



**Newsletter of the
SOUTHWEST ASSOCIATION OF FRESHWATER
INVERTEBRATE TAXONOMISTS**

Greetings SAFIT members,

Welcome to Volume 3 of the newsletter. We intend to publish the newsletter quarterly with an informative but not too dry format: informal but technically accurate. Input from membership is strongly encouraged, whether as suggestion, criticism, or content. In particular we are soliciting articles for the "Field and Lab" section (unless of course you want every issue to be about stoneflies!). Sweet bug pictures, interesting collecting sites, techniques relating to field or lab, all are welcome. Special thanks to Raphael Mazor for help with the Latest Literature.

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 references to sell trade or share? Looking for a collecting partner? Put it here in the SAFIT Newsletter! All appropriate requests, queries, non-commercial advertisements and announcements will be considered, and are free to the SAFIT membership.

Thanks!

Jon Lee, Editor

ANNOUNCEMENTS

18th Symposium of the International Association of Astacology

The meeting registration website is now open for the 18th symposium of the International Association of Astacology, to be held 18-23 July 2010 in Columbia, Missouri, USA. You can register for the meeting and submit your abstracts for talks and/or posters. See <http://muconf.missouri.edu/IAA18/Registration.html> for more information on the registration process. Again, please be sure to encourage your students and other colleagues to attend the

meeting.

Please see our website for additional information but some key points are:

Early registration closes on April 26, 2010.

Abstracts are due no later than May 10, 2010.

We do have scholarship funds available for students. Please see the website for the application form, which should be sent to Annie Allert at aallert@usgs.gov no later than April 12, 2010.

Hope to see you there.

Cheers,

Jim Fetzner *IAA President-Elect*

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Diptera Taxonomic Workshop 19-20 June Corvallis

Greetings All. Set your calendar for 18-20 June for a Diptera Workshop with Gregory Courtney in Corvallis. The 18th is an optional field trip for collecting. Let you know about logistics and cost later.

Thanks,

Mindy Allen (allensparadise@msn.com)

2010 American Malacological Society Meeting

The 76th meeting of the American Malacological Society will be a joint meeting with Western Society of Malacologists on June 26 - 30 (with optional excursions on July 1) in San Diego, California, at the San Diego State University Convention Center.

For more information

Please contact Dr. Doug Eernisse, President 2009-2010, (deernisse@fullerton.edu).

<http://www.malacological.org/meetings/next.php>

NEW BOOK

Thorp, J.H. and A.P. Covich, eds. 2009. Ecology and Classification of North American Freshwater Invertebrates (Third edition). Academic Press, San Diego, CA, USA. 1021 pp.

“This 3rd edition has been extensively revised. The chapters present up-to-date reviews on the structure, function, ecology, and systematics of each invertebrate group. The biggest change from the 2nd edition is an expansion of the taxonomic keys to allow identifying many of the taxa to the species level. References to more-detailed monographs and web sites allow users to quickly gain a fuller perspective on particular groups of interest.”

John E. Havel, Ph.D.
Professor of Biology
Missouri State University

Review copied from: <http://www.lavoisier.fr/notice/fr285805.html>

SAFIT MEETINGS

The board of directors now meet via conference call on the 3rd Friday of the month.

EMPLOYMENT OPPORTUNITIES

Offering employment? We can post it here.

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.

Squeezing Stoneflies

by Jon Lee

In the previous Field and Lab article (Vol. 2, Issue 3&4) John Sandberg mentioned the need for aedeagus extrusion for identification of some groups of stoneflies (Plecoptera). The aedeagus is part of the male reproductive system and is used for identification of some members in the

families Chloroperlidae, Peltoperlidae, Perlidae, and Perlodidae. In these groups the aedeagus is, at rest, concealed inside the abdominal cavity and is everted from the genital opening behind sternum nine during copulation. It is mostly membranous and often adorned with various setae/spines, spine groups, and larger sclerotized structures that, along with general shape, are used for species identification.

