



The Mayfly Newsletter

Volume 7 | Issue 2

Article 1

6-1-1997

The Mayfly Newsletter

Peter M. Grant

Southwestern Oklahoma State University, peter7grant@gmail.com

Follow this and additional works at: <https://dc.swosu.edu/mayfly>

Recommended Citation

Grant, Peter M. (1997) "The Mayfly Newsletter," *The Mayfly Newsletter*. Vol. 7 : Iss. 2 , Article 1.
Available at: <https://dc.swosu.edu/mayfly/vol7/iss2/1>

This Article is brought to you for free and open access by the Newsletters at SWOSU Digital Commons. It has been accepted for inclusion in The Mayfly Newsletter by an authorized editor of SWOSU Digital Commons. An ADA compliant document is available upon request. For more information, please contact phillip.fitzsimmons@swosu.edu.





THE MAYFLY NEWSLETTER

Vol. 7 No. 2

Southwestern Oklahoma State University, Weatherford, Oklahoma 73096-3098 USA

June 1997

ISSN: 1091-4935

7/2

Pictorial Key to Adult Males of Alberta *Ameletus*

Jack Zloty, Biological Sciences, University of Calgary, 2500 University Drive NW, Calgary, Alberta, Canada T2N 1N4, E-mail jzloty@acs.ucalgary.ca

My current interest involving mayflies focuses on the phylogeny and biogeography of the family Ameletidae and its relationship with the other pannote mayflies. The genus *Ameletus* is distributed throughout the Holarctic and currently includes 33 Nearctic species and 21 Palearctic species. Undoubtedly, a number of species are yet to be described in North America (e.g. description of two new species from Oregon will be published shortly), and certainly the revision of Palearctic species is long overdue. My recent publication, "A Revision of the Nearctic *Ameletus*..." (Can. Ent. 128:293-346) clarified the status of North American species in this genus and the key provided there will identify adult males of all currently described bisexual species. However, identification keys to larvae are more difficult to produce, so I decided to split this endeavour into three parts: Part I focuses on the northern Rocky Mountains, Part II covers the Cascade Range, and Part III deals with the southern Rocky Mountains. Part I treats 14 Alberta species ("Larvae and Adults of Alberta *Ameletus* Mayflies...") and it is scheduled to appear in the March/April issue of Can. Ent. Identification keys in this publication can be used also in Montana, Idaho, eastern Washington, eastern B.C., Saskatchewan, Manitoba, and probably for most species in NWT, Yukon and Alaska, although very little is currently known about species composition in the far north.

After the "Larvae and Adults of Alberta *Ameletus*..." was submitted, I developed a pictorial key to adult males of the Alberta species. This key, which is reproduced on pages 2-3, is primarily based on the genitalic structures and is quite reliable and user friendly. I hope it will provide an alternative tool for the identification of *Ameletus* species in the northern Rocky Mountains.

Plea for help.

Ameletus mayflies are still poorly collected in some parts of North America. For example, from Alaska

