Publications on Mayflies

Proceedings of the VIIIth International Conference on Ephemeroptera


This book begins with a memorial to Olga Alexandrovna Tshernova and lists 73 of her publications. An obituary to Jacques Aubert follows and includes 113 of his papers.

The remaining portion of this book is divided into six sections: life histories and behaviour (18 papers); biogeography and distributional patterns (13 papers); biodiversity and environment (13 papers); ultrastructures, physiology and methods (12 papers); systematics and taxonomy (12 papers); and phylogeny and historic aspects (9 papers).

The preface was written by Dr. James V. Ward. An index, which covers taxa and subjects mentioned in titles and abstracts, is also included.

Copies of this publication may be ordered with a bank or postal check for the price of SFR 60 (US $50) from Dr. Peter Landolt, University of Fribourg, Institute of Zoology, Pérolles, CH-1700 Fribourg, Switzerland; phone ++41 26 300 88 72; FAX ++41 26 300 97 41; or send E-mail to Landolt@ufper6.unifr.ch.

Mayfly Nymphs of Australia: A Guide to Genera

Mayfly Nymphs of Australia: A Guide to Genera, by J. C. Dean and P. J. Suter (p.suter@aw.latrobe.edu.au), has recently been published by the Co-operative Research Centre for Freshwater Ecology. This study was undertaken to "provide a generic framework for the Australian mayfly nymphs, and thus facilitate future taxonomic studies at the species level."

A short taxonomic diagnosis is given for each family (nine), along with brief comments on ecology, and a check list of described genera. Keys are provided to forty recognized genera and a short diagnosis is presented for each genus.

This identification guide can be purchased from the Co-operative Research Centre for Freshwater Ecology, Murray-Darling Freshwater Research Centre, P.O. Box 921, Albury, Victoria 2640, Australia.

The Ephemeroptera of Argentina

The Ephemeroptera of Argentina (Domínguez, E., M. D. Hubbard and M. L. Pescador. 1994. Los Ephemeroptera en Argentina. Fauna de Agua Dulce de la República Argentina, Vol. 33, Fasc. 1) consists of an overview of the status of the knowledge of the order, a list of the known species, and keys for known families and genera, including adults and nymphs. Keys for some species are also included. A discussion of all the known genera (36) and species (112), the complete synonymy of each taxon, and a complete list of references are also provided.

Copies of this publication are available from Eduardo Domínguez, Facultad de Ciencias Naturales, Universidad Nacional de Tucumán, Miguel Lillo 251, 4000 Tucumán, Argentina; phone 54-81-230056; FAX 54-81-248025; or E-mail mayfly@unt.edu.ar.

(See Publications on Mayflies, p. 2)
Publications on Mayflies (cont. from p. 1)

**Key to Freshwater Invertebrates of Russia and Adjacent Lands**

A new book, *Key to Freshwater Invertebrates of Russia and Adjacent Lands* (in Russian), has been published by the Zoological Institute or Russian Academy of Science in St. Petersburg.

As Volume 3 (1997, 439 pp.), this work contains Arachnida (aquatic Acari and Aranei) and hemimetabolous insects (aquatic Collembola, Ephemeroptera, Odonata, Plecoptera and Heteroptera). The part on Ephemeroptera (pp. 176-220, pl. 8-20) was written by N. Ju. Kluge, and contains keys to mayfly larvae inhabiting the territory of the former USSR and nearby countries. Most keys are for species, but in some cases (for endemic mountain taxa of Europe, Caucasus and Middle Asia, and some others), determination is limited to higher taxa.


The price of each volume for foreign buyers is US $33 plus US $10 for postage. Payment should be sent to: Frankfurt/Main, Germany, Frankfurter Sparkasse, bank account BLZ 50050201, account # 0383801966, B. Gutelmacher (the same as for the journal *Zoosystematica Rossica*).

Order forms can be sent to N. Ju. Kluge, St. Petersburg State University, Biological Faculty, Department of Entomology, St. Petersburg 199034 Russia, or via E-mail to kluge@ent.bio.pu.ru.


