Newsletter of the Freshwater Mollusk Conservation Society
Volume 15 – Number 1 March 2013

Guntersville, Here We Come

After more than two years of planning and preparing, it is finally time for us get together again for another Society Symposium. It sounds as though we will be essentially taking over the Lodge and other housing facilities at Guntersville State Park in northern Alabama during the week starting on March 10. At last count, more than 225 people had pre-registered and we had reserved all of the sleeping rooms at the Park. The full program, 114 platform talks and 83 posters, includes topics ranging from using electrofishing to find hidden mussel populations to analyses of the effects of antidepressants and tar sands on native mollusks. Geographically, the presentations range from Finland and Nigeria to Ontario, Florida, California, and

Oregon. And, it's all focused on freshwater mollusks! If you have not already done so, take a look at some of the abstracts for this meeting elsewhere on the FMCS web site: http://www.molluskconservation.org/2013Symposium/FMCS%202013%20Sympsoium%20Program.pdf

Here is the slightly revised, abbreviated schedule for this Symposium:

Sunday, March 10

1:00 p.m.	Poster Session Set-Up
3:00 p.m.	FMCS Executive Board Meeting
5:00 – 6:00 p.m.	FMCS Committee Meetings
	[Symposium, Outreach, Mussel Status and Distribution]
7:00 p.m. --	Guntersville Meeting Welcome

Monday, March 11

8:00 a.m. – 5:00 p.m.	Contributed Presentations
12:00 – 1:20 p.m.	FMCS Committee Meetings
	[Information Exchange, Environmental Affairs, Genetics, National Strategy]
6:00 p.m. --	Poster Session

Tuesday, March 12

8:00 a.m. – 5:00 p.m.	Contributed Presentations
12:00 – 1:20 p.m.	FMCS Committee Meetings
	[Awards, Gastropod Status and Distribution, Guidelines and Techniques, Propagation]
6:00 pm -- 8:00 p.m.	Dinner and National Strategy Presentation
8:00 p.m. --	Auction

Wednesday, March 13

8:00 a.m. – 5:00 p.m.	Contributed Presentations
12:00 – 1:40 p.m.	Business Lunch and Awards Presentation
6:00 p.m. --	Dinner (Top O' The River, in Guntersville)

Thursday, March 14

Optional Day Trips

Student Award Judges Still Needed

The Awards Committee is still in need of judges for the Best Student Platform and Poster Awards. We will be using the forms debuted in Louisville, which helped streamline the judging process. If you are interested in serving as a judge for these awards, please contact Emy Monroe (emy_monroe@fws.gov) as soon as possible. If willing, please indicate which of the following topics you would prefer to judge:

- Emerging trends
- Biology
- Toxicology and water quality
- Habitat
- Histology and pathology
- Survey and monitoring
- Population genetics
- Propagation and culture
- Systematics and evolution
- Recovery
- Population demography

Thank you so much for considering serving our society in this capacity.
FMCS Awards Committee
Emy Monroe, Teresa Newton, Greg Cope

Guntersville Auction Items Still Needed

And don't forget to bring your contributions to the FMCS Auction. Money generated by the auction helps fund scholarships for students attending our meetings. Please bring the following items for this auction: books, scientific journals, antiques, carvings, pictures, paintings, pottery, jewelry, hunting, fishing, boating, and camping equipment. Quality oddball-quirky "river booty" also would be great!

Bring your auction items to the Symposium. If you have questions, contact Steve Ahlstedt by email: bigshelldaddy@bellsouth.net .

Society News

Update on the National Strategy for the Conservation of Freshwater Mollusks

The Ad-Hoc committee for revising the National Strategy for the Conservation of Freshwater Mollusks invited all FMCS members to participate in one or more of four webinars the week of January 22-24. These webinars were facilitated with assistance from Matthew Patterson at the U.S. Fish and Wildlife Service National Conservation Training Center in Shepherdstown, West Virginia. Approximately 50 FMCS members from around the United States and one member from Canada attended the webinars. From these webinars, the committee captured comments and feedback on the organization of the draft Strategy and on key Issues that hinder the conservation of freshwater mollusks. Participants on the webinars also discussed the overall purpose of the FMCS. In particular, we were reminded that the mission of the FMCS is to promote advocacy for the conservation of freshwater mollusks, and were asked to consider framing the strategies (actions) around advocacy within several of the issues. We obtained very helpful and comprehensive input on strategies to address all issues, along with suggestions for prioritizing those Issues. All of the comments have been archived and will be posted to the FMCS website. The Ad-Hoc committee is integrating all of the comments, and will seek additional review from the membership. A final draft Strategy will be presented to the membership at the Tuesday evening dinner of the 2013 Symposium.

The original National Strategy for the Conservation of Freshwater Mollusks guided the formation of committees within the FMCS. This revised strategy may result in similar guidance, whereby the FMCS may choose to reorganize or redirect committee purposes in support of science and advocacy needed to meet the new challenges of conservation.

Ad-hoc Committee, National Strategy Revision
Patricia Morrison, Rita Villella Bumgardner, and Catherine Gatenby

Take a Survey and Help Us Improve What We Do

Some FMCS committee activities seem to be suffering from low member interest and that is not good for a committee-driven organization such as ours. As an initial step toward figuring out what we need to do differently, two committees have developed a brief survey to solicit your opinions on their activities. You can participate in this survey in two ways, either online at: https://www.surveymonkey.com/s/FMCS or on paper during the meeting in Guntersville. The survey includes just 22 questions and should take only a few minutes to complete. The online survey will be open through March 31, 2013, and the results will be covered in the June issue of *Ellipsaria*. Thank you in advance for your time and your opinions.

Committee Wants to Know Your Conservation Issues

The Environmental Quality and Affairs Committee encourages members to contribute conservation ideas and issues for consideration by the FMCS. Given the vast geographic and ecological diversity represented within the society, we strongly depend on the membership to bring conservation-related issues to our attention. The role of the committee is to provide public comments and position statements regarding environmental issues affecting the conservation of freshwater mollusks. The committee also provides a potential voice for members who are unable to publicly engage in issues due to organizational constraints of their employer or work conditions. While a member contributing issues for consideration is expected to provide context and perspective, the committee will assist in identifying additional expertise necessary for FMCS to effectively address the issue. Past issues taken up by the committee include Endangered Species Act listing actions, national regulatory policy changes, and management of waterways and habitats. Previous comment documents can be viewed on the FMCS website under Committees/Environmental Quality and Affairs. Please feel free to submit your ideas to either Braven Beaty (bbeaty@tnc.org) or Steve McMurray (Stephen.McMurray@mdc.mo.gov).

Regional Meetings

FMCS Regional Mollusk Meeting Assistance Award Program

As described in the December 2012 issue of *Ellipsaria*, the FMCS has established a Regional Mollusk Meeting Assistance Award Program to facilitate regional mollusk meetings that address local and regional concerns with freshwater mollusk conservation and management. Our interest in assisting with these meetings is to achieve a common goal of bringing people together who work with freshwater mollusks to exchange information on how to conserve and protect this faunal group. These meetings are often attended by a variety of individuals, including agency personnel, academia, private citizens, scientists, and others, some of whom may not be FMCS members. Therefore, a secondary goal of this program is to increase the awareness of, and membership in, FMCS among individuals in these groups who are not yet members. Support is provided via a cash award of $100 to the regional mollusk meeting group to help defray the costs (e.g., meeting room rental, speaker travel, break refreshments) associated with hosting their meeting. It is anticipated that about 15-20 awards will be made in a given calendar year.