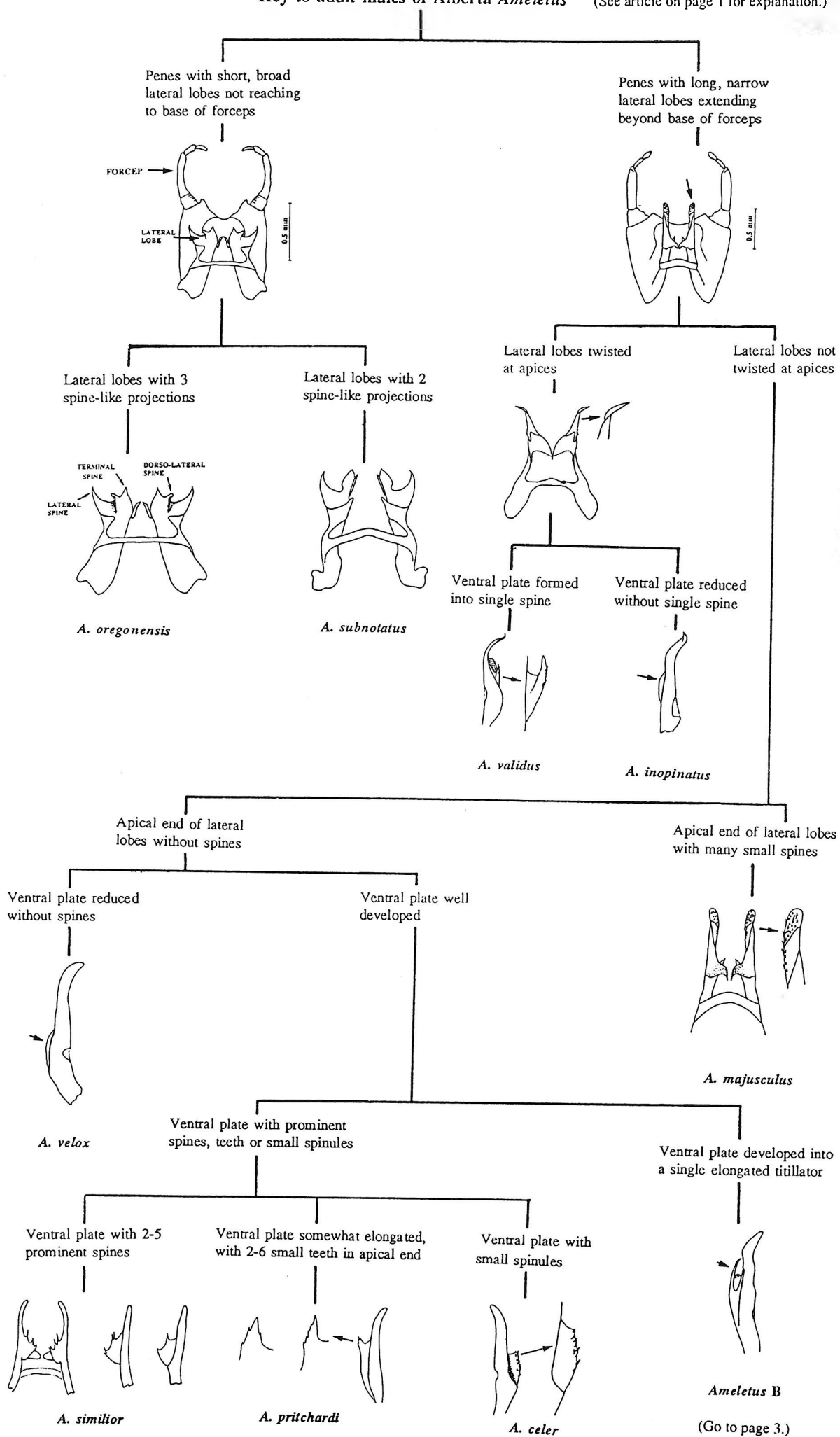
there has been only one species officially reported (*A. validus*), but many more certainly occur there. I have seen numerous small larvae but none with an adult association. Alaska is of particular interest in the study of phylogeny and biogeography of this group since it should have a species composition similar to both eastern Asia and North America. If someone has material to contribute from that area (or from anywhere in North America or from Asia), I will be more than happy to examine it.

