THE MAYFLY NEWSLETTER
Southwestern Oklahoma State University, Weatherford, Oklahoma 73096-3098 USA

Volume 20 | Issue 2 Article 1

1-9-2018

The Mayfly Newsletter

Donna J. Giberson
The Permanent Committee of the International Conferences on Ephemeroptera, giberson@upei.ca

The Mayfly Newsletter

Vol. 20(2)
Winter 2017

The Mayfly Newsletter is the official newsletter of the Permanent Committee of the International Conferences on Ephemeroptera

In this issue

Project Updates

Development of new phylogenetic markers to uncover island colonization histories by mayflies

Sereina Rutschmann[1], Harald Detering[1] & Michael T. Monaghan[2,3]

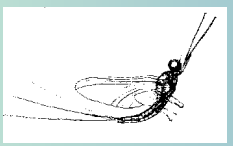
[1]Department of Biochemistry, Genetics and Immunology, University of Vigo, Spain
[2]Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Berlin, Germany
[3]Berlin Center for Genomics in Biodiversity Research, Berlin, Germany
Email: sereina.rutschmann@gmail.com; harald.detering@gmail.com; monaghan@igb-berlin.de

The diversification of evolutionary young species (<20 million years) is often poorly understood because standard molecular markers may not accurately reconstruct their evolutionary histories. Only a handful of nuclear DNA markers have been used to reconstruct phylogenetic relationships within mayflies. Most of these markers are conserved and do not provide enough phylogenetic resolution for recently diverged species.

In a recent collaboration with several research institutes, we developed a bioinformatics program called "DiscoMark" (Rutschmann et al. 2017a) to streamline the design of nuclear DNA markers based on genomic data (i.e., it is not required to have an annotated whole genome). We then used 59 markers to reconstruct fine-scale relationships within the *Cloeon dipterum s.l.* (Baetidae) cryptic species group using coalescent-based phylogeographic approaches (Rutschmann et al. 2017b; Figure 1).

DiscoMark designs primer pairs suitable for both Sanger sequencing and next-generation sequencing (NGS). As input, the user provides genomic data of one or several target species. We, for example, used genomic data sets of the four mayfly species *Baetis* sp., *Ephemera danica* Müller 1764, *Eurylophella* sp., and *Isonychia bicolor* Walker 1853 and obtained 53 primer pairs for potential new markers. The program, user guide, and example data set are freely available on GitHub (https://github.com/hdetering/discomark). We are happy to assist new users of the program and general questions both on the program and molecular marker development may be addressed directly to us.

Applying the large set of newly developed markers we found support for several trans-oceanic colonization events and fully reconstructed the evolutionary history of the *C. dipterum s.l.* species group. *Cloeon dipterum s.l.* includes at least three taxonomically recognized species. Previous work of ours showed that some representatives of the species group have colonized the Macaronesia archipelagos (Azores, Madeira, Canary Islands; Figure 1) from Europe and possibly Africa within the last 15 million years. However, using standard mitochondrial markers, we were not able to fully resolve their phylogenetic relationships. In contrast, the use of a large nuclear marker set resulted in fully resolved phylogenetic trees and supported the existence of at least six distinct *C. dipterum s.l.* species, exhibiting a widespread, partially overlapping geographic distribution. So far, it seems that the distinct species possess different distribution patterns (i.e. some are restricted to the islands and others occur on the islands and their mainland counterparts) possibly due to different dispersal abilities or life history traits. Overall, our findings revealed two colonization events from the mainland to the Canaries, respectively Azores and one within the archipelago between Madeira and the Canaries (Figure 1). As long-term goal of this project we aim to find out how historical dispersal and subsequent diversification shape present-day biodiversity.



The Mayfly Newsletter is published (on-line) on
Ephemeroptera Galactica: http://www.ephemeroptera-galactica.com/

contact: Donna J. Giberson, Editor
email giberson@upei.ca

Masthead image: *Hexagenia* sp. Andy Usher (Indiana University, Purdue University, Indianapolis)

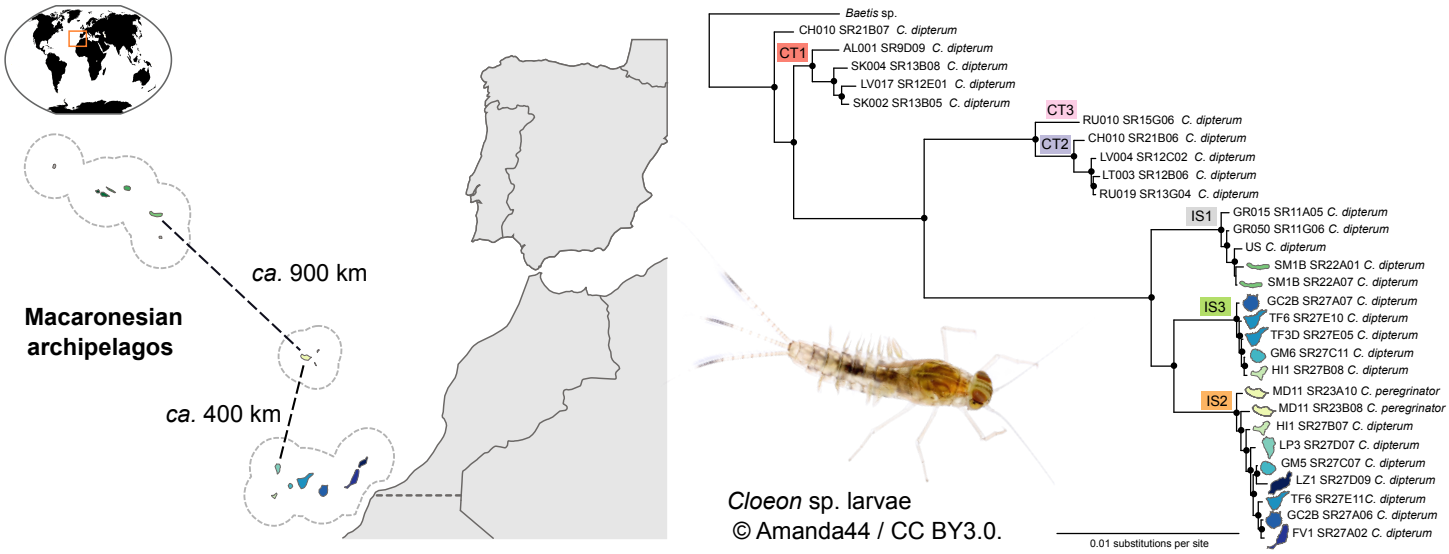


Figure 1: Schematic overview of phylogeographic study on *Cloeon dipterum s.l.*, including three Macaronesian archipelagos and phylogenetic relationships based on 59 nuclear DNA markers.

Link to download the bioinformatics program:
https://github.com/hdetering/discomark

Reference of the bioinformatics program:
Rutschmann S, Detering H, Simon S, Fredslund J, Monaghan MT. 2017a. DiscoMark: Nuclear marker discovery from orthologous sequences using draft genome data. Molecular Ecology Resources, **17**: 257-266. http://onlinelibrary.wiley.com/doi/10.1111/1755-0998.12576/full

Reference of the phylogeographic study:
Rutschmann S, Detering H, Simon S, Funk D, Gattolliat J-L, Hughes SJ, Raposeiro PM, DeSalle R, Sartori M, Monaghan MT. 2017b. Colonization and diversification of aquatic insects on three Macaronesian archipelagos using 59 nuclear loci derived from a draft genome. Molecular Phylogenetics & Evolution, **107**: 27-38. http://www.sciencedirect.com/science/article/pii/S105579031630269X

A new study about Ephemeroptera Suborder Schistonota diversity in the Tafna basin, North West Algeria.

