

PLEASE DO NOT PRINT THIS.

### BIOLOGICAL DIVERSITY

**SU Biology Students visit the Academy of Natural Sciences in Philadelphia during a biodiversity conference.** Pictures and poster titles are shown on pages 7-8.

**Left to right:** Elizabeth Rentz, Marshall Boyd, Mallory Hagadorn, Simone Nemes, and Jennifer Shaughney.



### ANNOUNCEMENTS AND AWARDS

**Mallory Hagadorn** (graduating senior) has been selected as the November Center for Student Achievement Scholar Holler recipient!

In July **Jessica Schottroff**, a student in Ecology (BIOL 310), collected specimens of the Mediterranean snail *Candidula (Jacosta) intersecta* at Deal island – the first record of this alien species in Maryland. The specimens were placed in the collection of the Delaware Museum of Natural History along with about 60 additional collections of this snail from Virginia and North Carolina. A paper reporting this occurrence and reviewing the species biogeography in the United States will appear in the forthcoming issue of *The Maryland Naturalist* with Jessica as first author.

On Friday, October 12, six biology alumni presented a joint seminar on their career paths from undergraduate to today to a full audience of students and faculty. Presenters included **Bill Severn '94** (Wicomico County School System), **Emily Burnett '08** (Peninsula Regional Medical Center), **Krispen Laird (Parke) '04** (SU master's program), **Laura Miller '93** (Worcester County School System), **Mary Beth Claude (Potter) '05** (Wildlife International), and **Jeremy Claude '04** (Wildlife International). From physical therapy, to toxicology studies on invertebrates, to outdoor classrooms for secondary students, their experiences enlightened and captured the interest of the listeners. Thanks to all of these alumni for sharing their time and their lessons learned!

### Great Lakes Decoy Exhibit

SU's Ward Museum of Wildfowl Art presents "Great Lakes Decoys and Folk Sculpture" from October 5-January 20. The exhibit presents many individually made and commercially produced wildfowl and fish decoys, drawings, and related folk sculpture. Explore a study of the sculptural qualities in decoys and related folk sculpture from a historical perspective, juxtaposing classics, lesser-knowns and recent discoveries. Guest curators Gene and Linda Kangas' book *Great Lakes Decoy Interpretations* is available for purchase in the museum store. For more information, visit [www.wardmuseum.org](http://www.wardmuseum.org).

### ENVR 495-020 (3972): Research in Insect Ecology

In this class two to three students will focus on insect ecology as it relates to sustainability efforts at SU and beyond. The SU Horticulture department has begun planting native, pollinator-friendly vegetation at several locations around campus. Early in the semester we will be reading and discussing both popular and scientific literature to explore the importance of pollinators and interactions between pollinators and native/non-native plants. As the semester progresses, students will design and implement a sampling protocol to examine the pollinator diversity, abundance, and activity in areas planted with native vegetation compared to more traditional plantings around campus or nearby. 3 credits. Contact Dr. Ransom in the Environmental Studies Department at [tsransom@salisbury.edu](mailto:tsransom@salisbury.edu) if you are interested



**Katherine (Kate) Fingles** removing the heart of a Blue Marlin at the White Marlin Open 2012 for parasite research with Dr. Ann Barse.

## OPPORTUNITIES

### **Smithsonian Institution: SERC Internship Program in Environmental Studies**

E-mail: [gustafsond@si.edu](mailto:gustafsond@si.edu); Web Site: [http://www.serc.si.edu/pro\\_training/internships/internships.aspx](http://www.serc.si.edu/pro_training/internships/internships.aspx)

The Smithsonian Environmental Research Center's (SERC) Internship Program offers undergraduate and beginning graduate students a unique opportunity to gain hands-on experience in the fields of environmental research and education. This program enables students to work on specific projects under the direction of SERC's professional staff and is tailored to provide the maximum educational benefits to each participant. DEADLINE NOTE: For Winter/Spring projects beginning January – April, the deadline is November 15. For summer projects beginning May - August, the deadline is February 1. For fall appointments beginning September - December the deadline is June 1.