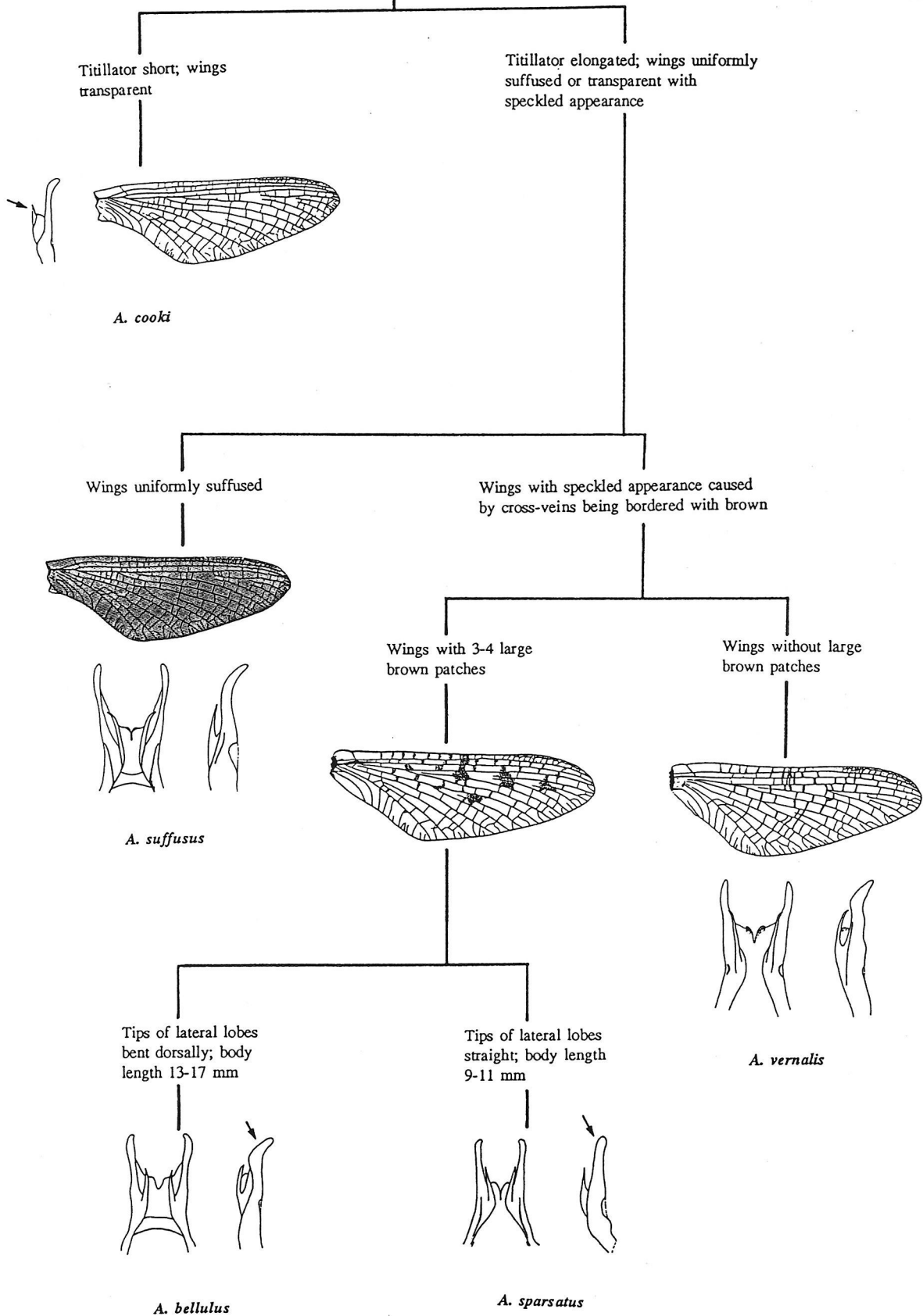
I am also conducting a taxonomic study and survey of Alberta mayfly species. These data will be synthesized into a formal review that will (1) determine the composition and distribution of the mayfly fauna of Alberta; (2) produce morphological descriptions of currently undescribed larvae with supporting biochemical data (if required); and (3) generate a morphological key to the species, both adults and larvae. Although this study is limited to Alberta, species composition should be similar in comparable habitats of adjacent areas and the findings will be of value beyond Alberta. If someone has material to contribute for this study I will greatly appreciate it.

Inside This Issue

Natural History Seminars.....	4
Research Proposals	5
Notes	6
Acidification Report, "Mayfly"	
Architecture, Web Sites	
Meetings/Activities	7
Two Sessions at NABS 1998, IXth	
International Conference, World	
Catalog	
Should Proceedings Be Published?	8
Address Update	9, 10







Natural History Seminars in Maine

Aquatic Entomology Seminar 10-16 August 1997

The Humboldt Field Research Institute (formerly known as Eagle Hill Field Research Station) on the Maine Coast is celebrating its tenth year in offering natural history seminars and workshops. Each summer, regional and national authorities in the field of natural history come to the Institute to lead intensive week-long field seminars and workshops in their specialties.

These seminars are offered for an advanced and professional audience, well-qualified university and college students, and amateur naturalists. Most seminars may be taken for two or more graduate or undergraduate credits by registering through the University of Maine.

The seminar on aquatic entomology will be offered 10-16 August 1997. This seminar will emphasize the laboratory identification of aquatic phases of insects occurring in different aquatic habitats. The importance of aquatic insects in the cycling of nutrients in aquatic ecosystems and as indicators of water quality will be reviewed. Field trips and lectures will address the biology, ecology, and adaptations of these insects. A large collection of Maine genera and keys for their identification will be available. Participants are encouraged to bring some of their own unusual specimens.

Instructors include Dr. K. Elizabeth Gibbs and Ms. Marcia Siebenmann. Dr. Gibbs is Professor Emerita of Entomology at the University of Maine and has a special interest in mayflies. Her research concerns the use of aquatic insects as indicators of water quality, the distribution and biology of Maine aquatic insects, and the importance of aquatic insects as food for fishes and waterfowl. She also conducted research on several species of rare and threatened aquatic invertebrates in Maine.

Ms. Siebenmann currently works at the USGS National Water Quality Lab in Arvada, Colorado, where she is an aquatic invertebrate taxonomist.

Other seminars dealing with freshwater include Freshwater Mollusks (13-19 July); Freshwater Algae (20-26 July); Wetland Identification, Delineation, and Classification (3-9 August); and Introduction to Freshwater Ecology (3-9 August).

