



Newsletter of the SOUTHWEST ASSOCIATION OF FRESHWATER INVERTEBRATE TAXONOMISTS

Greetings SAFIT members,

Have a job opening that you want to announce, or are looking for a job? Let SAFIT know in the Newsletter! Looking for specimens of a certain species or a literature reference? Need material for research or comparative purposes? Let your colleagues know in the SAFIT Newsletter! Want a workshop on a particular group of organisms? Have books or reprints to share, trade or sell? Looking for a collecting partner? Put it here in the SAFIT Newsletter! All appropriate requests, queries, advertisements and announcements will be considered, and are free to the SAFIT membership.

Thanks!

Brady Richards, Editor

ANNOUNCEMENTS AND NOTICES

The notices, announcements and advertisements in this section do not reflect SAFIT or SAFIT's views, opinions or policy, and do not constitute an endorsement of an advertiser's abilities, skills, or products.

Trichoptera Literature Database

The link given for this website in the 2011 STE seems to be defunct. The University of Minnesota now hosts this website at URL: <http://www.trichopteralit.umn.edu/>. The database is searchable by author, keywords and publication year and whether a PDF is available for a citation. At latest check, about 500 works on Trichoptera are either available for download or a link to a PDF is given. Recently, the entire Trichopterorum Catalogus was uploaded in PDF format. For those of you who haven't delved very deeply into caddisflies, this monumental work covers Trichoptera literature for the years 1758-1960 by F.C.J. Fischer.

**SAFIT Presents:
Beetlemania II (The Sequel)**



**A Workshop on the
Taxonomy of Western North America Hydrophiloidea, Hydraenide and
Noteridae Beetles**

**August 19th – 21st, 2015
Hosted by the National Aquatic Monitoring Center
Utah State University
Logan, UT**

The Southwestern Association of Freshwater Invertebrate Taxonomists (SAFIT) is sponsoring a two-day workshop (August 19th – 20th) providing comprehensive instruction on the taxonomy, identification, and natural history of western North American aquatic Coleoptera (beetles), with an emphasis on Hydrophiloidea, Hydraenidae, and Noteridae. The course instructor is:

Dr. Andrew Short, Assistant Professor of Biology in the Department of Ecology and Evolutionary Biology (Division of Entomology) and assistant curator of the Biodiversity Institute at the University of Kansas. Dr. Short's entomological interests and research include documenting the diversity, biology, and evolutionary history of aquatic beetles, specifically focusing on the Hydrophiloidea, and the patterns/processes of diversification within this group. <https://sites.google.com/site/theshortlab/>

Dinner by the Logan (August 19th): SAFIT will be hosting an outdoor catered dinner by the Logan River on Wednesday evening. Dinner and non-alcoholic beverages will be provided free of charge for those registered for the workshop. Any alcoholic beverages must be personally purchased.

Collecting Trip (August 21st): Joseph Kotynek, from the National Aquatic Monitoring Center, will take a group on a collecting trip along the Logan River in the morning. Following the collecting trip later in the afternoon, there will be an “open lab” to look over the specimens collected during the trip.

Attendees will receive a complete introduction to the biology and taxonomy of the aquatic Coleoptera of western North America as well as training in the proper preparation of specimens for study. Attendees will also receive identification manuals and supporting materials prepared by the instructor for this workshop, including new keys and figures.

Additionally, feel free to bring problematic specimens from any freshwater invertebrate group as there will be many specialists attending the workshop who would be willing to assist on identification.

Location: Utah State University
Room: TBD
Logan, UT
<http://www.usu.edu/map/>

Cost to Attend: SAFIT Members: \$300
Non-members: \$400

You must be an active member of SAFIT for 2015 at the time of registration to register for the workshop at the reduced fee

If you are interested in attending, please contact Wendy Willis wendy@aquabio.org .

We have room for 40 participants in this workshop and these seats will be filled on a first come first serve basis. We will accept participants up to the day of the workshop or until all seats are filled. To ensure your place in this workshop, please send registration payments by **August 1st, 2015**. You may register online using PayPal (preferred method) on the SAFIT website (www.safit.org/event.html) or by sending your registration form and payment to:

Wendy Willis
Aquatic Bioassay and Consulting
Laboratories, Inc.
29 North Olive Street
Ventura, CA 93001

Please make checks payable to “SAFIT”

If you have any questions about this workshop please contact Wendy Willis at wendy@aquabio.org.

