

Florida United Malacologists



# FUM 2016

February 20, 2016  
José H. Leal, Organizer/Editor



The  
BAILEY-MATTHEWS NATIONAL SHELL MUSEUM

Program and Abstracts

## WELCOME TO FLORIDA UNITED MALACOLOGISTS (FUM) 2016!

On behalf of The Bailey-Matthews National Shell Museum, I welcome you to the seventh meeting of Florida United Malacologists (FUM). This one-day gathering is designed to facilitate and enhance communication among professional, amateur, and student malacologists. Everyone is welcome to present their malacological findings at FUM!

It's not often that we find ourselves in a group as interested and excited about mollusks as we are. Let's take full advantage of it! This is a day for enjoying each other's company, learning, discourse, and exploration. We encourage you to ask questions, discuss data, compare notes on methods and problems, and get acquainted with presenters and members of the audience. That's all part of the fun.

Welcome to Sanibel and enjoy FUM!



Dorrie Hipschman  
Executive Director  
Bailey-Matthews National Shell Museum

## ENJOY FUM 2016!

Welcome to the seventh episode of FUM, and fourth event of its kind held at the Shell Museum. FUM brings together a wealth of information on mollusks (and their shells), in a compact, comprehensive, and friendly format. FUM's doors are open to anyone who has something new to contribute or questions to ask about Florida mollusks and beyond. Thanks for your participation and for endorsing and embracing the event. In particular, I want to acknowledge Shell Museum Executive Director Dorrie Hipschman for her assistance and for unconditionally supporting Florida United Malacologists 2016, and Dr. Gary Schmelz for organizing the Sunday fossil field trip, and Alan Gettleman for overall assistance.

Have a great meeting!



José H. Leal, Ph.D.  
Science Director & Curator  
Bailey-Matthews National Shell Museum

**FLORIDA UNITED MALACOLOGISTS 2016**  
**FEBRUARY 20, 2016**  
**PROGRAM**

**9:00 Dorrie Hipschman, Executive Director, BMNSM**  
Opening Remarks  
**José H. Leal, Science Director & Curator, BMSNM**  
Announcements

**SESSION 1**

**9:15 José H. Leal**  
SOUTHWEST FLORIDA SHELLS, AN ONLINE GUIDE: A PROGRESS REPORT

**9:35 Harold (Smoky) Payson III**  
COCKLES AND OLIVES: THREE QUESTIONS AND A CRAB

**9:55 Susan Sprout**  
WHEN MOLLUSKS GO TO SCHOOL: AN OVERVIEW OF THE UNIQUE LEARNING EXPERIENCES  
PROVIDED TO SANIBEL SCHOOL STUDENTS BY LOCAL MOLLUSKS AND THEIR HELPERS

**10:15 Don Swenson**  
COLLECTING ON JUPITER ISLAND 2015–16: THE GOOD, THE BAD, AND THE UGLY

**10:35 Break 1 (10 minutes)**

**SESSION 2**

**10:45 Rebecca Mensch**  
TUSK SHELLS (SCAPHOPODA) OF SANIBEL ISLAND

**11:05 Anne Dupont**  
SHELLED OPISTHOBRANCHS

**11:25 F. Matthew Blaine**  
A SURVEY OF FRESHWATER BIVALVES IN SUSSEX COUNTY, DELAWARE

**12:00 LUNCH (1 hour)**

Lunch provided at the Museum; choice of Subway “standard” or vegetarian sandwiches, assorted chips, soft drinks, water.

### SESSION 3

**1:00 Shannan McAskill (James Douglass)**

EFFECTS OF MULTIPLE STRESSORS ON INTERACTIONS BETWEEN INVASIVE *POMACEA MACULATA* APPLE SNAILS AND NATIVE SUBMERGED AQUATIC VEGETATION IN SOUTHWEST FLORIDA ESTUARIES

**1:20 Alan Gettleman**

NEW AND REDISCOVERED SPECIES OF ANNULARIIDAE (GASTROPODA) AND HABITAT DESTRUCTION IN SOUTHWESTERN DOMINICAN REPUBLIC

**1:40 Harry G. Lee & Robert E. Winters**

DREAM STREAM STEMS TEEM WITH STENOTREMES REDUX: SATURATION 3D SHELLING ALONG THE PAINT ROCK RIVER SYSTEM SETS STRATOSPHERIC STANDARDS