The complete program description and application form may be obtained from the Awards Committee website at http://www.molluskconservation.org/Mservices_awards.html . One copy of the completed application must be received by the Chair of the Awards Committee at least two months prior to the Regional Mollusk Meeting to allow for application and payment processing.

Chesapeake Bay Freshwater Mussel Workgroup Meeting

On January 16, 2013, Matt Ashton (Maryland Department of Natural Resources-Resource Assessment Service) and Julie Devers [U.S. Fish and Wildlife Service (USFWS)-Maryland Fisheries Resource Office] convened the annual Chesapeake Bay Freshwater Mussel Workgroup meeting at USFWS facilities in Annapolis, Maryland. The meeting was attended by 32 people from various state and federal resource agencies, river basin commissions, non-profits, and academia. Over half of the attendees participated via web conferencing, making this an exceptionally green meeting! We first briefly discussed the results of a survey sent to past participants to gauge their interest in moving the meeting to other states, inviting speakers, and expanding the meeting to a second day.

The morning session focused on survey updates from state mussel biologists along with regional conservation efforts for the federally listed dwarf wedgemussel and the candidate species brook floater. The afternoon session began with a presentation on a Bay-wide assessment of freshwater snails as part of the large Freshwater Gastropods of North America project. The remaining talks included a U.S. Geological Survey study on the potential harm to freshwater mussels and their host fish from hydraulic fracturing fluids, and the completion of a draft report by NOAA and USFWS on the ecological benefits of freshwater bivalve restoration to nutrient and sediment reduction goals as required under the Chesapeake Bay Executive Order.

Following the presentations, a brief discussion was held on the various standard survey methods for impact assessments and surveyor qualifications being implemented by many states within the Chesapeake Bay watershed and the potential implications differing methods could have on regional conservation efforts. Financial assistance for the meeting was graciously provided by FMCS and supported morning refreshments and travel.

For more information, contact Matt Ashton: mashton@dnr.state.md.us or (410) 260-8604.

Announcement

3rd Annual Interior Highlands Mollusk Conservation Meeting
April 26-27, 2013 Lamplighter Inn & Suites, Pittsburg, Kansas
First Call for Presentations and Meeting Information

We are soliciting presentations for the 3rd Interior Highlands Mollusk Conservation Meeting IHMCM regarding all aspects of freshwater mussel conservation, propagation, and stewardship. We will allow 20 minutes for each presentation which will include the presentation and time for questions (It is suggested that the presentation be no longer than 18 minutes to allow for questions.).

The deadline for Title & Abstract submission will be Wednesday, April 3, 2013. Please email title and abstract to Dan Mosier II, dan.mosier@ksoutdoors.com. We should be able to accommodate PowerPoint 2010 and previous versions. If you are using other presentation software let me know. Bring an electronic version (thumb drive) of your complete presentation with you to the meeting. WiFi will be available in the meeting room (not sure how fast or how much band width we'll have).

There will be no charge for registration but please pre-register with Dan Mosier II by April 10 so we can get a head count for the meeting space and break refreshments.

Hotel Information

We have reserved a block of 30 rooms at the Lamplighter Inn & Suites, 4020 Parkview Drive, Pittsburg, KS 66762 telephone 620-231-8700 (http://www.lamplighterpittsburg.com) at a special rate of $61.20 (+ tax) while they last under the name "Mussel Conservation Meeting". You must make your reservations by calling the hotel at their local number. This rate will not be available for internet reservations. The hotel has a cocktail bar but no restaurant. Within a short drive are fast food establishments, franchise restaurants, and local restaurants. Other area hotels within walking distance include: the Extra Inn, and Holiday Inn Express. Or within a long walk: Super 8 and Comfort Inn & Suites.

Draft Agenda

Friday, April 26

12:15pm – 1:00 pm Registration (free)

1:00 pm - ? Presentations (we will determine how late we want to go based on the number of presentations submitted)

Saturday, April 27

8:00 am – 12:00 pm Presentations (depending on how many presentations there are)

1:00 - ? Field Trip to Neosho River (Spring River backup?) Field trip will depend on current river conditions. High water could preclude a field trip to either location.

Upcoming Meetings

March 10 – 14, 2013 -- FMCS 8th Biennial Symposium, Guntersville State Park, Guntersville, Alabama http://molluskconservation.org/2013Symposium/2013_FMCS_Symposium.html

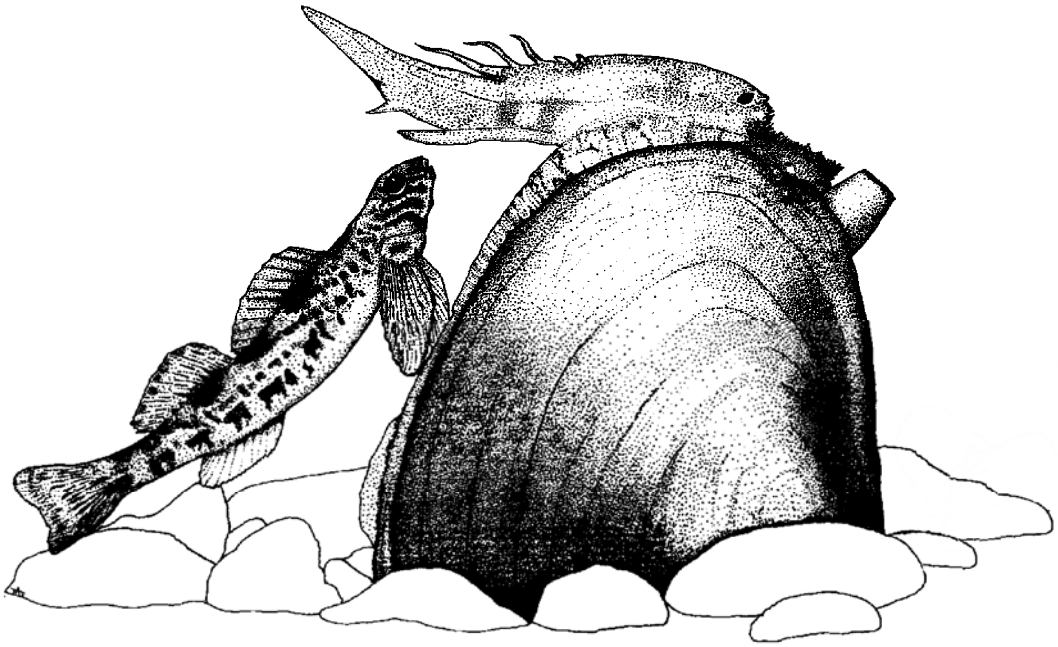
May 19 – 23, 2013 – Society for Freshwater Science Annual Meeting, Jacksonville, Florida Theme: *Energy production and aquatic biodiversity: Understanding the threats, planning for ecosystem management* http://www.freshwater-science.org/Annual-Meeting.aspx

June 23 – 26, 2013 -- Western Society of Malacologists 46th Annual Meeting, San Diego, California. http://biology.fullerton.edu/wsm/.

