



The Mayfly Newsletter

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The Mayfly Newsletter

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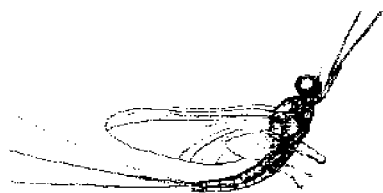
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THE MAYFLY NEWSLETTER

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

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The Diversity and Conservation of Mayflies, Caddisflies, and Stoneflies in Kurdistan Region, Northern Iraq: A Dissertation Proposal

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Chapter 1: Mayfly Diversity in Kurdistan Region, Northern Iraq

This study is the third study about mayflies in Kurdistan-Iraq, and the first in terms of studying their diversity in this part of the Middle East. My main purposes are (i) to contribute actively in solving the current biodiversity crisis, through discovering mayfly diversity in overlooked natural parts of the world like Kurdistan-Iraq; (ii) to overcome the lack of taxonomic expertise and establish an active database for the Iraqi mayflies at the Ephemeroptera Barcode of Life campaign; (iii) to identify the mayflies inhabiting Kurdistan-Iraq as a step towards establishing future water quality biomonitoring programs in Iraq; and (iv) to track the distribution of Iraqi endemic species as a step towards future conservation efforts. My preliminary results are suggesting the presence of more than 30 species; many of them are new to science. I anticipate finishing the lab work and related analyses by summer 2014.

Chapter 2: Discovering Cryptic Diversity in Iraq: A Case Study on Squaregill Mayflies (Insecta: Ephemeroptera: Caenidae) in the Headwaters of the Tigris River, Northern Iraq

This study is the fourth study about mayflies in Iraq, and the first in terms of studying squaregill mayflies' diversity and distribution in Kurdistan region. Our motivating purposes are (i) to uncover the taxonomic situation of the squaregill mayflies, especially the *Caenis macrura* group complex, (ii) to overcome the lack of taxonomic expertise and contribute actively to the knowledge about mayfly diversity in the Middle East, and (iii) to explain the distribution pattern of squaregill mayfly haplogroups (proposed evolutionary entities). My preliminary results suggested

the presence of 5 cryptic species; all of them are related to *Caenis macrura macrura* Stephens 1836. I anticipate finishing the lab work and related analyses by summer 2014.

Chapter 3: Identifying and Prioritizing Aquatic Sites of Conservation Concern in Kurdistan Region, Northern Iraq, Using Sensitive Aquatic Insects

Identifying and prioritizing sites is a common strategy used by conservation biologists to persuade stakeholders to protect the natural habitats. Identifying and protecting the rare and endemic species are also other strategies used by conservation biologists to conserve the unique evolutionary entities before they become vulnerable to extinction, because extinction, if it happens, is unfortunately irreversible. This research is dedicated to identifying the aquatic sites of conservation priority in Kurdistan Region, northern Iraq. Mayflies, caddisflies, and stoneflies are used in this study and my preliminary results are suggesting the presence of 10 hotspots of conservation concern. I anticipate finishing the lab work and related analyses by summer 2014.

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My Great Northern Canadian Mayfly Hunt

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It's a bright and sunny night on the Thelon River in the Northwest Territories. Even though it's past midnight, it is still bright, since I'm north of the Arctic Circle in the Central Barrens of Arctic Canada. I'm up late hoping that the light will get dim enough to have some success with the black light I've schlepped by canoe over 300 km of arctic river, but so far, the black light isn't competing very well with the light of the sun. To kill the time while I hope for action at the light, I'm sweeping the foot-high arctic birch and willows with my insect net, but not doing very well, at least for mayflies.

I'd been hunting for mayfly adults for several years in the arctic tundra, and it was looking like another bad year. Picture me setting out pan traps and nets next to myriads of ponds and rivers, waving my insect net and beating vegetation over countless acres of tundra, searching the tundra grasses and low bushes... all to try to find the adults to match up with the nymphs I've collected. Where could they be? It's not like I couldn't see them rising from the river. I've watched acrobatic Arctic terns snap them up as they take their maiden flights from the water, and arctic grayling and small trout capture them before they could break free of the water surface. But some must make it to the shore, and they must go somewhere to go through their second adult molt, and mate, or there wouldn't be any in the river in the first place.

I thought I finally had it licked in 2000, during a sampling trip along the Horton River ... this is a major arctic river that flows northward from its headwaters around Horton Lake, Northwest Territories (north of Great Bear Lake) to empty into Franklin Bay in the Arctic Ocean. A group of us paddled 750 km of the river, collecting various groups of aquatic insects. We were sleeping in bright yellow tents, and every time the sun shone, flying insects were attracted to the yellow fabric of the tent, including, by god, the mayflies! I spent many happy hours plucking mayflies off the glowing tents, not catching many, but enough to keep me interested.