**2:00 Break 2 (15 minutes)**

### SESSION 4

**2:15 Lee Merrill**

SHELL COLLECTING AT GUANTANAMO BAY, CUBA

**2:35 Kaydee West\* and Gregory Herbert**

OPTIMIZING METHODS FOR EXTRACTION OF PROTEINS FROM MOLLUSCAN SHELLS

**2:55 Thomas Behlmer Jr.**

INDIRECT EFFECTS OF FRESHWATER DISCHARGES ON SEAGRASS BEDS IN SW FLORIDA: MESOGRAZERS AS MEDIATORS OF EPIPHYTE GROWTH?

**3:15 Derrick S. Hudson & Susan S. Bell**

ZONATION PATTERN AND SPATIAL ARRANGEMENT OF A POPULATION OF *GEUKENSIA GRANOSISSIMA* IN A MIXED MANGROVE FOREST OF TAMPA BAY

**3:35 Closing Remarks and Discussion**

**5:30 Dinner at Doc Ford's Rum Bar & Grill-Sanibel; prior reservation required (map at end of this booklet)**

# Abstracts

**INDIRECT EFFECTS OF FRESHWATER DISCHARGES ON SEAGRASS BEDS IN SW FLORIDA: MESOGRAZERS  
AS MEDIATORS OF EPIPHYTE GROWTH?**

**Thomas Behlmer Jr.**

Department of Marine and Ecological Sciences  
College of Arts and Sciences  
Florida Gulf Coast University  
10501 FGCU Boulevard South  
Fort Myers, FL 33965-6565 USA  
[tjbehlmer2787@eagle.fgcu.edu](mailto:tjbehlmer2787@eagle.fgcu.edu)

Seagrass beds in the Caloosahatchee Estuary have declined with increased human development in the watershed. Hydrologic alterations have resulted in unstable salinity regimes and increased nutrient inputs, both thought to decrease seagrasses within the estuary. Increased nutrient loading results in higher levels of epiphytic algae covering seagrass blades. Invertebrate grazers (mesograzers) may help seagrasses by eating these algal epiphytes. However, altered salinity sometimes results in abundances too low to offset the influence of eutrophication. We hypothesize that mesograzers reduce the impacts of nutrient addition when salinity is favorable, but that low salinities exacerbate nutrient impacts by reducing mesograzer abundance and diversity. Surveys of two sites within the Caloosahatchee Estuary were conducted to understand the drivers of seagrass community structure over time and compared to concurrent trends in salinity and nutrient loading. Mesograzer species richness and relative abundance was greater at the mouth of the estuary compared to further upstream.

## **A SURVEY OF FRESHWATER BIVALVES IN SUSSEX COUNTY, DELAWARE**

### **F. Matthew Blaine**

Delaware Museum of Natural History<sup>1</sup>  
The Florida State Collection of Arthropods<sup>2</sup>  
The McGuire Center for Lepidoptera Biodiversity  
Florida Museum of Natural History  
University of Florida<sup>2</sup>  
[mattblaine@verizon.net](mailto:mattblaine@verizon.net)

For the past four years I have been conducting a survey of the fresh water environments in Sussex County, Delaware. The survey includes ponds, lakes, and river sites. It is specifically intended to determine the presence of fresh water bivalves including Unionida, Corbicula, and Sphaeriidae in the study area. It is important to record this information while they are still extant and accessible in Sussex County

<sup>1</sup>Curatorial Associate; <sup>2</sup>Research Associate

## SHELLED OPISTHOBRANCHS

**Anne Dupont**

4070 NW 7<sup>th</sup> Lane

Delray Beach, FL 33445, USA

[akdupont@bellsouth.net](mailto:akdupont@bellsouth.net)

In Florida waters, and the Caribbean, only in very few species of Opisthobranchia, is the shell large enough so that the animal can withdraw completely into it. In most species the shell is reduced in size, internalized, or as in nudibranchs, lost completely. Shelled opisthobranchs are distributed among various taxa. This presentation will cover some of the opisthobranch mollusks that still possess a shell. Exemplified by the Cephalaspidea (bubble shells), others included in this group are Anaspidea (sea hares), the shelled members of Notaspidea (side-gilled slugs), Sacoglossa (leaf slugs), and Umbraculoidea (umbrella slug). Shelled opisthobranchs are important subjects in evolutionary studies of gastropods.