Nadhira Benhadji[1], Karima Abdellaoui Hassaine[2]

Laboratoire de Valorisation des actions de l'homme pour la protection de l'environnement et application en santé publique, Université de Tlemcen, BP 119 13000 Tlemcen Algérie.
[1]benhadji.nadhira@outlook.com [2]hassaine69@hotmail.com

Overview:

The Tafna basin (northwest Algeria) has been in the past – and still is – the theatre of several hydrobiologic and taxonomic researches, especially about the Ephemeroptera fauna. The most exhaustive and well known studies are those of Gagneur & Thomas (1988).

Ephemeroptera are indicators of water quality and are important components of the food web. Our study is trying to answer several objectives relating to Ephemeroptera in northwest Algeria. These include determining the taxonomic composition and the biogeography of the suborder Schistonota to identify the rate of endemism, and the assessment of the water quality and habitats of the Tafna watershed based on biotic indices.

The mayfly larvae are found in several habitats, though they are much more abundant in habitats with aquatic vegetation and periphyton, and have higher diversity in upstream sampling sites than in downstream ones, which are polluted. The identification of the specimens to species is necessary and will make it possible to compare our species with the ones found by Gagneur and Thomas in the late 1980s. Initially, this work encountered a real obstacle in correctly identifying the species and considering the importance of the biogeography in species distributions – the absence of Ephemeroptera identification keys specific to our region (except for published species descriptions) which would show the characters and criteria for determining the specimens.

This study aims to refresh the faunistic checklist of the Ephemeroptera Suborder *Schistonota* of the Tafna watershed in North West Algeria, and several sampling sites (Fig.1-6) have been investigated. It is an exceptional study for the region because it is conducted on three levels (ecology, taxonomy and phylogeny). The phylogenetic aspect was fleshed out by barcoding in order to have DNA sequences for almost all taxa. This study would not have been accomplished without the help and collaboration of Michel Sartori and Jean-Luc Gattolliat from the Cantonal Zoology Museum of Lausanne - Switzerland. Their great intervention in the process of larval identification and molecular phylogeny was more decisive and for that, we are tremendously grateful.

Reference

Gagneur J and Thomas AGB. 1988. Contribution à la connaissance des Ephéméroptères d'Algérie. I. Répartition et écologie (1ère partie) (Insecta, Ephemeroptera). Bull. Soc. Hist. Nat. Toulouse, **124**: 213-223.

Figures 1-3: Photos of sites sampled during this study

Figure 4. A shore with aquatic vegetation

Figure 5. A pool with only a stone bed

Figure 6. Riffle with stone and aquatic vegetation

Quest for a western USA mayfly to culture

Jim Lazorchak[1] and William Thoeny[2]
[1]Research Aquatic Biologist U.S. EPA Office of Research and Development Cincinnati
[2]Taxonomist Pegasus c/o U.S. EPA Cincinnati

We are looking to develop a culture and test method for a western NA Mayfly species. We want to take a similar approach that we have already done with the eastern mayfly *Neocloeon triangulifer.* See publications:

Weaver PC, Lazorchak JM, Struewing KA, DeCelles SJ, Funk DH, Buchwalter DB, and Johnson BR. 2015. Part 1: Laboratory culture of *Centroptilum triangulifer* (Ephemeroptera: Baetidae) using a defined diet of three diatoms. Chemosphere 2015 Nov 2;139:589-96. http://dx.doi.org/10.1016/j.chemosphere.2014.04.092

Struewing KA, Lazorchak JM, Weaver PC, Johnson BR, Funk DH, and Buchwalter DB. 2015 Part 2: Sensitivity comparisons of the mayfly *Centroptilum triangulifer* to *Ceriodaphnia dubia* and *Daphnia magna* using standard reference toxicants; NaCl, KCl and CuSO4. Chemosphere 2015 Nov 2;139:597-603. http://dx.doi.org/10.1016/j.chemosphere.2014.04.096

Here is what we have tried thus far:

Species received for trials: *Tricorythodes minutus, Baetis bicaudatus* and *B. tricaudatus*

Tricorythodes minutus

Two batches of *Tricorythodes minutus* nymphs were received during September 2016 from streams in Colorado in an attempt to establish a culture of this mayfly for use in toxicity testing. Nymphs were maintained in aerated Colorado stream water mixed with Labline within an environmental chamber at 22°C and 16:8 light:dark photoperiod and fed with slides colonized by the mixed diatoms used for *N. triangulifer* culture. Adults emerged, but, matings were not witnessed and attempts to induce mating artificially were unsuccessful. Eggs were surgically collected from several females and maintained at 20-22°C in case any of the eggs were parthenogenetically produced and might hatch. Several eggs from a batch collected on August 11 hatched and are being maintained within an environmental chamber at 22°C and 16:8 light:dark photoperiod and fed with the mixed diatoms used for *N. triangulifer* culture. We could not be sure if this female had mated, or the eggs were pathogenitically produced.

Baetis bicaudatus

Rob Hood from US Geological Survey, National Water Quality Laboratory, Lakewood, CO collected what is reported to be *Baetis bicaudatus* mayflies on July 18 2016 and shipped to AWBERC. Before their arrival on July 19, an environmental chamber in Room 789 was set up at 15°C and 15:9 Light: Dark photoperiod for culturing these mayflies. Several slides that had been colonized with the mixed diatom cultures were provided for food and the mayflies fed readily on the diatoms. Additional food slides were provided as needed.

Several mayflies emerged the following day (July 20), but remained as subimago until molting to adults early the following day. These mayflies were placed into an emergence chamber within the EC with water from the Colorado stream that was aerated with an air stone and mesh was provided for perching above the water. When checked the following morning, no egg laying had occurred and mayflies had drowned. One individual was dissected to remove eggs, which were placed into a container of water for observation. No hatching occurred.

Several more subimagos emerged and this container with the subimagos was placed within an emergence chamber containing aerated Colorado river water within the EC to allow them access to the water after emerging as adults. No eggs were observed. All remaining nymphs were found dead on July 24 and were removed. Emergence chamber was monitored for any egg hatching, but none occurred.

Baetis tricaudatus

Baetis tricaudatus mayflies and several egg masses were obtained from Pete Cadmus and associates on August 16, 2017. Both were placed into an environmental chamber set to hold water temperatures at approximately 15°C. Mayfly larvae were placed into two tanks with water from the Colorado stream source with aeration and provided a source of food via diatom colonized microscope slides that are used for culturing *N. triangulifer*.

Several of the PVC pipe huts that are used for egg deposition by the fathead minnows were stacked in the tanks so that the top hut was above the water level in an attempt to provide landing and oviposition sites. This mayfly typically lands on boulders in fast moving streams and enters the water to deposit eggs on the rocks below the water level.

Several vials of eggs were held in the 15°C EC and one vial was placed into a 24°C EC that houses the *N. triangulifer* cultures. Eggs held at 25°C began to hatch on August 22 and were placed into a larger jar with aeration and diatom food source within the 24°C EC. Eggs being held in the 15°C EC began hatching on Aug 28 and some were reared in the 15°C EC before being acclimated to the 25°C EC.

