

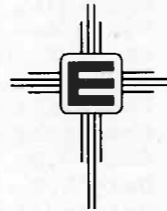
Dr. Manabu Sasa, President  
Toyama Medical and Pharmaceutical University  
26630 Sugitani, Toyama  
930-01 Japan

Dr. Russel W. Sherer, Director, Division of Water Quality  
Assessment and Enforcement  
Environmental Quality Control  
South Carolina Department of Health and Environmental Control  
Columbia, SC 29201

## EDITORIAL BOARD

Priv.-Doz. Dr. E.J. Fittkau & Dr.F. Reiss  
Zoologische Staatssammlung  
Maria-Ward-strasse 1b  
D-8000 Munchen 19  
GERMANY

Prof. J.E. Sublette and Prof. Mary Sublette  
Eastern New Mexico University  
Box 2114  
Portales, New Mexico 88130 USA



# CHIRONOMUS

MITTEILUNGEN AUS DER CHIRONOMIDENKUNDE  
NEWSLETTER OF CHIRONOMID RESEARCH

CHIRONOMUS

Vol. 2

No. 4

Portales, November, 1982

## CHIRONOMID RESEARCH IN ITALY by Umberto Ferrarese

Chironomid research in Italy began with Mario Bezzi, who wrote various dipterological works in which chironomids were described both from a systematic and a biogeographic and ecological point of view (Bezzi, 1918, 1919). In the same period in which Bezzi was working (the end of the 19th century to 1921), another Italian zoologist, F. Cavazza, studied the damage done by chironomids to rice plants (Cavazza, 1914). During the 1930's, G. Moretti and D. Lombardi also examined chironomids in the preimaginal stages, but where Moretti, in Milan, studied the morphology and ecology of several species (Moretti, 1932, 1933), Lombardi, in Rome, concerned herself mainly with the anatomical and histological aspects of a single species, *Cricotopus sylvestris* Fabr. (Lombardi, 1932). In Padova, G. Marcuzzi began the study of Chironomids in 1941. Later, F. Pedrotti continued the studies until 1959. Marcuzzi's studies dealt with the collection and identification of adults in the Veneto region, including the Venetian Lagoon (Marcuzzi, 1947, 1948, 1949). Pedrotti collected and identified chironomid larvae of particular fresh water environments (Pedrotti, 1959a, b). The features that all these earlier studies had in common is that they ended either with a change in the author's interest to another field, or with his death.

Developments which had more fruitful results started in the beginning of the 1960's--the study of macrobenthic fauna of Italian lakes. Following F. Lenz's initial research on the benthos of Lake Maggiore (Lenz, 1954), several young researchers of the Istituto Italiano di Idrobiologia of Pallanza, under the direction of Vittorio and later Livia Tonolli, conducted a series of investigations on chironomids (and other macrofauna groups) of some of the more important Italian lakes. The development of this field of study is linked, above all, with the names of G. Bonomi, whose interest

has been directed particularly to the problems of population dynamics in relation to trophic evolution of lakes (Bonomi, 1962, 1966, 1967), and A.M. Nocentini, who has been more interested in the identification and distribution of the various taxa. Thanks to the latter's contribution, there has been a significant increase in the knowledge of the presence and distribution of many chironomid species in Italian lakes (Nocentini, 1963, in press; Nocentini and Bonomi, 1965).

In the mid 1970's the National Electricity Board (ENEL) established a hydro-biological program for the study of the part of the middle course of the Po River, affected by the discharge from a nuclear power plant, and this gave rise to other important investigations on chironomids in Italy. In this program two researchers in chironomids, B. Rossaro, of Milan University, and U. Ferrarese, at the Museum of Natural History in Verona, have been collaborating on providing water quality criteria through the documentation of the presence and abundance of these insects. At this time two works on this subject have been produced (Rossaro, 1978; Ferrarese, Ruffo, and Sambugar, 1979). As far as the areas of interest of these two authors are concerned, Rossaro has dealt mainly with the taxonomy and the distribution of Italian Diamesinae, Prodiamesinae and Orthocladiinae (Rossaro, 1977, 1979a, b, 1980a, b, 1982), while Ferrarese has been particularly interested in the taxonomy of the Italian Tanypodinae, as well as the use of chironomids as indicators in biological water quality assessment and water resources management (Ferrarese and Rossaro, 1981; Ferrarese, in press, a,b). Recently Ferrarese has also directed his attention to the problems of fisheries and aquaculture.