**NEW AND REDISCOVERED SPECIES OF ANNULARIIDAE (GASTROPODA) AND HABITAT DESTRUCTION IN  
SOUTHWESTERN DOMINICAN REPUBLIC**

**Alan Gettleman**

2225 Tanglewood Lane  
Merritt Island, FL 32953, USA  
[lychee@cfl.rr.com](mailto:lychee@cfl.rr.com)

Extensive work was conducted on the land shell fauna of the Dominican Republic throughout the 20<sup>th</sup> Century. In particular, “The annulariids of this area (Hispaniola and the Bahamas) were covered in detail by Bartsch (1946) and it seemed that there was little left to be done. Nevertheless, recent collections there reveal no apparent end to the diversity of these snails...” (Watters and Duffy, 2010). The southwestern area of the country has several different mountain and valley habitats that are still poorly explored. Several new species, and the rediscovery of a species named by Paul Bartsch, which had not been seen since 1946, are discussed. Lake Enriquillo, an enclosed rift-valley, hypersaline lake and the lowest point in the Caribbean in southwest Dominican Republic, has experienced a rapid rise in water level since 2008. The rapid rise in lake water level, as well as the deforestation of a xeric habitat for charcoal, both negative effects on land snail assemblages, are discussed.

**ZONATION PATTERN AND SPATIAL ARRANGEMENT OF A POPULATION OF *GEUKENSIA GRANOSISSIMA* IN A MIXED MANGROVE FOREST OF TAMPA BAY**

**Derrick S. Hudson & Susan S. Bell**

Department of Integrative Biology

University of South Florida

Tampa, FL, 33630-5200, USA

[derrickshudson@gmail.com](mailto:derrickshudson@gmail.com)

The southern ribbed mussel, *Geukensia granosissima*, is a filter-feeding bivalve commonly found associated with salt marsh grasses, oyster reefs, and man-made structures throughout the Gulf of Mexico, Caribbean Sea, and Lesser Antilles. The southern ribbed mussel is considered primarily to be a saltmarsh inhabitant with no documentation describing this species within the mangrove system. However, a population of *G. granosissima* has been discovered within the root system of a mixed mangrove forest in Tampa Bay, Florida. Using descriptive surveys, the following questions were explored: How does the relationship between *G. granosissima* size, density, and patch size vary with mangrove root type, root density, and tidal elevation? Experiments to be conducted in Spring 2016 will further examine the following question: Are the lower zonation patterns displayed by *G. granosissima* strongly shaped by predation? This work will provide the first report of features controlling populations of the southern ribbed mussel in subtropical mangrove habitat.

## **SOUTHWEST FLORIDA SHELLS, AN ONLINE GUIDE: A PROGRESS REPORT**

**José H. Leal**

The Bailey-Matthews National Shell Museum

P.O. Box 1580

Sanibel, FL 33957 USA

[jleal@shellmuseum.org](mailto:jleal@shellmuseum.org)

Work on the “Southwest Florida Shells” guide started in 1999 as a project that aimed for publication in CD-ROM format. Early on, however, the author recognized the volatile nature of taxonomic information and decided to publish only an online version of the guide, which first appeared in 2000. The dynamic nature of the internet allows for ongoing expansion and the “course corrections” prompted by the multitude of systematic rearrangements put forth in the last two decades. The guide’s many users include visitors to the islands, collectors, citizen scientists, wildlife biologists and park rangers, students, and researchers. With a strong focus on Sanibel and Captiva, the guide currently includes 336 species. It is ultimately a portal for information garnered by members of a large community that includes die-hard collectors, local naturalists, researchers, and nature photographers. The guide is expected to expand considerably in 2016, thanks to the gift of a high-resolution photo camera donated by the Sanibel Captiva Shell Club.