Larvae from the eggs held at 24°C were placed into an emergence chamber within the 25°C EC with aerated Labline water and several of the PVC pipe fish egg huts to provide egg deposition sites. Two egg masses were obtained and several larvae emerged and were reared in an emergence chamber with the PVC pipe huts for possible egg deposition.

No eggs were obtained from these individuals, and this concluded the current attempt to rear this species.

Future attempts.

Now that it is known that these western mountain stream mayflies can survive at the same temperature as *Neocloeon triangulifer,* any future attempts at culturing could begin acclimating the mayflies to the warmer temperatures immediately in order to obtain more emerging adults and possibly more egg masses.

Could attempt *Tricorythodes* again at the warmer temperature.

Here are the criteria I have used thus far to choose the species we have attempted:

1) Distribution at least most of the rocky mountains west and where possible eastern Oregon and Washington and Idaho
2) Multivoltine or at least bivoltine
3) Grazer or scraper that could be reared on diatoms similar to the eastern mayfly
4) Parthenogenetic if possible but sexual reproduction is also acceptable
5) As sensitive as our eastern mayfly or *Ceriodaphnia*

Any suggestions on different mayfly species we should attempt to collect and try to rear?

Any suggestions on a caddis fly or stonefly that we might want to try?

James M Lazorchak

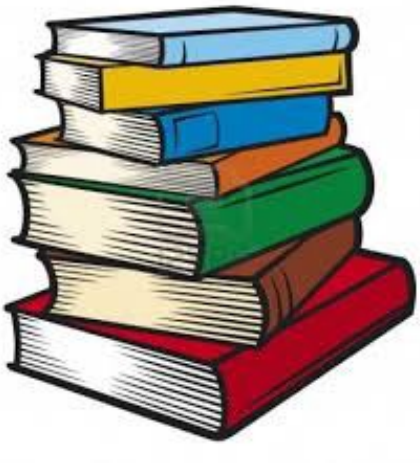
lazorchak.jim@epa.gov

Do you have items to donate for the auction in support of Ephemeroptera and Plecoptera meeting scholarships at the next International Joint Meeting?

If you are attending the meeting in Aracruz, Brazil, and can take your auction items with you to the meeting, just look for any of the organizers once you are there, to pass the items along for the auction.

If you can't attend the meeting, but would like to donate an item, please send it to Frederico Salles at the address below:

Prof. Frederico Salles
UFES / CEUNES / DCAB
Rodovia BR 101 Norte, Km. 60, Bairro Litorâneo
CEP 29932-900, São Mateus – ES, BRAZIL



How to Donate to the International Permanent Committee on Ephemeroptera Scholarship Fund

This fund (Canadian Tax Reg. No. BN 88915 1379 RR001) provides travel scholarships to assist upcoming scientists to attend our international conferences. You have several options to donate to the mayfly travel fund. The committee can accept a cheque, a wire transfer or you can use our PayPal account. More details are provided below.

1) Cheque. Please make cheque payable to: "International Permanent Committee on Ephemeroptera" and mail to Alexa at the address below.

2) Wire transfer. Wire transfer. By arrangement with the treasurer. Please email alexa@ecobmi.com

3) PayPal. Business account: International Permanent Committee for Ephemeroptera Scholarship Fund,
Merchant account #: X5YQ83HA2AFML
Email: alexa@ecobmi.com.

Do let me know how I can help if any of this information is unclear.

Alexa C. Alexander Trusiak,
Permanent Committee Treasurer
Environnement et changement climatique Canada | Environment and Climate Change Canada,
Department of Biology and Canadian Rivers Institute,
University of New Brunswick,
#10 Bailey Drive, P.O. Box 4400,
Fredericton, NB, CANADA, E3B 5A3
+001-506-447-3496
alexa@ecobmi.com

NOUVEAU | NEW: alexa.alexander-trusiak@canada.ca

Need PDFs for Ephemeroptera Galactica

Two questions:

Have you published a paper on mayflies?
If so, did you send a PDF to EG?

Ephemeroptera Galactica (EG) is a web site that was developed by Mike Hubbard and is now maintained by Arnold Staniczek. One of the great features of EG is the bibliography of mayfly literature at this site. PDFs of hundreds of mayfly articles are available. To keep this bibliography updated, please send a PDF of your articles on mayflies to Arnold (arnold.staniczek@smns-bw.de).

2018 Joint International Conference – Aracruz, Brazil

Registration is open for the 2018 Joint Meeting of the XV International Conference on Ephemeroptera and XIX International Symposium on Plecoptera will take place in Aracruz, Brazil, 2018.

The conference will be held at the SESC Praia Formosa, a pleasant place located less than one hour (or 45 km) from the airport of Vitória, capital of Espírito Santo. With more than 200 rooms, conference halls, exposition areas, restaurants, and a huge area in front of the beach, SESC Praia Formosa is the perfect place for hosting the conference in Brazil.

More information on scientific program, dates, deadlines, costs, proceedings, and accompanying persons program is available, or will be available soon, at http://ephemeroptera.com.br/jointmeeting/. You can also access information on our **International Conference on Mayflies and Stoneflies, BRAZIL, 2018** page on **Facebook** (https://www.facebook.com/groups/1011888675495931/) or contact us by e-mail (ffsalles@gmail.com).

The draft program, information about the mid and post-conference trips, and preliminary information concerning the accommodations are available on the conference website.

Please, if you wish to receive the next announcements and/or if you want to help us to organize a nice meeting in Brazil, fill the attendance interest form at the following link https://goo.gl/forms/aBm4has2kUWMmWcJ2.

You can also access information on our website (http://ephemeroptera.com.br/jointmeeting/), on our page on Facebook (International Conference on Mayflies and Stoneflies, BRAZIL, 2018) or contact us by e-mail (ffsalles@gmail.com).

Registration fees and important dates

Registration for the Ephemeroptera and Plecoptera Joint Meeting 2018 includes:

- lodging for 6 nights (June 3-9);
- all meals (including a barbecue on Wednesday and a conference dinner on Friday);
- and a day trip to Vargem Alta.
-

We will also provide transfer from the airport in Vitória to SESC Praia Formosa at three specific times on Sunday.

Early bird rates (January 31, 2018)
Shared room: R$ 2.300,00
Private room: R$ 2.600,00
Post-conference trip: R$ 350,00

Between February 1 and June 3, 2018
Shared room: R$ 2.700,00
Private room: R$ 3.000,00
Post-conference trip: R$ 400,00

The deadline for abstract submission is **April 03, 2018.**

Call for nominations: Lifetime Achievement Award

Since 2008, The Permanent Committtee of the International Conferences on Ephemeroptera have acknowledged the important contributions of mayfly workers by presenting to them a Lifetime Achievement award. This award is presented at the Joint International Ephemeroptera and Plecoptera meeting, which will be held in 2018 in Aracruz, Brazil.

The previous recipients of these awards were:
2008 (Stuttgart): Ingrid Müller-Liebenau, Janice Peters, John Flannagan
2012 (Wakayama): Peter Malzacher, Pat W. McCafferty
2015 (Aberdeen): Elda Gaino, Tomas Soldan, Ian Campbell

If you know a mayfly worker who has made important contributions to the study of mayflies, please contact Michel Sartori (michel.sartori@vd.ch), explaining your reasons for the nomination.