### **Center for Plant Conservation: Catherine H. Beattie Fellowship**

E-mail: [cpc@mobot.org](mailto:cpc@mobot.org); Program URL: <http://www.centerforplantconservation.org/beattie.asp>

Each year, the grant enables a graduate student in biology, horticulture, or a related field to conduct research on a rare or endangered U.S. plant. Preference is given to students focusing on the endangered flora of the Carolinas or the southeastern United States. Deadline: 11/30/2012

### **Hutchinson (Fred) Cancer Research Center: Harold M. Weintraub Graduate Student Award**

E-mail: [susanp@fhcrc.org](mailto:susanp@fhcrc.org); Web Site: <http://www.fhcrc.org/science/basic/weintraub/index.html>

The Harold M. Weintraub Graduate Student Award recognizes outstanding achievement during graduate studies in the biological sciences. The sponsor envisions the graduate student awardees to be advanced students near the completion of their studies. Deadline: 12/14/2012

### **Marine Biological Laboratory: Nikon Fellowship**

E-mail: [researchawards@mbi.edu](mailto:researchawards@mbi.edu);

Web Site: [http://hermes.mbl.edu/research/summer/awards\\_general.html](http://hermes.mbl.edu/research/summer/awards_general.html)

A summer fellowship at the Marine Biological Laboratory is available to a young investigator for research in an area of biology in which they can make extensive use of advanced microscopy or micro-manipulation systems provided by Nikon, Inc. for their laboratory, and also benefit from technical expertise offered by Nikon, Inc. to support these instruments. Deadline: 12/15/2012

### **Society for Experimental Biology and Medicine:**

#### **Young Investigator Award at Annual Experimental Biology Meeting**

E-mail: [sebm@inch.com](mailto:sebm@inch.com); Program URL: <http://www.sebm.org/youngaward.php>

Up to 8 grants of \$500 each will be awarded to undergraduate/graduate students and/or individuals within 5 years of receiving doctoral degrees who are regular, associate or student members of SEBM who have paid current dues. Deadline: 12/17/2012

### **American Society for Engineering Education:**

#### **National Defense Science and Engineering Graduate Fellowships**

E-mail: [ndseg@asee.org](mailto:ndseg@asee.org); Web Site: [https://ndseg.asee.org/about\\_ndseg](https://ndseg.asee.org/about_ndseg)

The National Defense Science and Engineering Graduate (NDSEG) Fellowship is a highly competitive, portable fellowship that is awarded to U.S. citizens and nationals who intend to pursue a doctoral degree in one of fifteen supported disciplines. Deadline: 12/14/2012. DEADLINE NOTE: Applicants must sit for a GRE examination by November 1, 2012 to meet the NDSEG's application deadline of December 14.

**Torrey Botanical Society: Undergraduate Student Training Fellowship**

E-mail: [maczi@nybg.org](mailto:maczi@nybg.org); Web Site: <http://www.torreybotanical.org/>

The sponsor supports student training with an annual award of \$1,000. Deadline: 12/31/2012

**Torrey Botanical Society: Graduate Student Training Fellowship**

E-mail: [maczi@nybg.org](mailto:maczi@nybg.org); Web Site: <http://www.torreybotanical.org/>

The sponsor supports student training with an annual award of \$1,000. Deadline: 12/31/2012

**Switzer (Robert and Patricia) Foundation: Fellowship Program - California and New England**

E-mail: [erin@switzernetwork.org](mailto:erin@switzernetwork.org); Web Site: <http://www.switzernetwork.org/fellowship-overview.html>

The sponsor awards ten \$15,000 Environmental Fellowships in California and New England each year to support highly talented graduate students whose studies are directed toward improving environmental quality and who demonstrate the potential for leadership in their field. Deadline: 01/10/2013

**Mount Desert Island Biological Laboratory:**

**NSF Research Experience for Undergraduates at MDIBL**

E-mail: [mmckernan@mdibl.org](mailto:mmckernan@mdibl.org); Web Site: <http://www.mdibl.org>

Program URL: [http://www.mdibl.org/undergraduate\\_application\\_process.php](http://www.mdibl.org/undergraduate_application_process.php)

The sponsor provides in-residence summer fellowships at Mount Desert Island Biological Lab for undergraduate students with a minimum of one semester of undergraduate biology. Deadline: 01/11/2013

**Florida Education Fund: McKnight Doctoral Fellowships**

E-mail: [mdf@fefonline.org](mailto:mdf@fefonline.org); Program URL: <http://www.fefonline.org/mdfapply/>

McKnight Doctoral Fellowships provide full tuition or up to \$5,000 per year plus an annual stipend of \$12,000 for students pursuing Ph.D. degrees at the following universities in the State of Florida: Florida Agricultural and Mechanical University; Florida Atlantic University; Florida Institute of Technology; Florida International University; Florida State University; University of Central Florida; University of Florida; University of Miami; and University of South Florida. Deadline: 01/15/2013

**Federation of American Societies for Experimental Biology:**

**Faculty Mentors and Students Travel Award**

E-mail: [marcsr@faseb.org](mailto:marcsr@faseb.org); Web Site: <http://www.faseb.org/Marc/MARC-and-Professional-Development/Travel-Awards/Travel-Awards--Scientific-Meetings-and-Conferences.aspx>

Each award provides funding for one faculty member/mentor and up to two students or post-baccalaureates from a minority institution to participate in one of the selected national meetings or conferences. Deadlines vary based on the meeting dates.