In order to study the aedeagus it must be everted, a process often simply called “squeezing”. Only specimens that are live or recently dead (within 30 minutes) will work or a much more laborious method must be employed (see Szczytko and Stewart 1979). Some stonefly workers have good success everting aedeagi in the field “by gently squeezing and rolling the abdomen between the thumb and forefinger, toward the posterior end” (Szczytko and Stewart 1979) prior to preservation. I’ve had much better success with aedeagus extrusion under a scope in the lab.

Carry a container in which to keep live adult stoneflies when collecting stoneflies in the field. The different families can be readily determined in the field with practice. Keep adults whose aedeagus needs to be examined live. It is a good idea to keep the stonefly alive for a day or two to make sure the specimen is no longer teneral (the condition where the sclerotization hasn’t completely hardened after emergence or eclosion). After a day or two you are ready to do some squeezing. The following method has worked well for me and is based on instructions from John Sandberg and Boris Kondratieff. Materials needed include:

- a stereomicroscope
- forceps
- a teasing needle - with a fine sharpening stone dull the needle so the tip is blunt or rounded
- a container of ethanol or very hot water - large enough to completely submerge a stonefly

Grasp the male stonefly with your thumb and forefinger. Position it so the dorsal surface (terga) of the posterior abdominal segments are pressed against your forefinger while gently but firmly holding it with your thumb. Place the stonefly under the scope so you can clearly see the ninth (last visible) abdominal sternite (ventral surface is facing up), your forefinger should be supporting (underneath) the segments dorsal surface. While gently putting pressure on the abdomen with your thumb and forefinger, use the dull needle to press against the rounded or bulbous ninth sternum (I’m right handed and use my right hand to hold the stonefly and my left to hold the needle). Be patient, keep exerting pressure with the needle, gently prod if necessary, you will see the aedeagus start to protrude from the posterior margin of sternum nine, sometimes it pops right out, at other times it is a very gradual process. When it has fully everted submerge the specimen in alcohol - keeping pressure on the abdomen - for about 60 seconds. An alternative is to grasp the eighth segment with forceps, making sure the aedeagus doesn’t retract into the abdomen, and hold the specimen under not quite boiling water for a few seconds. My experience is that squeezing takes patience and practice. Too much pressure and the aedeagus or abdomen can pop. Too little and you don’t get an extrusion. Be patient, practice and before you know it, squeezing will become second nature.

Szczytko, S. W. and K. W. Stewart. 1979. The genus *Isoperla* (Plecoptera) of western North America; holomorphology and systematics, and a new stonefly genus *Cascadoperla*. *Memoirs of the American Entomological Society* 32:1-120.

Miscellaneous bug notes (anecdotal notes, including distributional records in the southwest, which may be helpful to SAFIT members). To make contributions or comments contact the editor: jlee@humboldt1.com.

We encourage SAFIT members to collect mature specimens (usually adult males for arthropods) to further taxonomic and distributional knowledge of macroinvertebrates within the SAFIT region. Immature macroinvertebrates normally dominate benthic bioassessment samples and generic level classification can be a challenge (but see below for a distinct exception). Adult collecting, particularly in out of the way places, can be both informative and entertaining. It is an eye opener to be able to confidently key specimens to the species level.

Oreoleptis sp. (Diptera: Oreoleptidae). *Oreoleptis torrenticola*, the “many legged fly”, was described by Zloty et al. (2005) from the northern Rocky Mountains. It was quite a surprise to find a larva in a sample collected by the Yurok Tribal EPA from a tributary of the Klamath River in Humboldt Co., CA. This interesting critter cannot be mistaken!



Oreoleptis torrenticola larva. Photo courtesy J. Zloty.

Zloty, J., B. J. Sinclair, and G. Pritchard. 2005. Discovered in our backyard: a new genus and species of a new family from the Rocky Mountains of North America (Diptera, Tabanomorpha). *Systematic Entomology*:1-19.

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!!