Announcements and News

A Kayak named "MayFly" (Submitted by Peter Grant) (HTTP://JACKSONKAYAK.COM/BLOG/KAYAK/MAYFLY/)

Ephemeroptera workers may be interested to know that a new fishing kayak has been named for our favourite insect! (from the company website:)

"The MayFly is a fly fishing oriented sit-on-top, loaded with features to make kayak fly fishing more fun and user friendly. The MayFly has a versatile hull optimized for tracking, stability, and speed in popular fly fishing conditions and destinations, including tropical flats, slow-moving rivers, lakes and ponds. Recognizing the unique challenges faced by fly fisherman, particularly fly line management, the MayFly includes a myriad of design aspects to address the needs of fly fisherman creating the ultimate kayak fly fishing platform.

Snag-free footrests and features, protected fly box storage, unique fly rod storage options, rod butt props for dealing with tangles, integrated and protected fly patches, and more cater to the high-performance features expert fly fisherman need while being versitile and stable enough to bring new kayak fly anglers into the sport."

Ephemeroptera Facebook Group

https://www.facebook.com/groups/164038746969239/

Submitted by Benhadji Nadhira
Laboratoire de Valorisation des actions de l'homme pour la protection de l'environnement et application en santé publique
Département d'Ecologie et Environnement
Faculté des Sciences de la Nature et de la Vie et des Sciences de la Terre et de L'Univers
Université Abou Bekr Belkaïd - Tlemcen, Algérie.
email: benhadji.nadhira@outlook.com

The Ephemeroptera Facebook group was started by **Bjørnar Berg** on 16 November 2010. Back then, the original thought was to give fly fishermen a place to find more information and share experiences and photos about one of the most fascinating water-dwelling insects for fishermen - the mayfly. The first few years it was mostly fishermen in the group, and the information shared reflected that purpose. Over time, a lot of the fishermen "fell off the wagon", so to say, and more and more entomologists came in. After that, the pictures and the information developed more of a professional feel.

Evergreen n'Grooved (Benhadji Nadhira) was made administrator on 12 January 2016 - and that's when the group finally started getting some momentum. Benhadji Nadhira is a PhD biology student in the University of Tlemcen in Algeria. She has been a hydrobiologist since the early years of her engineering training, passing through the Magister to her doctoral studies where she became interested in Ephemeroptera and is working now on the Ephemeroptera taxonomy, phylogeny and Ecology. She joined the group hoping that it will improve her knowledge and identification skills about this order.

Having **Daan Drukker** in the group was a blessing, since he added much information and helped with most of the identifications. Daan Drukker became interested in mayflies when he started his internship for his MSc in Biology at Wageningen University. In collaboration with the Dutch organisation for Insect Knowledge (EIS - Kenniscentrum Insecten), he started to work on a key for the Dutch and Belgian mayflies, which he is currently finalising. After graduation, he continued to work for EIS and there he currently works on a large variety of invertebrate groups, especially in freshwater. He joined the facebook-group hoping that more people can be informed about mayfly identification (based on photographs in particular)

"It's been a fun ride. From the first few pictures of what I seem to remember being an E. vulgata sitting on a fly rod, up to real nifty macro pictures of nymphs." Bjørnar Berg

Group Description:

Welcome to the group on Ephemeroptera. You can post anything related to mayflies, larvae, imagines and subimagines all alike, such as:

- Identification questions
- Interesting photos
- Tips and tricks for mayfly photography
- Tips and tricks how to find mayflies in the field
- Articles and new publications
- Observations

We would appreciate it that if you post a picture, that the DATE and LOCATION is stated. We might be able to help you with the identification, especially when the species comes from the West-Palearctic (Europe, North-Africa and rest of the Mediterranean).

If you know people with any interest in mayflies, please recommend and hopefully together we can share and combine even more knowledge from around the world

Cheers!
The admins

2016 Ephemeroptera Bibliography

Compiled by Donna Giberson
Department of Biology, University of Prince Edward Island, Charlottetown, PE, Canada C1A 3P4
giberson@upei.ca

The following list of publications has been compiled for the Mayfly Newsletter. It is not intended to be an exhaustive list, but rather it is one that includes papers and reports with an emphasis on mayflies. Please report corrections and additions to me, and I will publish an update in the Summer Newsletter.

Ab Hamid S, Hanapi N. and Afendi MFSM. 2016. Ephemeroptera, Plecoptera, Trichoptera and Odonata (Insecta) Diversity and Distribution at Bukit Merah Resevoir River Feeders. 湿地科学, Wetland Science, *14*(3): 328–336.

Alba-Tercedor J. 2016. Microtomographic study on the anatomy of adult male eyes of two mayfly species. Zoosymposia, 11: 101–120.

Almeida E, Costa S, and Mariano R. 2016. A new species of the genus *Hermanella* Needham & Murphy (Ephemeroptera: Leptophlebiidae) from Northeastern Brazil. Zootaxa, 4078(1): 121–126.

Angeli KB, Salles FF, Paresque R, Molineri C and Lima LRC. 2016. Stage description, new combination and new records of Neotropical Brachycercinae (Ephemeroptera: Caenidae). Zootaxa, 4088(2): 268–278.

Balachandran C, Anbalagan S, Kannan M, Dinakaran S and Krishnan M, 2016. A new species of *Prosopistoma* Latreille, 1833 (Ephemeroptera: Prosopistomatidae) from South India. Zootaxa, 4178(2): 289–294.

Bisconti R, Canestrelli D, Tenchini R, Belfiore C, Buffagni A. and Nascetti G., 2016. Cryptic diversity and multiple origins of the widespread mayfly species group *Baetis rhodani* (Ephemeroptera: Baetidae) on northwestern Mediterranean islands. Ecology and Evolution, 6(21): 7901–7910.

Boonsoong B. and Sartori M., 2016. *Sangpradubina*, an astonishing new mayfly genus from Thailand (Ephemeroptera: Leptophlebiidae: Atalophlebiinae). Zootaxa, 4169(3): 587–599.

Camp AA and Buchwalter DB. 2016. Can't take the heat: Temperature-enhanced toxicity in the mayfly *Isonychia bicolor* exposed to the neonicotinoid insecticide imidacloprid. Aquatic Toxicology, 178: 49–57.

Campos R, Mariano R and Calor AR. 2016. Mayflies (Ephemeroptera) from Reserva Ecológica Michelin, Bahia, Brazil. Aquatic Insects, 37(4): 303–315.

Chacón MM, Segnini S and Briceño D. 2016. Temperature and daily emergence of seven genera of Ephemeroptera (Insecta) in a cloud forest stream of tropical Andes. Revista de Biología Tropical, 64(1): 117–130.

Contador T and Kennedy J. 2016. The life histories of *Meridialaris chiloeensis* (Demoulin, 1955) (Ephemeroptera: Leptophlebiidae) and *Gigantodax rufescens* (Edwards, 1931) (Diptera: Simuliidae) on a Magellanic sub-Antarctic island (55° S). Aquatic Insects, 37(2): 145–158.

Crespo-Pérez V, Andino P, Espinosa R, Dangles O and Jacobsen D. 2016. The altitudinal limit of *Leptohyphes* Eaton, 1882 and *Lachlania* Hagen, 1868 (Ephemeroptera: Leptohyphidae, Oligoneuriidae) in Ecuadorian Andes streams: searching for mechanisms. Aquatic Insects, 37(1): 69–86.

Cummins KW, 2016. Combining taxonomy and function in the study of stream macroinvertebrates. Journal of Limnology, 75(s1). doi: https://doi.org/10.4081/jlimnol.2016.1373.

