

## The SAFIT Newsletter

### SOUTHWEST ASSOCIATION OF FRESHWATER INVERTEBRATE TAXONOMISTS

Happy 2010!

SAFIT has been busy the last several months. The first full-fledged SAFIT sponsored workshop (Chironomidae Taxonomy) took place in September. The [SAFIT website](#) has expanded and now includes the list of 2003 CAMLnet Tolerance Values and Functional Feeding Group designations. The STE has undergone its first full revision, expanding east and now including Utah. This 2010 revision should be available soon.

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

D. Christopher Rogers, founder and editor of The SAFIT Newsletter has decided to step down from his editorial duties but will remain as a valued member of the editorial board. Christopher is primarily responsible for The Newsletter format and has been the driving force in getting The Newsletter published. Although his skills as editor will be missed, he has offered his assistance in moving The Newsletter forward. Jon Lee will replace Christopher as The Newsletter editor beginning with the current issue. Jon will attempt to maintain The Newsletter's high quality standards with the help of Christopher and Brady Richards. Any comments or suggestions are welcome.

### Cabinets, Drawers, & Boxes

The Essig Museum of Entomology at UC Berkeley is selling California Academy System-style cabinets for \$20, as well as insect drawers for \$5 and Schmitt boxes for \$5. Cash and carry. Please contact Cheryl Barr, [cbarr@nature.berkeley.edu](mailto:cbarr@nature.berkeley.edu), 510-643-0804, in advance. There is an excellent selection of cabinets, which can be used to store many items besides insects.

## SAFIT MEETINGS

### Chironomidae Workshop Summary:

On 9-11 September 2009 SAFIT held a chironomid taxonomy workshop at UC Davis. Twenty six people attended the workshop from many agencies, firms and organizations including: California Department of Fish and Game, California Department of Water Resources, Sierra Nevada Aquatic Research Laboratory, U. S. Forest Service, ECORP, Bioassessment Services, EcoAnalysts, The Nature Conservancy, Idaho Department of Fish and Game, Pyramid Lake Paiute Tribe, UC Davis, and several private consultants from around the western USA.

The workshop provided comprehensive instruction in the taxonomy of larval and pupal Chironomidae. The course instructor was Dr. Peter Cranston, Professor of Entomology at UC Davis. Dr. Cranston is one of the worlds leading experts in the systematics and biology of the Chironomidae and is a pioneer in the use of computer based taxonomic software. Attendees received a complete introduction to the biology, taxonomy, and biogeography of the Chironomidae and training in the proper preparation of specimens for study. In addition attendees were trained in the use of Lucid software based taxonomic tools and received a copy of a Lucid interactive key to the immature Chironomidae prepared by Dr. Cranston for the workshop.

I have a limited number of copies of the Lucid key and SAFIT members may obtain a copy by contacting me at [jslusark@csuchico.edu](mailto:jslusark@csuchico.edu) or you can contact Dr. Peter Cranston at [pcranston@ucdavis.edu](mailto:pcranston@ucdavis.edu) for a copy.

Joe Slusark

### 2010 STE Revision Update:

For those of you who didn't make it to the SAFIT business meeting this year, I wanted to provide an update on the status of the STE revision. The decision to revise the STE was made during the 2008 SAFIT meeting, but in a way, the revision has been underway since the adoption of the present version in November 2006. Some of the things that have been added for this new revision are authorities for nearly all of the 4000+ taxonomic names, including all higher level taxa (genus and up); adding taxa and distribution records for Utah and beginning the work to add western New Mexico and Colorado, thus rounding out the SAFIT regional coverage. While taxonomic authorities don't impact us in bioassessment on a day to day basis, in effect, including authorities ties each name to a piece of literature. This is one of the driving concerns behind the STE Rules document – that we have every name, every distribution record, habitat information, etc. backed up by the peer-reviewed, published literature.

The timeline for this 2010 version of the STE has hit several snags this year. Namely, family and some minor health issues have consumed a large portion of my time since this summer. At the October meeting, I called for a deadline on submissions of suggested changes by sometime in November but I wanted to communicate this to the entire SAFIT membership. Since this article is the first time I have spoken to the entire membership, I feel the need to move that deadline.

If anyone has found errors or omissions in the 2006 version of the STE or if you have new names, distribution records, etc. to report, please submit them to Christopher or me by **January 15<sup>th</sup> 2010** using the suggested change form we provided in the Rules document. We have had very few SAFIT members contact us over the past three years with suggested changes, but I'd like to thank those who have. In particular, thanks to those who have taken the time to fill out the change forms.