The next decade was spent trying to re-create the conditions on the Horton. My itinerary reads like something from the early northern explorers' journals... the Thelon River, the McConnell, the Diane, the Meliadine, the Maguse, the Prince, the Mackenzie... All large river systems on the Canadian Barrenlands. At each place, I set up yellow tents, or tacked down

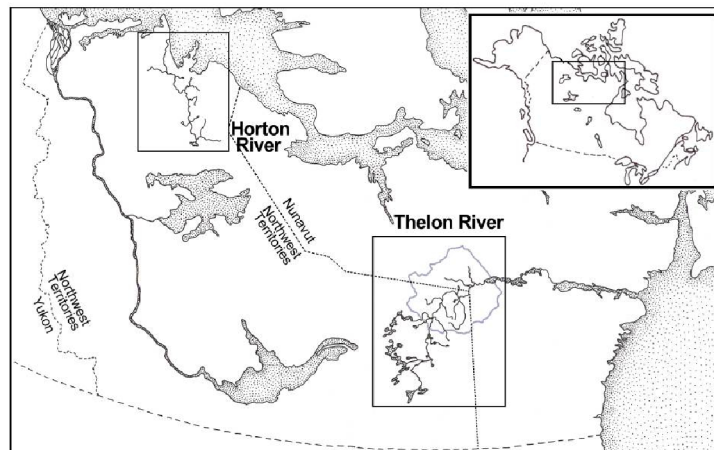
bright yellow ground cloths, but never again did I manage to find adult mayflies. I tried rearing (putting late stage nymphs into small cups of water, and seeing if they would emerge to the adult stage), I tried the black light again, and all my other methods, tried and true methods for sampling in the south! But despite finding lots of nymphs, the adults were nowhere to be seen (except for one notable time when we encountered a small swarm of the northern mayfly, *Baetis bundyae*, while flyfishing on the Meliadine River, Nunavut). This wasn't a cheap hunt, either... every trip north represented a major investment, and for mayflies at least, turned out to be a bit of a wild goose chase instead!

Then, finally ... a eureka moment in 2008 on the banks of the Coppermine River in Nunavut! I was there to train a group of Inuit youth in aquatic insect identification and water quality monitoring; a local initiative to provide kids with something to do in summer, as well as provide the community with important data. It was a new sampling experience for me, as we didn't

go anywhere without a bear monitor; someone to watch for polar and grizzly bears while we had our noses stuck in our sample trays. It was high summer, but cool and windy, with the daytime temperature creeping up to about 7-10 °C as we worked on the river. It was perfect weather to hunt for stoneflies under rocks along the shore. The kids squealed with excitement as we discovered big perlotid stoneflies almost every time we turned over a rock and we made a good collection. But as we flipped

over the rocks, suddenly I saw a mayfly. A mayfly!!! It was hiding under the rocks near shore. Then there was another one, and another. And not just one species... there were at least 2 or 3! The kids couldn't figure out why I was so excited; after all, didn't I tell them there'd be bugs under the rocks?

Is this where the mayflies go on these arctic rivers? They were all subimagos and seemed to be sheltering from the wind, generally within 10-15 feet of shore. Do they sit here until it is time to molt to the adult imago stage? Maybe they don't even leave the shore, except in those rare days when it is warm enough to tempt them away from the water. This is a pretty good strategy if you live in a habitat where temperatures may or may not be conducive for flying, especially when you're not a very good flyer in the first place. And now I can't wait to get back to the north to test out this new method for sampling mayflies on the shores of large tundra rivers!



Zootaxa Ephemeroptera Editors' Annual Summary and Acknowledgments (2013)

Luke M. Jacobus¹, F. F. Salles²

¹Division of Science, Indiana University Purdue University Columbus, Indiana, USA, luke.jacobus@gmail.com; ²Departamento de Ciências Agrárias e Biológicas, Universidade Federal do Espírito Santo, Brazil, ffsalles@gmail.com

Zootaxa is a peer-reviewed international journal established in 2001 for rapid publication of high quality papers on any aspect of systematic zoology. It is “the most important outlet for monographs in systematic zoology” and has published nearly a quarter of all new animal taxa in recent years (Zhang 2011). The only previous Ephemeroptera subject editor was the late Michael Hubbard. A total of 123 papers about Ephemeroptera have been published in *Zootaxa*, from 2002 to 2013.