Curtean-Bănăduc A, Olosutean H and Bănăduc D. 2016. Influence of environmental variables on the structure and diversity of ephemeropteran communities: A case study of the Timiş River, Romania. Acta zool. bulg., Aquatic Ecology 68 (2): 215–224.

Dallas HF. 2016. The influence of thermal history on upper thermal limits of two species of riverine insects: the stonefly, *Aphanicerca capensis*, and the mayfly, *Lestagella penicillata*. Hydrobiologia, 781(1): 95–108.

DeWalt RE, South EJ, Robertson DR, Marburger JE, Smith WW and Brinson V. 2016. Mayflies, stoneflies, and caddisflies of streams and marshes of Indiana Dunes National Lakeshore, USA. ZooKeys, 2016; (556): 43–63.

Dos Santos DA, Emmerich D, Molineri C, Nieto C. and Domínguez E. 2016. On the position of Uruguay in the South American biogeographical puzzle: insights from Ephemeroptera (Insecta). Journal of biogeography, 43(2): 361–371.

Elkin K and Hamilton B. 2016. Biological and Water Quality Monitoring at Tallgrass Prairie Preserve in Oklahoma. Proceedings of the Oklahoma Academy of Science, 96: 16–23.

Erdenee B, Maasri A, Gelhaus JK and Bayartogtokh B. 2016. A contribution to mayfly studies of Western Mongolia (Insecta, Ephemeroptera). ZooKeys, (638): 105–123. http://doi.org/10.3897/zookeys.638.10198.

Farkas A, Száz D, Egri Á, Barta A, Mészáros Á, Hegedüs R, Horváth G and Kriska G. 2016. Mayflies are least attracted to vertical polarization: A polarotactic reaction helping to avoid unsuitable habitats. Physiology & behavior, 163: 219–227.

Fikri AH, Shian AAC, Harun S and Hee KB. 2016. Biomonitoring of streams: using Ephemeroptera, Plecoptera and Trichoptera (EPT) in responses to the different types of land use at Tabin Wildlife Reserve (TWR), Lahad Datu, Sabah, Malaysia. Borneo Science, 37(1): 23–36.

Finn DS, Encalada AC and Hampel H. 2016. Genetic isolation among mountains but not between stream types in a tropical high-altitude mayfly. Freshwater Biology, 61(5): 702–714.

Forero-Cespedes AM, Gutierrez C and Reinoso-Florez G. 2016. Composition and structure of the Baetidae family (Insecta: Ephemeroptera) in a Colombian Andean basin. Hidrobiologica, 26(3): 459–474.

Ghani W, Rawi CSM, Hamid SA, Al-Shami SA, Ahmad AH and Hassan ANN. 2016. Variation in environmental conditions influences diversity and abundance of Ephemeroptera in forest streams of northern Peninsular Malaysia. Tropical Ecology, 57(3): 489–501.

Glazaczow A, Orwin D and Bogdziewicz M. 2016. Increased temperature delays the late-season phenology of multivoltine insect. Scientific reports, 6: 38022. doi: 10.1038/srep38022.

Gomes Dias L, Cárdenas López T and Laython M. 2016. Actual knowledge and expansion of the distribution of the *Tricorythopsis rondoniensis* (Ephemeroptera, Leptohyphidae). Revista Colombiana de Entomología, 42(2): 197–198.

Goncalves IC and Peters JG. 2016. A new species of *Polyplocia* Lestage from Malaysia with comments on the genus (Ephemeroptera, Euthyplociidae, Euthyplociinae). Zootaxa, 4184(3): 553–560.

Grant PM and Rymer A. 2016. A simple, inexpensive artificial stream for rearing Ephemeroptera from sandy substrates. Zoosymposia, 11:164–167.

Grzybkowska M, Szczerkowska-Majchrzak E, Dukowska M, Leszczyńska J and Przybylski M. 2016. *Ephemera danica* (Ephemeroptera: Ephemeridae) as a resource for two commensals: ciliated protozoans (Sessilida) and chironomids (Diptera). Journal of Insect Science, 16(1): 67; 1–6. DOI: 10.1093/jisesa/iew050.

Gutiérrez Y, Santos HP, Serrão JE and Oliveira EE. 2016. Deltamethrin-mediated toxicity and cytomorphological changes in the midgut and nervous system of the mayfly *Callibaetis radiatus*. PloS one, 11(3), p.e0152383.

Hamid SA, Rawi CSM and Ahmad AH. 2016. Life History of Thalerosphyrus (Ephemeroptera: Heptageniidae) in tropical rivers with reference to the varying altitude. Tropical life sciences research, 27(1): 43–62.

Han YK., Zhang W, Hu Z and Zhou CF. 2016. The nymph and imago of Chinese mayfly *Siphlonurus davidi* (Navás, 1932). ZooKeys, 2016 (607): 37–48.

Hashim NA, Affendi MFSM and Hamid SA. 2016. Role of Ephemeroptera, Plecoptera and Trichoptera (Insecta) functional feeding groups in leaf decomposition in Tropical River. Journal of Biodiversity and Environmental Sciences, 9(1): 204–213.

Hawkins CP and Yuan LL. 2016. Multitaxon distribution models reveal severe alteration in the regional biodiversity of freshwater invertebrates. Freshwater Science, 35(4): 1365–1376.

Hitchings TR and Hitchings TR. 2016. Two further species of *Deleatidium* (*Deleatidium*) (Ephemeroptera: Leptophlebiidae) from New Zealand. Records of the Canterbury Museum, 30: 54–66.

Holland VB, Beaty SR and Jacobus LM. 2016. A new species of *Neoephemera* McDunnough, 1925 (Ephemeroptera: Neoephemeridae) from North Carolina and Virginia. Zootaxa, 4138(1): 139–154.

Hubmann M and Schletterer M, 2016. Development of a habitat preference curve for the mayfly *Baetis alpinus* (Pictet 1843). Zoosymposia, 11: 65–72.

Jacobus LM and Webb JM. 2016, February. A new junior synonym for *Raptoheptagenia cruentata* (Walsh, 1863) and remarks about nearctic *Heptagenia* Walsh, 1836 (Insecta: Ephemeroptera: Heptageniidae). Proceedings of the Indiana Academy of Science, 121(2): 143–146.

Jahani T, Imanpure NJ and Khosh KMR. 2016. Distribution and abundance of order Ephemeroptera in Shafaroud River-Guilan Province. Journal of Animal Environment, 8(2): 181–188.

Klubertanz TH. 2016. New records of mayflies (Ephemeroptera) from Kenora District and Northwestern Ontario, Canada. Entomological News, 125(5): 341–350.

Kluge NJ. 2016. A new subgenus *Oculogaster subgen. n*. for viviparous representatives of *Procloeon sl*, with discussion about status of the generic name *Austrocloeon* Barnard 1932 and the species name africanum Esben-Petersen 1913 [*Cloeon*] (Ephemeroptera, Baetidae). Zootaxa, 4107(4): 491–516.

Kluge NJ. 2016. Redescription of the genus *Cheleocloeon* Wuillot & Gillies 1993 (Ephemeroptera: Baetidae) with descriptions of three new species from Zambia and Uganda. Zootaxa, 4067(2): 135–167.

Kluge NJ. 2016. Two new species of *Tricorythu*s Eaton 1868 (Ephemeroptera, Tricorythidae) from Zambia. Zootaxa, 4092(2): 273–285.

