 690022 Vladivostok - 22, Russia. Email: emakarchenko@mail.ru **Regional representative for the Far East of Russia**

Erbaeva, Engelsina, Institute of Biology, Irkutsk State University, P.O. Box 24, Lenin street 3, 664033 Irkutsk, Russia. **Regional representative for Lake Baikal and River Angara, South Siberia**

Byeong-Jin, Youn, Pusan National University, Department of Biology, #30 Changjeon-dong Kumjeong-Ku, Pusan 609- 735, South Korea. **Regional representative for South Korea**

EUROPE

Contreras, Ruth, Naturhistorisches Museum, 2. Zoologische Abt., Burgring 7 (Box 417), A-1014 Wien, Austria. Email: ruth.contreras@wavenet.at **Regional representative for Austria**

Goddeeris, Boudewijn, Koninklijk Belgisch Instituut voor Natuurwetenschappen, Afdeling Zoetwaterbiologie, Vautierstraat 29, B-1040 Brussels, Belgium. Email: goddeeri@kbinirsnb.be **Regional representative for Belgium**

Michailova, Paraskeva, Institute ofZoology, boul. Rouski 1, Bulgarian Academy of Sciences, Institute of Zoology, Sofia 1000, Bulgaria. Email: parmich@mail.bol.bg **Regional representative for Bulgaria**

Matena, Josef , Biology Centre, Academy of Sciences CR, Institute of Hydrobiology, Na Sadkach 7, CZ-370 05 Ceske Budejovice, Czech Republic. Email: matena@hbu.cas.cz **Regional representative for Czech Republic**

Lindegaard, Claus, Freshwater Biological Laboratory, University of Copenhagen, 51 Helsingorsgade, DK-3400, Hillerød, Denmark. Email: clindegaard@bi.ku.dk **Regional representative for Denmark**

Kangur, Andu & Kulli, Vorstjarv Limnological station, EE2454 Rannu, Estonia. Email: andu@lim.tartu.ee **Regional representative for Estonia**

Koskenniemi, Esa, West Finland Regional Environment Centre, P.O. Box 262, FIN-65101 Vaasa, Finland. Email: Esa.Koskenniemi@environment.fi **Regional representative for Finland**

Delettre, Yannick R., C.N.R.S. (U.M.R. 6553 "ECOBIO") - Universite de Rennes I, Station Biologique, F-35380 Paimpont, France. Email: yannick.Delettre@univ-rennes1.fr **Regional representative for France**

Spies, Martin, Schraemelstr. 151, D-81247 München, Germany. Email: spies@zi.biologie.uni-muenchen.de **Regional representative for Germany**

Dévai, György, L. Kossuth University, Ecological Institute, H-4010 Debrecen, Hungary. Email: devaigy@delfin.klte.hu **Regional representative for Hungary**

Olafsson, Jon S., Institute of Freshwater Fisheries, Keldnaholt, IS-112 Reykjavik, Iceland. E-mail: jsol@veidimal.is **Regional representative for Iceland**

Murray, Declan, UCD School of Biology and Environmental Science, Science Education and Research Centre (West), University College Dublin, Belfield, Dublin 4, Ireland . Email: declan.murray@ucd.ie **Regional representative for Ireland**

Rossaro, Bruno, Univ. of Milano, Dept. of Biology, Sect. Ecology, via Celoria 26, I-20133 Milano, Italy. Email: rossaro@mailserver.unimi.it **Regional representative for Italy**

Leslie, Heather A., Institute for Environmental Studies (IVM), Vrije Universiteit, De Boelelaan 1085, 1081 HV Amsterdam, The Netherlands. Email: heather.leslie@ivm.falw.vu.nl **Regional representative for the Netherlands**

Willassen, Endre, University of Bergen, Bergen Museum, The Natural History Collections, Muséplass 3, NO-5007 Bergen, Norway. Email: Endre.Willassen@zmb.uib.no **Regional representative for Norway**