**Nomina Insecta Nearctica: Volume 4**


This publication may be ordered from EIS, P.O. Box 4350, Rockville, Maryland 20849-4350, USA; FAX (301) 762-2612; phone 1-800-879-4214; or send E-mail to eis@ix.netcom.com. The price is US $89.95.

The CD ROM version of *Nomina Insecta Nearctica*, a database application for all four volumes, is scheduled for publication soon. More information may be obtained from their website: http://www.idsonline.com/eis/.

---

**Request for Information (i.e., Please Help the Editor!)**

One purpose of this newsletter is to keep ephemeropterists informed about their colleagues (see R. K. Allen obituary on p. 3). Often I am not aware of retirements, awards, special achievements, or, unfortunately, deaths.

If you have any information to share about our fellow ephemeropterists, please send that information to me for publication in this newsletter.

This way, we can add to their honor and further celebrate their achievements.

**NABS Workshop on Mayfly Taxonomy**

This is the second announcement of a special hands-on workshop on the taxonomy of Nearctic species of mayflies that is being planned for the 46th annual meeting of the North American Benthological Society to be held at the University of Prince Edward Island, P.E.I., in June 1998. This workshop will be held in addition to the regular concurrent paper sessions and is sponsored by the Technical Information Committee of NABS.

The workshop will highlight the major changes to Nearctic families, genera, and species. Practical help will be provided on the identification of genera and species and in the preparation of specimens for study (i.e., microdissection and slide making).

For additional information, contact Steve Burian, Department of Biology, Southern Connecticut State University, 501 Crescent Street, New Haven, Connecticut 06515 USA, E-mail burian@scsu.ctstateu.edu.

**A Mayfly Made for May**

The Entomological Society of America now has its *Insects 1998 Calendar* available. Turning to May, one will be greeted with a large color photograph of an *Ephemera simulans* adult.

This calendar costs US$12.95 (nonmember’s price) plus $2.50 shipping (domestic, $3.50 foreign). Check or money orders may be sent to ESA Sales Department, P.O. Box 177 Hyattsville, Maryland 20781-0177, USA. Credit card orders may be sent to ESA Sales Department, 9301 Annapolis Road, Lanham, Maryland 20706-3115 USA; phone (301) 731-4535; FAX (301) 731-4538; E-mail sales@entsoc.org.

**Happy Holidays!**
Richard K. Allen (1925-1992)

[Editor's note: This article was published previously in Pan-Pacific Entomologist 71(2):75-77 (1995) and is reprinted here with permission. The address of the authors, George Edmunds and Chad Murvosh, can be found at the end of the article.]

Richard Knapp "Dick" Allen, a leading mayfly systematist, died at his home in Lake San Marcos, California, on 7 Aug. 1992. He was born in Salt Lake City, Utah on 21 Apr. 1925, to Knapp R. and Leora Allen. After serving in the U. S. Army in the Korean War, he obtained his B. S., M.S. and Ph.D. degrees at the University of Utah (M.S. in 1955, Ph.D. 1960). He then served a National Science Foundation supported post-doctoral during which a revision of the then very large mayfly genus *Ephemerella* (over 80 species) was completed for North America. His solution of the *Dranella grandis-spinifera* complex (then in *Ephemerella*) was a major accomplishment. He taught at the University of California Los Angeles in 1963, replacing the late Dr. John N. Belkin who was on leave. In 1964, he joined the faculty of California State University at Los Angeles where he taught a variety of courses, including marine invertebrate biology from 1964 to 1976. He suffered at least 3 myocardial infarctions between 1973 and 1978 and underwent angioplasty to open up heart arteries. In 1976 he was operated on for colon cancer and, as related by Dick, “while still recovering from anesthesia the physician sat by my bedside and told me to get my affairs in order as I had about six months to live.” At this time he took a medical retirement from the University and was given intense chemotherapy treatments.

