



## NEWSLETTER OF THE AMERICAN MALACOLOGICAL SOCIETY



OFFICE OF THE SECRETARY  
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### ANNOUNCEMENTS



#### **AMS 2011 – PITTSBURGH, PENNSYLVANIA JULY 23-28, 2011**

*Submitted by Charlie Sturm, AMS President*

The 77th meeting of the American Malacological Society will be held in Pittsburgh, PA from July 23rd through July 28th, 2011. The meeting will be held at Duquesne University.

The Keynote Symposium, co-sponsored by AMS and Dolores Lee is entitled “Mollusks: The Great Unanswered Questions.” An international group of malacologists will give an overview of all extant classes of mollusks and some of the big questions that beg for a solution. This symposium is being coordinated by Tim Pearce.

John Pojeta is currently organizing a symposium on “Paleomalacology.” This session will expose one to the latest advances in the area of Cretaceous Period and Cenozoic Era malacology. Amy Wethington and Elizabeth Davis-Berg are coordinating a symposium on gastropod biology.

A workshop on publishing malacological works will be held. Aspects of publishing books, monographs,

and journals will be discussed. After several short presentations, an open forum discussion will be held to entertain questions regarding publishing in different venues. Additional open sessions and a poster session are also planned.

Special events will be held all around Pittsburgh, including an opening reception at the Marriott City Center, an auction at the Marriott City Center, and a banquet at the Rivers Casino on Pittsburgh’s northside with a river cruise following.

The resources of the Section of Mollusks at the Carnegie Museum will be available to attendees of the meeting. Please contact Tim Pearce (curator) at [pearcet@carnegiemnh.org](mailto:pearcet@carnegiemnh.org) or Megan Paustian (collection manager) at [paustianm@carnegiemnh.org](mailto:paustianm@carnegiemnh.org) to make arrangements to use the resources of the Section of Mollusks. If you are interested in the collection of the Section of Invertebrate Paleontology, please contact Albert Kollar (collection manager) [kollara@carnegiemnh.org](mailto:kollara@carnegiemnh.org) to determine availability of the collection for your visit.

This meeting’s field trips will familiarize meeting participants with western Pennsylvania’s molluscan fauna. Choose between learning how to identify freshwater Unionidae with Art Bogan or study the terrestrial gastropod fauna with Tim Pearce. These activities will be held on Thursday, July 28th. Tim will be leading folks to a yet to be determined site to study and collect terrestrial gastropods. Art will be conducting an identification workshop at the Carnegie Museum. On this day, the Section of Mollusks at the Carnegie Museum will also be available to attendees of the meeting.

Participants flying to Pittsburgh will arrive at Pittsburgh International Airport. From here one can reach the Duquesne Campus by bus, shuttle, or rental car. Housing is available at either the Marriott City Center (there are limited rooms reserved for this meeting), or on campus in residence hall at Duquesne University. The hotel is about seven

blocks from Mellon and Canevin Halls where the meeting will be held. A shuttle is available. The residence hall is located about 3 blocks away, on the opposite side of the campus.

We look forward to seeing you in Pittsburgh in 2011!

### **When You Arrive in Pittsburgh...**

Please make your way by bus, shuttle, taxi, or car to the Duquesne University campus, and find Mellon Hall (the meeting hall).

Registration will be in Mellon Hall from 2:00 pm until 5:00pm on Saturday, then again 8:00 am until 5:00 pm on Sunday. Maps are on Duquesne's website (<http://www.duq.edu/about/map.cfm>). Parking can be arranged on campus for a fee. The bus from Pittsburgh International Airport stops one block from the residence halls. From the bus stop, one must climb a flight of stairs to get to the Campus. This will be difficult for the physically challenged. The bus stop for the return trip to the Airport is on the Campus.

If you arrive after 5:00 pm on Saturday, please come directly to the Marriott City Center where the Presidential Reception will be held. We'll have your registration materials there during the Reception. See you in Pittsburgh!