This renaissance of Italian studies on the taxonomy and ecology of chironomids has afforded positive answers to the demands made by environmental protection and nature management agencies. As a part of a series of publications by the National Research Council (CNR), edited by S. Ruffo, keys for the identification of the following subfamilies have been prepared: Diamesinae and Prodiamesinae (larvae and pupae) (Rossaro, in Ferrarese and Rossaro, 1981), with a key to the subfamilies (larvae and pupae) (Ferrarese, in Ferrarese and Rossaro, 1981); Orthocladiinae (larvae and pupae) (Rossaro, 1982); Tanypodinae (larvae and pupae) (Ferrarese, in press, b); and Chironominae (larvae) (Nocentini, in press).

From the necessarily incomplete picture which has been sketched (this list does not include, for instance, some works on physiology, carried out by various authors, such as the one on esterases of *Chironomus thummi* by L. Tallandini and M. Turchetto), it can clearly be seen that the revival of non-biting midge research is, in Italy, still in the "larval state," even though important results have been obtained. Furthermore, it is evident that the present successes are due more to the initiative and sacrifice of individuals rather than to a systematic program, co-ordinated by scientific

institutions, environmental management agencies or industry.

#### References

- Bezzi, M. 1918. Studi sulla ditterofauna nivale delle Alpi italiane. Soc. ent. ital. Firenze, Memorie 9: 1-164.
- Bezzi, M. 1918. *Prodiamesa vivicola*. Memorie Soc. ital. Sci. nat. 9: 110.
- Bonomi, G. 1962. La dinamica produttiva delle principali popolazioni macrobentoniche del Lago di Varese. Mem. Ist. ital. Idrobiol. 15: 207-254.
- Bonomi, G. 1966. Recent modifications and the development of a meromictic biogenic situation in the Lago di Varese (N. Italy). Verh. int. Ver. Limnol. 16: 245-250.
- Bonomi, G. 1967. L'evoluzione recente del Lago Maggiore rivelata dalle cospicue modificazioni del macrobenton profondo. Mem. Inst. ital. Idrobiol. 21: 197-212.
- Cavazza, F. 1914. Ricerche intorno alle specie dannose alla coltivazione del riso (*Oryza sativa*) e specialmente intorno al *Chironomus cavazzai* Kieffer. Boll. Lab. Zool. gen. agr. Portici 8: 228-239.
- Ferrarese, U. Nota sui Ditteri del medio corso del fiume Po a Caorso (Piacenza). Riv. Idrobiol. (in press).
- Ferrarese, U. Chironomidi, 3 (Diptera, Chironomidae: Tanypodinae). Guide per il riconoscimento delle specie animali delle acque interne italiane. CNR. (in press).
- Ferrarese, U. e Rossaro, B. 1981. Chironomidi, 1 (Diptera, Chironomidae: Generalità, Diamesinae, Prodiamesinae). Guide per il riconoscimento delle specie animali delle acque interne italiane CNR AQ/1/129, 12, 97 pp.
- Ferrarese, U., Ruffo, S. and Sambugar, B. 1979. Biological water assessment methods. Proc. 3. Techn. Semin. Parma, 1978, Commn Eur. Commun., p. 271-294.
- Lenz, F. 1954. Die Bodenfauna des Lago Maggiore und ihre Lebensbedingungen. Mem. Ist. ital. Idrobiol. 8:273-322.
- Lombardi, D. 1932. Note sulla biologia, la morfologia e l'istologia delle larve di *Cricotopus sylvestris* F. Boll. Pesca Piscic. Idrobiol. 8: 794-808.
- Marcuzzi, G. 1947. Descrizione di tre nuove specie di *Smittia* della Laguna di Venezia. Boll. Soc. ent. ital. 77:

9-13.

Marcuzzi, G. 1948. I Chironomidi della Laguna Veneta con note sulle caratteristiche dei Chironomidi alofili. *Archo Oceanogr. Limnol.* 5: 1-20.

Marcuzzi, G. 1949. Contributions to the knowledge of Tendipedidae of Padova and Venice. *Hydrobiologia* 1: 183-209.

