

in the drift

The NABS Newsletter



A "summer" newsletter in October...

Yeah, I don't know... seems like we're getting later and later with each newsletter, and this is only Issue 3. We apologize for neglecting a few events that slip past before we get around to announcing them. Be sure to stay tuned to the website and the Bulletin for key dates. Perhaps we'll need to rename the issues by month, rather than season - an approach that also would be more meaningful for our southern hemisphere colleagues!

The meeting in SLC was great, as usual, with the registration gifts possibly the greatest ever. E.g. the benthic invertebrate playing cards were fabulous—thanks to Mark Vinson (and his kids, I think?) for these! The whole of the local arrangements group deserves our thanks.

This issue's back page contains meeting highlights. There were so many that not even close to all could be included. Many of those that are included are from voluntary contributions of photos and content from NABS members. Remember that *in the drift* is open to any and all contributions, so send us something if you are particularly psyched about it.

Send to whom? Deb has a new job and with it a new email address: debra.finn@eawag.ch

Deb Finn and Julie Zimmerman typically are responsible for the content of the newsletter. This issue, all blame (content and lateness) can be directed to Deb, since Julie is on maternity leave (woo hoo!).



This issue is dedicated to our youngest benthologist: Maya Autumn Zimmerman was born on Sept. 12th, 2008. Julie is her mom!

issue 3:

Summer 2008

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Did you know... ? (if you didn't, check the Summer Bulletin on the website!)

- There are beautiful benthic illustrations by Christine Elder scattered throughout the summer Bulletin.
- New prez Nick Aumen is looking for suggestions to help make NABS 2009 in Grand Rapids the greenest meeting yet. Email good ideas to nick_aumen@nps.gov
- The NABS Endowment continues to grow. This coming year, there should be ~\$14,400 available for student awards!
- We have a new membership service provider (the Schneider Group), which reported that 2008 NABS membership is up 6% from last year.
- The GRC has a new Facebook page to keep all 67 members in contact! Just search for "NABS GRC" under Facebook groups.
- The International Profiles Committee has produced a beautiful short brochure about NABS that has been translated into Spanish and German. They are seeking translators for other languages.
- If you contribute \$1000 or more to the Endowment, you join the generous Mike Swift in the "Millenium Club." Still, even a \$5 contribution is helpful and gets you recognition as a donor!
- Abstracts are due for NABS 2009 on January 21st.
- Applications for student awards are ongoing until early next year. Do not neglect this opportunity for cash...

benthos.org

JNABS article spotlight: A new parthenogenetic mayfly!

Funk, Jackson, and Sweeney JNABS 27: 269-279

The rearing facilities at the Stroud Water Research Center (home to all three authors of this issue's spotlighted JNABS article) are exceptional by all accounts, with intricate plumbing of streamwater from nearby White Clay Creek, a greenhouse with year-round production of fine mayfly cuisine (diatoms), and years of proven effectiveness in raising mayflies to adulthood. Hence, first author Dave Funk was astonished when some *Eurylophella* individuals he was rearing wound up impaled on the water surface just after emergence with guts protruding through exploded abdomens.



Gut-busting oviposition! An exploded female subimago and some eggs. See JNABS for more photos.

The episode followed several years of clues that this could be new species...

Two decades ago, Funk became an expert in *Eurylophella* taxonomy, thanks to his genetic and morphological studies of the genus with Bern Sweeney and Robin Vannote. Following, benthologists from all over eastern N. America began sending specimens for taxonomic verification of this "difficult" genus. Among these was Dave Penrose, who in 1996 sent a few unidentifiable larval specimens. Although the find was interesting, a new species could not be described without more material, including the adult, and the idea was swept under the rug.

Ten years later, Bill Crouch (another NABster) sent several more specimens of this same unidentified spe-



cies, all from seasonally intermittent "swamp streams" in North Carolina. These streams are dry in summer; hence sampling must occur in winter to characterize the communities. Sad but true, not many of us do fieldwork in the winter - which can help explain the new discovery of an undescribed species in several independent sites.

Now that the species had resurfaced in abundance, this clearly was a pressing issue. Funk met up with Crouch and Dave Lenat for a collecting trip (yes, in the winter!) and brought back to Stroud many larvae for rearing. All of these turned out to be female. All was going well until the gut-busting incident.

