NEWSLETTER OF THE
AMERICAN MALACOLOGICAL SOCIETY

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ANNOUNCEMENTS

THE AMERICAN MALACOLOGICAL SOCIETY 81ST ANNUAL MEETING

UNIVERSITY OF MICHIGAN BIOLOGICAL STATION PELLSTON, MICHIGAN

AUGUST 28-31, 2015

Submitted by Thomas Duda, Jr., AMS President

The 81st annual meeting of the American Malacological Society will take place from August 28-31, 2015 at the University of Michigan Biological Station in Pellston, Michigan. The program includes a keynote speaker, symposia and special sessions, contributed talks and posters, an auction to earn funds to support student research, Welcome Reception, Banquet and opportunities for field excursions. Much more additional information about AMS 2015 and links to register and submit abstracts can be found at the meeting website (http://bit.ly/AMS2015). Deadline for early registration: May 31, 2015. Deadline for abstract submission: June 15, 2015.

Symposia and special sessions: Early Career Malacologists, Conservation of Molluscs, Great Lakes Malacology, Invasives, Larval Biology of Molluscs, Phylogeny, Pacific Island Land Snails and Marine Molluscs. Open sessions are also available for presentations outside of these themes.

Keynote speaker: Alison Sweeney (University of Pennsylvania)

AMS Auction: As usual, we will host an auction at the meeting to raise funds for student research awards. In fact, all AMS funds that are available for these awards come from funds raised during the auction and so it is important that we have many contributions to include. It's always quite fun as well! Auction items can be anything that may be of interest to potential bidders (books, reprints, trinkets, etc., but no specimens please!). Please bring appropriate items with you to the meeting or box them up, label the box with "hold for AMS auction" and mail the box(es) to Tom Duda at 1109 Geddes Avenue, Ann Arbor MI 48109. If you could also provide an approximate value of the item(s), this would help the auctioneer establish an appropriate starting bid.

Please visit the meeting website (http://bit.ly/AMS2015) to learn more about AMS 2015.

If you have any questions about the meeting, please email Tom Duda (tfduda@umich.edu).

OTHER UPCOMING MEETINGS

Submitted by Ángel Valdés, AMS President-elect

The 82nd Annual Meeting of the AMS will take place in June 2016 in Ensenada, Mexico, in

conjunction with the Western Society of Malacologists. Preliminary dates are June 9-13. The conference will include an AMS sponsored symposium and field trips. More details will be provided during the Annual Meeting in Michigan.

Other Announcements

Postdoctoral Position Available

Submitted by Rory Mc Donnell

A postdoctoral position is available in the Department of Entomology at the University of California Riverside to work on '**Attractant-based detection and control methods for invasive snail species**'. Although powerful pheromonal or food based attractants have been identified for numerous invasive insect species, very little work has been done to explore the chemical ecology of snails and slugs, especially with regard to exploiting the chemical cues that they use to find host plants or the chemical signals that they use for intraspecific communication (e.g., reproductive interactions). What little work has been completed has been relatively superficial but even these preliminary studies have clearly shown that chemical cues and signals play a major role in a wide range of gastropod behaviors (feeding, homing, avoidance of predators, and a variety of social and reproductive behaviors).

This project is a collaborative effort headed by Drs. Jocelyn Millar (UC Riverside), Rory McDonnell (UC Riverside), and Amy Roda (USDA-APHIS-PPQ). The postdoc will be supervised by Dr. Mc Donnell, but will also work closely with the other PIs. The successful candidate will be expected to develop and execute high throughput, quantifiable bioassays for the efficient assessment of attraction to various odor sources, including conspecifics, food items, crude extracts and fractions thereof, and reconstructed blends of candidate attractants. Bioassays will need to be developed for both laboratory and field bioassays.

Candidates should have expertise and experience in gastropod biology and behavior. Familiarity with chemical ecology will be an asset. Regardless of prior experience, we expect the candidate to develop a wide-knowledge base and skillset. The position is for one year with the possibility of renewal for up to three years, contingent upon continued project funding and satisfactory performance. Salary will be commensurate with experience.

To Apply: Candidates must have a PhD or equivalent experience in Biology, Malacology, or a related discipline, and a demonstrated record of scientific publication. To apply, please send a brief description of previous research (1 page), a CV, and contact information for three references to rorym@ucr.edu. The anticipated start date is September 1st 2015. Position is open until filled.