Moretti, G. 1932. Contributo alla conoscenza dei Chironomidi italiani. *Boll. Zool.* 3: 31-38.

Moretti, G. 1933. Nuovo materiale per lo studio dei Chironomidi italiani. *Mem. Soc. ent. ital.* 12: 180-197.

Nocentini, A.M. 1963. Strutture differenziali della fauna macrobentonica litorale del Lago Maggiore. *Mem. Ist. ital. Idrobiol.* 16: 189-274.

Nocentini, A.M. 1973. La fauna macrobentonica litorale e sublitorale dei laghi di Bolsena, Bracciano e Vico (Italia centrale, Lazio). *Mem. Inst. ital. Idrobiol.* 30: 97-148.

Nocentini A.M. Chironomidi, 4 (Diptera, Chironomidae: Chironominae). Guide per il riconoscimento delle specie animali delle acque interne italiane. CNR (in press).

Nocentini, A.M. e Bonomi, G. 1965. Come le faune bentoniche dei laghi Maggiore e di Mergozzo riflettano una differente evoluzione trofica. *Boll. Zool.* 32: 415-423.

Pedrotti, F. 1959a. Ricerche idrobiologiche sul Padule di Fucecchio. V. Insetti acquatici. *Archo Zool. Ital.* 44: 272-306.

Pedrotti, F. 1959b. Entomofauna acquatica della Palude Carsica di Pietra Rossa (Monfalcone). *Atti Ist. Veneto Sci.* 117: 319-349.

Rossaro, B. 1977. Note sulle Orthoclaadiinae italiane con segnalazione di specie nuove per la nostra fauna. *Boll. Soc. ent. ital.* 109: 117-126.

Rossaro, B. 1978. Composizione tassonomica e fenologia delle Orthoclaadiinae (Dipt. Chironomidae) nel Po a Caorso (Piacenza) determinate mediante analisi delle exuvie delle pupe. *Riv. Idrobiol.* 17: 277-300.

Rossaro, B. 1979a. Description of the larva of *Paratrichocladius rufiventris* (Diptera, Chironomidae). *Notul. ent.* 59: 75-78.

Rossaro, B. 1979b. *Stilocladius montanus* n. gen., n. sp. Descrizione di uno nuovo genere e di una nuova specie di Orthoclaadiinae delle Alpi italiane. (Diptera, Chironomidae). *Boll. Mus. Civ. St. Nat. Verona*, VI: 347-352.

Rossaro, B. 1980a. Description of some unknown larvae of *Diamesa* genus and corrections to previous descriptions (Diptera, Chironomidae). *Arch. Hydrobiol.* 90: 298-308.

Rossaro, B. 1980b. *Syndiamesa nigra* n.sp. dalle Alpi italiane (Diptera, Chironomidae). *Boll. Soc. ent. ital.* 112: 192-198.

Rossaro, B. 1982. Chironomiidi, 2 (Diptera Chironomidae: Orthoclaadiinae). Guide per il riconoscimento delle specie animali delle acque interne italiane. CNR A Q/1/171/16, 80 pp.

Dr. Umberto Ferrarese  
Museo Civico di Storia Naturale  
Lungadige Porta Vittoria, 9  
37100 Verona, ITALY

#### EIGHTH INTERNATIONAL SYMPOSIUM ON CHIRONOMIDS

The Eighth International Symposium on Chironomids was held on July 26-28, 1982, in Jacksonville, Florida on the campus of Jacksonville University. Hosts were W.M. Beck, Jr. and E.C. Beck. Ninety-three participants from 15 countries attended.

The Symposium participants were welcomed by Dr. John E. Trainer, Jr., Vice-president and Dean of Faculties of Jacksonville University.

Appreciation is expressed to the staff and student body of JU for their cooperation to the Symposium. Special thanks are due Richard M. Lipp, Director of Continuing Education, for the months of planning that made the symposium a success. Our gratitude is also expressed to Thomas G. Owen, Dean of the College of Fine arts, for arranging the entertainment presented at the banquet.

The Thienemann Memorial Lecture, Phylogenetic Trends in the Subfamily Tanypodinae, was presented by E.J. Fittkau, one of Dr. Thienemann's last students. Forty-one additional papers on a wide variety of aspects of the study of Chironomidae were presented.