An abdomen-busting gut in a mayfly may not be quite as shocking as it first appears. Turns out inflation of the gut cavity is ubiquitous in mayflies, serving to "refill" the empty space left after eggs have been released by the female. For it to get so large as to explode the abdomen is a rarity, but a couple of seconds after witnessing the carnage in the rearing facility, Funk recalled an informal account about another, related, mayfly genus. The venerable George Edmunds had relayed gut-busting tales of a *Serratella* species from Colorado flyfishermen but never was able to document the phenomenon firsthand. Edmunds suspected the species was obligately parthenogenetic because otherwise such "behavior" immediately following emergence would be seriously maladaptive: eggs can only be fertilized in the mature imago!

Sure enough, in addition to exploded subimagos, eggs were strewn around

the rearing tanks at Stroud. After getting over the initial disappointment of the mess (because they wanted to collect eggs from individuals for genetic testing), the authors retrieved eggs for incubation (80% hatched successfully) and continued to monitor the emergence.

Interestingly, a small proportion of individuals acted "normal:" they molted from subimago to imago, then deposited egg masses with no hint of exploding gut syndrome. Funk and coauthors speculate that these are dispersal morphs, which may be essential for upstream movement and colonization of other locations. Otherwise, if you are a parthenogen, why wait to molt? Immediate explosion distributes the eggs without any risk of their mom first getting picked off by a hungry bird.

George Edmunds passed away in '06. We think he'd be happy with this JNABS formal species description of *Eurylophella oviruptis*, obligate parthenogen and proof of the gut-busting phenomenon!



More "normal" oviposition: although unmated, this female is now a mature imago releasing her "ball" of eggs in a fashion typical of ephemeroptera.



Author Dave Funk collecting at the Susquehanna River, not the habitat of *E. oviruptis*, who prefers it smaller and murkier.

Pam's (er...Irwin's?) JNABS corner



The previous two issues, JNABS editor Pam Silver filled us in on different ways the journal is going "electronic." Of the many benefits of e-JNABS is that it saves a whole lot of paper. This issue, Irwin Polls, JNABS Business Manager, sent a guest-submission for Pam's Corner in which he gives further details on how JNABS is becoming greener.

This is not a picture of Irwin.

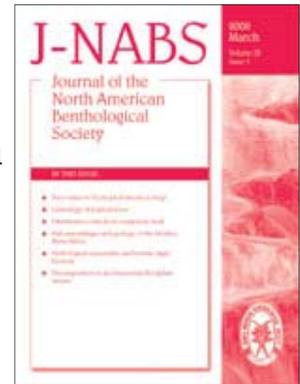
We all realize by now that both fossil-fuel-based energy consumption and excessive logging are contributors to climate change. Production of a journal like *JNABS* can be a factor in both. The logging issue is obvious, but did you know that paper manufacture is one of the most energy-intensive sectors of the industrial economy?



Luckily, there are ways for a journal to decrease its environmental impact. For example, one can ensure that paper used is a product of ethical forestry practices by enlisting the help of the Forestry Stewardship Council (FSC, est. in 1992 to improve forestry practices worldwide). Adding recycled paper content also decreases demand for virgin timber and requires less energy, chemicals and waste to produce. Possibly most important, shifting to electronic from a paper-only journal and editorial process avoids these issues completely! *JNABS* is dedicated to environmental responsibility and over the past few years has initiated these and other "greening" solutions...

Greening of JNABS:

- Paper used for the journal is purchased from an FSC-certified producer and is 10% post-consumer recycled.
- To help offset the carbon emissions due to paper manufacturing, JNABS purchases Renewable Energy Certificates through the Bonneville Environmental Foundation.
- Now that all NABS members have online access to current and back-issues (through BioOne and JSTOR, see Issue 1), paper copies of *JNABS* are significantly less abundant on our bookshelves. The *JNABS* paper bulk has decreased by >65% since online access began!
- The AllenTrack system (see Issue 2) has now eliminated all hard-copy manuscripts, proofs, reviews, and other components of the editorial process.



Start blogging... benthic-style!

NABSters are rapidly embracing the age of communication. Just check the Bulletin for recent evidence: the GRC has a Facebook account, and the Entomological Society has a new blog for information exchange among entomologists in various specializations, including aquatic.

A blog (from "web log") is simply a continuously-updated, interactive website. For scientists, blogging has become a popular communication tool for a variety of objectives (read more in Wilkins: *TREE* 23: 411-413).