UCR is an affirmative action and equal opportunity employer with a commitment to workforce diversity. **AA/EOE**

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Contributions from Members

Melbourne R. Carriker Student Research Award Report

Submitted by Nina T. Mikkelsen
University Museum of Bergen, University of Bergen, Norway. nina.mikkelsen@uib.no

Out of the three recognized families within the shell-less, worm-shaped Chaetodermomorpha (= Caudofoveata), Prochaetodermatidae is the most species rich and widespread family. The Prochaetodermatidae are primarily found in the deep sea, where they can reach high abundances, and have in some areas been reported to exceed even polychaetes in numbers (Scheltema 1997).

The family is unique among the Chaetodermomorpha, as their radula has a row of central plates between paired rows of lateral teeth, and they possess a pair of jaws (Salvini-Plawen 1975). The genera in other families of Chaetodermomorpha are defined based on radular morphology, but the prochaetodermatid radula differs little between the genera, and so far no morphological pattern has been defined. Instead, the

shape, sculpture and organization of the sclerites have been used to define the genera (Ivanov & Scheltema 2001, 2008; Scheltema & Ivanov 2000). Although Prochaetodermatidae have been thoroughly investigated and mapped in many areas (e. g., Ivanov & Scheltema 2001, 2008; Scheltema & Ivanov 2000), no hypotheses have been proposed for the internal relationships of this family, and the validity of genera and species has been debated (e. g., Salvini-Plawen 1992, Scheltema & Ivanov 2000).

The objective of this study is to use molecular data to investigate the phylogenetic relationships within and between the genera of Prochaetodermatidae. Sequencing of the cytochrome c oxidase 1 gene (COI), which has been widely used for species identification and has shown to be useful in revealing lower level relationships in molluscs, has proven to be difficult in Prochaetodermatidae. Attempts with universal primers successfully used to amplify COI in other Chaetodermomorpha, as well as primers designed specifically for Prochaetodermatidae, have been unsuccessful for most species. We therefore sequenced an alternative marker, the mitochondrial ribosomal LSU 16S (Embrador et al. 2015, Marin et al. 2015), another fast evolving gene, which has also been shown to be useful for inferring phylogenies in molluscs (e.g., Piertney et al. 2003, Schander et al. 2003, Valdes 2003).

We analyzed DNA sequences from 12 different species, of which 6 were identified as yet undescribed species based on characters of the spicule coat. In the resulting trees (Figure 1), sequences from species where multiple specimens were available are clustering together with high support, however many of the deeper nodes in the tree are poorly supported. *Prochaetoderma* is the only genus with multiple species included in the analyzes, which is recovered as monophyletic. The species of *Spathoderma* and *Claviderma* are polyphyletic, clustering together in two different clades, together in one clade with *Chevroderma*. A close relationship between *Spathoderma* and *Claviderma* might be supported by shared morphological characters: sclerites lacking a keel and three or more rows of sclerites surrounding the oral shield. The ambiguous placement of the species in these genera is reflected in the low support values, and needs further investigation.

The preliminary results presented here provide support for the validity of the species included in the study and the monophyly of *Prochaetoderma*. On the other hand, they raise interesting questions about the monophyly of the remaining genera and relationships between the genera, in particular the polyphyletic *Spathoderma* and *Claviderma*. This study indicates that the 16S gene can contribute to recovering relationships within Prochaetodermatidae, but it is inadequate to fully resolve the relationships between the genera within this family. The results presented are part of a larger study based on morphology and molecular methods, where the data presented here is combined with sequences from additional genes to produce a robust phylogenetic hypothesis of the relationships within the Chaetodermomorpha.

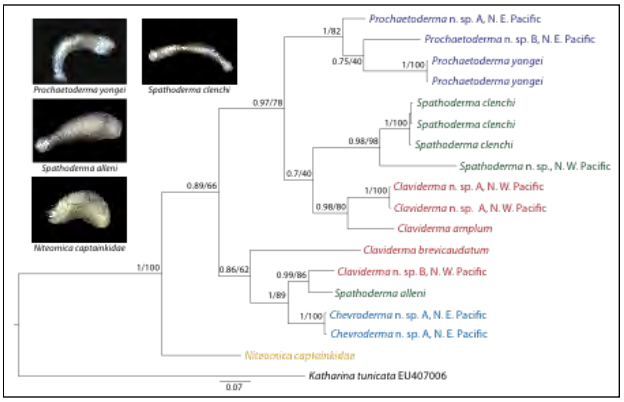

Figure 1. Phylogenetic tree of 12 species of Prochaetodermatidae, based on Bayesian and Maximum Likelihood analyzes. Posterior probabilities and bootstrap support values are shown on the nodes. *Katharina tunicata* (Polyplacophora, from GenBank) was used as an outgroup.