Knysh KM, Giberson DJ and van den Heuvel MR. 2016. The influence of agricultural land-use on plant and macroinvertebrate communities in springs in Eastern Prince Edward Island, Canada. Limnology and Oceanography. 61: 518–530. doi: 10.1002/lno.10230

Leys M, Keller I, Räsänen K, Gattolliat JL and Robinson CT. 2016. Distribution and population genetic variation of cryptic species of the alpine mayfly *Baetis alpinus* (Ephemeroptera: Baetidae) in the Central Alps. BMC evolutionary biology, 16(1): 77. DOI 10.1186/s12862-016-0643-y.

Lima LR and Boldrini R. 2016. First records of small squaregilled mayflies (Ephemeroptera, Caenidae) from the state of Roraima, Northern Brazil. Check List, 12(4): 1919. DOI: http://dx.doi.org/10.15560/12.4.1919.

Lima LR, Molineri C, Pinheiro U and Salles FF. 2016. Two new species of *Caenis* Stephens, 1835 (Ephemeroptera: Caenidae) from South America. Zootaxa, 4170(1): 114–124.

Lima LRC, Knapp W and Docio L. 2016. New records of mayflies (Insecta: Ephemeroptera) from Bahia state, northeastern Brazil. Entomotropica, 31: 212-220.

Macadam CR and Ross AJ. 2016. A new species of mayfly, *Maccaffertium annae sp. nov.* (Ephemeroptera: Heptageniidae) from Mexican Amber (Miocene). Boletín de la Sociedad Geológica Mexicana, 68(1): 1–5.

Macadam CR. 2016. A review of the status of the mayflies (Ephemeroptera) of Great Britain - Species Status no. 28. Natural England Commissioned Reports.

Macadam CR. 2016. The current status of British mayflies and stoneflies. Zoosymposia, 11: 89–100.

Macher JN, Salis RK, Blakemore KS, Tollrian R, Matthaei CD and Leese F. 2016. Multiple-stressor effects on stream invertebrates: DNA barcoding reveals contrasting responses of cryptic mayfly species. Ecological Indicators, 61: 159–169.

Málnás K, Ambrus A, Müller Z, Tóth ÁP and Kiss B. 2016. Re-appearance of *Palingenia longicauda* (Olivier, 1791) (Ephemeroptera, Palingeniidae) on the Hungarian Danube section–range recovery of the species at the Rába-district. Folia Historico-Naturalia Musei Matraensis, 40: 21–25.

Malzacher P and Staniczek AH. 2016. Two new genera of Caeninae (Ephemeroptera: Caenidae), with a cladistic analysis of the tribe Clypeocaenini. Stuttgarter Beiträge zur Naturkunde A, 9(1): 41–62.

Malzacher P. 2016. Two new *Caenis* species from north-eastern China (Insecta: Ephemeroptera). Stuttgarter Beiträge zur Naturkunde A, 9(1): 63–69.

Marle P, Salles FF and Gattolliat JL. 2016. Two new species of *Bungona* Harker, 1957 (Ephemeroptera: Baetidae) from Borneo, Indonesia. Zootaxa, 4088(2): 221–235.

Martynov AV. 2016. The life cycles of mayflies (Insecta: Ephemeroptera) of the eastern Ukraine. Second Report. *Вісник Національного науково-природничого музею* - Proceedings of the National Museum of Natural History 14: 86–94.

Martynov AV, Godunko RJ and Palatov DM. 2016. Kintrishi State Nature Reserve—a hotspot for mayfly (Insecta: Ephemeroptera) diversity in Adjara (Georgia). Zoosymposia, 11: 168–173.

Martynov AV, Palatov DM and Boonsoong B. 2016. A new species of *Dudgeodes* Sartori, 2008 (Ephemeroptera: Teloganodidae) from Thailand. Zootaxa, 4121(5): 545–554.

Massariol FC, Paresque R and Salles FF. 2016. Species delimitation of *Lachlania* Hagen (Ephemeroptera: Oligoneuriidae) with description of two new species from Brazil. Zoosymposia, 11: 121–134.

Mo HH, Kim Y, Lee YS, Bae YJ, Khim JS and Cho K. 2016. Burrowing mayfly *Ephemera orientalis* (Ephemeroptera: Ephemeridae) as a new test species for pesticide toxicity. Environmental Science and Pollution Research, 23(18): 18766–18776.

Molina CI and Puliafico KP. 2016. Life cycles of dominant mayflies (Ephemeroptera) on a torrent of the high Bolivian Andes. Revista de Biología Tropical, 64(1): 275–287.

Molineri C, Zúñiga MDC, Ramos BC, Giraldo LP and Cardona W. 2016. Three new species of *Leptohyphes* Eaton (Ephemeroptera: Leptohyphidae) from Colombia. Iheringia, Série Zoologia, 106: e2016024, 1–12.

Neto JDLG and Bastos MAP. 2016. Leptophlebiidae (Ephemeroptera) from Roraima State, Brazil: description of two new species of *Ulmeritoides* Domínguez, 1991. Zootaxa, 4178(2): 295–300.

Niechwiej A. 2016. Formation of groupings of mayfly larvae (Ephemeroptera) in the area of small hydrological structures, in the streams of the Kamienica Nawojowska river basin (the Sądeckie Beskids, Poland). Ekológia (Bratislava), 35(4): 320–339.

Nieto C. 2016. The *Baetodes* complex (Ephemeroptera: Baetidae), phylogeny, biogeography, and new species of *Mayobaetis*. Freshwater Science, 35: 55–64.

Oliarinony R, Elouard JM and Sartori M. 2016. Complementary description of the genus *Manohyphella* Allen, 1973 (Insecta: Ephemeroptera: Teloganodidae), with some comments on its ecology in the Andasibe area (East Coast, Madagascar). African Invertebrates, 57(1): 1–14. https://doi.org/10.3897/afrinvertebr.57.8449.

Perry HA and Kennedy JH. 2016. The Life History and Other Ecology of *Camelobaetidius variabilis* (Ephemeroptera: Baetidae) From Honey Creek, Oklahoma. Annals of the Entomological Society of America, 109(5): 744–752.

Peters JG and Mary N. 2016. The Leptophlebiidae: Atalophlebiinae of New Caledonia (Ephemeroptera). Part VIII: systematics. Annales de Limnologie - International Journal of Limnology, 52: 187–204.

Pristed MJS, Bundschuh M and Rasmussen JJ. 2016. Multiple exposure routes of a pesticide exacerbate effects on a grazing mayfly. Aquatic Toxicology, 178: 190–196.

Prosser RS, Mahon K, Sibley PK, Poirier D and Watson-Leung T. 2016. Bioaccumulation of perfluorinated carboxylates and sulfonates and polychlorinated biphenyls in laboratory-cultured *Hexagenia* spp., *Lumbriculus variegatus* and *Pimephales promelas* from field-collected sediments. Science of the Total Environment, 543: 715–726.

Reyes-Torres LJ, Meléndez-Torres Y and Ramírez, A. 2016. Occurrence of nematodes on Ephemeroptera nymphs in a tropical rainforest stream. Intropica, 11: 67–72.

Saito R and Tojo K. 2016. Comparing spatial patterns of population density, biomass, and genetic diversity patterns of the habitat generalist mayfly *Isonychia japonica* Ulmer (Ephemeroptera: Isonychiidae) in the Chikuma–Shinano River basin. Freshwater Science, 35(2): 724–737.