July 21 – 25, 2013 – Society for Conservation Biology 26th International Congress for Conservation Biology, Baltimore, Maryland Theme: "*Connecting systems, disciplines and stakeholders*" http://www.conbio.org/mini-sites/iccb-2013

July 21 – 28, 2013 – The American Malacological Society will take part in the 2013 World Congress of Malacology to be held in the Azores. More information is available at: http://www.malacological.org/meetings/wcm2013_circular1.pdf

November 17 – 21, 2013 -- Society of Environmental Toxicology and Chemistry (SETAC) 34rd North American Annual Meeting, Gaylord Opryland, Nashville, Tennessee, USA Theme: *Harmonizing Science Across Disciplines* http://www.setac.org/?page=SETACMeetings



Contributed Articles

The following articles have been contributed by FMCS members and others with interest in freshwater mollusks. These contributions are incorporated into Ellipsaria *without peer review and with minimal editing. The opinions expressed are those of the authors.*

VIPs Witness Historic Reintroduction of Winged Mapleleaf into the Mississippi River and Reintroduced Population of Higgins Eye Pearly Mussel is Recruiting

Upper Mississippi Mussel Coordination Team – Minnesota Department of Natural Resources (DNR), Wisconsin DNR, Illinois DNR, Iowa DNR, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and U.S. National Park Service

Last August, U.S. Secretary of the Interior Ken Salazar, Minnesota Governor Mark Dayton, and Minnesota Department of Natural Resources Commissioner Tom Landwehr were on hand to witness the release of captive-reared winged mapleleaf (*Quadrula fragosa*) into upper Pool 2 of the Mississippi River in St. Paul, Minnesota (Figure 1). Although only nine individuals were released, it is likely the first time the winged mapleleaf has lived in the Mississippi River in over a century. This also is a symbolic step in a long-term cooperative effort to recover this species in the Upper Mississippi River.

That reintroduction came on the heels of another historic event a few days earlier on the same river reach when we found two 2-year-old recruits from a population of reintroduced Higgins eye mussels (*Lampsilis higginsii*) (Figure 2). This success follows a decade-long program to restore Higgins eye in the upper Mississippi River mainstem and its large tributaries in Wisconsin, Illinois, and Iowa where the species occurred historically. The Pool 2 reach also was a reintroduction site for the snuffbox (*Epioblasma triquetra*), an effort that has been underway for the past 6 years, even before this species was listed as federally endangered.

This reach of the Mississippi River was selected as a reintroduction site for endangered mussels because the fishery and resident native mussels have experienced a remarkable recovery following water quality improvements implemented since the early 1980s — a result of the Clean Water Act and the commitment of concerned citizens and public agencies. While it once was the first true dead-zone in the Mississippi River, it is remarkable this reach is now a refuge for endangered mussels, although continued spread of zebra mussels in the upstream watershed is a serious concern.

Figure 1. Minnesota Governor Mark Dayton (left) and U.S. Secretary of the Interior Ken Salazar examine mussels before their release in upper Pool 2 of the Mississippi River, St. Paul, Minnesota.

Figure 2. Gary Wege holds one of two juvenile Higgins eye mussels that were recruited from a reintroduced population in the upper Mississippi River, St. Paul, Minnesota.

Piranha Mussels and Dracula Clams: Bivalve Science Fiction Comes to Life and the Untold Backstory

Robert G. Howells, BioStudies, Kerrville, Texas; bobhowells@hctc.net

Back in the early 1990s, when Texas Parks and Wildlife Department initiated its first freshwater mussel studies, I also began producing the *Info-Mussel Newsletter* to inform the staff and other interested parties about our activities. In each April first edition, I included a bogus April Fool's Day story that was so outrageous no one would believe it…or so I thought. The April 1994 issue contained a "description" of the newly discovered Texas Piranha Mussel that maintained its larval form, but grew to a large size (Howells 1994 – Figure 1). Instead of parasitizing fishes, it preyed on larger animals by attaching with its prehensile larval filament and snapping vigorously until the prey was shredded. A predatory bivalve mollusk! Surely no one would believe that.

Many folks working in the unionid field at the time ultimately saw copies of this issue. Unfortunately, the newsletter copy that went to one of my headquarters administrators (a strictly finfish guy) may have arrived on April 1st, but was not read until some weeks later. He failed to note the publication date or the end of the article that stated "April Fools." Even the fake scientific name, *Megaglochidium unoaprila* (Giant Glochidium of April Fool's Day), seemed to have escaped his notice. Apparently he reacted with some degree of concern and gnashing of teeth when he read the description of a group of these mussels attacking and killing a feral hog. Ultimately, the nature of the spoof was revealed; however, it also provoked a call to my supervisor at the research station to express his less-than-enthusiastic opinion about having been misled.

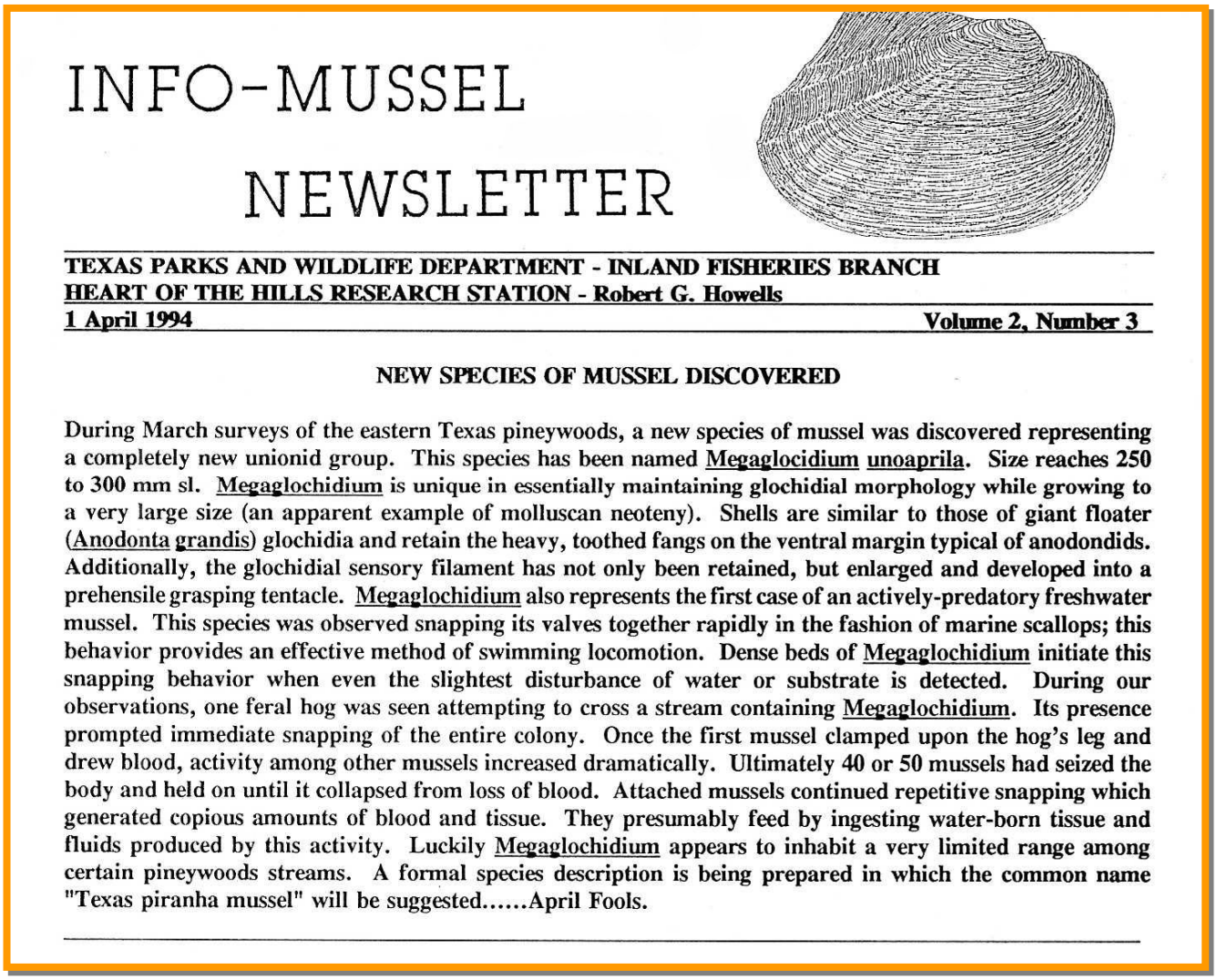
This story took yet another turn in 2011 when an apparent blood-sucking bivalve, the Dracula Clam (*Draculamya porobranchiata*), actually was discovered (Oliver and Lutzen 2011; Eichhorst 2012). I never imagined that anyone would have taken my original story seriously or that a real, predatory bivalve would ultimately be described. One can only wonder if Jules Verne ever alienated any of his supervisors with his writings or knew how prophetic his work might become.