Bergen, Norway, was selected for the Ninth International Symposium, to be hosted by Ole and Unni Saether, University of Bergen.

The Proceedings of the Symposium will be edited and published by S.S. Roback, Academy of Natural Sciences of Philadelphia.

Following the formal sessions, a three day bus tour was

conducted to the Okefenokee Swamp and to Wakulla Springs for forty-five participants. Dr. and Mrs. William L. Peters of Florida A & M University hosted a "get-together" for the entire group at their home on the last evening of the tour.

W.M. Beck, Jr., E.C. Beck  
Jacksonville, Florida

SUPPLEMENT TO "A BIBLIOGRAPHY OF THE CHIRONOMIDAE"  
by O. Hoffrichter and F. Reiss, 1981

In North America copies are available from: I. Oliver, P.O. Box 6194, Station J, Ottawa, Ont., Canada, K2A 1T3. Price: \$7.00 (Canadian funds), Postal money orders or cheques should be made payable in Canadian funds, or equivalent, to I. Oliver.

NEW PUBLICATIONS

Wilson, R.S. and McGill, J.D. 1982 A Practical Key to the Genera of Pupal Exuviae of the British Chironomidae (Diptera, Insecta). University of Bristol, 62pp. Copies may be obtained from Dr. R.S. Wilson, Department of Zoology, University of Bristol B58 IUG, England, UK. Price: £2.00

ANNOUNCEMENT OF THE 9TH INTERNATIONAL SYMPOSIUM ON  
CHIRONOMIDAE, 1985

Dr. Ole A. Saether, on behalf of the University of Bergen, extended an invitation to the participants meeting on the Eighth International Symposium, to hold the Ninth International Symposium in Bergen. The participants voted overwhelmingly to accept his invitation. Dr. Saether has indicated that a post session tour will be scheduled to the High Mountain Ecological Research Station at Finse via some of the most scenic fjord country of Western Norway.

RESEARCH REQUESTS

Dr. Larry Hilburn wishes to continue his study of the cytogenetics of *Glyptotendipes*. He particularly wishes to obtain larval material of *Glyptotendipes lobiferus*, *Glyptotendipes paripes* and *Glyptotendipes meridionalis*. If you can obtain material for him please contact him at the following address:

Dr. Larry Hilburn  
U.S. Livestock Insects Laboratory ARS, USDA  
P.O. Box 232  
Kerrville, TX 78028 USA

DOCTORATES COMPLETED

Endre Willasen  
Zoological Museum of Department of Morphology Systematics and Animal Ecology,  
University of Bergen  
Title of Dissertation: "Description and redescription of female *Diamesa* Meigen, 1835 (Diptera: Chironomidae); with a comparative morphology, keys, and phylogenetics and biogeographical notes."

Appendices:

- (1) "A review of *Diamesa davisi* Edwards and the *davisi* group (Diptera:Chironomidae)"
- (2) "Taxonomy and biogeography of Afrotropical *Diamesa* Meigen (Diptera:Chironomidae)"

Examining Committee:

Dr. Ole A. Saether, Major Professor, University of Bergen  
Prof. Emerit. Lars Brundin, Stockholm  
Dr. Torgy Wiederholm, Uppsala

Art Borkent

Carleton University, Department of Biology, Ottawa, Ontario, Canada

Thesis Title: The Systematics and Phylogeny of *Xestochironomus*, *Harrisius* and Holarctic and Neotropical *Stenochironomus* (Diptera: Chironomidae)

Examining Board:

Professor H.F. Howden, Thesis Supervisor, Carleton University  
Dr. D.M. Wood, Co-Supervisor, Biosystematics Research Institute, Agriculture Canada  
Professor S.B. Peck, Carleton University  
Professor H.G. Merriam, Carleton University  
Dean G.B. Skippen, Faculty of Science, Carleton University  
Dean S.F. Wise, Chairman, Faculty of Science, Carleton University  
Dr. James E. Sublette, Department of Life Sciences, Eastern New Mexico University, Portales, New Mexico, External Examiner

NEW SUBSCRIPTIONS:

Larry Hilburn  
U.S. Livestock Insects Laboratory ARS, USDA  
P.O. Box 232  
Kerrville, Tx 78028 USA

Department of Zoology  
University of Chittagong  
Chittagong, Bangladesh