Twenty peer-reviewed papers about Ephemeroptera by 35 authors were published in *Zootaxa*, totaling 204 pages, during 2013. This annual number of Ephemeroptera papers has only been equaled once, in 2010. During 2013, 23 new species and one new subspecies were described in *Zootaxa*. Subject matter, broken down by family was as follows: Leptophlebiidae (7), Baetidae (5), Heptageniidae (4) and one paper each for Ameletidae, Palingeniidae, Prosopistomatidae and Teloganodidae. We work as a team, and as such, each of us accepted ten manuscripts for publication during 2013. For comparison, this is the average for *Zootaxa* subject editors journal-wide (Zhang 2014). Only one Ephemeroptera paper was made available with full “open access” by its author (Webb 2013).

Please visit the Ephemeroptera section of *Zootaxa* at <http://www.mapress.com/zootaxa/taxa/Ephemeroptera.html>. We welcome your contributions, and we endeavor to handle them in a timely, courteous and consistent manner. We wish to emphasize here that we will accept only Ephemeroptera papers with a sole or primary focus of taxonomy and classification. In order to accelerate the processing of papers by us, before you submit a manuscript please consult Dubois et al. (2011) and the journal guidelines, available at <http://www.mapress.com/zootaxa/sup->

[port/author.html](#). *Zootaxa* aims to publish each paper within one month after the acceptance by editors. We encourage all authors to purchase “open access” if funds are available.

None of this would be possible without the generosity of manuscript reviewers. We sincerely thank the following individuals for serving in this capacity (often multiple times) during 2013 and thereby helping to advance our science: Helen Barber James, Lucimar Dias, Eduardo Dominguez, Daniel Emmerich, Wills Flowers, Jean-Luc Gattolliat, Ines Goncalves, Peter Grant, Nikita Kluge, Lucas Lima, Rodolfo Mariano, Pat McCafferty, Stasa Milojevic, Carlos Molineri, Carolina Nieto, Pablo Pessacq, Jan Peters, Michel Sartori, Andras Schubert, KG Sivaramakrishnan, Marcia Souza, Jeff Webb and Nick Wiersema. We extend our apologies to anyone who may have been excluded from this list inadvertently.

LITERATURE CITED

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- Webb, J. 2013. A new species of *Labiobaetis* Novikova & Kluge, 1987 (Ephemeroptera: Baetidae) from Washington, USA. *Zootaxa* 3750: 95-99.
- Zhang, ZQ. (2011). Accelerating biodiversity descriptions and transforming taxonomic publishing: the first decade of *Zootaxa*. *Zootaxa* 2896: 1-7.
- Zhang, ZQ. (2014) Sustaining the development of world's foremost journal in biodiversity discovery and inventory: *Zootaxa* editors and their contributions. *Zootaxa* 3753(6): 597-600.

Shipping Specimens in Alcohol

There has been some confusion about the shipping of natural history specimens preserved in alcohol over the last few years since alcohol is considered a flammable substance (Bentley, 2008). Dr. Andrew Bentley, an ichthyologist at the University of Kansas, has looked extensively into this matter and published very helpful guidelines for museum professionals.

Bentley (2008) discussed the background regarding this issue, and he (Bentley, 2011) reported on special provisions for shipping natural history specimens. Most recently, permission to carry specimens on aircraft or in checked baggage has been allowed (IATA, 2013, see p. 12).

Dr. Bentley is an active member of the Society for the Preservation of Natural History Collections. Based on his discussions on the Natural History Collections Listserv (NHCOLL-L), he is available to answer questions about this issue. He can be reached at abentley@ku.edu (<http://biodiversity.ku.edu/andrew-bentley>).

Bentley, A. C. 2008. Shipping and handling of natural history specimens in dangerous goods. *Collection Forum* 22(1-2):66-73, <http://decapoda.nhm.org/pdfs/31321/31321.pdf>.

Bentley, A. C. 2011. New special provision for international shipping of natural history specimens. *Society for the Preservation of Natural History Collections Newsletter* 25(1):1-2, 9; http://www.spnhc.org/media/assets/SPNHC_Newsletter_2011_V25_N1.pdf.

IATA. 2013. IATA dangerous goods regulations. 54th ed. Addendum Rev. 2.

2015 Joint International Conference

Plans are well underway for the next Joint meeting of the International Conferences on Ephemeroptera and International Symposia on Plecoptera in June 2015. The meeting will be held in Aberdeen, Scotland's third largest city, which is located on the stunning north east coast between the Rivers Don and Dee. The city has striking granite architecture, an inspiring history, strong industrial heritage, a vibrant population and a thriving art scene. The county of Aberdeenshire has stunning scenery, including Scotland's largest national park – the Cairngorms National Park.