References:

Howells, R.G. 1994. New species of mussel discovered. *Info-Mussel Newsletter* 2(3):1.

Oliver, P.G., and J. Lutzen. 2011. An anatomically bizarre, fluid-feeding gelemmatoidean bivalve, *Draculamya porobranchiata* gen. et sp. nov. (Mollusca: Bivalvia). *Journal of Conchology* 40(4): 365-392.

Eichhorst, T. 2012. Still more on blood-sucking mollusks: a bivalve? *American Conchologist* 40(4):6.



INFO-MUSSEL

NEWSLETTER

TEXAS PARKS AND WILDLIFE DEPARTMENT - INLAND FISHERIES BRANCH
HEART OF THE HILLS RESEARCH STATION - Robert G. Howells
1 April 1994 Volume 2, Number 3

NEW SPECIES OF MUSSEL DISCOVERED

During March surveys of the eastern Texas pineywoods, a new species of mussel was discovered representing a completely new unionid group. This species has been named Megaglocidium unoaprila. Size reaches 250 to 300 mm sl. Megaglochidium is unique in essentially maintaining glochidial morphology while growing to a very large size (an apparent example of molluscan neoteny). Shells are similar to those of giant floater (Anodonta grandis) glochidia and retain the heavy, toothed fangs on the ventral margin typical of anodondids. Additionally, the glochidial sensory filament has not only been retained, but enlarged and developed into a prehensile grasping tentacle. Megaglochidium also represents the first case of an actively-predatory freshwater mussel. This species was observed snapping its valves together rapidly in the fashion of marine scallops; this behavior provides an effective method of swimming locomotion. Dense beds of Megaglochidium initiate this snapping behavior when even the slightest disturbance of water or substrate is detected. During our observations, one feral hog was seen attempting to cross a stream containing Megaglochidium. Its presence prompted immediate snapping of the entire colony. Once the first mussel clamped upon the hog's leg and drew blood, activity among other mussels increased dramatically. Ultimately 40 or 50 mussels had seized the body and held on until it collapsed from loss of blood. Attached mussels continued repetitive snapping which generated copious amounts of blood and tissue. They presumably feed by ingesting water-born tissue and fluids produced by this activity. Luckily Megaglochidium appears to inhabit a very limited range among certain pineywoods streams. A formal species description is being prepared in which the common name "Texas piranha mussel" will be suggested.....April Fools.

Figure 1. Page 1 of the April 1st 1994, issue of *Info-Mussel Newsletter*, and the "description" of the Texas Piranha Mussel. [Enjoy this description, but don't get fooled ! That probably won't happen if you're not a senior manager.]

Tampico Pealymussel and Texas Fatmucket: Corrections to Distributions

Robert G. Howells, BioStudies, Kerrville, Texas; bobhowells@hctc.net

The December 2012 issue of *Ellipsaria* contained an article on Tampico Pearlymussel (*Cyrtonaias tampicoensis*) that addressed range and introductions (Howells 2012). Unfortunately, I overlooked an additional introduction record by Johnson (1999) who reported a 1957 record of this species from Lake Creek in the San Jacinto River drainage north of Houston, Texas [Museum of Comparative Zoology record 222661). I have not personally examined this material. Both Bleufer (*Potamilus purpuratus*) and Round Pearlshell (*Glebula rotundata*) are also native to that drainage and both have been confused with Tampico Pearlymussel. Additionally, Johnson (1999) listed the site as being in Harris County near Spring, but although Spring is in Harris County, Lake Creek is actually in Montgomery County some kilometers to the north.

An additional distributional record incorrectly associated with Tampico Pearlymussel is currently reported by NatureServe. NatureServe indicates Howells and Tirpak (2003) described an introduction of the state-threatened **Texas Fatmucket** (*Lampsilis bracteata*) in the lower Trinity River drainage, Texas. Actually, Howells and Tirpak (2003) addressed a collection of **Tampico Pearlymussel** in the lower Trinity system. An unrelated paper (Howells et al. 2003) did cover Texas Fatmucket, including a new population found in a tributary of the Pedernales River in the central Colorado River drainage. Texas Fatmucket is endemic only to the upper Guadalupe-San Antonio and central Colorado drainage basins of the Texas Hill Country and Edwards Plateau, but has never been confirmed in the Trinity River drainage that is associated with the East Texas-Mississippian faunal assemblage and is not known to have been introduced outside its native range to date (Howells 2010a, b).

References:

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Howells, R.G., J.L. Dobie, W.L. Lindemann, and J.A. Crone. 2003. Discovery of a new population of endemic *Lampsilis bracteata* in Central Texas, with comments on species status. *Ellipsaria* 5(2):5-6.

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Johnson, R.I. 1999. Unionidae of the Rio Grande (Rio Bravo del Norte) system of Texas and Mexico. Occasional Papers on Mollusks, Museum of Comparative Zoology, 1-65.

Additional Information Concerning the Conquest of Europe by the Invasive Chinese Pond Mussel *Sinanodonta woodiana*. 30. News from France, Germany, Hungary, Italy, and Poland

Henk K. Mienis, The Steinhardt National Collections of Natural History, Department of Zoology, Tel Aviv University, IL-69978 Tel Aviv, Israel, *and* National Natural History Collections, Berman Building, Hebrew University, IL-91904 Jerusalem, Israel mienis@netzer.org.il

Papers dealing with the presence of the invasive Chinese Pond mussel *Sinanodonta woodiana* (Lea, 1834) in Europe continue to be published. Although I search the internet regularly for such papers, sometimes they escape my attention. This has also happened with a paper published in Italy more than 6 years ago.

France

In October 2011, numerous specimens of the invasive exotic freshwater mussel *Sinanodonta woodiana* were found in the Orléans Canal in the outskirts of Orléans. The largest specimen reached a size of 22 cm. A search for this species in other canals in the neighbourhood remained without success (Thomas & Chovet, 2012).

Germany

The Technical University of Munich has published basic information on how to recognize the Chinese Pond mussel with additional data concerning its biology, ecology and current world-wide distribution (Anonymous, 2012).

Zieritz et al. (2012) have developed a molecular key for the identificantion of North and Central European Unionids, including the exotic Chinese Pond mussel. Not only the mussels but also their glochidia could be assigned at a 100% rate at the taxonomic level. Although the native Unionids were taken from natural populations in Germany or elsewhere in Europe, the Chinese Pond mussels were bought in four different gardening and pet shops in Germany.