Even as an undergraduate, Dick was devoted to exercise and physical fitness, going to a gymnasium almost daily. Part of his recovery from heart circulatory problems and colon surgery included increasing long rides on his bicycle, until he rode 30 miles or more each day. The doctor’s predictions were obviously a misjudgment; Dick lived 16 more years during which time he produced 23 papers. Although he suffered numerous other medical problems, he did not seek sympathy. Both of his hips were related by Dick, “while still recovering from anesthesia the physician sat by my bedside and told me to get my affairs in order as I had about six months to live.” At this time he took a medical retirement from the University and was given intense chemotherapy treatments.

Dick traveled and collected widely in the United States and Mexico in a motor home, camping near streams or rivers. In Mexico, where he traveled by himself or with Murvosh, he carried cans of dog food which he used to enlist a wandering “perro” as a watch dog. He made his own food and a bowl of water at night and one in the morning and thus always had a barking sentry if anyone approached his motor home. He married Mary Anne Ruzicka in 1951. They were subsequently divorced but remained good friends and were later remarried. Richard is survived by his widow, and his daughter, Mrs. Jody Anne Varner (whom he later honored with the name *Leptohyphes jodiannae*) and two granddaughters.

Most of his studies were concentrated on the mayfly families Tricorythidae in the Americas and Ephemerellidae on a world basis but he worked widely on other North and Central American species. He concentrated on the mayfly fauna of Mexico and the southwestern United States. He was the author or co-author of 151 species, 13 genera or subgenera, and 2 subtribes. The writers have prepared a bibliography of Dick’s mayfly papers and an annotated list of the taxa he named. Copies are available on request to either author*. A major concern during the last few days he was able to speak was that the specimens that he had borrowed were to be returned to the collections which owned them, and that his own specimens be given to the California Academy of Sciences in San Francisco. His wife and daughter delivered his remaining collections to Chad Murvosh at the University of Nevada Las Vegas. The authors will attempt to finish the job of distributing them, but any curator who believes Dr. Allen’s specimens included borrowed material under their care, should contact one of the writers.

Dick Allen “retired” from studying mayflies several times but actually continued his studies throughout his life. Much of his collection, including the specimens collected in Mexico by Allen and Murvosh, are already deposited at the California Academy of Sciences.

*George F. Edmunds, Jr., Department of Biology, University of Utah, Salt Lake City, Utah 84112 USA; Chad Murvosh, Department of Biological Sciences, University of Nevada Las Vegas, Las Vegas, Nevada 89154 USA.
Research Summaries and Requests

James Munro, P.O. Box 214, Lake Harmony, Pennsylvania 18624, USA, E-mail jmunro@mail.microserve.net

My M.S. thesis research was based on the taxonomy, biology, and ecology of larval Baetidae (Ephemeroptera) collected from eight lotic systems and four lentic areas in the Pocono Region of Pennsylvania (USA). A total of 4,917 larvae were collected, representing 9 genera and 18 species. The collection of Callibaetis pretiosus and Procloeon viridoculare represented a significant northward increase in the known distribution of these two species. Populations of Acentrella turbida and Acerpenna macdunnoughi larvae were found that did not exactly match previous descriptions in terms of setation, dentition, and tergal armature. In addition, a previously undescribed species of Acentrella was discovered.

Male baetid larvae were determined by the presence of forming turbinate eyes. The remaining larvae were determined to be either female or immature based on head capsule width cut-off points (below which all larvae were called immature and above which all larvae not assigned male were called female) established for each species. Larval sex ratios were calculated for ten of the species collected. Acerpenna macdunnoughi was found to have both parthenogenetic populations and populations that contained male and female larvae.

Larval recruitment and emergence dates were determined for most of the species collected. Routinely sampled species showed little difference in recruitment and emergence dates among the sites. The data suggested that bivoltine life histories (one winter and one summer generation or two summer generations) were most common. Trivoltine life histories (one winter and two summer generations) were also suggested, while a univoltine life history was observed in only a few cases.

Measurements of head capsule width; pronotal width; body length; and pro-, meso-, and metafemoral length were recorded for 4,577 of the larvae collected. Six developmental stages, based on wing pad measurement ratios, were established.