**Oak Ridge Institute for Science and Education:**

**Student Research Participation at the Centers for Disease Control & Prevention**

E-mail: [melissa.goodman@orau.org](mailto:melissa.goodman@orau.org);

Program URL: <http://see.orau.org/ProgramDescription.aspx?Program=10110>

Under this program, postgraduates, college and university faculty, and students are provided opportunities to conduct research in infectious diseases, environmental health, epidemiology, occupational safety and health, exposure and disease registries, health investigations, toxicology, emergency response, public health assessment, and health education. Deadline(s): Most of the Research Participation Programs at the CDC do not have application deadlines; applications are accepted on a continuing basis.



**FEATURED FACULTY DR. ERIC LIEBGOLD**



Dr. Liebgold (right) tracking a dark-eyed junco (*Junco hyemalis*) fitted with a radio-transmitter (left).  
(<http://faculty.salisbury.edu/~ebliebgold/welcome.html>)

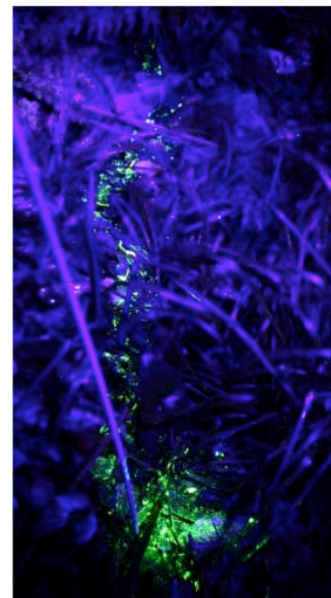
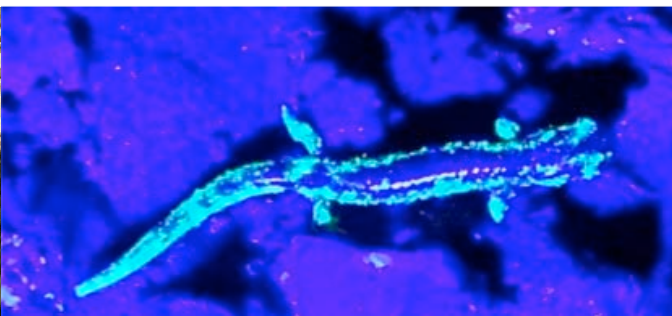
**Courses I am teaching during spring 2013:** Introduction to Evolution (BIOL 375), Herpetology (Special Topics in Biology - BIOL 490 – co-taught with Drs. Gutberlet & Taylor), Biology: Concepts and Methods (BIOL 210), and Ecology Lab (BIOL 310), as well as conducting research with undergraduate students in the lab and in the field studying the interplay between behavior and genetics of salamanders and birds.

**Prior to Salisbury:** I had a variety of field and academic positions. I started as an undergraduate majoring in Biology at a New Jersey State University with no particular focus beyond going to class and ultimate frisbee. Then, one night, I saw a Disney movie about Africa. By breakfast the next day, I decided to take a semester abroad studying wildlife ecology in Kenya through The School for Field Studies. This experience led me to value field research as a means of asking (and answering) scientific questions. It also led to my desire to join the Peace Corps after I graduated, where I was a volunteer developing ecotourism in a National Forest in Uganda. After Peace Corps, I spent nearly a decade working at a variety of seasonal jobs as a Wildlife Biologist in 10 states across the country: searching for sea turtle nests and measuring reef fish, catching amphibians and reptiles, investigating the effects of logging on small mammals and amphibians, and studying endangered birds. I then returned to the academic world in order to start my own research. I earned a Masters' degree from the University of Louisiana and a PhD from the University of Virginia, becoming an expert on a little salamander called the Red-backed Salamander.