Hungary

The presence of the Chinese Pond mussel in Lake Balaton was first observed in 2006. In the summer of 2011, it had already established populations at 21 stations, most of them situated along its northern shore (Benkö-Kiss et al., 2012). In another paper, Benkö-Kiss (2012) pointed out that recent mass death of *Sinanodonta woodiana* in Lake Balaton during the summer resulted in the floating of huge amounts of bad smelling carcasses on the surface of the water. Such events caused not only panic among the tourists, but also inflicted considerable losses to the tourist-based industry.

Italy

In the summer of 2003, a population of the Chinese Pond mussel was discovered in a small artificial lake named "Gasparetti", north-west of Senigallia, in the province of Ancona (Solustri & Nardi, 2006). Specimens of up to 28 cm length were found, which means that *Sinanodonta woodiana* had been living there most likely for 7-8 years. Again, the introduction of species of fish parasitized by the glochidia of this exotic mussel was considered the cause of its presence in that lake.

Poland

Andrzejewski et al. (2012) studied the effect of woodland bordering aquatic sites, both stagnant as well as flowing waters, and the establishment of populations of the Chinese Pond mussel in such waters. They warned against the introduction of stenothermic fishes in such habitats.

References

Andrzejewski, W., Urbańska, M. & Gierszal, H. 2012. [Mussels *Sinanodonta woodiana* in ponds neighboring with forests] Studia i Materiały Cetrum Edukacji Przyrodniczo-Lénej w Rogowie, R. 14 Zeszyt 33 (4): 335-340. [in Polish]

Anonymous. 2012. Artensteckbrief: Chinesische Teichmuschel (*Sinanodonta woodiana*). 2 pp. Technische Universität München.

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Solustri, C. & Nardi, G. 2006. Una nuova stazione di *Anodonta woodiana woodiana* (Lea, 1834) nell'Italia Centrale (Mollusca Bivalvia Unionidae). *Quaderno di Studi e Notizie di Storia Naturale della Romagna*, 23:1-8.

Thomas, A. & Chovet, M. 2012. Découverte de l'Anodonte chinoise *Sinanodonta woodiana* (Lea, 1834) (Mollusca, Bivalvia, Unionidae) dans le canal d'Orléans (Loiret, France). MalaCo, 9 [accepted paper placed on the MalaCo-website: http://www.journal-malaco.fr/ , prior to official publication].

Zieritz, A., Gum, B., Kuehn, R. & Geist, J. 2012. Identifying freshwater mussels (Unionoida) and parasitic glochidia larvae from host fish gills: a molecular key to the North and Central European species. *Ecology and Evolution*, 2:740-750.

Further Data concerning the (Semi-)Aquatic Molluscs of the Formerumerwiel, Terschelling, the Netherlands

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The Formerumerwiel on the Dutch Wadden Sea island Terschelling is a large brackish water pool caused by a dike collapse which took place in 1717 (Mienis, 2011). Until fairly recently, no published records of molluscs living in that pool were known (Mienis, 2007). In the autumn of 2007, a population of the invasive gastropod *Potamopyrgus antipodarum* was located among reeds in the northeast corner of the pool (Mienis, 2008), which was followed by *Radix balthica* in 2010, and *Stagnicola palustris*, *Haitia acuta*, *Planorbis planorbis* and *Oxyloma elegans* in 2011 (Mienis, 2011). Apparently, six different semi-aquatic species had suddenly established populations in the Formerumerwiel.

Wrong! Visser (2012) mentioned in a short note that he had managed to collect the following six species of snails in that pool in 1969: *Potamopyrgus antipodarum*, *Radix balthica*, *Stagnicola palustris*, *Physa fontinalis*, *Gyraulus crista* and *Planorbis planorbis*. Unfortunately, these data had never been published by him and references to them were therefore neither included in the paper by Kuijper (2000) about the brackish water molluscs of the Netherlands, nor in the preliminary review of molluscs living in the numerous pools caused by dike breaches on Terschelling (Mienis, 2007). According to the data published by Visser (2012), we have to add *Physa fontinalis* and *Gyraulus crista* to the list of gastropods, which at least once lived in the Formerumerwiel.

In addition to Visser's records, since last autumn we can add *Galba truncatula* to the mollusc fauna of that brackish water pool. They were collected in fairly large numbers in small pools just east of the main pool. These small pools are in direct contact with the Formerumerwiel during periods with intensive rainfall. The presence of *Galba truncatula* will not be welcomed by the farmers using the fields around the pool for grazing their sheep because this amphibious gastropod is the main intermediate host of the liver-fluke *Fasciola hepatica.*

Summarizing, we can say that at least nine species of (semi-) aquatic gastropods have been collected so far in the Formerumerwiel, but only six of them were collected in 2012 (Table 1). We intend to visit the Formerumerwiel once again in autumn 2013 and, who knows if we will find additional species which are able to live in that still slightly brackish pond.

Table 1: (Semi-) aquatic gastropods located in the Formerumerwiel during the period 1969-2012.

Family	**Species**	**Year of first collecting**	**Presence in 2012**
Hydrobiidae	*Potamopyrgus antipodarum*	1969	+
Lymnaeidae	*Galba truncatula*	2012	+
	Stagnicola palustris	1969	+
	Radix balthica	1969	+
Physidae	*Haitia acuta*	2011	-
	Physa fontinalis	1969	-
Planorbidae	*Gyraulus crista*	1969	-
	Planorbis planorbis	1969	+
Succineidae	*Oxyloma elegans*	2011	+

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A Second Note on Europe is Banning the Import of Any Apple Snails, But What About Israel?

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Recently I published a short note dealing with the ban on the import of Apple snails (*Pomacea*) in Europe (Mienis, 2012) and the possible impact of that law on the situation in Israel. In Israel, Apple

snails have not only been found occasionally in garden- and fishponds (Mienis, 2002; 2009b), and intercepted from the luggage of temporary workers arriving from Thailand (Mienis, 2006 & 2009a), but are also still being sold in so-called pet-shops (Mienis, 2010).

The import, cultivation, and sale of molluscs in general are regulated by various governmental departments: the Israel Nature and National Parks Protection Authority (INNPPA) of the Ministry of Environment, the Plant Protection and Inspection Services (PPIS) and the Department of Fisheries, both in the Ministry of Agriculture. These different departments are not always working together and, sometimes, they even issue contradictory opinions concerning the import, cultivation, and sale of molluscs.

At the moment, at least in the case of the Apple snails, there seems to be some consensus. The whole phylum Mollusca is protected by law in Israel. One needs a permit issued by the INNPPA in order to collect, keep a collection, or import molluscs. Some living aquatic molluscs may be imported if they are placed on the so-called White List maintained by the Department of Fisheries. The only organization involved with the control of imports is however the PPIS.

According to all of these organizations, it is forbidden to import, maintain, grow, and sell any living Apple snails, not only of the genus *Pomacea*, but also species belonging to other genera in the family Ampullariidae (for example *Pila*, *Marisa* and *Lanistes*). We are, therefore, on the right way in Israel. However, there is still one problem: The pet-shops and other places where Apple snails are currently still on sale are breaking the law, but neither the INNPPA nor the PPIS have, at the moment, the manpower to visit all the local outlets where Apple Snails and their relatives are still on sale!

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Field Research on the Distribution of Freshwater Bivalves in Northern Vietnam, November 2012.