Mollusca

Hershler, R. and H. P. Liu. 2010. Two new, possibly threatened species of *Pyrgulopsis* (Gastropoda: Hydrobiidae) from southwestern California. *Zootaxa* 2343:1-17.

Wethington, A. R., J. Wise, and R. T. Dillon. 2009. Genetic and morphological characterization of the Physidae of South Carolina (Gastropoda: Pulmonata: Basommatophora), with description of a new species. *Nautilus* 123:282-292.

Crustacea

Culver, D. C., J. R. Holsinger, M. C. Christman, and T. Pipan. 2010. Morphological differences among eyeless amphipods in the genus *Stygobromus* dwelling in different subterranean habitats. *Journal of Crustacean Biology* 30:68-74.

Hossack, B. R., R. L. Newell, and D. C. Rogers. 2010. Branchiopods (Anostraca, Notostraca) from protected areas of Western Montana. *Northwest Science* 84:52-59.

Larson, E. R., C. A. Busack, J. D. Anderson, and J. D. Olden. 2010. Widespread distribution of the non-native northern crayfish (*Orconectes virilis*) in the Columbia River basin. *Northwest Science* 84:108-111.

Ephemeroptera

Alexander, L. C., M. Delion, D. J. Hawthorne, W. O. Lamp, and D. H. Funk. 2009. Mitochondrial lineages and DNA barcoding of closely related species in the mayfly genus *Ephemerella* (Ephemeroptera: Ephemerellidae). *Journal of the North American Benthological Society* 28:584-595.

- Baumgardner, D. E. and W. P. McCafferty. 2010. Revision of the genus *Leptohyphes* Eaton (Ephemeroptera: Leptohyphidae) in North and Central America. *Zootaxa* 2360:1-33.
- Ditsche-Kuru, P. and J. H. E. Koop. 2009. New insights into a life in current: do the gill lamellae of *Epeorus assimilis* and *Iron alpicola* larvae (Ephemeroptera: Heptageniidae) function as a sucker or as friction pads? *Aquatic Insects* 31:495-506.
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- Kluge, N. J. 2009. New version of the database "Ephemeroptera of the World" as the first experience of a permanent and objective web catalogue in biology. *Aquatic Insects* 31:167-180.
- McCafferty, W. P. 2009. New state and provincial North American records for 100 Ephemeroptera species. *Transactions of the American Entomological Society* 135:353-368.
- Monaghan, M. T. and M. Sartori. 2009. Genetic contributions to the study of taxonomy, ecology, and evolution of mayflies (Ephemeroptera): review and future perspectives. *Aquatic Insects* 31:19-39.
- Newell, R. L. and M. L. Anderson. 2009. Note on the occurrence of *Siphonurus autumnalis* (Ephemeroptera: Siphonuridae) in a Montana spring brook. *Western North American Naturalist* 69:551-555.
- Nieto, C. and J. L. Gattolliat. 2010. Are the Baetidae subfamilies (Insecta: Ephemeroptera) natural groups? *Cladistics* 26:219-219.
- Pond, G. J. 2010. Patterns of Ephemeroptera taxa loss in Appalachian headwater streams (Kentucky, USA). *Hydrobiologia* 641:185-201.

Odonata

- Caesar, R. M. and J. W. Wenzel. 2009. A phylogenetic test of classical species groups in *Argia* (Odonata: Coenagrionidae). *Entomologica Americana* 115:97-108.
- Dumont, H. J., A. Vierstraete, and J. R. Vanfleteren. 2010. A molecular phylogeny of the Odonata (Insecta). *Systematic Entomology* 35:6-18.
- Novelo-Gutierrez, R. 2009. Description of the larva of *Acanthagrion quadratum* Selys, with a key to the known larvae of the genus (Zygoptera: Coenagrionidae). *Odonatologica* 38:321-328.