Accommodations:

The University Inn and Conference Center (<http://uicc.usu.edu/>) has blocked off 20 rooms (10 double and 10 single occupancy) for our group at a discounted rate of approximately \$90/night. If you would like to reserve a room, you must contact the University Inn at (800)231-5634 and mention that you are with SAFIT. The rooms must be reserved by **August 3rd, 2015** or they will be released to the public. **Please make reservations early to secure a room as there is another conference in town and space is limited.**

Special Information for Students:

SAFIT has a policy of supporting students in the field of freshwater invertebrate taxonomy. Therefore, SAFIT has reserved up to five seats for currently enrolled full time students whose research includes aquatic Coleoptera or related invertebrates. Registration fees (normally \$300 for members and \$400 for non-members) for these students will be entirely waived, in exchange for assistance in the setup before and the cleanup following the workshop.

If you are interested in attending this workshop at no cost, please submit a short statement (no more than 500 words) to the SAFIT Secretary (Wendy Willis: wendy@aquabio.org). The statement should include the following:

1. Indicate the name of your school, expected year of completion, and the name of your major advisor.
2. Explain how this workshop relates to your current research interests and/or your future career goals. Although a formal prospectus is not necessary, please provide details about your research questions and hypotheses that you intend to explore.

Statements are due by **July 17th, 2015** and will be reviewed by a committee of SAFIT members. Awardees will be notified by August 1st, 2015.

2015 California Aquatic Bioassessment Workgroup

The twenty-second annual CABW meeting will be held at the same place on the UC Davis campus on 21 and 22 October. Look for more information and “call for papers” in a few months but for now put the dates in your calendar.

The first of the presentations from the 2014 CABW are available as videos on the SWAMP website:

http://www.waterboards.ca.gov/water_issues/programs/swamp/reports.shtml

Eventually, all presentations will be posted, but for now the other presentations are available at the same site as PDFs.

EMPLOYMENT OPPORTUNITIES

Please contact the editor if you would like to post an employment opportunity.

Miscellaneous bug notes (anecdotal notes, including distributional records in the SAFIT region, which may be interesting or helpful to SAFIT members). To make contributions or comments contact the editor: arichards@csuchico.edu.

FIELD & LAB

A feature in each Newsletter issue exploring an aspect of aquatic macroinvertebrates beyond sample processing that may be beneficial to members. Contact the editor to contribute or comment.

TOUGH CHARACTERS

Got a TOUGH CHARACTER? The more difficult diagnostic characters and key couplets for those taxa that are tricky to separate are elucidated in this column. Plenty of good grudge matches will be presented in photos, figures and descriptions. Think there are tough characters that are being missed? Submit your tough characters and get them compared with other character states right here.

Eubrianax vs. Psephenus

by Brady Richards

with photos by Doug Post

This time around, I present a welterweight bout. Both taxa are easy to separate once you know what the key couplet means, but I'll show a quick and dirty character not included in many keys.

The characters used to separate *Eubrianax* and *Psephenus* larvae at first seem pretty straightforward. For *Eubrianax*, the 8th abdominal segment has lateral expansions (Fig. 1) and there are four pairs of abdominal gills (Fig. 3). *Psephenus* larvae do not have lateral expansions for the 8th abdominal segment (Fig. 2), and there are 5 pairs of gills (Fig. 4).

The gill pairs can be difficult to count, especially in the earlier instars, since each pair of gills overlaps those of the next abdominal segment. The structure of the gills differs between the two genera. This is illustrated in White and Roughley (2008), but photos are better at showing the differences. When I first started working on western invertebrates, the 8th segment character gave me trouble. While the character is mentioned in many keys (White and Roughley, 2008; previous editions of Merritt and Cummins), it is figured in only a few (Brown, 1972; Leech and Chandler, 1956) and labeled in none of the standard texts.