The growth and development of Baetis pluto and Baetis tricaudatus, the two most abundant species collected, were investigated more thoroughly. While head capsule width and body length measurements for developmental stages 1 and 2 remained fairly constant throughout the sampling period, those of stages 4 through 6 were seen to decrease in early July 1993, and then increase again in early October 1993. Measurements of larval body parts were found to be indicative of growth and physiological maturation. Comparison of measurements for each developmental stage was found not to be significantly different among sampling sites for either species. Measurements were not seen to be significantly different between male and female larvae. Coefficients of variation calculated for each of the six measurements were found to be low for each of the six developmental stages, suggesting that each stage represented a homogeneous sample. Of the six measurements taken, head capsule width was found to be the best predictor of larval age and body length was found to be the poorest predictor of larval age.

Chaodong ZHU, Institute of Zoology, Chinese Academy of Sciences, Beijing 100080, Peoples Republic of China, E-mail sea@panda.ioz.ac.cn

From next summer on, I will have a chance to collect and evaluate aquatic insects in the Qinglin Region. I was assigned to finish one paper evaluating the aquatic insects in this area, which is one of the most species-rich areas in China. Also, if requested, I would like to help ephemeropterists index information on mayflies from 1935 to 1995. From 1993 to 1996, I finished establishing a database using Zoological Record. Except for two or three years, all biological information on mayflies is compiled into four databases: systematic, subject, geographic, and the vital one concerning authors and article titles. As time becomes available, this database will be updated.

N. Nagendran, 3, East Park Street, Singarayar Colony, Madurai - 625 002, Tamil Nadu, S. India

I am doing my doctoral degree on aquatic entomology. The title of my dissertation is “Diversity, Systematics and Ecology of Ephemeroptera in the Hill Streams of Southern Western Ghats.” Any suggestions or guidelines that might be offered would be appreciated.

Mayfly Web Sites

<table>
<thead>
<tr>
<th>MAYFLY CENTRAL</th>
<th><a href="http://www.entm.purdue.edu/entomology/mayfly/mayfly.html">http://www.entm.purdue.edu/entomology/mayfly/mayfly.html</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>EPHEMEROPTERA GALACTICA</td>
<td><a href="http://www.famu.edu/mayfly/">http://www.famu.edu/mayfly/</a></td>
</tr>
</tbody>
</table>
1996 Mayfly Bibliography

[Editor's note: This bibliography was published as the Ephemeroptera portion of the 1996 (1997) North American Benthological Society's Current and Selected Bibliographies on Benthic Biology.]

The following is a list of current publications dealing with Ephemeroptera that have been published up to and during 1996 and have not appeared in previous NABS Bibliographies. To facilitate locating abstracts and addresses of authors, the name of the index (abbreviated), volume, and abstract or item number follow each reference. Abbreviations are as follows: Biological Abstracts (BA); Biological Abstracts/Reports, Reviews, and Meetings (BA/RRM); Current Contents - Agriculture, Biology, and Environmental Sciences (CC); Dissertation Abstracts International (DAI); Entomological Abstracts (EA); Masters Abstracts International (MAI); and Zoological Record - General Insects and Small Orders (ZR). Citations for CC, DAI, and MA include the volume, issue number in parentheses, and page number on which the reference is found. References without an abstract number were obtained from the original reprint. I would appreciate receiving a reprint of any article that deals with mayflies, especially if it includes scientific names, so that it may be included in next year’s bibliography. Also, I would like to be informed of any corrections or omissions in this or past bibliographies. Suggestions are always welcome. Please send all correspondence to Peter M. Grant, Department of Biological Sciences, Southwestern Oklahoma State University, Weatherford, Oklahoma 73096-3098 USA, phone (580) 774-3294, FAX (580) 774-3795, E-mail grantp@swosu.edu.