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A joint collecting expedition to 12 northern provinces of Vietnam was conducted during two weeks of November 2012. We focused on this region due to the large number of freshwater taxa recently assessed at a high level of endangerment by International Union for the Conservation of Nature [IUCN] (Kohler, et al., 2012). We visited 60 sites and numerous local markets, logging about 3,800 km during the 14 day trip. We were unable to collect any specimens or dead shells of six species of *Lamprotula* or *Cuneopsis demangei* reported by Đặng et al. (1980). We were able to find live specimens and some dead shells of *Lamprotula leai* and only dead shells of *Lamprotula quadrangulosa*. *Protunio messageri* shells were collected from two different rivers but no live animals were seen. Our total efforts yielded 13 species being collected and about 300 specimens were preserved in ethyl alcohol and returned to NCSM for further analyses.

We are developing outreach materials for distribution to local fisherman, shell vendors, aquaculture programs and schools and universities to raise awareness of these species and their endangerment. It is anticipated that information generated by these documents will be directed to IEBR in Hanoi. This information will aid in developing local efforts for conservation of these aquatic resources.

One lesson learned in markets where freshwater mussels and gastropods were being sold is that in the more northern areas, the mollusks were not harvested from the local rivers but were being brought in from areas well to the south. Up to this time it was thought the local markets reflected the freshwater mussel fauna of the local rivers.

Some of the vendors in the markets had only specimens of two species of *Sinanodonta* or *Nodularia*. Occasionally, we would find a few specimens of *Scabies*, *Lamprotula* or *Lanceolaria* species. When questioned about the lack of this group of species, they claimed these species were bitter tasting and typically were not sold. Vendors typically offered for sale baskets of *Sinanodonta* spp, *Nodularia*, *Corbicula* sp. and gastropods including *Sinotaia* spp. and *Pomacea canaliculata*.

Figure 1 Unionids, Cyrenid bivalves and viviparid and ampulariid gastropods for sale in a market in Dien Bien Phu, Dien Bien Province, Vietnam, November 2012. Photograph by Arthur Bogan.

Figure 2. Clam rake used by local fishermen to collect freshwater mussels from the local rivers. Cao Lo River, Soc Son District, Ha Noi, Vietnam. Photograph by Do Van Tu.

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First Geographical Record of the Neotropical Freshwater Snail *Chilina parva* Martens, 1868 (Pulmonata: Chilinidae) for the "Caraá River Basin", Osório, Rio Grande do Sul State/ RS, Southernmost Brazil

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The family Chilinidae Dall, 1870 is endemic to southern South America (EOL 2011), and is represented by the single genus *Chilina* Gray (1828). The species inhabit brackish waters and streams, fast-flowing rivers, lakes and lagoons of Perú, Chile, Argentina, Paraguay, Brazil (Agudo-Padrón 2011: 36-Fig. 6, by example), Uruguay and the Falkland Islands. *Chilina* belongs to the most primitive Basommatophora, subject of study as to its origin, phylogeny and biogeography.

Chilina parva Martens, 1868 is a little species of air-breathing freshwater snail, one of the 14 aquatic South American pulmonate gastropod mollusk belonging to this family (Simone 2006:97-100; EOL 2011). Originally described from the brazilian southern locality "*Morro Reuter*", rising of the Rio Grande do Sul State/ RS (Pereira & Thomé 1999), today forming part of the State listing of continental malacological forms (Agudo-Padrón 2009: 6). On the florestal Northern coast region of this same State (Figure 1), still very little known from the malacological point of view, the species lives in preserved mountain rapids and cascade waterfalls (water descends a series of rock steps), grabbed preferably in the rock wall dotted by cascading waters.

On June 10, 2012, a total of four singular native freshwater snail specimens (ramdom sample) were collected for analysis by us in the rock wall of the "*Cascata da Borússia*" (Borússia cascade waterfall) (29° 51′ 13.74″ S; 50° 19′ 38.77″ W), "Caraá River Basin" locality of the Osório Municipal District in "*Morro da Borússia*" (Borússia Hill), place domain of Atlantic Rainforest with nearly 400m of altitude in the Northeastern coast region of Rio Grande do Sul State, RS (Figure 1), in the course of bioecological field study/ research organized by the campus Canoas of the Lutheran University of Brazil – ULBRA.

The taxonomic determination of these little snails (5 to 8 mm of length) was based in the fundamental contribution of SIMONE (2006), coming to the conclusion that they belong to the species *Chilina parva* Martens, 1868 (Figure 2), a species so far have not registered for this specific locality. Voucher material finally deposited in the scientific malacological collection of the "Museum of Sciences and Technology", Pontifical Catholic University of Rio Grande do Sul - PUCRS, Porto Alegre/ RS (MCP 9847).

Figure 1.- Osório Municipal District (red color on map) in the geographical context of the Rio Grande do Sul/ RS State, Southernmost Brazil, and the "*Cascata da Borússia*"(29° 51′ 13.74″ S; 50° 19′ 38.77″ W) in the "Caraá" river basin, formed by large rock boulders and fall of approximately 3.5 m high x 12 m wide. Photograph by A.I. Agudo-Padrón, Project AM

Figure 2.- *Chilina parva* Martens, 1868 (left) and "moment of collection of samples" in the rock wall of the cascade (right). Photos: A.I. Agudo-Padrón, Project AM

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Our sincere thanks go to Professor Dr. Soráia Girardi Bauermann, Biological Sciences course of Lutheran University of Brazil - ULBRA, Canoas, RS, for regional informations and opportune indication in field to the geographical locality researched.

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Shelling in the Upper Uruguay River Basin Region, Northwestern Rio Grande do Sul State, Southern Brazil

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This is the first documented report of continental mollusks in the northwestern region of the Rio Grande do Sul State/ RS, Southernmost Brazil, and the corresponding section of the Upper Uruguay River basin.

The Municipal Districts of "Derrubadas" (27°15'54"S, 53°51'39"W; elevations up to 485 m above sea level; river border with Argentina and in northeast, with the Brazilian State of Santa Catarina/ SC) and "Iraí" (27°11'38"S, 53° 15'03"W; elevations up to 235 m above sea level; river border with the brazilian State of Santa Catarina/ SC) are located in the domain of the Upper Uruguay River Basin region of Rio Grande do Sul State/ RS, Southernmost Brazil (Figure 1).

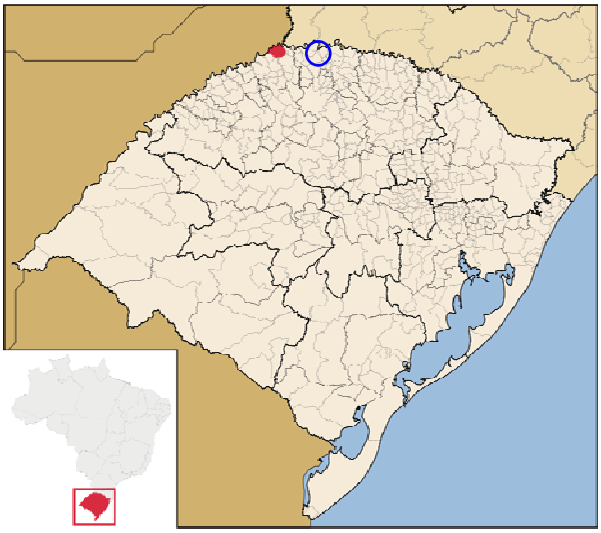

Figure 1. Locations of Derrubadas (red dot - dowstream) and Iraí (blue circle - upstream) Municipal Districts within Rio Grande do Sul state, Southernmost Brazil.

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The general area, domain of the "*Seasonal Deciduous Forest,*" has a mesothermal humid climate, with high temperature in summer and relatively low during the winter, and an average annual temperature of 24.5° C (from June to October the temperature can drop to 0° C).