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### **OTHER UPCOMING MEETINGS**

#### **AMS 2012 – Philadelphia, PA June 16-21, 2012**

*Contributed by Gary Rosenberg*

### **200th Birthday of American Malacology!**

Come help us celebrate the 200th birthday of American malacology at the 2012 AMS annual meeting, June 16 to 21 at the Crowne Plaza Hotel Philadelphia-Cherry Hill. The meeting coincides with the 200th anniversary festivities at the Academy of Natural Sciences of Philadelphia, the birthplace of malacology and conchology in the United States. The Conchologists of America will

meet at the same venue, June 19 to 24, and some joint sessions are planned. The AMS meeting will include sessions on marine molluscan diversity, history of malacology in America, land and freshwater mollusks, cephalopods, and molluscan natural products. The Conchologists of America (COA) meeting will include talks by former winners of COA Grants to Malacology. If you are interested in organizing a workshop or theme session at the meeting, please contact Gary Rosenberg, [rosenberg@ansp.org](mailto:rosenberg@ansp.org).



### **BIOLIEF 2011 - 2nd World Conference on Biological Invasions and Ecosystem Functioning. Mar del Plata, Argentina**

**November 21-24, 2011.**

*Contributed by Jorge L. Gutiérrez*

BIOLIEF 2011 will be a forum for the presentation, discussion, and synthesis of research on biological invasions in its broadest sense. The conference will place a particular emphasis on studies concerning the impact of invasive species on ecosystem functioning and/or services, irrespective of taxonomic groups or ecosystem types. However, studies on any other ecological aspect of biological invasions will also be welcome. Topics such as the spread of invasive species into ecosystems, the biogeography and history of species introductions, and the community- or species-level impact of biological invasions will also have an important coverage in the final conference program.

Contact: Jorge L. Gutiérrez

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For more information about this meeting, visit our website (<http://www.grieta.org.ar/biolief/>). You can also follow us in Facebook for news and updates (<http://www.facebook.com/?ref=home#!/pages/BIOLIEF-2011/126444150720221?ref=sgm>).



### **PAST MEETINGS**

#### **Mid-Atlantic Malacologists Meeting**

*Contributed by Elizabeth K. Shea, Department of Mollusks, Delaware Museum of Natural History, Wilmington, DE 19010*

The Mid-Atlantic Malacologists (MAM) meeting was held on March 19, 2011 at the Delaware Museum of Natural History in Wilmington, DE.

Thirty-four people from the extended Mid-Atlantic area came for full day of talks and discussion. This informal meeting and its sister-meetings SCUM, BAM, OVUM and now FUM, brings a disparate group of people and topics into the room to talk mollusks. This year, the eclectic mix included Marla Coppolino's audio recording of the landsnail *Mesodon zaletus* eating carrots, first time attendee Kevin Ripka discussing snail identification software for the iPhone, and Makiri Sei who presented results of her ongoing work with Gary Rosenberg on the molecular phylogeny of Jamaican Annulariidae. In total, 16 talks and 1 poster were presented, and 10 people used the Mollusk collection and library. A brief summary of each talk can be found on Aydin Örstan's blog: <http://snailstales.blogspot.com/2011/03/bootleg-transactions-of-13th-mam.html>



Figure 1. Attendees of the 2011 MAM Meeting.

MAM was originally intended to travel from venue to venue, extending the reach and the mix of participants. If you would like to consider hosting the meeting, please contact Liz Shea ([eshea@delmnh.org](mailto:eshea@delmnh.org)) to discuss the planning process.



**Fourth Annual Ohio River Valley Unified  
Malacologist (OVUM-IV) Meeting  
November 6, 2010  
Summary of Talks**

*Contributed by Tim Pearce and Tom Watters*

The very successful fourth annual meeting of the Ohio Valley Unified Malacologists (OVUM IV) was held jointly with the first annual meeting of the Great Lakes Unified Malacologists (GLUM) on Saturday 6 Nov 2010 at The Ohio State University, hosted by Tom Watters, with an optional field trip on Sunday November 7, 2010. On Saturday there were 34 participants and 14 presentations, with time

to use the research collection during lunch hours and after the talks had concluded.