Acknowledgements

Sequencing was partially funded by a Melbourne R. Carriker Student research award from the American Malacological Society. I am grateful to my supervisors Endre Willassen and Christiane Todt for continuing help and support, and to K. M. Halanych, K. M. Kocot and H. Kano who provided material for sequencing. Sequencing was carried out at the Biodiversity Laboratories at the Department of Biology, University of Bergen.

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Mollusks Collection in the Museo de la Plata, Argentina

Submitted by Ortiz Blanche[1], M. E.; Cao1, L.; G. Darrigran[1,2] & C. Damborenea[1,2]
[1]División Zoología Invertebrados (DZI), Museo de La Plata (FCNyM-UNLP)
[2]Investigador CONICET

Introduction

Collections are a group of things (elements, objects, items), generally of the same class, put in order and grouped in response to a special interest or value.

Given the quantity and diversity of information saved in all the biological collections around the world, it would be best if they were organized following a common pattern. This would erase the interference of classification differences, increasing the accessibility of the data stored, and allowing its use for the study of biodiversity.

It is recommended that biological collections were managed by permanent institutions, capable of properly organizing the elements and ensuring the accessibility to the information. An example of these institutions in Argentina is the Museo de La Plata, Universidad Nacional de La Plata, Argentina.

The biological collections in Museo de La Plata all together contain more than 3 million objects, which are under the supervision of six of the fifteen Divisions. http://www.museo.fcnym.unlp.edu.ar/areas_y_divisiones.

Mollusks form an interesting and attractive group of organisms, not only for collectors, but for the human society. They also play an important economic and sanitary role. Most of them are exploited as an alimentary resource (e.g. *Crassostrea gigas*, *Illex argentinus*, among others). Many groups of mollusks are related to the transmission of parasites (e.g. schistosomiasis), cause plagues like terrestrial snails, or are introduced (e.g. the golden mussel *Limnoperna fortunei*, the snail *Achatina fulica*) producing an impact in both natural and anthropogenic environments.

The following article will describe the importance of the material stored in the Mollusks Collection of Museo de La Plata. It will also explain the work realized by the Division Zoología Invertebrados, most specifically by the Malacology Section, which is in charge of the Collection.

The Role of the Malacology Section

The main purpose of Museo de La Plata consists in guarding collections that are representative of the cultural and natural patrimony of South America, as well as increasing the knowledge and diffusion of their information. This is achieved by scientific investigation, academic training and extension activities. In this context, the Mollusks Collection owned by the Museo de La Plata constitutes the evidence of this group's diversity in the marine, terrestrial and freshwater environments of South America in general and Argentina in particular.

The three main activities that concern to the administration of a natural collection within an Institution are: care, growth and accessibility. These activities should reach a balance in order to develop

a harmonic and sustainable management (Simmons & Muñoz-Saba, 2003).

The Mollusks Collection of the Museo de La Plata is one of the most important in Latin America (Darrigran et al., 2014) due to the following facts:

(1) It contains near 13,150 lots.

(2) The oldest objects are dated from the middle XIX Century.

(3) Malacologists and other researchers around the country collaborate with new donations every year.

(4) The collection includes lots collected by outstanding specialists such as Berg, Batlet, Durione, Spegazzini, Moreno, Lahille, Doello Jurado, Weyrauch, Parodiz, Hylton Scott, Frengüelli, Castellanos, Birabén, Bonetto, among others.

(5) Important scientific expeditions had contributed with material to this collection, such as Hasler 1870-1871, Hauthal 1898, Bentart 1898, Moreno 1893, FCEN-UBA 1920, Monte Hermoso 1948, HC Patagonica 1953, Butantan 1949, Shimkai Maru XI 1979, and SAO 1971, among others (Darrigran et al. 2011).

(6) Its geographical extension covers the whole Argentinian territory, Islas Malvinas (Falkland Islands) and the Antarctic land. It also includes lots from other South American countries.