Saito R and Tojo K. 2016. Complex geographic-and habitat-based niche partitioning of an East Asian habitat generalist mayfly *Isonychia japonica* (Ephemeroptera: Isonychiidae) with reference to differences in genetic structure. Freshwater Science, 35(2): 712–723.

Saito R, Jo J, Sekiné K, Bae YJ and Tojo K. 2016. Phylogenetic analyses of the isonychiid mayflies (Ephemeroptera: Isonychiidae) in the northeast palearctic region. Entomological Research, 46(4): 246–259.

Salles FF, Angeli KB and Jacobus LM. 2016. Review of *Waltzoyphius* McCafferty & Lugo-Ortiz, 1995 and *Zelusia* Lugo-Ortiz & McCafferty, 1998 (Ephemeroptera: Baetidae). Zoosymposia, 11: 174–204.

Salles FF, Dominguez E, Mariano R and Paresque R. 2016. The imagos of some enigmatic members of the *Hermanella* complex (Ephemeroptera, Leptophlebiidae). ZooKeys, 2016; (625): 45–66. doi: 10.3897/zookeys.625.9874.

Salles FF, Gattolliat JL and Sartori M. 2016. Phylogenetic analyses of *Cloeodes* Traver and related genera (Ephemeroptera: Baetidae). Systematic Entomology, 41(1): 93–111.

Salur A, Darilmaz MC and Bauernfeind E. 2016. An annotated catalogue of the mayfly fauna of Turkey (Insecta, Ephemeroptera). ZooKeys, 2016; (620): 671–18. doi: 10.3897/zookeys.620.9405.

Sartori M, Kubiak M and Michalik P. 2016. Deciphering genital anatomy of rare, delicate and precious specimens: first study of two type specimens of mayflies using micro-computed X-ray tomography (Ephemeroptera; Heptageniidae). Zoosymposia, 11: 28–32.

Sartori M, Kubiak M and Rajaei H. 2016. An updated list of type material of Ephemeroptera Hyatt & Arms, 1890, deposited at the Zoological Museum of Hamburg (ZMH). ZooKeys, 2016 (607):49–68. doi:10.3897/zookeys.607.9391.

Saulyegul A. 2016. Life cycles and secondary production of Ephemeroptera, Plecoptera, and Trichoptera (Insecta) under an extreme continental climate (River Kharaa, Mongolia). Proceedings of the Mongolian Academy of Sciences, 54(4): 72–84.

Schletterer M, Bauernfeind E and Lechthaler W. 2016. Larval redescription of *Prosopistoma pennigerum* (Müller, 1785) from the River Volga near Rzhev, Tver Region, Russia (Insecta: Ephemeroptera). Zoosymposia, 11: 15–27.

Schmitt R, Siegloch AE, da Silva ALL, Lisboa LK and Petrucio MM. 2016. Temporal variation in the Ephemeroptera, Plecoptera and Trichoptera community in response to environmental drivers in a subtropical stream. Journal of Insect Biodiversity, 4(19): 1–12.

Sellam N, Viñolas A, Fatah Z and Moulai R. 2016. L'utilisation des Coleoptera, Ephemeroptera et Diptera comme bioindicateurs de la qualite des eaux de quelques Oueds en Algérie. Butlletí de la Institució Catalana d'Història Natural, 80: 47–56.

Selvakumar C, Sivaramakrishnan KG and Janarthanan S. 2016. DNA barcoding of mayflies (Insecta: Ephemeroptera) from South India. Mitochondrial DNA Part B, 1(1): 651–655.

Selvakumar C, Sivaruban T, Subramanian KA and Sivaramakrishnan KG. 2016. A new genus and species of Atalophlebiinae (Insecta: Ephemeroptera: Leptophlebiidae) from Palni hills of the southern Western Ghats, India. Zootaxa, 4208(4): 381–391.

Shaw B. 2016. Benthic macroinvertebrate survey of the upper Susquehanna River using two sampling methods. 48th Ann. Rept.(2015). SUNY Oneonta Biol. Fld. Sta., SUNY Oneonta.

Shimano Y and Juen L. 2016. How oil palm cultivation is affecting mayfly assemblages in Amazon streams. Annales de Limnologie - International Journal of Limnology, 52: 35–45.

Sivaramakrishnan K. 2016. Systematics of the Ephemeroptera of India: Present status and future prospects. Zoosymposia, 11: 33–52.

Slavevska-Stamenković V, Rimcheska B, Vidinova Y, Tyufekchieva V, Ristovska M, Smiljkov S, Paunović M and Prelić D. 2016. New Data on Ephemeroptera, Plecoptera and Trichoptera from the Republic of Macedonia. Acta Zoologica Bulgarica, 68: 199–206.

Smith JG, Baker TF, Murphy CA and Jett RT. 2016. Spatial and temporal trends in contaminant concentrations in *Hexagenia* nymphs following a coal ash spill at the Tennessee Valley Authority's Kingston Fossil Plant. Environmental Toxicology and Chemistry, 35(5): 1159–1171.

Souto PM and Salles FF. 2016. New species of *Macunahyphes* Dias, Salles & Molineri (Ephemeroptera: Leptohyphidae), with taxonomic notes. European Journal of Taxonomy, 254: 1–15. DOI: https://doi.org/10.5852/ejt.2016.254.

Souto PM, Da-Silva ER, Nessimian JL and Goncalves IC. 2016. Two new species of *Ulmeritoides* Traver (Ephemeroptera: Leptophlebiidae) from Southeastern Brazil. Zootaxa, 4078(1): 127–136.

Sroka P, Klecka J and Boukal DS. 2016. Spatial heterogeneity and habitat permanence affect community assembly, structure and phenology of mayflies (Ephemeroptera) in sandpit pools. Zoosymposia, 11: 205–218.

Stagliano DM. 2016. Mayflies (Insecta: Ephemeroptera) of conservation concern in Montana: status updates and management needs. Western North American Naturalist, 76(4): 441–451.

Staniczek AH and Godunko RJ. 2016. Revision of fossil Metretopodidae (Insecta: Ephemeroptera) in Baltic amber—Part 3: Description of two new species of *Siphloplecton* Clemens, 1915, with notes on the re-discovered lectotype of *Siphloplecton macrops* (Pictet-Baraban & Hagen, 1856). Zootaxa, 4103(1): 1–24.

Sun JZ and Zhou CF. 2016. The nymph, habitat, and status of *Eatonigenia* in China (Ephemeroptera: Ephemeridae). Zootaxa, 4193(2): 381–389.

Šupina J, Bojková J and Boukal DS. 2016. Influence of food availability, predation risk and initial body size on growth and maturation of *Cloeon dipterum* (Ephemeroptera: Baetidae). Zoosymposia, 11: 53–64.

Tamura S and Kagaya T. 2016. Life cycles of 17 riffle-dwelling mayfly species (Baetidae, Heptageniidae, and Ephemerellidae) in central Japan. Limnology, 17(3): 291–300.

Thresher RE. 2016. A new species of oniscigastrid mayfly from Tasmania, *Tasmanophlebia lotis*, with comments on the Australian oniscigastrid species. In Papers and Proceedings of the Royal Society of Tasmania, 150(2): 43–57.