Two NABS members have established awesome benthic blogs with different communication goals. The description line for Elizabeth Sudduth's "restoringrivers" blog is "Chronicling the science/art/business of stream restoration." She uses the site primarily as a clearinghouse to post stream restoration updates from the news media and elsewhere, providing links to articles, often along with short summaries and comments.

As is a highlight of blogging, Elizabeth's commentary occasionally elicits discussion from her readers. Although she says that outside commentary has not been frequent and is not her main motivation, she is excited about the blog's potential to generate increased discussion about "the science, politics or economics" of stream restoration.

Meredith Wright's Nyack Floodplain blog:
<https://web2.flbs.umt.edu/nyackresearchblog/>

Elizabeth Sudduth's "Restoring Rivers" blog:
<http://restoringrivers.blogspot.com/>

Meredith Wright has a different communication goal with her blog about ongoing research on the Nyack Floodplain. Her target audience is the myriad researchers involved to varying degrees with Nyack projects, and the objective is to keep all informed of major developments and site conditions. The blog also can be

adapted to include restricted access pages for sharing data just among the researchers.

Still, the field-journal style of Meredith's blog includes interesting written descriptions and many photos that make it a fantastic place for anyone to get a glimpse into the "real world" of stream ecology research. Indeed, records of visits to her blog show that it has regular readers from many regions.

As NABS members in particular, we certainly would all benefit from checking out both of these benthic blogs. Leave a comment, join a discussion, or even get motivated to start your own!



Meredith Wright sampling DOC on the floodplain with some fancy gear and a snowmobile. This and many other "action" shots are included in her field-journal style blog.

A few meeting highlights from Salt Lake City:



Colden Baxter won the photo contest with this work of art, wonderfully titled "At home with *Arctopsyche*." This, along with 11 other top photos from NABS 2008, is featured in the new 2009 calendar, which is now available from Freshwaters Illustrated. To order yours (proceeds go to NABS programs and endowments), contact Jeremy Monroe (jeremy@freshwatersillustrated.org).

A success: NABS 2009 in Salt Lake City had a total of 876 registrants. Full society membership at the time of the meeting was 1536.

Thanks, Lucinda! After six years, Lucinda Johnson stepped down from her position as NABS secretary. Sue Norton takes over, elected to a 3-year term, and finds big shoes to fill.

More from Freshwaters Illustrated. Under the guidance of the Public Information and Publicity Committee and an external group of NABS advisors, FI has produced a new outreach video, *About NABS*. If you missed picking up the DVD version in SLC, it will be available again in Grand Rapids and can be pre-ordered during meeting registration for \$10. Search youtube.com for "about NABS" to preview the video online now!

Sunday night presidential and awards addresses. That first night is always an exciting time at NABS. This year was no different. 2007-

Bobbi Peckarsky gave a captivating Award address in which she promoted an "Ecology of Place." Basic tenets are: 1) Pick your favorite place, 2) Figure out:

what are the interesting questions inspired by that place? 3) Continue working out the "bugs" when some answers don't appear to make sense. For Bobbi, the place includes the people too, and the approach intertwines "science, comradeship, and adventure." There was also something about standing on your head on a mountaintop... (photo by Mark Wetzel)



Volleyball champions "Emerging Threat" actually "emerged" in Athens at NABS 2003. That year, all six original members signed up as "singles" looking for a team to join. Thus, they fused and with slight variations on team membership proceeded to win each of the most recent three years that volleyball has been held at NABS (2003, 2004, and 2008). On not knowing each other before fusing as a team, Bill Crouch speculated that this "says a few things about how open and friendly NABS members are." Back row: Bill Crouch, Jonathan Kennen, Dan Baker, Derek West, Ian Waite. Front row: Christine Clapp, Nelmarie Landrau.

2008 president Jan Stevenson gave an address about the overlap in basic and applied research, Dave Penrose got the Service Award, Peter McIntyre gave a synopsis of his Hynes Award-winning *PNAS* paper, and Bobbi Peckarsky gave an inspirational Award of Excellence address (see photo).

Committee Cliff Notes. All NABS committees appeared to have very productive meetings in SLC (see the Bulletin for detailed updates from each). Even better, Joe Holomuzki announced that he is working on a NABS "Operations Manual" as a cheat sheet for all the volunteers who serve on the committees.

Thank you! ...to Chuck Hawkins, Todd Crowl and their committees for a fabulous job organizing this meeting, showing us a good time in Salt Lake, and even establishing a mini "California" for drinking beer inside the conference center.