While Christopher and I have done the main work on the STE and related documents, the STE Committee will review all proposed changes from the previous version. After this, the draft STE will be distributed by email or on the SAFIT website so that the membership can vote on it. I will provide a list of the changes at that time to make it easier to see how the 2010 version will differ from the present version. I'm hoping to have that vote by late January or early February. Once the membership has approved of the new version, we can make it retroactive to January 1, 2010.

Finally, as I've worked on the STE over the past four years, it has become painfully obvious that the current format – basically a very large Excel spreadsheet (the master source file) which is then pared down to a series of smaller tables in Word then PDF formats – will not suffice for the needs of SAFIT in the future. For the next revision, the STE will have to be converted into database format. I believe that will be the only way to contain all the data, the only way we can maintain the data and make the data accessible by all. I'll be talking more about this in the future, but for now, I'll be focused on finishing work on the 2010 version.

Thanks,  
Brady Richards

Submit suggested changes to  
Austin Brady Richards  
[arichards@csuchico.edu](mailto:arichards@csuchico.edu)

or

D. Christopher Rogers  
[crogers@ecoanalysts.com](mailto:crogers@ecoanalysts.com) or [branchiopod@gmail.com](mailto:branchiopod@gmail.com)

## FIELD & LAB

*A feature in each Newsletter issue exploring an aspect of aquatic macroinvertebrates beyond sample processing that may be beneficial to members. Please feel free to contact the editor if you would like to contribute or have thoughts on a salient topic.*

The impetus for this topic was the successful rearing of immature *Salmoperla sylvanica* (Plecoptera: Perlodidae) in spring 2009 using two different methods. Jon Lee presented the first method in Volume 2, Issue 2. John Sandberg presents the second method here:

### Aquatic Insect Collection and Rearing Techniques

By John Sandberg

Collecting aquatic insects in the field is a rewarding and beneficial activity in which many taxonomists partake. Stonefly adult and nymph collecting utilize two general methods: dip net substrate sampling for aquatic individuals and beat sheet vegetation sampling for adults. A second adult collecting method is rock turning at stream margins. Brady Richards or I can take you to a productive early spring location on top of Table Mountain, Butte County, where you'll soon be laughing at the ease of adult stonefly collecting. Before I forget, you will also need an insect collection device called an aspirator to increase your effectiveness whether beat sheeting or turning rocks.

To absolutely determine the identity, whether generic or specific, many taxonomists utilize rearing techniques (immature to adult) specific to the insect order of interest. This is because species keys exist mainly for adults. For most stoneflies, the adult male can be keyed to species the easiest (barring aedeagus evertion, which is necessary for all *Isoperla* spp. and some other genera). To rear stonefly nymphs to the adult stage, you must collect nymphs as close to the natural emergence as possible. When collecting mature nymphs with large and often dark wing pads, you must not harm them, so soft touch forceps are necessary.

To rear from nymph to adult, you will need to collect stream water to refill rearing chambers with fresh water at regular intervals. Any size water container will work. I suggest 5-10 gallons for 10-20 nymphs. At the stream, nymphs are picked from substrate and debris and a few are placed into Styrofoam cups (rearing chambers) containing stream water, and then covered with tight fitting plastic lids. Keep the number of nymphs per cup as low as possible to prevent damage due to aggressive behavior and even cannibalism. Cups should only be filled three quarters full to allow room for ecdysis, and if you think emergence is imminent, you may place a

Styrofoam “peanut” in for additional protection against accidental drowning. If you observe individuals biting the cerci of others, then add a leaf or a few twigs to provide hiding places.



Beating Sheet above with six pack cooler containing adults and/or nymphs.

What you put the cups in is up to you. I bring several coolers to a site, one small 6-pack sized cooler for mobility and at least one large cooler left in the vehicle, with at least an inch of ice. If you're into it like me, you will measure water temperature at the stream to adjust whatever rearing facilities you have at home. An alternate stonefly nymph holding and transportation container was mentioned in the last newsletter and a picture is displayed here:



Dr. Lauck's nymph container with wet foam insert.

Once you have returned to your stonefly lab (or front porch) you have several options to complete the rearing process. I splurged and bought an inexpensive, glass-doored wine refrigerator. If you require professional rearing facilities you will need a Living Stream. To keep within a limited budget, the large cooler will now become the stonefly rearing lab. You will need to keep the cups cool but also exposed to daylight. The beauty of the Living Stream is that it does this, and allows larvae to crawl up into ambient temperatures as well. At this point you should label all the lids with location and date data. As the adults emerge, remove them and their exuviae from the inside of the cup and contain them together (on the back of ID label indicate the date of emergence). If you're not sure of the ID at the stream, then each adult and its exuviae should be contained individually to associate the larval and adult identity. Also, if you are rearing *Isoperla* spp. to adults do not kill them, please ship a few of them live by overnight service to John Sandberg, 6691 Quail Way, Paradise, CA, 95969.