**A state of some unionids address: phylogenetic relationships in an imperiled group of freshwater mussels (genus *Villosa*).**

*Kody F. Kuehnl, Franklin University*

*Villosa* as currently recognized is polyphyletic according to mitochondrial DNA (CO1, ND1). *V. villosa* and *V. amygdala* might be the only true *Villosa*. *Villosa iris* is monophyletic, with 8 well supported sub-clades, most of which occur geographically in a narrow band South of glacial extent and North of ocean rise extent.

**Observations and comments on freshwater mussels and conservation in Big Darby Creek.**

*Mac Albin, Columbus Metro Parks*

Big Darby Creek is only 82 miles long but has 44 species of mussels. 85% agriculture in the drainage causes conservation concerns. Conservation efforts continue.

**Distribution and habitat characterization of unionids in Crooked Lake, Whitley County, Indiana: a preliminary report.**

*Rosemary A. Mormon, University of St. Francis*

This glacial lake is deep; unionids were found on shallow shelves, one found as deep as 15 feet.

**The mussels of the Little Miami River system fifteen years later.**

*Michael Hoggarth, Otterbein University*

Headwaters showed decrease in species over time. Farther downstream showed some increases, particularly in mussel species that can use Drum as a host.

**The scoop on goose poop: do land snail shells traverse the gut of modern dinosaurs?**

*Timothy A. Pearce & Stephanie L. Payne, Carnegie Museum of Natural History*

Snails were found in goose poop. Geese are modern dinosaurs. So it is possible that snails could traverse the gut of ancient dinosaurs (contrary to a paper from last year).

**Pelecypod and gastropod communities at Pierce Cedar Creek Institute: variation in understudied organisms.**

*Daelyn A. Woonough, Daniel Auer, Daryl Kuipers & Dave Zanata, Central Michigan University*

Ordination on data from non-unionid molluscan taxa differentiates among habitats (river, lake,

wetland) better than other aquatic macro invertebrates. Taxa were identified to genus for Sphaeriidae, species for Gastropoda, mostly to family for other invertebrates.

### **Phylogeography of the ellipse mussel *Venustaconcha ellipsiformis*.**

*Andy Harris & Dave Zanatta, Central Michigan University*

Using COI data, found 8 haplotypes of *V. ellipsiformis*. It seems to be a single species. There were more haplotypes South of the glacial line, and 1-2 haplotypes North of that line.

### **What a difference a mussel (or two) makes: a quarter century of change in the unionid communities of Lake St. Clair**

*Dave Zanatta, Central Michigan University*

Lake St. Clair is ground zero for the zebra mussel invasion of North America in 1986. Due to *D. polymorpha*, unionid abundance is 2 orders of magnitude less. Used 65 sq m plots. Yes, Unionidae declined, but there is some stabilization and species diversity persists. Yes, zebra mussels have declined.

### **Identifying large river fish hosts for native mussel larvae.**

*Josh Wyatt, Thomas More College*

Drum are very good hosts for larvae.

### **Growth and survival of fat mucket populations in Ohio Brush Creek.**

*Stephen Matter, Francisco Borrero & Cody Fleece, Cincinnati Museum Center*

*Lampsilis radiata luteola* might not have pulses in reproduction.

### **Aquatic snails at the Monkey River Drainage – Belize.**

*Sean Collins, University of Cincinnati*

Algae do not seem to predict freshwater snail abundance, but snails negatively correlate with human impact.

### **Systematic and biogeographic relationships of the land snail fauna of northern South America. Notes on some Pleurodontidae of the Sierra Nevada de Santa Marta, Colombia, with a new species of *Isomeria*.**

*Francisco J. Borrero, Cincinnati Museum Center*

Camaenidae and Orthalicidae seem to be Gondwanan in distribution. In land snail studies of Colombia, we seem to be early in the species saturation curve.