For more information, please contact: Eagle Hill Field Seminars, Humboldt Field Research Institute, P.O. Box 9, Steuben, Maine 04680-0009 USA, phone (207) 546-2821, FAX (207) 546-3042, E-mail humboldt@nemaine.com, <http://maine.maine.edu/~eaghill>.

Southeast Australian Leptophlebiidae: A Proposal

Kyla Finlay, Department of Ecology and Evolutionary Biology, Monash University, East Caulfield, Victoria 3145, Australia, E-mail Kyla.Finlay@sci.monash.edu.au

Australian Ephemeroptera are a highly abundant and diverse component of freshwater ecosystems known to be useful for bioindication, yet their taxonomy has only been cursorily studied and is poorly known. There are currently around 100 species, yet it is considered that there are as many, if not more, to be described. The Leptophlebiidae represent the largest family making up at least 50% of described genera and about 70% of described species.

I propose to undertake a morphological revision of selected Southeast Australian leptophlebiid nymphs and adults at both the generic and specific level with the aim of producing a user friendly key. New taxa will be described and named and all changes formally documented. Nymphs will be reared to adults so that associations can be made. It is hoped that this will be supplemented with molecular analysis for confirma-

tion. Geographical distributions of the Southeast Australian component of the family will also be documented.

I also propose to establish the phylogenetic relationships for the southern Hemisphere leptophlebiid genera by comparing morphological character states with those already used to establish the generic phylogeny of the closely related South American and New Zealand fauna. Again, I hope to supplement morphological taxonomy with molecular analysis.

At present I am 6 months into my project and am nearing the end of my first field season. Although much time has been spent developing techniques for laboratory rearing, the rearing I have done has been quite successful. More field work is planned until the end of March, after which I will start to look seriously at the material I have collected so far.

Altitudinal Distribution of Mayflies: A Proposal

Sven-Eric Spichiger, 603 Creekside Drive, Apartment 2, Clemson, South Carolina
29631 USA, E-mail SSPICHI@CLEMSON.EDU

Introduction

A portion of the Blue Ridge mountain chain runs through the northwest part of South Carolina. The Blue Ridge escarpment rises abruptly in that region (Wallace et al. 1992), varying in altitude from about 300 meters above sea level to over 900 meters above sea level over a distance of 0.4 to 16 kilometers. Because the altitude changes in such a short distance, temperature, vegetation, substrate, and other environmental factors also change over this short distance (Wallace et al. 1992), creating different types of habitats. These changes in habitat lead to changes in the species composition of organisms (Vannote et al. 1980) in the Blue Ridge region of South Carolina.

This region of South Carolina is inhabited by several species of mayflies (Ephemeroptera). In an unpublished doctoral dissertation, Carlson (1981) reported that 87 species of mayflies inhabit the Blue Ridge region of South Carolina. Morse et al. (1989) reported the existence of an additional six species from this area. Due to synonymies in recent years (McCafferty 1996), the total number of mayfly species recorded for the Blue Ridge region of South Carolina is 89.

Different mayflies tend to use different microhabitats in aquatic communities (Unzicker and Carlson 1982). Many are found in the spaces between rocks in fast flowing water. Others are found on submerged vegetation or in rotting logs. Some others burrow into the sediment. Because mayflies use different microhabitats, and stream habitats vary with altitude, I hypothesize that the composition of mayfly species will not be the same at different altitudes.

This hypothesis was previously investigated by Dodds and Hisaw (1925) and by Ward and Berner (1980). Dodds and Hisaw concluded that some species of mayflies were confined to particular altitudinal ranges. A portion of the mayflies used in their study consisted of imagoes that were netted while in flight or were taken by sweep-netting of shore vegetation. Though mayflies are not strong flyers, some are capable of traveling great distances. The imagoes used in Dodds and Hisaw's study might not have been site-specific and should not have been included to support their conclusion.

Ward and Berner (1980) showed that different mayfly species occur at different altitudes using larvae of 29 species. The larvae were collected using only a Surber sampler. A Surber sampler cannot be used to sample all of the microhabitats used by mayflies, and, therefore, it does not give a complete picture of the species composition of a particular site. It is possible that a species of mayfly uses different habitats at different altitudes. A Surber sampler might not account for this.

Lenat (1988) discussed the use of a standardized qualitative sampling method. He found that it produced a greater number of taxa per site than did quantitative sampling. Using

multiple sampling methods in a standardized manner may give the most accurate indication of the species composition at each site, provided that the methods used are all site-specific.

To test my hypothesis, I propose to sample mayflies in five different streams in the Blue Ridge region of South Carolina. Each stream will be sampled at different altitudes, and the presence of mayfly species will be recorded from each site. Comparisons between lists of species from different sites will be made. These comparisons should show whether or not certain species are confined to specific altitudinal zones.