There is another character I find very useful in separating *Eubrianax* and *Psephenus* larvae. To my knowledge, this character has never been used in Nearctic keys. In *Eubrianax*, there is a small, diamond shaped sclerite located anteriorly along the median suture on the dorsal surface. The middorsal pronotal plate (Fig. 5) is figured in several illustrations of *Eubrianax edwardsii*

(LeConte) (Essig, 1926; Blackwelder, 1930; Leech and Chandler, 1956; Brown, 1991), but was apparently not labeled until Lee et al. (1999:12, Fig. 2). Strangely, the structure was not figured in Brown (1972). I've been using the mid dorsal pronotal plate character for years, but I discovered recently that not many other people know about the character. Personally, I find this character makes separating even early instars of *Eubrianax* from *Psephenus* very easy. Take a look next time you get psephenids and see what you think.

Incidentally, there are a number of errors in the White and Roughley (2008) key to Psephenidae larvae. All of these are in the figure references not the text for the couplets. Corrections below:

Couplet 2(1), figure references should read (Figs. 20.295-20.296, 20.298)

Couplet 3(2), should read (Figs. 20.295-20.296, 20.301)

Couplet 4(1'), should read (Fig. 20.297)

Literature Cited

- Bertrand, H. 1972. Larves et nymphes des Coléoptères aquatiques du globe. Centre National de la Recherche Scientifique, Paris. 804 p.
- Blackwelder, R. E. 1930. The larva of *Eubrianax edwardsi* (LeC.) (Coleoptera: Psephenidae). Pan-Pacific Entomologist 6:139-142.
- Brown, H. P. 1972. Biota of freshwater ecosystems identification manual 6: aquatic dryopoid beetles (Coleoptera) of the United States. Washington, D.C. 82 p.
- Brown, H. P. 1991. Psephenidae (Dryopoidea). [pp. 395-397]. In: F. W. Stehr (editor), Immature Insects, Volume 2, xvi + 975 pp., Volume 2. Kendall/Hunt, Dubuque, Iowa. 395-397 pp.
- Essig, E. O. 1926. Insects of Western North America. The Macmillan Company, New York. The Macmillan Company, New York. xi + 1035 p.
- Leech, H. B., and H. P. Chandler. 1956. Aquatic Coleoptera. [pp. 293-371]. In: R. L. Usinger (editor), Aquatic Insects of California, ix + 508 pp. University of California Press, Berkeley & Los Angeles. 293-371 pp.
- Lee, C.-F., M. Satô, and P.-S. Yang. 1999. Revision of Eubrianacinae (Coleoptera, Psephenidae) I. *Eubrianax* Kiesenwetter and *Heibrianax* gen. n. The Japanese Journal of Systematic Entomology 15:9-25.
- White, D. S., and R. E. Roughley. 2008. Chapter 20: Aquatic Coleoptera. [pp. 571-671]. In: R. W. Merritt, K. W. Cummins and M. B. Berg (editors), An introduction to the aquatic insects of North America, fourth edition, xvi + 1158 pp. + 39 color plates. Kendall/Hunt Publishing Company, Dubuque, Iowa. 571-671 pp.

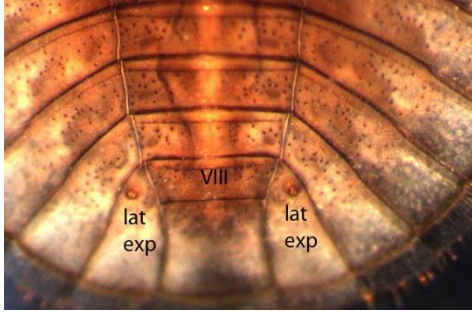


Fig. 1. *Eubrianax* dorsal posterior showing segment VIII with lateral expansions.

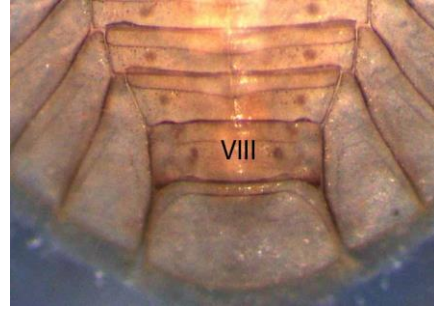


Fig. 2. *Psephenus* dorsal posterior showing segment VIII without lateral expansions