Plecoptera

- Bojkova, J. and J. Helesic. 2009. Spring fens as a unique biotope of stonefly larvae (Plecoptera): species richness and species composition gradients. *Aquatic Insects* 31:359-367.
- Krno, I. and M. Holubec. 2009. Effects of land use on stonefly bioassessment metrics. *Aquatic Insects* 31:377-389.
- Lee, J. J. and R. W. Baumann. 2010. Studies on *Sweltsa townesi* and a new species, *Sweltsa salix*, from northern California (Plecoptera: Chloroperlidae). *Illiesia* 6:34-40.
- Li, W. H., Y. B. Wang, and D. Yang. 2010. Synopsis of the genus *Paraleuctra* (Plecoptera: Leuctridae) from China. *Zootaxa* 2350:46-52.
- Myers, L. W. and B. C. Kondratieff. 2009. Descriptions of the nymphs of eastern North American species of *Cultus* (Plecoptera: Perlodidae). *Entomologica Americana* 115:109-114.
- Stewart, K. W. 2010. The larva of *Paracapnia disala* (Jewett) (Plecoptera: Capniidae). *Illiesia* 6:11-15.
- Stewart, K. W. and N. H. Anderson. 2009. The life history and larval generic character development of *Malenka bifurcata* (Claassen, 1923) (Plecoptera: Nemouridae) in an Oregon summer-dry stream. *Aquatic Insects* 31:391-399.
- Stewart, K. W. and N. H. Anderson. 2010. The life history of *Ostrocerca dimicki* (Frison) in a short-flow, summer-dry Oregon stream. *Illiesia* 6:52-57.
- Zwick, P. 2009. The Plecoptera - who are they? The problematic placement of stoneflies in the phylogenetic system of insects. *Aquatic Insects* 31:181-194.

Trichoptera

- Blinn, D. W. and D. W. Ruiter. 2009. Caddisfly (Trichoptera) assemblages along major river drainages in Arizona. *Western North American Naturalist* 69:299-308.
- Bueno-Soria, J. 2010. Some new Trichoptera (Glossosomatidae, Hydroptilidae, Hydropsychidae and Polycentropodidae) from Mexico. *Proceedings of the Entomological Society of Washington* 112:22-31.
- Ito, T. 2009. A new species of the genus *Palaeagapetus* Ulmer (Trichoptera, Hydroptilidae) from Japan. *Limnology*.
- Johanson, K. A. and M. Espeland. 2010. Phylogeny of the Ecnomidae (Insecta: Trichoptera). *Cladistics* 26:36-48.

Ruiter, D. E. and D. W. Blinn. 2009. Illustrations for several previously un-associated Arizona Trichoptera females. *Braueria* (Lunz am See, Austria) 36:4-10.

Coleoptera

Alarie, Y., M. C. Michat, A. N. Nilsson, M. Archangelsky, and L. Hendrich. 2009. Larval morphology of *Rhantus* Dejean, 1833 (Coleoptera: Dytiscidae: Colymbetinae): descriptions of 22 species and phylogenetic considerations. *Zootaxa* 2317:1-102.

Gentili, E. and M. Fikacek. 2009. Taxonomic notes on *Laccobius*, subgenus *Glyptolaccobius*, with new records and description of four new species (Coleoptera: Hydrophilidae). *Acta Entomologica Musei Nationalis Pragae* 49:607-624.

Diptera

Elberg, K., R. Rozkosny, and L. Knutson. 2009. A review of the Holarctic *Sepedon fuscipennis* and *S. spinipes* groups with description of a new species (Diptera: Sciomyzidae). *Zootaxa* 2288:51-60.

Evenhuis, N. L., J. E. O'Hara, T. Pape, and A. C. Pont. 2010. Nomenclatural studies toward a world list of Diptera genus-group names. Part I: Andre-Jean-Baptiste Robineau-Desvoidy. *Zootaxa* 2373:1-265.

Neugart, C., K. Schneeberg, and R. G. Beutel. 2009. The morphology of the larval head of Tipulidae (Diptera, Insecta) - the dipteran groundplan and evolutionary trends. *Zoologischer Anzeiger* 248:213-235.