Objectives

The objectives of this study are (1) to investigate whether or not the composition of mayfly species is different at different altitudinal zones and (2) to survey the mayflies of the Blue Ridge region of South Carolina and compare the results with previous studies.

Methods

A total of ten sites on five different streams will be sampled. At each site, a standardized sampling procedure will be followed which includes kick samples, dip net samples, hand picking rocks and rotting wood, and examining leaf packs.

Because only mature larvae are being collected, each site will be sampled a minimum of two times per month, from 1 March to 1 December 1997. This will help to insure that species are not overlooked because they have not yet matured.

The results will be analyzed starting in January 1998. A report of the results will be written upon completion of the analysis with a tentative deadline set for the end of May 1998. Results of this study will be submitted for publication.

References Cited

- Carlson, P. H. 1981. Aquatic insects as indicators of environmental alterations. Unpublished Ph.D. dissertation, Clemson University, Clemson, SC. 32 pp.
- Dodds, G. S. and F. L. Hisaw. 1925. Ecological studies on aquatic insects. IV. Altitudinal range and zonation of mayflies, stoneflies and caddisflies in the Colorado Rockies. *Ecology* 6:380-390.
- Lenat, D. R. 1988. Water quality assessment of streams using a qualitative collection method for benthic macroinvertebrates. *J. N. Am. Benthol. Soc.* 7(3):222-233.
- McCafferty, W. P. 1996. The mayflies of North America online. *Ent. News* 107(1):61-63.
- Morse, J. C., S. W. Hamilton, and K. M. Hoffman. 1989. Aquatic insects of Lake Jocassee catchment in North and South Carolina, with descriptions of four new species of caddisflies (Trichoptera). *J. Elisha Mitchell Soc.* 105(1):14-33.

(See "Altitude" on page 6)

- ("Altitude," continued from page 5)
- Unzicker, J. D. and P. H. Carlson. 1982. Ephemeroptera. Pages 3.1-3.97 in A. R. Brigham, W. U. Brigham, and A. Gnilka (eds.). Aquatic insects and oligochaetes of North and South Carolina. Midwest Aquatic Enterprises, Mahomet, IL. 837 pp.
- Vannote, R. L., G. W. Minshall, K. W. Cummins, J. R. Sedell, and C. C. Cushing. 1980. The river continuum concept. *Can. J. Fisheries Aquatic Sci.* 37:130-137.
- Wallace, J. B., J. R. Webster, and R. L. Lowe. 1992. High-gradient streams of the Appalachians. Pages 133-191 in C. T. Hackney, S. M. Adams, and W. H. Martin (eds.). Biodiversity of the southeastern United States, aquatic communities. John Wiley and Sons, Inc. New York, NY. 779 pp.
- Ward, J. V. and L. Berner. 1980. Abundance and altitudinal distribution of Ephemeroptera in a Rocky Mountain stream. Pages 169-177 in J. F. Flannagan and K. E. Marshall (eds.). *Advances in Ephemeroptera biology*. Plenum Press, New York, NY. 552 pp.

Report on Acidification Available

The report, "Use of Macroinvertebrates to Classify Water Quality, No. 2A, Acidification," has been reprinted and is now available in English. It describes a system that was developed to classify acidification in Norwegian running water using the benthic fauna, combining field data and bioassays done in the laboratory. A set of indicators is proposed that will be valid for investigations of acidification in most Norwegian watercourses.

Copies are available from

Norwegian Institute for Water Research

P.O. Box 173, Kjelsås

N-0411 Oslo

Norway

telephone +47 22 18 51 00

telefax +47 22 18 52 00

or contact Karl Jan Aanes at karl.aanes@niva.no.

Mayfly Architecture

To prepare the annual mayfly bibliography that I compile for the North American Benthological Society, I ran a literature search using "mayfly" as a keyword. One of the references I came up with (Harold Carr, 1994, The University of Utah, dissertation) dealt with the Mayfly Distributed Processing System. With some further searching, I found references to Mayfly architecture and Mayfly machine.

I contacted Bob Kessler, who was affiliated with this work, at The University of Utah and asked if he could explain why the name mayfly was chosen. He graciously wrote back with five reasons.

1. The machine may fly and may not.
 2. May was the deadline for producing a demonstration of the system.
 3. Mayflies have short lives as do research architectures.
 4. Al Davis, the lead architect, is a fly fisherman and has been impressed by the frenzy of activity that the appearance of mayflies generates. He hoped that the Mayfly machine would generate similar excitement.
 5. Finally, according to Al Davis, "A more personal aspect is that I like the sound of the name and have always liked the beauty of the actual critter."
- Cool!