### **Community interactions and ecosystem processes: do crayfish predators alter leaf processing by the snail *Helisoma trivolvis*?**

*Kip Brady, New Philadelphia (OH) High School*

Crayfish predator cues did not alter leaf processing by the snails.

### **Columbis Zoo and Aquarium Freshwater Mussel Conservation and Research Center.**

*Tom Watters, Ohio State University*

Recent projects include augmenting wild populations of northern riffle shells and fanshells, host identifications, and propagation for mitigation.



### MEMBERS CONTRIBUTIONS

#### **Land snail and slug hosts of the rat lung worm, *Angiostrongylus cantonensis*, in Hawaii**

Jayne R. Kim, winner of the Melbourne Carrier student Research Grant

University of Hawaii, Honolulu, Hawaii

The environmental change caused by humans and the rising frequency of alien species invasions both contribute to the replacement of many native and often narrowly distributed species with a few widespread aliens (Baskin 1998; Vitousek et al. 1996). The annual cost of damage and loss in the United States due to invasive alien species has been estimated at \$120 billion, of which more than \$47 billion is due to alien plants and to livestock and human diseases (Pimentel et al. 2005).

Islands appear to be more susceptible to alien species invasions such as these (Vitousek et al. 1987), especially the Hawaiian Islands where endemicity is high (Loope, and Mueller-Dombois 1989). Once comprising over 750 species, the native Hawaiian land snail fauna has declined and is being replaced by alien snails and slugs (Cowie 1998; Hadfield 1986). The introduction of alien snails, especially those introduced for biocontrol, has had a devastating effect on native snails, and their spread has a major impact on native ecosystems, the environment, and human health and commerce (Cowie 1998).

Of the many invasive snail species in the Hawaiian Islands, the semislug *Parmarion martensi* has been implicated as the major vector of an emerging infectious disease caused by *Angiostrongylus cantonensis* (Chen, 1935), a parasitic nematode and

one of the major causes of eosinophilic meningitis in accidental hosts such as humans and other mammals (Hollingsworth et al. 2007; Monks et al. 2005). Ingested 3rd stage worms travel to the central nervous system of the accidental host but die in the brain before maturation (Carlisle et al. 1998), causing headaches and muscular weakness, and in more severe cases, coma and death (Pien, and Pien 1999). In 2004 and 2008 there were outbreaks of the disease in Hawaii, due to consumption of produce containing infected snails or slugs (Hochberg et al. 2007).

The definitive hosts (rats) of *A. cantonensis* become infected by ingesting the intermediate hosts (snails) carrying 3rd stage juvenile worms (obtained by eating rat feces containing first stage worms) (Prociv et al. 2000). A range of snail species from widely different taxonomic groups can vector this parasite (Campbell, and Little 1988). It is possible that *A. cantonensis* may have detrimental effects on the snails carrying it, and this could be devastating to the already devastated native Hawaiian snail fauna.

Therefore, as part of my master's thesis project I aim to document the distributions of snail species acting as vectors of *A. cantonensis* in the Hawaiian Islands. Knowledge of the snail vectors of *A. cantonensis* and their distributions will permit potential control efforts to be focused appropriately and for quarantine action to be expanded to prevent their further spread.

Beginning in 2004, surveys were conducted on all the main Hawaiian Islands (>200 sites) to assess distributions of invasive snails (Cowie et al. 2008; unpublished work). All live specimens collected were preserved in ethanol and are available for screening for *A. cantonensis*. The snail species initially screened from these extensive collections were those previously recorded as intermediate hosts of *A. cantonensis* and species found in high abundances throughout the islands. Native species were also tested as a prelude to seeing if the parasite could possibly be having a negative impact on these snails. To test for the presence of *A. cantonensis* in snails, a molecular approach was taken using *Angiostrongylus*-specific primers to amplify the 18S rDNA gene from total snail DNA extracts (Qvarnstrom et al. 2007).