(7) Its conservation status. The Mollusks Collection management applies different methods of conservation:

a) Dry Collection: it consists mainly on the mollusks shells. These parts are stored in bags, boxes and drawers that protect the material from the external conditions and biological damage (e.g. fungus infestations)

b) Wet Collection: it contains complete organisms fixed and then preserved in ethanol or, in a few cases, in formaldehyde.

c) Processed Material: some lots are conserved as processed material for analysis in different formats:

-Histological cuts for optical microscopy analysis.

-Stubs for scanning microscopy study.

d) Tissues Collection: in 2011, the Division started a specific collection for molecular studies, in which each sample consists of a little portion of foot tissue, conserved in absolute ethanol and stored in a freezer. The sample is completed by a voucher, generally the rest of the organism or photographs.

(8) Accessibility: the records are being digitalized in Access data bases. In 2011 the Division Zoología Invertebrados initiated a record publishing project in the Sistema Nacional de Datos Biológicos (SNDB-MINCyT; Damborenea & Darrigran, 2013). It is expected that the records are available in the SNDB portal in 2016, each one with its generic or specific identification.

In addition, the Malacological Section counts with optical microscope and photographic equipment available for the researchers that visit the collection.

(9) Activities: the main activities developed in the Malacological Section are the following:

- Administration: it consists in the accession, cataloging and loan of the material. There have been 1,700 new cataloged lots in the last 5 years; 26 of those are type material and 70 were loaned to researchers and PhD students.

- Research: the Malacological Section has 4 Senior Researchers from the Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET) and the Comisión de Investigaciones Científicas de la Provincia de Buenos Aires (CIC), PhD students and postdoctoral fellows. Their purpose is to increase the knowledge about native and exotic mollusks in Argentina.

The Section also receives many visitors. In the last 5 years, 20 of them were national scientists, while 15 came from other countries.

- Teaching: The Division Zoología Invertebrados and the Biological Sciences Teaching Degree (FaHCE-UNLP) united to generate pedagogic material for TIC (“Information and communications technologies”) through “Fichas Malacológicas” in the “Boletín Biológica” electronic magazine (www.boletinbiologica.com.ar). In addition, two researchers from the Malacological Section teach the subject Malacology at the Universidad Nacional de La Plata (FCNyM, UNLP), for both the degree and the PhD students.

- Diffusion: A project called “Bioinvasión del mejillón dorado en costas del río Uruguay” (Darrigran et al. 2012a) was carried out by the Instituto de Formación Docente (IFD) “Dr. R. J. Carcano” (Monte Caseros-Corrientes); the Facultad de Humanidades y Ciencias de la Educación (UNLP) and the División Zoología

Invertebrados of Museo de La Plata. This generated an interesting interaction between scientists, teachers and society.

- Expositions:

1) During 2009, the Division Zoología Invertebrados through the Malacological Section realized the temporal and itinerant exposition denominated "Bioinvasions: A Threat to Biodiversity". The finality of this exposition was to commemorate the International Day for Biological Diversity (05-22-2009) proclaimed by the Organization of United Nations (ONU), focusing on the problem of exotic species invasions.

2) In 2011 the same institution realized the temporal exposition "Bioinvasions and sustainability" in the ExpoUniversidad. The stand included expositions from the museums owned by Universidad Nacional de La Plata (UNLP).

3) In 2015, a temporal exposition of "Marine mollusks and their consumption" in the Museo de la Plata.

Importance and Maintenance of the Mollusk Collection of Museo de La Plata

As it was mentioned previously, this Collection is one of the most important in Latin America. This is due not only to the topics indicated before, also because it is a dynamic collection, studied by national and international researchers, and thus enriched by its use.

Collections should be constantly monitored to ensure their preservation and to improve the conservation status of their material (Ortiz Blanche et al., 2013). Monitoring consists on a systematic and objective method of evaluation, which gives comparable and quantifiable information. This is important for an efficient distribution of the management resources.

In order to compare the results obtained in the analysis with other public institutions that has malacological collections, the Malacological Section has started a program for Latin American Public Collections Curators (CoPLa) (Darrigran, 2013). This program will allow the exchange of experiences and information between institutions, improving the administration of the collections.