Mayfly Web Sites

Mayfly Central

<http://www.entm.purdue.edu/entomology/mayfly/mayfly.html>

Ephemeroptera Galactica

<http://www.famu.edu/mayfly/>

1998

International Conference

<http://www.unt.edu.ar/congresos/EPHEMERO.HTM>

Planning Ahead for NABS, 1998

Special Paper Session - Mayfly Taxonomy and Biogeography

This is the first announcement of a special paper session on mayfly taxonomy and biogeography that is being planned in addition to the regular contributed paper sessions 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.

It is the intent of this session to bring into focus current advances in mayfly systematics and biogeography in a way that will be relevant to those charged with monitoring and managing aquatic habitats as well as those of us who are interested in more basic questions of evolution and species distributions.

Anyone who is interested in participating in this special session should contact Steve Burian via E-mail at Burian@scsu.ctstateu.edu or snail-mail at Dept. of Biology, Southern Connecticut State University, 501 Crescent St., New Haven, Connecticut 06515 USA.

Additional information will appear in future issues of *The Mayfly Newsletter* and the *Bulletin of the North American Benthological Society*.

Hands-on Taxonomy Workshop on Nearctic Mayflies

A special hands-on workshop on the taxonomy of Nearctic mayflies 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

<p>NABS 1998 Prince Edward Island, Canada 2-5 June 1998</p>
--

species and in the preparation of specimens for study (i.e., microdissection and slide making).

Additional information concerning this workshop will appear in future issues of *The Mayfly Newsletter* and the *Bulletin of the North American Benthological Society*.

IXth International Conference on Ephemeroptera

<p>Updated information is available on the web at http://www.unt.edu.ar/congresos/EPHEMERO.HTM</p>

The IXth International Conference on Ephemeroptera will be held 19-21 August 1998 in Tafí del Valle, Argentina. The XIIIth International Symposium on Plecoptera will follow on 20-23 August. The next official announcement on these conferences will be mailed around August. In the meanwhile, if you have any questions, please contact Dr. Eduardo Dominguez at Mayfly-Stonefly Congress, Facultad de Ciencias Naturales (INSUE), Universidad Nacional de Tucumán, Miguel Lillo 205, 4.000 Tucumán, Argentina, FAX 54(81)248025, E-mail mayfly@unt.edu.ar. The first circular and periodically updated information is available at <http://www.unt.edu.ar/congresos/EPHEMERO.HTM>.

World Catalog of Ephemeroptera

Discussions at the recent meeting of the North American Benthological Society brought up the problem of the current dearth of comprehensive catalogs and/or checklists of the Ephemeroptera. Scattered individual databases, which exist in various formats and stages of preparation, are not really sufficient. Therefore, the International Committee for a World Catalog of Ephemeroptera was formed to encourage and coordinate the production of compatible checklists of mayfly taxa, which can gradually be developed into full catalogs.

The World Wide Web site, "Ephemeroptera Galactica" (<http://www.famu.edu/mayfly/>), will be used as a coordinating site for these lists as they are developed.

If you are interested in serving on or working with the Committee, please contact the Chair, Michael D. Hubbard (mhubbard@famu.edu) at the Laboratory of Aquatic Entomology, Florida A&M University, Tallahassee, Florida 32307-4100 USA.

Should Mayfly Conference Proceedings Be Published?

Two Replies

Editor's note: The following two letters (which have been edited) are responses to the review of *Current Directions in Research on Ephemeroptera*, by Chuck Hawkins, which originally appeared in the *Journal of the North American Benthological Society*, 15:136-168 (1996). I obtained permission from NABS and Chuck to reprint the review in the December 1996 *Mayfly Newsletter*.

My purpose in reprinting the review was to question whether we should continue publishing the proceedings of our conferences. Some conveners have indicated that locating a publisher can be very difficult. The final proceedings tend to be expensive and have a limited distribution. Also, as the original review and one of the letters below indicate, there are some occasional concerns about quality.

I will be happy to publish any further comments regarding the proceedings. Perhaps this might be a good topic for discussion at the international conference in Argentina.

Mick Gillies

I am sure that there may be some truth in what Professor Hawkins says about the lack of peer review in papers published in the Proceedings of the International Ephemeroptera Conferences. But it is not the whole story.

I spent much of my working life in a distant world, that of the Culicidae. It was one in which wrangles about higher classification and hierarchy had been settled earlier in the century. Taxonomic debate centred around species complexes and the presence of puzzling deficits in expected inversion frequencies. And always there was the pressure to relate one's work to human disease.