Wine refrigerator with larval rearing chambers inside and fresh stream water beside refrigerator in blue 5 gallon container.

When shipping stonefly nymphs the biggest concern is accidental package mishandling. Having worked in the industry I know this isn't the exception, it's the norm. Nymphs must be kept in containers that hold water, even upside down or sideways. To do this, use two Styrofoam cups, one full sized base and one cut to  $\frac{1}{2}$  to  $\frac{3}{4}$  sized for the lid. If moss was part of the substrate at the collecting site, collect enough to place a marble-sized ball of it in each cup. Fill base cup half way with stream water; insert half-sized cup-lid as tight as possible and tape entirely closed with duct tape. Drop a test container from waist high: if no water comes out your technique is true. Place ice contained in double Zip Loc bags in the sides of the cooler and duct tape into position. Insert large garbage bag and then place Styrofoam containers inside. Use a generous amount of packing materials (rags, newspaper, etc.) to maintain good spacing between containers. Close garbage bag, tie knot, and tape. Place another layer of packing material over garbage bag and one last double Zip Loc bag of ice if needed. At this point nothing inside the cooler should be able to move in any direction. Close the cooler lid and duct tape closed by completely encircling the cooler. Affix two shipping stickers to the sides of the cooler indicating this side up.

### MISCELLANEOUS BUG NOTES

*Anecdotal notes, which may be helpful to SAFIT members. The following are notes on critters that are found in northern California but whose distribution in northern California has only recently or has not been published in the available literature. Questions or comments? Do you have a note you would like to submit for this section? Contact Jon Lee at [jlee@humboldt1.com](mailto:jlee@humboldt1.com).*

*Tricorythodes dimorphus\** (Ephemeroptera: Leptohyphidae). This mayfly was reported from southern California in the early 1970's and has recently been reported from northern California (Meyer and McCafferty 2008). Late instar male nymphs have very large eyes giving an "alien" appearance. Early instars and female nymphs are difficult to separate from other *Tricorythodes* in northern California. Wayne Fields came up with a character that seems to work to separate

*Tricorythodes dimorphus*: each thoracic sternum has a subsurface pigmented area centrally between the coxae. It will be interesting to see if this character holds up. The nymphs also appear to be more robust than other *Tricorythodes* known to occur in northern California, but less robust than *Asioplax*. We have seen late instar males from the North Fork Feather River (Plumas Co.), Garcia River (Mendocino Co.), and Trinity River (Humboldt Co.). \*Listed as *Homoleptohyphes dimorphus* in the STE.

*Ostrocerca foersteri* (Plecoptera: Nemouridae). This little stonefly is common in mossy ephemeral creeks and spring seeps in at least Humboldt Co. The adults emerge in the spring. They are probably rare in most bioassessment samples due to the ephemeral nature of the creeks they seem to favor.

*Halesochila taylori* (Trichoptera: Limnephilidae). D.G. Denning includes this from Glenn Co. in an unpublished work. It is common in at least one spring fed pool in Humboldt Co. The pool receives a substantial input of leaf fall contributing to an organic muck substrate. Immatures build cases of organic matter until the final instar where the case is constructed of fine gravel. Last instar cases can be seen densely packed on submerged twigs during pupation.

### 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](mailto:arichards@csuchico.edu)) for inclusion in the next issue of the SAFIT Newsletter. Thanks!!*

#### Mollusca

Cowie, R.H., R.T. Dillon, D.G. Robinson, and J.W. Smith. 2009. Alien non-marine snails and slugs of priority quarantine importance in the United States: a preliminary risk assessment. *American Malacological Bulletin* 27 (1-2):113-132.

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Lysne, S.J. and W.H. Clark. 2009. Mollusc survey of the lower Bruneau River, Owyhee County, Idaho, USA. *American Malacological Bulletin* 27 (1-2):167-172.

Regnier, C., B. Fontaine, and P. Bouchet. 2009. Not knowing, not recording, not listing: numerous unnoticed mollusk extinctions. *Conservation Biology* 23 (5):1214-1221.

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## **Crustacea**

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## **Ephemeroptera**

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Rebora, M., S. Piersanti, and E. Gaino. 2009. The antennal sensilla of adult mayflies: *Rhithrogena semicolorata* as a case study. *Micron* 40 (5-6):571-576.

Tixier, G., V. Felten, and F. Guerold. 2009. Life cycle strategies of *Baetis* species (Ephemeroptera, Baetidae) in acidified streams and implications for recovery. *Fundamental and Applied Limnology* 174 (3):227-243.

**Odonata**

Koch, K., M. Quast, and G. Sahlen. 2009. Morphological differences in the ovary of Libellulidae (Odonata). *International Journal of Odonatology* 12 (1):147-156.