**Current Research Interests:** My research questions bridge the fields of evolutionary biology and ecology and focus on the understanding of dispersal behaviors and their evolutionary causes and genetic consequences in salamanders and birds. My collaborations with undergraduates have involved ecological field observations and experiments, and genotyping in the lab, testing questions related to foraging and dispersal movements. Currently, we are establishing longterm sites where we can identify environmental factors that may influence variability in dispersal. These potential environmental influences include the presence of invasive earthworms, which affects food resources and winter survival of salamanders and decreases nesting success of ground-nesting birds, which increases the likelihood of inbreeding.



For our long-term field observations, we give our organisms unique identifiers: colored tattoos for the salamanders (above left) and colored leg bands for the birds. These studies have given us some surprising results. For example, who would have guessed that a 3-inch, 4-year-old salamander could be recaptured eight years later under the exact same log? But female salamanders often are, and one goal of my research is to find out why animals of one sex often stay close to where they hatch and the other sex travels long distances to settle down, a behavior called sex-biased dispersal.



In addition to collecting long-term field data, undergraduates help me contribute to our understanding of our observations in two ways. We use experimental manipulations in the field, testing the effects of familiarity with neighbors and predation on salamander movements by tracking salamanders with fluorescent powders that leave a trail for us to follow (pictures shown above).

In the lab, we let the genetics of salamanders and birds explain our field observations. We genotype animals at microsatellite DNA loci using PCR & sequencing. This allows us to track the history of the movements of the animals that we have captured, even if we only captured them once, by determining how closely related they are to other individuals in our populations. These genetic markers not only help us identify who has stayed close to family members and who has moved to a different part of our population where they do not have close relatives; we also identify individuals with very rare alleles or genotypes, indicating that they came from other populations.

**Recent peer-reviewed publications (\* denotes undergraduate researchers)**

**Liebgold EB**, NM Gerlach, & ED Ketterson. In review. Sex-biased dispersal and spatial genetic structure in dark-eyed juncos. *Molecular Ecology*.

Buderman, FE\* and **EB Liebgold**. 2012. Effect of search method and age class on mark-recapture parameter estimation in salamanders. *Population Ecology* 54:157-167.

**Liebgold EB** and CJ Dibble.\* 2011. Better the devil you know: familiarity affects foraging activity of red-backed salamanders. *Animal Behaviour* 82:1059-1066.

**Liebgold EB**, ED Brodie III, and PR Cabe. 2011. Female philopatry and male sex-biased dispersal in a direct-developing salamander, *P. cinereus*. *Molecular Ecology* 20:249-257.

Ousterhout, BH\* and **EB Liebgold**. 2010. Limited dispersal and site tenacity in adults and juveniles of a territorial salamander, *Plethodon cinereus*. *Herpetologica* 66: 269-275.

Roberts, AM\* and **EB Liebgold**. 2008. The effects of perceived mortality risk on habitat selection in a terrestrial salamander. *Behavioral Ecology* 19:621-626.



## TRAVEL and PRESENTATIONS

**Dr. Clement Counts** spent four days studying the F. Wayne Grimm Maryland terrestrial snail collection at the National Museum of Natural History in Ottawa, Canada. **Dr. Counts** was also a conferee at the Gordon Research Conference on Science and Technology Policy at Waterville Valley, New Hampshire.

### 15<sup>th</sup> Annual Undergraduate Research Symposium in the Chemical and Biological Sciences - October 20, 2012.

**Left to right:** Dr. Stephen Habay (Chemistry), Brittany Stoner (Biology, undergraduate research student of Aaron Hogue), Dr. Patti Erickson (Biology), Joaquin Ramos (Chemistry, working with Dr. Habay), Jesse Miller (Biology, working with Dr. Erickson) and Nelson Elbers (Chemistry, working with Dr. Habay).

All 4 students presented posters in the competition, and Dr. Erickson and Dr. Habay helped judge other presentations.