Then I retired, and the long denied possibility of attending mayfly conferences became a reality. There would be a week spent in the company of perhaps a hundred other people, talking about nothing except mayflies. And then at the end of it there would be the belated arrival of a fat volume, a whole book devoted to the same subject. Every few years a welcome new addition to the bookshelf would arrive. Their contents may not often be cited by ambitious freshwater biologists, but they are paid for and read and enjoyed and returned to again by those who are amateurs - in the original sense of the word as lovers.

Tom Fink

I currently possess five of the seven International Mayfly Conference Proceedings, and I hope to eventually own them all. I consider these books to contain important contributions to our knowledge of mayfly biology by dedicated researchers throughout the world. I have personally attended three conferences and published in two (Switzerland conference proceedings

forthcoming). I attended and paid for all fees and travel expenses from my own personal funds for two conferences, Spain and Switzerland. So it should be evident that I consider the conferences and proceedings to be extremely valuable. Thus, I was extremely dismayed by Charles Hawkins' review (which was not peer reviewed).

The positive outcome of Hawkins' review is that we do need to improve the quality of the contributed papers and the availability and timeliness of conference proceedings. The papers in all proceedings should be able to withstand careful review.

So, the editors of conference proceedings probably should expand their list of potential reviewers outside those of the conference proceedings, and contributors should conduct their research and prepare their papers more carefully.

In general, will these papers be of the quality of the *Journal of the North American Benthological Society* (JNABS)? Of course not, and in some respects they shouldn't as the conference proceedings are a necessary outlet for preliminary and speculative research. Isn't one of the reasons we attend these conferences to know the current research and activities of our colleagues?

Faunistic studies also have a niche in conference proceedings. While difficult to publish in other forums, they provide a useful service to mayfly workers who may want to work on various species and communities in other countries and geographic areas.

Those of us who attend these conferences must demand a more timely publication of proceedings. It may be time that an International Board takes charge of the publication of all proceedings, so that we have, in essence, a book that appears promptly no more than six months after the conference has occurred. This board can then actively promote, advertise, and market these

(See "Letter" on page 9)

("Letter," continued from page 8)

proceedings so that they are more widely available.

In summary, mayfly conference proceedings must and will improve in quality. Paper quality and availability of proceedings must improve and publication delays must be minimized. Finally, it should be mentioned that any shortcomings found in mayfly conference proceedings can be found in proceedings from a wide range of scientific societies. We should also demand that book reviews in journals like JNABS be peer reviewed themselves. Authors of book reviews should not be allowed the power of the pen without peer review!

D BRAASCH
KANTSTRASSE 5
D-14471 POTSDAM
GERMANY

T BURKE
105 EAST 15 STREET #54
NEW YORK NY 10003
USA
SCS1USA@aol.com

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 to postal or E-mail addresses.

KJ AANES
NORWEGIAN INSTITUTE FOR WATER RESEARCH
PO BOX 173 KJELSAS
N-0411 OSLO
NORWAY
karl.aanes@niva.no

AQUATIC BIOLOGY SECTION
LABORATORY SERVICES TENN DEPT HEALTH
630 BEN ALLEN ROAD
NASHVILLE TN 37247-0801
USA

C BELFIORE
carbelfi@unina.it

J M CAHOW
WDNR
810 WEST MAPLE STREET
SPOONER WI 54801
USA

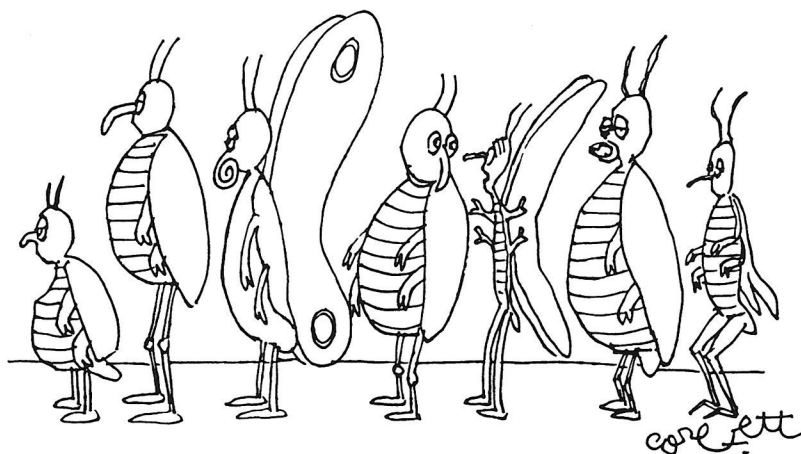
G COPPA (incorrectly listed as C.
Gennaro)
RUE DU COURLIS
08350 VILLERS-SUR-BAR
FRANCE

C E CUSHING
1610 WOODBURY STREET
RICHLAND WA 99352
USA
CECushing@aol.com

E DOMINGUEZ
FAC CIENCIAS NAT
UNIV NACIONAL DE
TUCUMAN
MIGUEL LILLO 251
4.000 TUCUMAN
ARGENTINA
mayfly@unt.edu.ar

T FINK
FinkTom@aol.com

K FINLAY
DEPT ECOLOGY AND EVOL
BIOLOGY
MONASH UNIVERSITY
EAST CAULFIELD VICTORIA
3145
AUSTRALIA
Kyla.Finlay@sci.monash.edu.au



"May I go ahead of you, please—I only live 24 hours!"