Currently, the Malacological Section is evaluating the Mollusks Dry Collection (CSM) of the Museo de La Plata (Fig. 2 and 3). For that purpose, a number of variables, each one divided in diagnostic levels are analyzed. The main variables determine the conservation, identification, storage and documenting status of the collection lots. First of all, the person in charge of the analysis determines the status of the variables for the 10% of the collection (Darrigran et al. 2012b). Until June 2014, 2,795 lots had been analyzed. The results of the analysis show that 53% of the CSM is in acceptable conditions. Nevertheless, the optimal conditions determined by the institution standards have not been reached and further work should be realized. The most important problems that the collection faces are related to the storage conditions. This increases risk of deterioration that may produce loss of material.

During the period 2015-2016 the CSM will be moved to a special section, with controlled temperature and humidity. Also the collection lots will be stored in metal drawers. This will protect them from biological damage (e.g. fungus infestation).

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Lifetime Achievement Award to Dr. Art Bogan

Submitted by Alan Gettleman

Dr. Arthur E. Bogan of the North Carolina Museum of Natural Sciences received the Lifetime Achievement Award from the Freshwater Mollusk Conservation Society (FCMS) at their joint meeting with the Upper Mississippi River Conservation Commission (UMRCC) held at St. Charles, Missouri on March 25, 2015. The FCMS is the only national organization specifically targeted to the study, preservation, and conservation of freshwater gastropods and bivalves. Art Bogan is only one of ten researchers so honored during the twenty year history of the organization.

Figure 1. Dr. Art Bogan, accepting the award.

Art is a noted expert in the field of freshwater bivalves, not only in this country but also worldwide with several trips to Viet Nam and Malaysia to study freshwater bivalves. He has authored several monographs on state freshwater mollusks and a checklist for the world's freshwater bivalves; and conducted identification seminars for government and field workers.

The freshwater bivalves are considered one of the most, if not the most, endangered group of any group of animals, not just mollusks, on the planet. A majority of the U.S. freshwater naiad (mussel) bivalves are either extinct, protected by the U.S. Endangered Species Act as either endangered or threatened, or critically in danger of extinction. Art has been and is eagerly sought by government agencies, academics, museum personnel, and field workers for his knowledge of this unique and fascinating molluscan fauna He is generous with his knowledge and time to increase the scientific, government, and general public's knowledge of this important fauna.

Mid-Atlantic Malacologist Meeting – 2015

Submitted by Elizabeth K. Shea, Timothy A. Pearce, and Charles F. Sturm

The 17th Mid-Atlantic Malacologists meeting was held on 7 March 2015 at the Delaware Museum of Natural History and was hosted by Dr. Elizabeth Shea, curator of mollusks. There were 29 in attendance and 15 presentations were given. Thanks to all the participants for another fun and informative day!

Figure 1. The 2015 Mid-Atlantic Malacololgists.
Front row: Carlo M. Cunha, Makiri Sei, Liz Shea, Aydin Örstan, Beysun Örstan, Francisco Borrero, Rich Goldberg, Paul Callomon
Middle row: Ilya Tëmpkin, Matt Miller, Megan Paustian, Gizelle Batomalaque, Norine Yeung, Colleen Winters, Brad Stevens, Asel Zhetigenova, Kacie Goldberg.
Back row: Nasreen Aziz, Tim Pearce, Gary Rosenberg, Richard Kaplan, Leigh Deuter, Ken Hayes, Charlie Sturm, Jerry Harasewych, John Wolfe, Adam Baldinger, Sam Tuttle
Not pictured: Amanda Lawless, Nate Schoobs, Jim Young.

James Young, USDA APHIS. **Mollusk Interceptions in the Mid-Atlantic**. A brief overview of the snails and slugs intercepted in cargo and baggage entering and destined to the mid-Atlantic region in 2014 was presented.

Aydin Örstan, Research Associate, Carnegie Museum of Natural History. **North American Succineid Anatomy Project**. A presentation was given regarding anatomical characterizations of

succineid species from the Delaware Peninsula and Maryland.

Adam Baldinger, Museum of Comparative Zoology, Harvard University. **Land snails of Anegada Island (British Virgin Islands)**. A presentation was given documenting the land snail diversity of Anegada Island (BVI).

Norine Yeung[1] and Kenneth Hayes[2]. [1]Bishop Museum, Honolulu, [2]Howard University. **Hawaiian Succineidae Systematics and Conservation.** A great deal of taxonomic revision awaits, but there are many more species still extant in Hawaii. A review of the Succineidae was presented.