Lee, T.E., A.J. Patel, B.W. Johnson, and R.C. Vogtsberger. 2009. Noteworthy records of dragonflies (Odonata: Anisoptera) from Jones and Taylor Counties of central Texas. *Texas Journal of Science* 61 (2):157-160.

**Plecoptera**

Baumann, R.W. and B.C. Kondratieff. 2009. Studies on *Oemopteryx vanduzeeae* (Claassen, 1937) and a new species in the *O. vanduzeeae* species group (Plecoptera: Taeniopterygidae) from the Pacific Northwest, USA. *Aquatic Insects* 31 (1):195-202.

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Nelson, C.R. and R.W. Baumann. 2009. *Capnia shasta*, a new species in the Californica Group from northwestern California (Plecoptera, Capniidae). *Illiesia* 5 (18):188-194.

Stewart, K.W. and N.H. Anderson. 2009. The life history and nymphal generic character development of *Sweltsa adamantea* Surdick (Plecoptera: Chloroperlidae) in an Oregon summer-dry headwater stream. *Transactions of the American Entomological Society* 135 (1+2):161-173.

**Trichoptera**

Blinn, D.W. and D.E. Ruitter. 2009. Phenology and distribution of caddisflies (Trichoptera) in Oak Creek, a high-desert perennial stream in Arizona. *Southwestern Naturalist* 54 (2):182-194.

Bueno-Soria, J. 2009. A review of the genus *Ochrotrichia* Mosely (Trichoptera: Hydroptilidae) from Mexico and Central America. *Transactions of the American Entomological Society* 135 (1+2):59-160.

## Coleoptera

- Byttebier, B. and P.L.M. Torres. 2009. Description of the preimaginal stages of *Enochrus (Hugoscottia) variegatus* (Steinheil, 1869) and *E. (Methydus) vulgaris* (Steinheil, 1869) (Coleoptera: Hydrophilidae), with emphasis on larval morphometry and chaetotaxy. *Zootaxa* (2139):1-22.
- Culler, L.E. and W.O. Lamp. 2009. Selective predation by larval *Agabus* (Coleoptera: Dytiscidae) on mosquitoes: support for conservation-based mosquito suppression in constructed wetlands. *Freshwater Biology* 54 (9):2003-2014.
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- Michat, M.C. and Y. Alarie. 2009. Phylogenetic relationships of *Notaticus* (Coleoptera: Dytiscidae) based on larval morphology. *Annals of the Entomological Society of America* 102 (5):797-808.
- Miller, K.B. 2009. On the systematics of Noteridae (Coleoptera: Adephaga: Hydradephaga): phylogeny, description of a new tribe, genus and species, and survey of female genital morphology. *Systematics and Biodiversity* 7 (2):191-214.
- Miller, K.B., J.R. Gibson, and Y. Alarie. 2009. North American stygobiontic diving beetles (Coleoptera: Dytiscidae: Hydroporinae) with description of *Ereboporus naturaconservatus* Miller, Gibson and Alarie, new genus and species from Texas, U.S.A. *Coleopterists Bulletin* 63 (2):191-202.
- Ruta, R. 2009. Revision of Scirtidae (Insecta: Coleoptera) described by Victor Ivanovitsch Motschulsky. *Zootaxa* (2210):26-50.

## Diptera

- Borkent, A. and W.L. Grogan, Jr. 2009. Catalog of the New World biting midges North of Mexico (Diptera: Ceratopogonidae). *Zootaxa* (2273):1-48.

- Elnitsky, M.A., J.B. Benoit, G. Lopez-Martinez, D.L. Denlinger, and R.E. Lee. 2009. Osmoregulation and salinity tolerance in the Antarctic midge, *Belgica antarctica*: seawater exposure confers enhanced tolerance to freezing and dehydration. *Journal of Experimental Biology* 212 (17):2864-2871.
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- Saether, O.A. 2009. *Cryptochironomus* Kieffer from Lake Winnipeg, Canada, with a review of Nearctic species (Diptera: Chironomidae). *Zootaxa* (2208):1-24.
- Taber, S.W. 2009. *Tipula* (*Yamatotipula*) *jacobus* Alexander (Diptera: Tipulidae): description of the female and a midwestern record for a crane fly long perceived as eastern in distribution. *Southwestern Entomologist* 34 (2):151-157.
- Wallace, G.S., W.R. Mabee, and M.D. Combes. 2009. Range extension of a nonindigenous midge, *Polypedilum nubifer* (Diptera: Chironomidae), in North America. *Southeastern Naturalist* 8 (3):559-562.

### Miscellaneous

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- Colding, J., J. Lundberg, S. Lundberg, and E. Andersson. 2009. Golf courses and wetland fauna. *Ecological Applications* 19 (6):1481-1491.
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