Ronderos, M. M. and G. R. Spinelli. 2009. Description of the immatures of the predaceous midge *Bezzia blantoni* Spinelli & Wirth (Diptera: Ceratopogonidae). *Zootaxa* 2295:46-54.

Sanseverino, A. M., S. Trivinho-Strixino, and J. L. Nessimian. 2010. Taxonomic status of *Nimbocera* Reiss, 1972, a junior synonym of *Tanytarsus* van der Wulp, 1874 (Diptera: Chironomidae). *Zootaxa* 2359:43-57.

Tejerina, E. G. and A. C. Paggi. 2009. A redescription of *Rheotanytarsus lamellatus* Reiss in all stages (Diptera: Chironomidae) and new records from Argentina. *Zootaxa* 2315:31-38.

Miscellaneous

Carter, J. L., A. H. Purcell, S. V. Fend, and V. H. Resh. 2009. Development of a local-scale urban stream assessment method using benthic macroinvertebrates: an example from the Santa Clara Basin, California. *Journal of the North American Benthological Society* 28:1007-1021.

- Fenoglio, S., T. Bo, M. Cammarata, G. Malacarne, and G. Del Frate. 2010. Contribution of macro- and micro-consumers to the decomposition of fish carcasses in low-order streams: an experimental study. *Hydrobiologia* 637:219-228.
- Girgin, S. 2010. Evaluation of the benthic macroinvertebrate distribution in a stream environment during summer using biotic index. *International Journal of Environmental Science and Technology* 7:11-16.
- Hedrick, L. B., S. A. Welsh, J. T. Anderson, L. S. Lin, Y. S. Chen, and X. C. Wei. 2010. Response of benthic macroinvertebrate communities to highway construction in an Appalachian watershed. *Hydrobiologia* 641:115-131.
- Holzenthal, R. W., D. R. Robertson, S. U. Pauls, and P. K. Mendez. 2010. Taxonomy and systematics: contributions to benthology and J-NABS. *Journal of the North American Benthological Society* 29:147-169.
- Imoobe, T. O. T. and E. Ohiozebau. 2010. Pollution status of a tropical forest river using aquatic insects as indicators. *African Journal of Ecology* 48:232-238.
- Kefford, B. J., L. Zalizniak, J. E. Dunlop, D. Nugegoda, and S. C. Choy. 2010. How are macroinvertebrates of slow flowing lotic systems directly affected by suspended and deposited sediments? *Environmental Pollution* 158:543-550.
- Mesa, L. M. 2010. Effect of spates and land use on macroinvertebrate community in Neotropical Andean streams. *Hydrobiologia* 641:85-95.
- Radwell, A. J. and N. B. Camp. 2009. Comparing chemiluminescent and LED light for trapping water mites and aquatic insects. *Southeastern Naturalist* 8:733-738.
- Resh, V. H. and D. M. Rosenberg. 2010. Recent trends in life-history research on benthic macroinvertebrates. *Journal of the North American Benthological Society* 29:207-219.
- Selvakumar, A., T. P. O'Connor, and S. D. Struck. 2010. Role of stream restoration on improving benthic macroinvertebrates and in-stream water quality in an urban watershed: case study. *Journal of Environmental Engineering-Asce* 136:127-139.
- Vieira, N. K. M., B. C. Kondratieff, D. E. Ruitter, and R. S. Durfee. 2009. The aquatic insects of the Valles Caldera National Preserve, Sandoval County, New Mexico, excluding Diptera, with notes on new state records. *Journal of the Kansas Entomological Society* 82:250-262.
- Willkommen, J. 2009. The tergal and pleural wing base sclerites - homologous within the basal branches of Pterygota? *Aquatic Insects* 31:443-457.

Yoshimura, M. 2009. Comparison of stream benthic invertebrate particularly stonefly assemblages in the temperate forest in Japan in relation to forest types. *Aquatic Insects* 31:369-376.

THANK YOU FOR YOUR MEMBERSHIP!

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