**DREAM STREAM STEMS TEEM WITH STENOTREMES REDUX:  
SATURATION 3D SHELLING ALONG THE PAINT ROCK RIVER SYSTEM SETS STRATOSPHERIC STANDARDS**

**Harry G. Lee\* and Robert E. Winters**

\*4132 Ortega Forest Drive  
Jacksonville, FL 32210 USA  
[shells@hglee.com](mailto:shells@hglee.com)

The Paint Rock River (PRR) of northeastern Alabama drains the southeastern flank of the Cumberland Plateau, and traverses a limestone-rich valley principally encompassed by Jackson County, *en route* to its confluence with the Tennessee River. Other than farmlands, there is little evidence of human impact along its course. On speculation of a relatively pristine and diverse naiad fauna, an initial reconnaissance was conducted in 1996 by HGL and colleagues. A somewhat unexpected finding was the abundance and diversity of terrestrial snails in the riverine drift. Beginning, in 2009 REW has systematically collected at 16 sites (30 occasions) along the banks of Estill Fork, Larkin Fork, and mainstem PRR. Visual surveillance by REW was combined with systematic search of graduated siftings of 3D ( $\equiv$  drift, debris, detritus; HGL, REW). Identifications were made by the authors and Dr. Tim Pearce of the Carnegie Museum of Natural History, Pittsburgh, where most of the larger species are vouchered. The terrestrial molluscan diversity exhibited in these samples (101 spp. overall; 84 from a single site) is exceptional, and includes rare, obscure, and possibly new species, as well as several significant range extensions. Most of noteworthy discoveries are contributed by the micromollusk (< 5.50 mm), moiety, which constitutes ~ 40% of this faunule. Exemplar species will be treated to demonstrate the value of this methodology, the advantages and limitations of which will also be discussed.

\* Presenter

**EFFECTS OF MULTIPLE STRESSORS ON INTERACTIONS BETWEEN INVASIVE *POMACEA MACULATA* APPLE  
SNAILS AND NATIVE SUBMERGED AQUATIC VEGETATION  
IN SOUTHWEST FLORIDA ESTUARIES**

**Shannan McAskill\***

Department of Marine and Ecological Sciences  
College of Arts and Sciences  
Florida Gulf Coast University  
10501 FGCU Boulevard South  
Fort Myers, FL 33965-6565 USA  
[smcas002@gmail.com](mailto:smcas002@gmail.com)

The island apple snail, *Pomacea maculata*, is native to South America. It is an invasive pest in freshwater ecosystems all over the world and may also invade estuaries. By overgrazing submerged aquatic vegetation (SAV) they have reduced ecosystem function and threatened key species such as Tapegrass (*Vallisneria americana*). Abiotic stressors appear to strongly influence both the grazing rate of *P. maculata* and the ability of tapegrass to endure grazing. We examined the role of stressors on the outcome of *P. maculata* herbivory on *V. americana* using laboratory, mesocosm, and field studies. In no-choice feeding trials, salinity decreased grazing rate and elevated temperatures increased grazing rate. In choice feeding trials, the snail exhibited an affinity for *V. americana*. In the mesocosm experiment, elevated salinity and snail presence had negative impacts on above ground biomass of *V. americana*. Results suggest estuarine regions may serve as a valuable refuge for *V. americana* populations.

\*Presenter: James Douglass

## TUSK SHELLS (SCAPHOPODA) OF SANIBEL ISLAND

**Rebecca Mensch**

The Bailey-Matthews National Shell Museum

P.O. Box 1580

Sanibel, FL 33957 USA

[rmensch@shellmuseum.org](mailto:rmensch@shellmuseum.org)

The Scaphopoda, a class of mollusks commonly referred to as tusk shells, is a seldom studied group. Much of the information about these animals that is available in books and online is outdated, incomplete, or incorrect. The lack of readily available correct identification guides for these animals and their shells has led to much debate over which species are found on Sanibel. The program will explain the scientific process behind identifying poorly studied species, as well as which tusk shell species have been found locally, and what work still lies ahead.

## **SHELL COLLECTING AT GUANTANAMO BAY, CUBA**

**Lee Merrill**

1586 Bristol Place

Orange Park, FL 32073-5270 USA

[opflhokie@gmail.com](mailto:opflhokie@gmail.com)

I will provide an overview of the excellent shell collecting at the various beaches, both inside and outside the bay, from this remote location in southeastern Cuba, as well as inferences on events that may have impacted local sea life. More than 100 species were collected from 2011–2014.