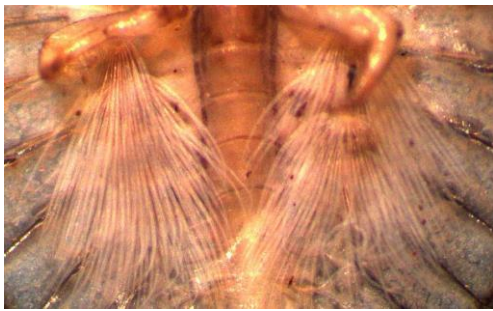


Fig. 3. *Eubrianax* abdominal gills

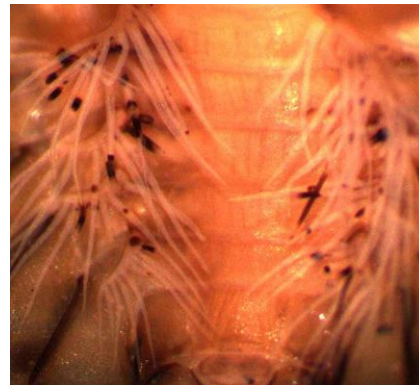


Fig. 4. *Psephenus* abdominal gills

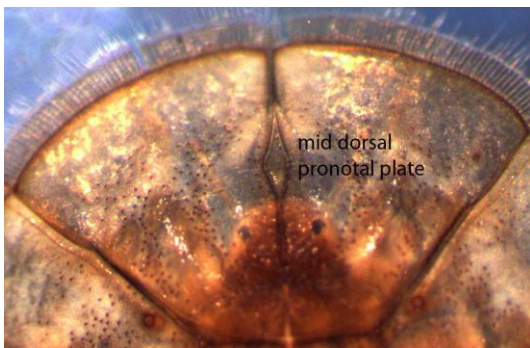


Fig. 5. *Eubrianax* dorsal anterior showing mid dorsal pronotal plate

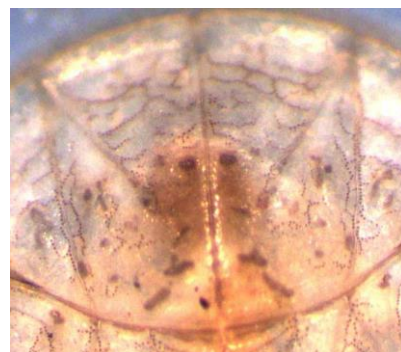


Fig. 6. *Psephenus* dorsal anterior, mid dorsal pronotal plate absent

LATEST LITERATURE

If you know of any literature or if you yourself have published any papers of interest to the SAFIT membership, please send copies or the citations to Brady Richards (arichards@csuchico.edu) for inclusion in the next issue of the SAFIT Newsletter. Thanks!!

Asterisk (*) indicates author is a SAFIT member.

Mollusca

Moore, A. C., J. B. Burch, and T. F. Duda, Jr. 2014. Recognition of a highly restricted freshwater snail lineage (Physidae: *Physella*) in southeastern Oregon: convergent evolution, historical context, and conservation considerations Conservation Genetics 16:113-123.

Crustacea

Owen, C. L., H. Bracken-Grissom, D. Stern, and K. A. Crandall. 2015. A synthetic phylogeny of freshwater crayfish: insights for conservation. Philosophical Transactions of the Royal Society B-Biological Sciences 370:1-10.

*Rogers, D. C. 2015. Hatching response to temperature along a latitudinal gradient by the fairy shrimp *Branchinecta lindahli* (Crustacea; Branchiopoda; Anostraca) in culture conditions. Journal of Limnology 74:85-94.

Shu, S., A. M. Maeda-Martinez, *D. C. Rogers, J. Yang, and X. Chen. 2015. Morphological characterization of *Streptocephalus sirindhornae* (Branchiopoda: Anostraca) from South East Asia: first record of the Streptocephalidae from China. Zootaxa 3911:447-450.

Plecoptera

Gill, B. A., B. C. Kondratieff, B. P. Stark, and *J. B. Sandberg. 2015. The banded-wing *Moselia infuscata* (Claassen) Phenotype from California and Oregon, U.S.A. (Plecoptera: Leuctridae). Zootaxa 3911:593-511.

Lock, K. and P. L. M. Goethals. 2014. Predicting the occurrence of stoneflies (Plecoptera) on the basis of water characteristics, river morphology and land use. Journal of Hydroinformatics 16:812-821.