So far, I have screened snails from the six largest Hawaiian Islands (Kauai, Oahu, Molokai, Lanai, Maui and Hawaii) and *A. cantonensis* is present on all Islands except for Lanai. Eight of the eleven species examined tested positive, including alien and native snail species (Table 1). This is the first time that *Cyclotropis* sp., *Oxychilus alliarius* and

the native Hawaiian *Philonesia* sp. have been shown to carry *A. cantonensis*. Until this study, it had not been known if native Hawaiian snails could carry this parasite, and these results could have negative implications for these already rare Hawaiian snails.

Table 1. *Angiostrongylus cantonensis* infection rates in snails from the main Hawaiian Islands.

Species	Total tested	Number infected (%)
<b>Alien species</b>		
<i>Achatina fulica</i>	62	7 (11.3)
<i>Bradybaena similaris</i>	65	0
<i>Cornu aspersum</i>	25	0
<i>Cyclotropis</i> sp.	13	1 (7.7)
<i>Euglandina rosea</i>	39	8 (20.5)
<i>Laevicaulis alte</i>	42	12 (28.6)
<i>Oxychilus alliarius</i>	46	9 (19.6)
<i>Parmarion martensi</i>	20	14 (70)
<i>Veronicella cubensis</i>	159	6 (3.8)
<b>Native species</b>		
<i>Kaala subrutila</i>	2	0
<i>Philonesia</i> sp.	31	1 (3.2)
	<b>504</b>	<b>58 (11.5)</b>

Reception of the American Malacological Society Melbourne R. Carriker Student Research Award has allowed me to purchase the reagents and laboratory materials needed for this research. I am currently expanding screening to other snail species and increasing sampling throughout Hawaii to determine the taxonomical and geographic range of *A. cantonensis*.

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**Might as Well Get Deeper: Discovery of the Perforating Potential of Loliginid Spermatozoa\***

José Eduardo A. R. Marian, winner of the Melbourne Carriker student Research Grant

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During mating, spermatozoa of male coleoid cephalopods undergo the "spermatophoric

reaction", which culminates in the attachment of the everted spermatozoa (spermatangia) on the female's body. In squids, this attachment is basically of two types: (1) superficial attachment, in which the tip of the spermatangium attaches to the female (e.g., loliginids, sepiids, ommastrephids), or (2) implantation, in which the whole spermatangium is embedded into tissue (e.g., some oceanic and deep-sea squids, such as the giant squid *Architeuthis*, cranchiids, onychoteuthids, octopoteuthids, sepiolids). As part of an ongoing investigation of the spermatozoa of the loliginid *Doryteuthis plei* (Blainville, 1823), a seminal finding was reported from the in vitro analysis of the spermatophoric reaction: under artificial conditions, the loliginid spermatozoa was able to partially implant itself autonomously, almost resembling deep implantation naturally observed in some oceanic and deepwater squids. As expected, everting spermatozoa directed towards the epithelium of small pieces of squid's appendages ended up attached superficially, like those naturally found in the buccal membrane and mantle cavity of females. If, otherwise, directed towards the incised region of the tissue, the everting ejaculatory apparatus of the spermatozoa was able to readily penetrate the artificially exposed musculature. Therefore, the still unknown mechanism involved in deep implantation may be inherent to the spermatozoa structure of all squids, although not always leading to the same type of attachment in natural conditions.

**Acknowledgements**

The author thanks the AMS, including all its councils, committees and members, for granting funding for this study. The AMS Student Research Grant award helped to defray several of the costs of this study (e.g., microscopy reagents and fieldwork). This study is part of the author's PhD dissertation through the Graduate Program in Zoology of the "Departamento de Zoologia – IBUSP". Other manuscripts resulting from this AMS-sponsored PhD research are in preparation, and are expected to be published in the near future.