"Derrubadas", to downstream, is headquarters of the "Parque Florestal Estadual de Turvo" (Turvo State Forestal Park), and includes the 1,800 meter-long world famous "*Salto do Yucumã*" (Figure 2), considered one of the major longitudinal waterfalls in the world (Gonçalves, 1999). This area is part of the "*Paraná River Basin Basaltic Plateau*", and has altitudes ranging between 100 and 400 meters, with steep elevations, large slopes and valleys that open to the west and to the north, resulting in the natural drainage system. In this park, with 17,491.40 hectares, are some of the tallest remaining forests of the state, with trees up to 30 to 40 meters tall, the last specimens of the dense forest of the Upper Uruguay, a formation with similar characteristics to the "*Iguaçú Waterfalls National Park*", in the southern Paraná State/ PR (Agudo-Padrón, 2008).

In contrast, "Iraí", to upstream, known as a hydromineral resort (its thermal mineral waters are recommended as a treatment by doctors and specialists and attract visitors from all over Brazil and neighboring countries), is headquarters of the "Rio do Mel" (Honey River), an important tributary of the Uruguay River in this region (Figure 3), located in the sector of "*Thermal Spa Oswaldo Cruz*", two kilometers distant from its mouth (200 meters from the city, average depth of 2 meters with an average width of 20 meters).

On 15-18 November 2011, in the course of travel for environmental recognition in the Upper Uruguay River basin region, we made a special visit to these two important places in the State. Only the "*Turvo State Forestal Park*", in Derrubadas Municipal District, is kept relatively intact, resisting the relentless advance and threatening of the agricultural fields that surround it.

Figure 2. Aerial views of the "*Yucumã Waterfalls*" environment, on the border of Argentina and Brazil (top and center), and views of our malacological visit to the locality (bottom)

Figure 3. View of the "*Honey River*" environment, an important regional tributary of the Uruguay River

It was verified again by us in field that this region has suffered severe deforestation as a result of logging, intensive monoculture of grains (specifically wheat, soybeans, and corn) and pastures, livestock farming (pigs and poultry) and constant and indiscriminate application of pesticides, leaving only sparse small areas of preserved forest known as "legal reserve" that are mandated by the "Brazilian Forest Code", and that, unfortunately, are unrepresentative of the great forests of former times. Another big regional problem is the proliferation of large and small hydroelectric power plants throughout the watershed of the Upper Uruguay River basin http://www.natbrasil.org.br/Docs/cartilha_rio_uruguai/hidro2.pdf (in Portuguese).

The critical situation generated by environmental degradation and a product of galloping human intervention, is distinctly reflected in the impacts sustained by the local faunal biodiversity, particularly the terrestrial molluscs, with native endemic forest megasnails such as *Megalobulimus gummatus* (Hidalgo, 1870) (Megalobulimidae) and others that were formerly abundant and widespread in the region now fast disappearing, becoming increasingly rare and difficult to encounter in nature (Agudo-Padrón, 2010, 2011b). In addition, there has been a parallel and alarming introduction and spread of invading alien molluscs (Agudo-Padron and Lenhard, 2010; Agudo-Padrón 2011a, 2012a and b). On land, only specimens of the little exotic Asian garden snail *Bradybaena similaris* (Férussac, 1821) were observed.

In the two fluvial localities visited, exotic Asian clams *Corbicula fluminea* (Müller, 1774) (Figure 4) and *Corbicula largillierti* (Philippi, 1844) are predominant in the environment. The following native species were observed very sparsely, many of them rare and presenting some degree of threat recognized:

Figure 4. Fragments of native gastropod *Pomella americanista* (MCP 9850 - left) and shells of *Corbicula fluminea* (MCP 9848 - right)

Results of the fluvial shelling

GASTROPODA

Family Ampullariidae

Pomella americanista (Ihering, 1919)

According to Ghesquiere (2012), "… *This rare snail is only known from the vicinity of the Iguazu Falls in the Rio Parana system in Southeastern of Brasil.*"

MCP 9850 ("Salto Yucumã" – Figure 4), MCP 9853* ("Rio do Mel" – Figure 5)

Figure 5. Fresh shells *Pomella americanista* (MCP 9853 - left) and its egg masses in the environment of the "*Rio do Mel*" (right)

Felipponea neritiniformis Dall, 1919
According to Clavijo et al. (2010), "... representative of an ampullariid genus endemic to the Uruguay River basin."
Previously cited for this Brazilian State in Agudo-Padrón, 2009:4
MCP 9852 ("Rio do Mel")

Family Hydrobiidae
Potamolithus cf. *catharinae* Pilsbry, 1911
Previously cited for this Brazilian State in Agudo-Padrón, 2009:4
MCP 9851 ("Rio do Mel")

BIVALVIA
Family Mycetopodidae
Anodontites tenebricosus (Lea, 1834) (Figure 6)
Category IUCN "Vulnerable", according Agudo-Padrón (2011 b)
Previously cited for this Brazilian State in Agudo-Padrón, (2009: 10)
MCP 9854 ("Rio do Mel")

Family Corbiculidae
Corbicula fluminea Müller, 1774
Asiatic invasive species
MCP 9848 ("Salto Yucumã" – Fig. 5)
Corbicula largillierti (Philippi, 1844)
Asiatic invasive species
MCP 9849 ("Salto Yucumã"), MCP 9855 ("Rio do Mel")

Figure 6. Fresh shell of *Anodontites tenebricosus* of the "Rio do Mel" (MCP 9854)

* MCP - samples deposited in the Malacological Collection of the Sciences and Technology Museum of Pontifical Catholic University of Rio Grande do Sul State – PUCRS, Porto Alegre, RS

According to Brazilian specialists "... the Uruguay River Basin stands out regionally once again, which according to initial surveys already made, was found to be one of the "hotspots" of the world. It is the river with the greatest biodiversity of mollusks in Latin America ..." (Agudo-Padrón 2011 c:40). In the specific case of limnic/ freshwater Bivalvia in the neighboring State of Santa Catarina/ SC, for

example, the highest occurrences of species observed correspond to the far Upper Uruguay River, in your Western region, accounting for 23 of the total of 28 forms thus recognized (Agudo 2005). According Pereira et al. (2012: 87-Figure 10), the Uruguay River basin inmate today in Brazil the third place (42,18 %) as the number and percentage of species of limnic bivalve molluscs cited.

Acknowledgments:

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New Geographical Record of the Neotropical Apple Snail *Asolene* (*Pomella*) *megastoma* (Sowerby, 1825) in the Upper Uruguay River Basin, Southern Brazil

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The Municipal Districts of “Barracão” (27º40’19”S, 51º27’39”W) and “Pinhal da Serra” (27°52'26"S, 51°10'12"W), elevation up to 764 m above sea level (river borders with the brazilian State of Santa Catarina/ SC), are located in the domain of the Upper Uruguay River Basin region in Southeastern of Rio Grande do Sul State/ RS, Southernmost Brazil (Figure 1). Just in the middle of these two municipalities is the mouth of the "Rio José Bernardo” (José Bernardo River), which pours its waters in the big Uruguay River through its geographically section known as “Rio Pelotas” (Pelotas River). Fourteen kilometers from its headquarters is built called “Usina Hidrelétrica Barra Grande” (Barra Grande Hydroelectric Power Plant) (Figures 2 and 5).