*Sandberg, J., *L. L. Serpa, and E. F. Drake. 2015. The drumming signals of three winter stonefly species (Capniidae, Leuctridae: Plecoptera); with discussion resolving two common interval patterns. Illiesia 11:51-74.

*Sandberg, J. B., B. C. Kondratieff, and C. Verdone. 2015. Descriptions of the adult male and female genitalia of the genus *Osobenus* Ricker (Plecoptera: Perlodidae). Illiesia 11:1-7.

Stark, B. P., B. C. Kondratieff, *J. B. Sandberg, B. A. Gill, C. Verdone, and A. B. Harrison. 2015. *Sierraperla* Jewett 1954 (Plecoptera: Peltoperlidae), distribution, egg morphology and description of a new species. *Illiesia* 11:8-22.

Szczytko, S. W. and B. C. Kondratieff. 2015. A review of the eastern Nearctic Isoperlinae (Plecoptera: Perlodidae) with the description of twenty-two new species. *Monographs of Illiesia* 1:1-289.

Megaloptera

Liu, X., F. Hayashi, and D. Yang. 2015. Phylogeny of the family Sialidae (Insecta: Megaloptera) inferred from morphological data, with implications for generic classification and historical biogeography. *Cladistics* 31:18-49.

Trichoptera

Cushman, R. M. 2014. Biogeography of the caddisfly genus *Arctopsyche* McLachlan, 1868 (Trichoptera: Hydropsychidae) in North America. *Pan-Pacific Entomologist* 90:174-181.

Givens, D. R. 2014. An annotated list of caddisflies (Trichoptera) collected in Lassen Volcanic National Park, California, USA during 2011-2013. *Entomological News* 124:153-175.

Kjer, K. M., X. Zhou, P. B. Frandsen, J. A. Thomas, and R. J. Blahnik. 2014. Moving toward species-level phylogeny using ribosomal DNA and COI barcodes: an example from the diverse caddisfly genus *Chimarra* (Trichoptera: Philopotamidae). *Arthropod Systematics & Phylogeny* 72:345-354.

Coleoptera

Gustafson, G. T. and K. B. Miller. 2015. The New World whirligig beetles of the genus *Dineutus* Macleay, 1825 (Coleoptera, Gyrinidae, Gyrininae, Dineutini). *ZooKeys* 476:1-135.

Lupi, D., C. Jucker, and A. Rocco. 2014. Rice fields as a hot spot of water beetles (Coleoptera Adepfaga and Polyphaga). *Redia-Giornale Di Zoologia* 97:95-112.

Miscellaneous

Ament, D. C. 2015. A modified cavity slide for temporary preparation and illustration of insect genitalia in glycerin. *Zootaxa* 3918:599-600.

May, J. T., L. R. Brown, *A. C. Rehn, I. R. Waite, *P. R. Ode, *R. D. Mazon, and *K. C. Schiff. 2015. Correspondence of biological condition models of California streams at statewide and regional scales. *Environmental Monitoring and Assessment* 187:article 4086.

THANK YOU FOR YOUR MEMBERSHIP!

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SAFIT Newsletter Publication Guidelines

Submissions and questions about submissions should be directed to the SAFIT Newsletter Editor, at: arichards@csuchico.edu, 530.898.4792. Submissions should be Word files, 12 pt. Times New Roman font, and left justified. Please submit an announcement, as you would like it to appear in the newsletter, preferably in Word format. Images should be high quality.

Deadline for SAFIT newsletter announcements: Send to editor one week before publication date.

Issue	Submission Deadline	Publication Date
I	24 March	31 March
II	23 June	30 June
III	23 September	30 September
IV	24 December	31 December

Advertisements:

- Employment Opportunity ads should be one page maximum (8.5 x 11), should list the position(s) available, basic qualifications required, and provide contact information.
- Employment Wanted ads may include a brief statement describing the position sought, basic experience, and contact information. For example: “Looking for work as phytoplankton taxonomist. Experience includes M.S. thesis from the University of Malpractice, and working on several long-term bioassessment projects for the state of East Carolina. Resume and references upon request. Please contact Martin E. Serumgaard, mserumgaard@fakeaddress.net, (555) 555-5555.” Do not include *curriculum vitae* or resume, photos, or political statements.
- General Advertisements should be limited to one page (8.5 x 11) and may include a high quality logo image, and must not include political statements or other potentially offensive material.

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