Additional funding for this study was provided by: FAPESP (04/13212-7), the Houston Conchology Society, CAPES PROAP-2006, and the Provost's Office for Graduate Studies of the University of São Paulo. The author thanks also "Centro de Biologia Marinha da USP" for providing all the necessary facilities for the development of this study. The published article was dedicated to the memory of the late Dr Osmar Domaneschi, an outstanding functional morphologist and esteemed advisor.

\*This report summarizes part of the results of research supported by an AMS Student Award. These results were recently published in the Journal of Molluscan Studies (see reference below). The study was recently featured on scientific blog "Squid A Day", written by malacologist Danna Staaf:

[http://www.science20.com/squid\\_day/selfinjecting\\_squid\\_sperm-76986](http://www.science20.com/squid_day/selfinjecting_squid_sperm-76986)

Reference:

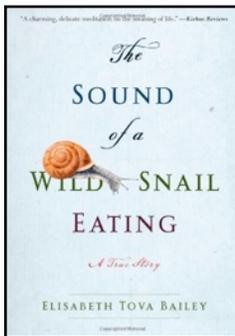
Marian, José Eduardo A. R. 2011. Perforating potential of loliginid spermatophores. Journal of Molluscan Studies, 77(1): 98-100. (available at <http://mollus.oxfordjournals.org/content/77/1/98>).



### ***The Sound of a Wild Snail Eating* by Elisabeth Tova Bailey (2010)**

*Book review contributed by Charles Sturm*

Algonquin Books, Chapel Hill, NC. 191 pp. ISBN: 978-156512-606-0. Approximately \$18.95



It is uncommon for me to find a book that combines two of my passions: medicine and malacology. When I do, it is usually a book on malacology that was written by a physician, often in the 17th or 18th century. *The Sound of a Wild Snail Eating* by Elisabeth Tova Bailey was a pleasant surprise. The book is compact,

only 191 pages; however, within those pages is quite a bit of snail lore and some medicine as well.

The author was afflicted by a rather mysterious neuromuscular disorder which completely altered her life. From an active woman she became a bedridden invalid. While her body was afflicted by this malady, her spirit continued on. What this neuromuscular disorder was is never completely explained. Was it a virus? Was it an autoimmune disease? A mitochondrial disease? While late in the book there is some speculation, the final diagnosis is never revealed. Actually, it appears that Bailey's doctors never arrived at a final diagnosis. While this malady piqued my interest, it is actually a subplot in this story. The two main story lines are Bailey's attempt to continue living as full a life as possible and her relationship with a snail.

The snail was introduced with a plant that she received from a friend. This snail became a focus of much of Bailey's interest. It became a diversion for

her and in this diversion she was drawn out into the world to learn about her snail in particular and malacology in general.

Bailey observes her snail. She notes its comings and goings. She notes how it interacts with its world. Along with these observations are ones on how she is interacting with her world as well.

To understand her snail, Bailey starts reading the scientific literature regarding snails and mollusks and begins to correspond with several biologists who specialized in snail biology and ecology. Thus, we in turn learn quite a bit about snail biology and ecology in these pages. Thankfully, instead of the dry, technical writing one finds in a scientific tome, Bailey brings this information to life. She infuses these observations with a liveliness that I wish would find its way into the scientific and medical literature.

Bailey kept the snail for a year. During this time she comments on the snails interactions with its world and her interactions with the snail. As the year drew to a close, she was going back home and had a friend return the snail to a suitable wild habitat. I felt a tinge of melancholy when the snail was release. While the snail was to gain its freedom, I was to read no more of Bailey's observations of the snail and her musing upon them and her life in general.

This book is a testament to one woman's determination to overcome her illness. It is a wonderful, lively, and engaging introduction into the natural history of a snail. It is a compelling work that one will not regret of picking up and reading.



#### MESSAGE FROM THE NEWSLETTER EDITOR

Contributions to the biannual AMS newsletter are always welcomed. Send articles, short notes or news items to **Christine Parent**, the newsletter editor, at the following address:

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E-mail: [cparent@mail.utexas.edu](mailto:cparent@mail.utexas.edu)*