Dukerschein, J. T.; Gent, R.; Sauer, J. 1996. Recovery of macroinvertebrates by screening in the field: a comparison between coarse (1.18 mm) and fine (0.60 mm) mesh sieves. J. Freshwater Ecol. 11: 61-65. [BA 101:125377]


Lobinski, R. J.; Ali, A.; Stout, I. J. 1996. Life history and productivity of Hexagenia limbata (Ephemeroptera: Ephemeridae) and selected physico-chemical parameters in two tributaries of the Wekiva River, central Florida. Fla. Entomol. 79: 543-551. [CC 28(6)]


Odin, M.; Ribeyre, F.; Boudou, A. 1996. Temperature and pH effects on cadmium and methylmercury bioaccumulation by nymphs of the burrowing mayfly Hexagenia rigida, from water column or sediment source. Arch. Environ. Contam. Toxicol. 31: 339-349. [CC 27(49)]


Wagner, T.; Neinhuis, C.; Barthlott, W. 1996. Wettability and

Vance, S. A.; Peckarsky, B. L. 1996. The infection of nymphal


Waltz, R. D. 1996. An


Waltz, R. D.; McCafferty, W. P.; Thomas, A. 1994. Systematics of

Wang, T. Q.; McCafferty, W. P. 1996. Redescription and reclassifi-

cation of the South American mayfly Melanemarella brasiliensis


Waringer, J. A. 1996. Phenology and abundance of

Warting, A. 1996. Influence of oxygen stress, temperature and
density on the growth and survivorship of Hexagenia nymphs

Wipfli, M. S. 1992. Direct and indirect effects of the black fly

Diptera: Simuliidae) larvicide, Bacillus thuringiensis var.

israelensis, on selected non-target aquatic insects and trout.
Dissertation, Michigan State University. [DAI-B 53(9):4478]

tolerance of three species of aquatic insects in a northern
California, geothermally influenced stream. Pan-Pac. Entomol.
72: 227-234. [BA 102:147926]


of Baetidae (Ephemeroptera) from West Africa. Rev.

effects of nutrients and grazers on benthic algal community


Yule, C. M.; Pearson, R. G. 1996. Seasonality of benthic
invertebrates in a tropical stream on Bougainville Island, Papua

Zhang, Y. X.; Malmqvist. 1996. Relationships between labral fan morphology, body size and habitat in North Swedish blackfly
[CC 27(52/53)]

Zhu, J. 1994. Distribution of mayfly (Ephemeroptera) naiads and
Circumstactiae 14: 308-315. (In Chinese, English summary)
[ZR 132(13A):3750]

Zimmerman, W. 1989. Die Eintagsfliegen (Ephemeroptera) in der
Emergenz von zwei Fallenstandorten am Vesser-Bach (DDR,
Bezirk Suhl). Gothaer Emergenz-Untersuchungen im
 Biosphärenreservat Vessertal, Nr. 11. Int. Symp. Ueber
Entomofaunistik in Mitteleuropa 11: 316-321. (In German)
[ZR 132(13A):3760]

Zloty, J. 1996. A revision of the Nearctic Ameletus mayflies based
on adult males, with descriptions of seven new species
[BA 102:22584]

The Mayfly Newsletter is the official newsletter of the
International Conferences on Ephemeroptera and is
published twice a year to facilitate communication among
ephemeropterists. Subscriptions to the Newsletter are free.
To place your name on the mailing list or to contribute
information for the next issue, contact Peter M. Grant,
editor, The Mayfly Newsletter, Department of Biological
Sciences, Southwestern Oklahoma State University,
Weatherford, Oklahoma 73096-3098 USA; phone (580)
774-3294; FAX (580) 774-3795; or via E-mail at
grantp@swosu.edu. This publication was authorized by the
Dean of Arts and Sciences and was printed at a cost of
$150.00 for 500 copies.
Address Update - New, Corrections, Changes

Changes or additions to the mailing and E-mail addresses published in issue 5(2) are listed below. Updated addresses will be published as they become available. Please inform the editor of any changes in postal or E-mail addresses.