Timothy A. Pearce, Carnegie Museum of Natural History. **Land Snails of Pennsylvania: updating distribution maps and imperilment ranks**. Surveys of land snails over the past 14 years update species distribution maps. New, justifiable imperilment ranks indicate that dozens of Pennsylvania snails are of conservation concern and need more study.

Ilya Tëmkin, National Museum of Natural History (Smithsonian Institution) and Northern Virginia Community College. **Dawn of Malacology, Part 2: Art and Science of G. S. Poli**. This contribution reviews an extraordinary panel made from shells by Giuseppe Saveris Poli, an 18th -19th century Italian naturalist, presumably from specimens from his own collection. This "Conchigliera" is still preserved at the Poli family house in Molfetta, Italy.

Kenneth Hayes[1], Wallace Meyer[2], Norine Yeung[3], and John Slapcinsky[4]. [1]Howard University, Washington, DC, [2]Pomona College, Claremont, [3]Bishop Museum, Honolulu, [4]Florida Museum of Natural History, Gainesville. **Cryptic Diversity of *Euglandina* species**. *Euglandina* was introduced from Florida to Hawaii in the late 1950s as a bio-control agent. It now appears that more than one species of *Euglandina* was introduced to Hawaii. Many more species of *Euglandina* occur in Florida than have been described from Florida. This presentation reviewed the current state of knowledge.

Gary Rosenberg. Academy of Natural Sciences, Philadelphia. **Type Collection Imaging**. A status report was given about the digital imaging project of the mollusk type collection at the Academy of Natural Sciences, Philadelphia, including imaging equipment for different sized shells.

Bradley G. Stevens and Bhae-Jin Peemoeller. University of Maryland Eastern Shore. **Age, Growth, and Maturity of New England Whelks, *Busycotypus canaliculatus***. Increased fishing pressure on whelks has potential to overharvest them because many are harvested before they have had a chance to reproduce.

Carlo M. Cunha. Academy of Natural Sciences, Philadelphia. **Reassessment of *Phycophyla euchlora***. A taxonomic reassessment was given for this opisthobranch from Hawaii.

Asel Zhetigenova. The Distribution of Some Species of the Family Bradybaenidae from the Issyk-Kul Lake Basin, Kyrgyzstan. *Ponsadenia duplocincta*, *Bradybaena phaeozona*, and *Bradybaena plectotropis* are the most widespread land snails in the Issyk-Kul Lake basin in the Kyrgyz Republic, in the Tian-Shan Mountains. The three species showed parallel polymorphism in banding, intensity of bands, and shell color. For all species, banded shells and bright bands dominated over unbanded shells and blurred bands. Dark shells were associated with shaded canyons while light shells were more frequent in drier and open habitats. In this area with a dry climate, humidity might be a primary factor affecting the spread of terrestrial mollusks.

Nate Shoobs, Undergraduate student, Bard College. **Land Snail Diversity on Montserrat**. This presentation dealt with the various biogeographic zones on Montserrat and the land snails to be found in each of them.

Francisco J. Borrero[1], Juan M. Díaz[2], and Carlo M. Cunha[1]. [1]Academy of Natural Sciences, Philadelphia, [2]Universidad Nacional Bogota Colombia. **Observations of Shallow, Near-Shore Underwater Habitats and Biota in the Goajira Peninsula of Colombia (Southern Caribbean)**. Selected sections of a video, done on the context of explorations to elucidate the history of a fishery for the Caribbean pearl oyster *Pinctada imbricata* was shown. Current status of the fishery and population ecology was reviewed. Selected segments depict live mollusks as well as other invertebrates and fish, and a little about the current human inhabitants of the Goajira, the Wayuu peoples.

M. G. 'Jerry' Harasewych. National Museum of Natural History (Smithsonian Institution). **Mollusca of the deep reef off Curaçao**. By diving in a deep sea submersible, we recovered bottles from the sea

floor. The bottles contained shells that had been left by octopus.

Elizabeth K. Shea. Delaware Museum of Natural History. **InvertEBase**. The Mollusk department was recently awarded a NSF ADBC grant to digitize the land and freshwater holdings and make them available via the web. This collaborating grant includes co-PIs from the Field Museum, University of Michigan, Auburn, Penn State, the Cleveland Museum, and Harvard.

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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