© Jack Corbett

(See "Addresses" on page 10.)

("Address," continued from page 9.)

W A GACONO
28 WARRINGTON ROAD
COLUMBIA MO 07832-2515
USA
WGiacono@aol.com

J S HARDING
DEPARTMENT OF BIOLOGY
VIRGINIA TECH
BLACKSBURG VA 24061-0406
USA
jharding@vt.edu

N HOQ
APT 805
10201 GROSVENOR PARK
ROCKVILLE MD 20852
USA
hoq@attmail.com

HUMBOLDT FIELD RESEARCH INST
PO BOX 9
STEUBEN ME 04680-0009
USA
humboldt@nemaine.com

T JOERN
PO BOX 1342
WHITEFISH MT 59937
USA
jrdog@netrix.net

N J KLUGE
DEPT ENTOMOLOGY BIOLOGY FAC
SAINT PETERSBURG STATE UNIVER-
SITY
SAINT PETERSBURG 199034
RUSSIA
kluge@ent.bio.pu.ru

P KRIEKENBEEK
55 LENNOX STREET
MOONEE PONDS
VICTORIA
AUSTRALIA
EPA.EPAPRK@MESMTPSE.ERICSSON.SE

D R LENAT
davel@dem.ehnr.state.nc.us

J MONTGOMERY
Jameeson1@aol.com

T NAKAMURA
BIOSYST LAB SCS KYUSHU UNIVER-
SITY
RIPPONMATSU 4-2-1
FUKUOKA CITY 810
JAPAN
gaganrcb@mbox.nc.kyushu-u.ac.jp

J F NAPOLITANO

1300 LONGCREEK DRIVE #1938
COLUMBIA SC 29210
USA

S A PERRY
EVERGLADES NATIONAL PARK
SFNRC
40001 STATE ROAD 9336
HOMESTEAD FL 33034
USA
Sue_Perry@nps.gov

S SPICHER
603 CREEKSIDE DRIVE APT 2
CLEMSON SC 29631
USA
SSPICI@CLEMSON.EDU

H G VAN DER GEEST
DEPT AQUATIC ECOTOXICOLOGY
ARISE
UNIV AMSTERDAM KRUISLAAN 320
1098 SM AMSTERDAM
NETHERLANDS
hgeest@bio.uva.nl

Y VIDINOVA
INSTITUTE OF ZOOLOGY BAS
BOUL TSAR OSVOBOTIDEL 1
BG-1000 SOFIA
BULGARIA
zoology@bgcict.acad.bg

M VINSON
FISH AND WILDLIFE DEPARTMENT
UTAH STATE UNIVERSITY
LOGAN UT 84322-5210
USA
aqua@cc.usu.edu

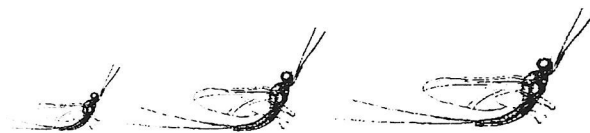
T WANG
DEPT ENTOMOLOGY 1-87 AGRICUL-
TURE BUILDING
UNIVERSITY OF MISSOURI COLUM-
BIA
COLUMBIA MO 65211
USA
entwang@showme.missouri.edu

T WASIELEWSKI
AEI
8 OLD INDIAN TRAIL
MIDDLEFIELD CT 06455-1200
USA

S WINESETT
DEPT ENTOMOLOGY 114 LONG HALL
CLEMSON UNIVERSITY BOX 340365
CLEMSON SC 29634-0365
USA

C ZHU
INST ZOOLOGY CHINESE ACADEMY
OF SCIENCES
HAIDIAN DISTRICT
ZHONG GUAN CUN ROAD 19#
100080 BEIJING
PEOPLES REPUBLIC OF CHINA
sea@panda.ioz.ac.cn

**I need the current
address for
B. Sames - USA**



The Mayfly Newsletter (ISSN 1091-4935) is the official news-
letter 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 (405) 774- 3294, FAX (405) 774-3795, E-mail
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.