The city has excellent facilities for the Joint Meeting with the Dee and Don catchments and surrounding habitats providing outstanding opportunities for fieldwork. North east Scotland supports a high proportion of the UK Ephemeroptera and Plecoptera fauna, including *Brachyptera putata* – an endemic species with government conservation status.

The conference will be hosted at the James Hutton Institute (<http://www.hutton.ac.uk>) one of the biggest research centres in the UK and the first of its type in Europe. The scientific programme will be delivered in the Institute's Macaulay suite and mid-conference and post-conference field trip are being organized for participants to experience the wildlife, habitats, scenery and culture of North east Scotland.

It is expected that registration for the conference will open in January 2015.

Further details will be posted on the conference webpages (<http://www.riverflies.org/international-joint-conference-2015>) as they become available.

New Facebook Page on Mayflies

Luke Jacobus

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Mayfly Central is a place, a program, and an information resource. It is affiliated with the Department of Entomology at Purdue University and the Division of Science at Indiana University Purdue University Columbus. The program is a multidimensional research and education program dedicated to

the pursuit and dissemination of knowledge about mayflies, or the insect order Ephemeroptera, from throughout the world.

The resource involves information about mayflies, especially the taxonomy and geographic distribution of species in North America and Central America.

2015 Joint International Conference
<http://www.riverflies.org/international-joint-conference-2015>
Mayfly Facebook Page
<https://www.facebook.com/groups/214360835391035>
World Checklist of Mayflies
<http://fada.biodiversity.be/group/show/35>

World Checklist of Mayflies

Barber-James, H., M. Sartori, J.-L. Gattolliat and J. Webb. 2013. World checklist of freshwater Ephemeroptera species. World Wide Web electronic publication. Available online at <http://fada.biodiversity.be/group/show/35>.

Permanent Committee Members

Javier Alba-Tercedor, Universidad de Granada, Facultad de Ciencias, Departamento de Biología Animal Ecología y Genética, 18071 Granada, Spain, jalba@ugr.es

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Eduardo Domínguez, Facultad de Ciencias Naturales, Universidad Nacional de Tucumán, Miguel Lillo 251, 4000 Tucumán, Argentina, mayfly@unt.edu.ar

John Flannagan, 456 Isabella Point Road, Salt Spring Island, British Columbia V8K 1V4, Canada, jpfannagan@shaw.ca

Elda Gaino, Dipartimento di Biologia Animale ed Ecologia, Via Elce di Sotto, 06123 Perugia, Italy, gaino@unipg.it

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Michel Sartori, Chairman, Musée cantonal de zoologie, Palais de Rumine, Place de la Riponne 6, CH-1014 Lausanne, Switzerland, michel.sartori@vd.ch [currently on sabbatical - email Michel at michel.sartori@uni-hamburg.de]

Tomáš Soldán, Institute of Entomology, Academy of Sciences of the Czech Republic, University of South Bohemia, Branišovská 31, 37005 České Budějovice, Czech Republic, soldan@entu.cas.cz

Arnold Staniczek, Webmaster, Staatliches Museum für Naturkunde, Abt. Entomologie, Rosenstein 1, D-70191 Stuttgart, Germany, stanieczek.smns@naturkundemuseum-bw.de

Yasuhiro Takemon, Kyoto University, Disaster Prevention Research Institute, Gokasho, Uji-shi, 611-0011, Japan, takemon.yasuhiro5e@kyoto-u.ac.jp

Alexa C. Alexander Trusiak, Treasurer, NSERC Visiting Fellow, Environment Canada at the Department of Biology and Canadian Rivers Institute, University of New Brunswick, #10 Bailey Drive, PO Box 4400, Fredericton, NB, Canada E3B 5A3, alexa.trusiak@ec.gc.ca or alexa.alexander@unb.ca c/o alexander.trusiak@gmail.com.

Permanent Committee News

William L. Peters Travel Scholarship Fund

The William L. Peters Travel Scholarship Fund provides financial support to help students, who are studying mayflies, to attend the international conference. Two individuals were awarded travel funds to attend the meeting in Japan. There are three ways to contribute to this fund.

One is to participate in the silent auction at the joint international conferences by either donating items or bidding. In Japan, a total of C\$1284 (Canadian dollars) was raised for travel scholarships. Now is a good time to think about items to donate to the conference auction in Scotland in 2015.

A second way is to purchase proceedings of past conferences. The Permanent Committee is in the process of establishing a more formal procedure for this. In the meantime, please contact the editor of the conference proceedings for directions on how to purchase a copy.