## COCKLES AND OLIVES: THREE QUESTIONS AND A CRAB

**Harold (Smoky) Payson III**

The Bailey-Matthews National Shell Museum\*

P.O. Box 1580

Sanibel, FL 33957 USA

[sspayson@fairpoint.net](mailto:sspayson@fairpoint.net)

Why do we find so many white form prickly cockles? Why the super-abundance of live lettered olives (*Americoliva sayana*) in Sanibel's intertidal zone for the last 5 years and their comparative absence over the previous (roughly) 25 years? What caused the identical deformation to three great heart cockles of the same age group? Meet the claw that peels Lettered Olives and the shell of some who survived. Finally, a new name for one of the large egg cockles, *Laevicardium pristis*, found on Sanibel?

\*Volunteer Curatorial Assistant



**WHEN MOLLUSKS GO TO SCHOOL: AN OVERVIEW OF THE UNIQUE LEARNING EXPERIENCES PROVIDED TO  
SANIBEL SCHOOL STUDENTS BY LOCAL MOLLUSKS AND THEIR HELPERS**

**Susan Sprout**

The Bailey-Matthews National Shell Museum\*

P.O. Box 1580

Sanibel, FL 33957 USA

and

The Sanibel School

[ssprout@uplink.net](mailto:ssprout@uplink.net)

For more than forty years, first shell club members then museum volunteers have been presenting data about mollusks and their shells to Sanibel School 6<sup>th</sup>-graders. This not only aims to expand the awareness and knowledge of the students, but also to prepare them for the life experience of sharing what they have learned in the classroom with visitors at the Live Mollusk Display during the local Shell Festival. Students learn to identify local mollusks by their shells, behaviors, body parts, and habits and habitats. They also see examples of shells from around the world. Awareness and knowledge may prepare these students to become better stewards of the earth and its inhabitants.

\*Volunteer Curatorial Assistant and Education Docent

## **COLLECTING ON JUPITER ISLAND 2015–16: THE GOOD, THE BAD, AND THE UGLY**

**Don Swenson**

8365 SE Wren Ave.

Hobe Sound, FL 33455 USA

[donswenson68@yahoo.com](mailto:donswenson68@yahoo.com)

This presentation is a brief update of the status of shelling in Coral Cove, Jupiter, Florida. I am also exhibiting this year's finds (NONE of which are from the ocean side of Coral Cove). The talk will point out the significant decline in the number of species observed at Coral Cove along with a similar decline both in the number of shells present on the beach and the quality of those (very) few shells. However, there is some good news. A number of high quality specimens have appeared at the Hobe Sound Wildlife Refuge site and the Jupiter Sound side of the south end of Jupiter Island. On the other hand, good collecting days at both sites have been fewer than five over a seven week time frame.

## OPTIMIZING METHODS FOR EXTRACTION OF PROTEINS FROM MOLLUSCAN SHELLS

**Kaydee West\* and Gregory Herbert**

School of Geosciences, University of South Florida

Tampa, FL 33620 USA

[Kjwest1@mail.usf.edu](mailto:Kjwest1@mail.usf.edu)

Mollusk shells contain proteins within and between the crystals of calcium carbonate; these organic molecules play an important role in biomineralization and shell function, but their stable isotope ratios of carbon and nitrogen are also thought to record important ecological information about the animal's diet and nutrient sources. Fossils and shells from historical collections contain the same proteins, offering potential insight into pre-anthropogenic ecological conditions. However, shell organics in older shells are typically recovered in exceedingly reduced abundances due to leaching, and remaining organics are often converted from insoluble proteins to soluble, free amino acids, making them both difficult to detect and recover. To extract much needed ecological information from older shells, demineralization and organics-capture methods must be optimized for yield. This project utilizes an experimental approach to compare insoluble and soluble organic molecule yields of shells of the modern gastropod *Strombus alatus* demineralized with acids of different concentrations and temperatures. Future applications of this work include using our refined methods to reconstruct food webs across broad temporal scales.

\*Presenter