R BARFORD
FLYTREK AUSTRALIA
RMB 2084
COWES VICTORIA 3922
AUSTRALIA
Rod@flytrek.com

CE CUSHING
105 W CHEROKEE DRIVE
ESTES PARK CO 80517
USA
CECushing@aol.com

ES DELFOSSE
10996 GRAELOCH ROAD
LAUREL MD 20723-1188
USA
eds@ars.usda.gov

MJ DUBE
RR 8 SITE 7 COMP 8
PRINCE GEORGE BC
CANADA V2N 4M6
dubem000@unbc.edu

KJ FINLAY
DEPT ECOLOGY AND EVOL BIOLOGY
MONASH UNIVERSITY
WELLINGTON ROAD
CLAYTON VICTORIA 3168
AUSTRALIA
Kyaf.inlay@sci.monash.edu.au

JF FLANNAGAN
456 ISABELLA POINT ROAD
SALT SPRING ISLAND
BRITISH COLUMBIA
CANADA V8K 1V4

D FUNK
STROUD WATER RESEARCH CENTER
970 SPENCER ROAD
AVONDALE PA 19311-9514
USA

R GODUNKO
RYNOK STREET 3
VYNNYKY UA - 290902
L’VIV REGION
UKRAINE
algama@correo.cop.es

J GILMAN
1 COLE HAAN DRIVE
YARMOUTH ME 04096
USA

MA HARRIS
US GEOLOGICAL SURVEY
221 NORTH BROADWAY AVENUE
URBANA IL 61801-2706
USA
maharris@usgs.gov

N HOQ
10201 GROSVENOR PARK #411
ROCKVILLE MD 20852
USA
hq@attmail.com

SE McMURRAY
KY DIV WATER WATER QUALITY BRANCH
14 REILLY ROAD
FRANKFORT KY 40601
USA
biomcmur@ACS.EKU.EDU

MA HARRIS
US GEOLOGICAL SURVEY
221 NORTH BROADWAY AVENUE
URBANA IL 61801-2706
USA
maharris@usgs.gov

JB MUNRO
PO BOX 214
LAKE HARMONY PA 18624
USA
jmunro@mail.microserve.net

OK WATER RESOURCES BD
3800 NORTH CLASSEN BOULEVARD
OKLAHOMA CITY OK 73118-2855
USA

JB OLIVER
202 BRADFORD ROAD
MCMINNVILLE TN 37110-2304
USA

ML PESDADOR
mpesdador@famu.edu

E PULUBINSKI JR
87 NORTH BRANCH ROAD
CONCORD MA 01742
USA
EdPol@aol.com

JC STEVEN
MADISON METROPOL SEWERAGE DIST
1610 MOORLAND ROAD
MADISON WI 53523-9201
USA
jeffs@madsewer.org

B SWEENEY
STROUD WATER RESEARCH CENTER
970 SPENCER RD
AVONDALE PA 19311-9514
USA

M WALTERS
600 NW GARY STREET
PULLMAN WA 99163
USA
wat7616@novell.uidaho.edu

N YONEMITSU
COLLEGE OF SCIENCE AND MANAGEMENT
UNIV N BRITISH COLUMBIA
3333 UNIVERSITY WAY
PRINCE GEORGE BC
CANADA V2N 429
nobora@unbc.edu

C ZHU
INSTITUTE OF ZOOLOGY
CHINESE ACADEMY OF SCIENCES
BEIJING 100080
PEOPLES REPUBLIC OF CHINA
sea@panda.ioz.ac.cn

IX International Conference on Ephemeroptera
17-21 August 1998
XIII International Symposium on Plecoptera
20-23 August 1998

Deadlines (1998):

1 March: Abstracts, post-conference activities and guest program, registration and fees

30 March: Scholarship applications

17 August: Ephemeroptera manuscript to editor

20 August: Plecoptera final manuscript to editor

For further information, visit the international conference web site at http://www.unt.edu.ar/congresos/EPHEMERO.HTM or contact the convenor, Eduardo Dominguez, via E-mail at mayfly@unt.edu.ar.