Kownacki, Andrzei, Institute of Freshwater Biology, Academy of Sciences, Ul. Slawkowska 17, PL-31016 Krakow, Poland. **Regional representative for Poland**

Hughes, Samantha, Instituto Superior de Agronomia, Universidade Técnica de Lisboa, Departamento de Engenharia Florestal (DEF), Tapada da Ajuda, 1349-017 Lisboa, Portugal. E-mail: sammyno1@isa.utl.pt or Centro de Estudos da Macaronésia (CEM), Universidade da Madeira, Campus da Penteada, 9000-390 Funchal, Madeira, Portugal. E-mail: samantha@uma.pt **Regional representative for Portugal**

Tudorancea, Maria-Monica, Department of Ecology-Genetics, Faculty of Biology and Geology, "Babes-Bolyai" University, 1 M. Kogalniceanu Str., Cluj-Napoca, 3400 Romania. Email: mtudor@biolog.ubbcluj.ro **Regional representative for Romania**

Zinchenco, Tatiana, Institute of Ecology of the Volga River Bassin, Russian Academy of Sciences, Togliatti 445003, Russia. Email:

tdz@mailru.com **Regional representative for European Russia and the Volga Region**

Bitusik, Peter, Faculty of Ecology and Environmental Sciences, Technical University, Kolpasska 9, SK-969 01 Banska Stiavnica, Slovakia. Email: bitusik@fee.tuzvo.sk **Regional representative for Slovakia**

Rieradevall, Maria, Departament d'Ecologia, Facultat de Biologia, Universitat de Barcelona, Diagonal 645 - 08028 Barcelona, Spain. Email: mrieradevall@ub.edu **Regional representative for Spain**

Johnson, Richard K., University of Agricultural Sciences, Box 7050, S 75007 Uppsala, Sweden. Email: Richard.Johnson@ma.slu.se **Regional representative for Sweden**

Lods-Crozet, Brigitte, Service des Eaux, Sols et Assainissement, Chemin des Boveresses 155, CH-1066 Epalinges, Switzerland. Email: brigitte.lodscrozet@sesa.vd.ch **Regional representative for Switzerland**

Langton, Peter H., 5 Kylebeg Avenue, Mountsandel, Coleraine, Co. Londonderry, Northern Ireland, BT52 1JN - Northern Ireland. Email: PHLangton@kylebegave.fsnet.co.uk **Regional representative for UK**

PACIFIC

Cranston, Peter S., Department of Entomology, University of California, One Shields Avenue, Davis, CA 95616, US. Email: pscranston@ucdavis.edu **Regional representative for Australia**

Boothroyd, Ian K.G., Kingett Mitchell & Associates, Level 2, ASDA Plaza, 4 Fred Thomas Drive, P.O. Box 33849, Takapuna, Auckland, New Zealand Email: iboothroyd@kma.co.nz (work) **Regional representative for New Zealand**

Catalan, Zenaida Batac, Institute of Environmental Science and Management, The University of the Philippines at Los Banos, College, Laguna, Philippines. **Regional representative for Philippines**

CURRENT BIBLIOGRAPHY

CURRENT BIBLIOGRAPHY: 1 JAN. 2005 - 31 DEC. 2005

Odwin Hoffrichter

Institut für Biologie I, Albert-Ludwigs-Universität Freiburg, Hauptstrasse 1, D-79104, Germany
Email: odwin.hoffrichter@biologie.uni-freiburg.de

This listing is compiled, as usual, from many sources: databases, tables of contents of journals, references and citations of papers, autopsy of many periodicals, lists provided by authors (thanks to you!). Because titles of a particular year are not fully retrieved the following year, the current titles are preceded by supplements to the two preceding years. Only printed titles are reported here. Online publications should be retrieved elsewhere, in particular, check the chironomid home page for eventual references.

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