The third way is to make a cash donation to the travel fund. You might even consider making the travel fund a beneficiary of an insurance policy or investment. Cash donations and inquiries regarding the travel fund may be sent to Alexa C. Alexander Trusiak, NSERC Visiting Fellow, Environment Canada at the Department of Biology and Canadian Rivers Institute, University of New Brunswick, #10 Bailey Drive, PO Box 4400, Fredericton, NB, Canada E3B 5A3, alexa.trusiak@ec.gc.ca; or alexa.alexander@unb.ca c/o alexander.trusiak@gmail.com. Alexa can provide a receipt that includes the Canadian Government taxation number, which could make the donation tax deductible depending on your country's tax laws.

Scholarship Fund

Financial Statement Jan 01 to Dec 31 2012

Assets: Dec 31 2011 \$18,941.59

Income:

Interest on term deposits \$332.85

Income from auction at International meeting \$915.84

Cash donations from International meeting \$368.44

Total: \$1,617.13

Subtotal: \$ 20,558.72

Disbursements: -\$1775.49

Scholarship payment: Sonia Zrelli \$850

Scholarship payment: Erdene Bolortseg \$850

Bank charges associated with disbursing funds
(money transfers; exchange) \$75.49

Assets: Dec 31 2012

PEI Bank of Nova Scotia GIC NS 10000000PCDMR \$10,376.86

PEI Bank of Nova Scotia GIC NS 10000000KYGM5 \$8406.23

Cash \$0.14

Subtotal \$18,783.23

Total \$18,783.23

Donna J. Giberson, Treasurer

May 12, 2013



Need Current Addresses

I need mailing addresses or contact information for the following individuals:

C Degrange, Grenoble, France

T Kawai, Kyoto, Japan

A Kownacki, Krakow, Poland

H Van Der Geest, Amsterdam, Netherlands

New Committee Treasurer!

The Permanent Committee welcomes Dr. Alexa C. Alexander Trusiak as our new treasurer! Alexa is filling the position recently occupied by Donna Giberson.

The Treasurer's position is very important. Not only will Alexa keep track of the funds in our accounts, but also arrange the travel scholarships to attend our international conferences and file the paperwork necessary so that we operate as a non-profit organization. Contact information for Alexa is on p. 4.

We also thank Donna for her many years of service as treasurer. Through her efforts we have been able to continue as a non-profit organization and have provided travel scholarships to a number of young scientists studying Ephemeroptera. Thanks, Donna!

2012 Ephemeroptera Bibliography

Compiled by Luke M. Jacobus

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Columbus, Indiana 47203 USA, luke.jacobus@gmail.com

INTRODUCTION

I put together the following list of publications as part of the Society for Freshwater Science's 2012 Literature Review for Ephemeroptera. It is organized by general themes: taxonomy & systematics; distribution; ecology, physiology & toxicology. It is not intended to be an exhaustive list, but rather it is one that includes papers with a major emphasis on mayflies. A couple of technically unpublished papers are included. I made efforts to verify each citation, but in a few cases, I was unable to obtain the actual publication. Also, I am sure that I made errors. **Please report corrections to me.**

I hope to remain on the SFS Literature Review Committee for several years, so please send me citations for your publications, so that I can be sure to include them. Of course, I prefer to receive copies of the publications themselves to add to the Ephemeroptera literature collection from Purdue, most of which is now in my care. **If you have literature that you cannot locate, please let me help.**

TAXONOMY & SYSTEMATICS

- Bae, Y.J.; Finlay, K.J.; Campbell, I.C. 2012. The hornless Australian burrowing mayfly *Ulmerophlebia* (Ephemeroptera: Leptophlebiidae). *Animal Systematics, Evolution and Diversity* 28(4): 230-240.
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- Cruz, P.V.; Boldrini, R.; Quinto, C.F.; Frontado, H. 2012. New Baetidae (Insecta: Ephemeroptera) records from Venezuela and nymph description of an unnamed Fallceon species. *International Journal of Zoology* 2012:837092.
- DeSouza, M.R.; Molineri, C. 2012. The adults and nymphs of *Asthenopus angelae* new species (Ephemeroptera: Polymitarcyidae) from Argentina, Bolivia, Brazil and Colombia. *Zootaxa* 3399: 45-52.
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Le Festin de l'Araignée

Albert Roussel

This work is about insect life in a garden – ants, beetles, mantises, and a spider. It also includes five movements about a mayfly being caught in the spider's web and eventually dying.



http://static.qobuz.com/images/covers/71/43/0747313224371_600.jpg



- Nominate a plenary speaker
- Organize a symposium (aquatic insects, Ephemeroptera?)
- Host an event or function
- Present a paper or poster
- <http://ice2016orlando.org/>

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