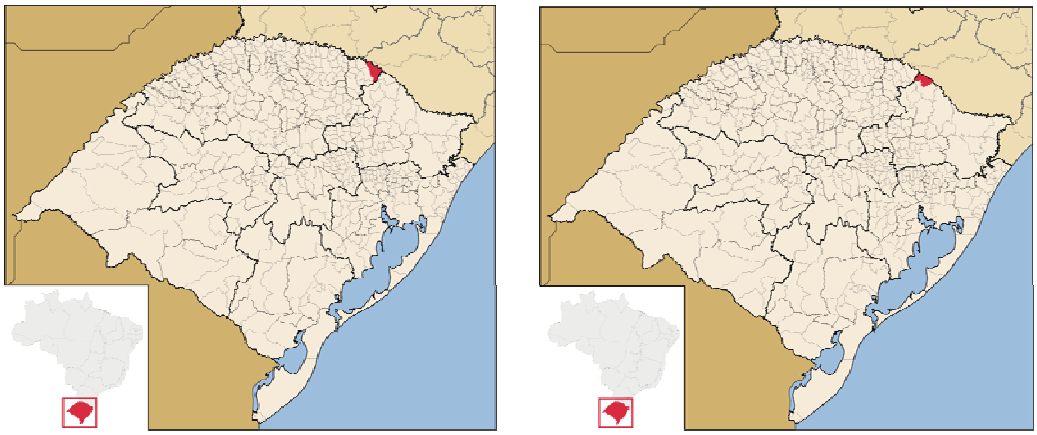

Figure 1. Locations of Barração (left - dowstream) and Pinhal da Serra (right - upstream) Municipal Districts within Rio Grande do Sul state, Southernmost Brazil.

Figure 2. Location of Bernardo José River basin (red oval) in the Uruguay River Basin of Rio Grande do Sul State/ RS, Southernmost Brazil. UHBG = Barra Grande Hydroelectric Power Plant. Map courtesy of Limnologist *Érico Porto Filho*, Socioambiental, Florianópolis/ SC

On June 14, 2012 (severe dry station), during the course of limnological monitoring actions against invasive asiatic golden mussel, *Limnoperna fortunei* Dunker, 1857 (Mytilidae) (Agudo-Padrón 2012: 22-23), in the mouth of José Bernardo River, RS, Pelotas River tributary to upstream of the “Usina Hidrelétrica Machadinho” (Machadinho Hydroelectric Power Plant), Deison Hack, a technician of the

company manager BAESA, found and took pictures of pink calcareous masses on rocks on a "small fluvial island" that was formed due to lowered water. On June 15, 2012, one of those pictures (Figure 3) was sent to us for analysis by the Brazilian limnologist Professor Érico Porto Filho, of the Department of Geosciences at the Federal University of Santa Catarina – UFSC and Socioambiental, Florianópolis/ SC.

The taxonomic determination of this material was that it is *Asolene* (*Pomella*) *megastoma* (Sowerby, 1825), a native freshwater gastropod representative of the family Ampullariidae not previously reported for this specific locality of Rio Grande do Sul State/ RS, but known from some places in neighboring Santa Catarina State (Agudo-Padrón 2008:150) (Figure 4). Ghesquiere (2007) describes suitably the egg masses of this species (sic): "… *The eggs are laid out of the water in a pinkish calcareous mass attached on vegetation or rocks …*"

Figure 3. Egg masses of freshwater gastropod *Asolene* (*Pomella*) *megastoma* (Sowerby, 1825). To left, Asiatic golden mussels *Limnoperna fortunei*. Photograph: Deison Hack, BAESA Technician, June 14, 2012. Courtesy of Limnologist Érico Porto Filho, Socioambiental, Florianópolis/ SC.

*MCP = Sample deposited in the Malacological Collection of the Sciences and Technology Museum of Pontifical Catholic University of Rio Grande do Sul State – PUCRS, Porto Alegre, RS

According to initial studies already conducted, the Uruguay River Basin stands out regionally as one of the "*hotspots*" of the world. It is the river with the greatest biodiversity of mollusks in Latin America (Agudo-Padrón 2011:40), but, today, its Upper section is severely threatened by the proliferation of hydroelectric power plants (Figure 5) and other regional anthropomorphic activities.

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Figure 4. *Asolene* (*Pomella*) *megastoma* (Sowerby, 1825), of "Sede Capela", Itapiranga/ SC (MCP 09551)* and its known distribution in the Upper Uruguay River Basin section of Santa Catarina State/ SC Photographs by Paulo Lenhard, Project AM

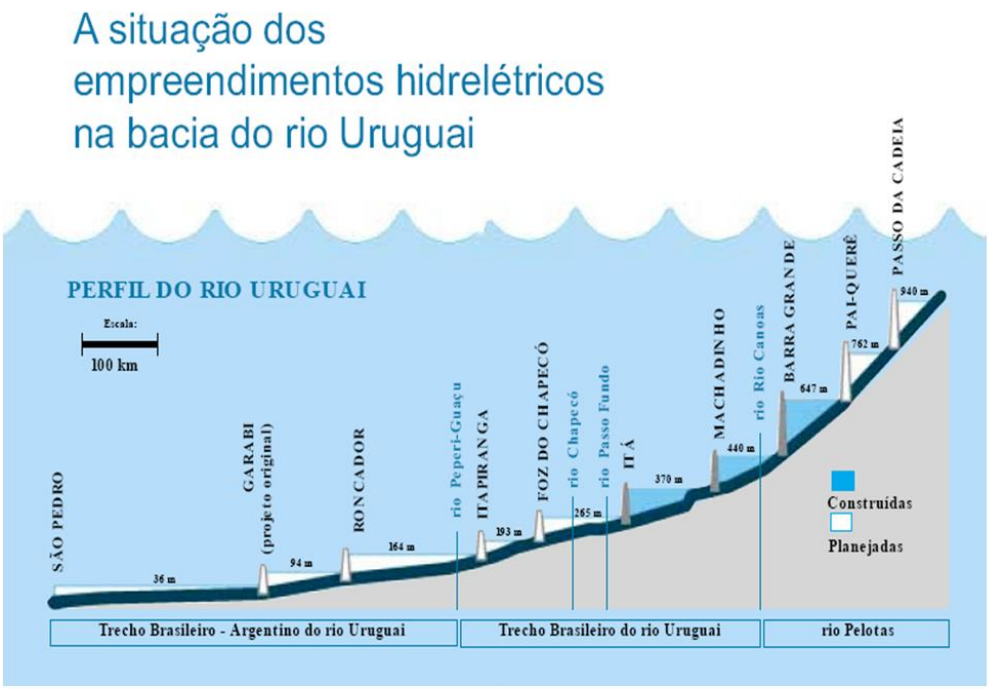

Figure 5. Proliferation of hydroelectric power plants in the Upper section of the Uruguay River Basin

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MSWord is optimal for text documents but the editor may be able to convert other formats. Graphics should to be in a form that can be manipulated using PhotoShop. Please limit the length of informal articles to one page of text. Note that submissions are not peer reviewed but are checked for clarity and appropriateness for this freshwater mollusk newsletter. Feel free to contact the editor with any questions about possible submissions or transmission concerns.

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Parting Shot

These Spiny Riversnails (*Io fluvialis*) once lived in the Tennessee River not far from Guntersville State Park. They were found in an "Indian Midden" (Native American garbage pile) along the shore of Guntersville Reservoir, in northeast Alabama. The broken-off top of the spire is typical of most *Io* midden shells and supports the idea that Native Americans removed and ate the meat of these large snails. [Coin is 24 mm in diameter.]

If you would like to contribute a freshwater mollusk-related photograph for use as a **Parting Shot** in *Ellipsaria*, e-mail the picture, caption, and photo credit to jjjenkinson@hotmail.com.