Tiunova TM and Gorovaya EA. 2016. A description of *Cinygmula unicolorata* Tshernova 1979 and *Cinygmula malaisei* (Ulmer 1927) (Ephemeroptera, Heptageniidae) larvae from the Russian Far East. Zoologichesky Zhurnal, 95(6): 679–684.

Tiunova TM and Kluge N. 2016. Redescription of *Paraleptophlebia falcula* Traver 1934 with notes on

status and composition of *Paraleptophlebia* Lestage 1917 and *Neoleptophlebia* Kluge 1997 (Ephemeroptera: Leptophlebiidae). Zootaxa, 4098(2): 369–382.

Truţă AM. 2016. Research on the environmental quality in Vâlsan River based on the macrozoobenthic analysis. Current Trends in Natural Science, 5(10): 135–142.

Türkmen G and Kazanci N. 2016. Habitat characteristics of little-known species *Baetis milani* (Baetidae, Ephemeroptera) from the Eastern part of Black Sea Region (Turkey). Review of Hydrobiology, 9(2): 135–146.

Van den Brink PJ, Van Smeden JM, Bekele RS, Dierick W, De Gelder DM, Noteboom M and Roessink I. 2016. Acute and chronic toxicity of neonicotinoids to nymphs of a mayfly species and some notes on seasonal differences. Environmental toxicology and chemistry, 35(1): 128–133.

Vidinova Y. and Kenderov L. Mayflies (Ephemeroptera, Insecta) from Vrachanska Planina Mountains. Faunistic diversity of Vrachanski Balkan Nature Park ZooNotes, Supplement 3, Plovdiv University Press, Plovdiv.

Vilenica M, Brigić A, Kerovec M, Gottstein S and Ternjej I. 2016. Spatial distribution and seasonal changes of mayflies (Insecta, Ephemeroptera) in a Western Balkan peat bog. ZooKeys. 2016;(637):135–149. doi:10.3897/zookeys.637.10359.

Vilenica M, Previšić A, Ivković M, Popijač A, Vučković I, Kučinić M, Kerovec M, Gattolliat JL, Sartori M and Mihaljević Z. 2016. Mayfly (Insecta: Ephemeroptera) assemblages of a regulated perennial Mediterranean river system in the Western Balkans. Biologia, 71(9): 1038–1048.

Vilenica M, Previšić A, Kučinić M, Gattolliat JL, Sartori M and Mihaljević Z. 2016. Distribution and autecology of mayflies (Insecta, Ephemeroptera) in a Mediterranean river in the Western Balkans. Entomological news, 126(1): 19–35.

Vilenica M, Previšić A, Kučinić M, Gattolliat JL, Sartori M and Mihaljević Z. 2016. Distribution and autecology of mayflies (Insecta, Ephemeroptera) in a Mediterranean river in the Western Balkans. Entomological news, 126(1): 19–35.

Vinasco-Mondragón AF and Zúñiga C. 2016. First records of *Callibaetis radiatus* and *C. viviparus* (Ephemeroptera: Baetidae) for Colombia. Revista Colombiana de Entomología, 42(1): 91–94.

Vuataz L, Rutschmann S, Monaghan MT and Sartori M. 2016. Molecular phylogeny and timing of diversification in Alpine *Rhithrogena* (Ephemeroptera: Heptageniidae). BMC Evolutionary Biology, 16:194. doi: https://doi.org/10.1186/s12862-016-0758-1.

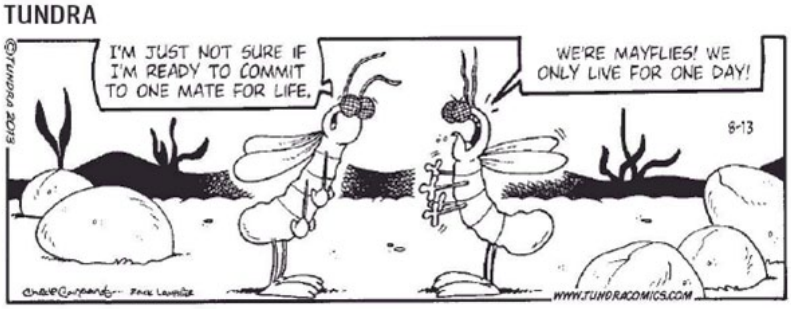
Wakimura K, Takemon Y, Takayanagi A, Ishiwata SI, Watanabe K, Tanida K, Shimizu N and Kato M. 2016. Characterization of genes for histone H3, 18S rRNA, and cytochrome oxidase subunit I of East Asian mayflies (Ephemeroptera). DNA Barcodes, 4(1): 1–25.

Waller DL, Luoma JA and Erickson R. 2016. Safety of the molluscicide Zequanox® to nontarget macroinvertebrates *Gammarus lacustris* (Amphipoda: Gammaridae) and *Hexagenia spp*. (Ephemeroptera: Ephemeridae). Management of Biological Invasions, 7(3): 269–280.

Watson-Leung T, Oke M, McElroy M, Stuart M, Rendas M, Raby M and Mahon K. 2016. Interlaboratory evaluation of the assessment of arsenic bioaccumulation from field collected sediments using *Hexagenia* spp. Environmental Toxicology and Chemistry, 35(10): 2448–2455.

Yoshimura M and Takemon Y. 2016. New data and revision of the Ephemeroptera of Tunisia. Biol. Inl. Wat. Suppl. 3, 99–106.

Zhou D, Wang YY, Sun JZ, Han YK and Zhou CF. 2016. The complete mitochondrial genome of *Paegniodes cupulatus* (Ephemeroptera: Heptageniidae). Mitochondrial DNA Part A, 27(2): 925–926.



We're looking for submissions to the *Mayfly Newsletter*!

Do you have anything you'd like to share with your fellow ephemeropterists? In addition to the Notices, Mayfly Bibliography, and information about the upcoming International Meeting, we'd like to include project updates, book reviews, notices of upcoming meetings of interest to Ephemeroptera workers, requests for collaboration, and any interesting notes about mayflies.

So - my questions to you - Are you looking for collaborators on a project? Do you have some spectacular mayfly photos that you'd like to share with your colleagues? Is there a special collecting site or new collecting method whose details would be of interest to other mayfly workers? Have you ever had an adventure in collecting mayflies? We publish our data in our research papers, but sometimes the story behind the story is equally interesting!

Deadlines:
- Summer issue: May 15 - Winter issue: Dec. 1

Ametropus fragilis, collected during the Mackenzie Valley Pipeline Study (13 Sept. 1971, from the mainstem of the Mackenzie River near Inuvik, NWT, Canada). photo: D.Giberson

Our "new" *Mayfly Newsletter*

Starting with the Winter 2016 issue, the Mayfly Newsletter has gone digital! You will be able to find the link to the issues on *Ephemeroptera Galactica* (http://www.ephemeroptera-galactica.com). If you haven't already passed your email address to Peter Grant, remember to contact Donna (giberson@upei.ca) with your email address if you would like to receive notification when new issues are posted. Unfortunately, due to costs of printing and postage, we won't be able to send a printed newsletter out by post.

The Mayfly Newsletter is the official newsletter of the Permanent Committee of the International Conferences on Ephemeroptera and is published to facilitate communication among ephemeropterists.

Subscriptions to the Newsletter are free. To place your name on the e-mailing list or to contribute information for the next issue, contact:
Dr. Donna Giberson (giberson@upei.ca)
The Mayfly Newsletter
Department of Biology, University of Prince Edward Island
Charlottetown, PE Canada C1A 4P3
ISSN 1091-4935