**Biodiversity: From Evolutionary Origins to Ecosystem Function, The Academy of Natural Sciences of Drexel University, Philadelphia, PA. October 11-12, 2012.** Biology students and faculty in attendance included Marshall Boyd, Mallory Hagadorn, Simone Nemes, Wayne Paulette, Jr., Elizabeth Rentz, Jennifer Shaughney, Kristin Zuravnsky, Dr. Ron Gutberlet, Dr. Kimberly Hunter, Dr. Richard Hunter, and Dr. Dana Price. Posters presented at the meeting were:

**Marshall Boyd and Ronald Gutberlet, Jr.**  
Population Trends of Forest Interior Birds in Maryland

**Mallory A. Hagadorn and Dana L. Price**  
Not all Dung Is Created Equal

**Simone N. Nemes, Jennifer Shaughney, and Dana L. Price.**  
An Inordinate Fondness for Scarab Beetles

**Wayne M. Paulette, Jr., Ronald L. Gutberlet, Jr. Michael B. Harvey, and Gabriel Ugueto.**  
Phylogenetic Analysis and Classification of Teiid Lizards

**Elizabeth Rentz and Dana L. Price.**  
Species Diversity and Succession of Dung Beetles to Horse Dung on Assateague Island

**Kristin Zuravnsky and Kimberly Hunter**  
Secondary Metabolite Comparison in the Polyploids of a Dominant Desert Shrub (*Larrea tridentata*):  
Diversity at the Biochemical Level

**Pictures from the Biodiversity Conference in Philadelphia**



**Tour of the Academy of Natural Sciences  
in Philadelphia**



**Simone Nemes holding preserved anaconda**



**Wayne Paulette, Jr. holding a preserved fruit bat**



**Mallory Hagadorn and skin of a  
very old Komodo Dragon**



### **Biology Department's Living Learning Community**

This is the second year for the Biology Department's Living Learning Community (LLC). Nineteen first year Biology majors are residing with and taking specific classes with other program participants for their entire freshman year. This fall they are taking Biology: Concepts and Methods (Dr. Reema Persad-Clem, who is also program advisor) and Introduction to Philosophy (Dr. Richard England) together, whereas in spring 2013 they will be enrolled in the same section of ENGL 103: Environmental Writing (Dr. Gail Samis). In addition to sharing residential life and classroom time, the BIO LLC group has been enjoying several non-classroom activities. For instance, in late September they went on an all-day field trip to the Marine Science's Consortium and Wallops Island. They spent a couple hours in the marsh on an early morning boat ride where they went birding, trawling, and did a benthic grab. While enjoying a pizza lunch, students were able to discuss NASA career paths and internship opportunities with SU Biology graduate and current NASA employee, Mike Bonsteel. This was followed by an afternoon dune walk on Wallops Island, where they were introduced to barrier island ecology, dune formation, and even ongoing NASA/NAVY projects. Upcoming LLC events this fall include a trip to the Beyond the Limits Ropes Course and a pizza-movie night.



**SU BIO LLC, Wallops Island, VA.**

Living Learning Community – Biology Department (continued)



Left to right: Kiersten Mikulsky, Josh Difatta and Anu Joshi examine a squid pulled up by trawling



Crystal Penn (left) assists Anne Schlesinger (MSC Education Program Manager) with the benthic grab pulley



Joe Martingale, Karen Johnson and Reva Scheibner sample sea lettuce, *Ulva sp.* an edible green algae, while Thomas Hurley and Dr. Richard England look on with interest.

Right photo: Nicholas Sacchary, Kaitlynn Ford, Crystal Penn, Ashley Hawkins and Kiersten Mikulsky (left to right) look at a dogfish shark (*Squalus acanthias*) in the MSC outdoor lab.





**BIOLOGY 210 ASSATEAGUE FIELD TRIP – FALL 2012**



**Dr. Sam Geleta giving a tour of the  
Life of the Marsh Trail**



**Seining with Dr. Ann Barse**



**Birding with Dr. Eric Liebgold**



**Water quality analysis with  
Dr. Kimberly Quillin**



**Dr. Judith Stribling explaining marsh processes**



**Dr. Reema Persad-Clem discussing  
plants on the Life of the Forest Trail**



ALUMNI NEWS

Biology Department Alumni Meet and Greet Social held on October 13, 2013.



Gehnrich, Womack, O’Ryan Case and Jones



Dr. Holland instructing the next generation



Scott Engler talking with Dr. Frana



Dr. Hunter and Erin Gallagher



Laura Jenkins, her daughter and Dr. Holland



Valerie Butler and Sandy Ramses

**Biology Department Alumni Meet and Greet Social (continued)**



**Dr. Stribling with Julie Krut Shau**



**Rick Shau (center) with family**



**Dr. Lawler and Dr. Price**



**Dr. Gehnrich with Sandy and a future SU student**

**LeRoy Demarest**, 2004 grad, is currently working as an environmental scientist at Dover Air Force Base on a groundwater bio-remediation program. He is also enrolled in a Master's program for Environmental Science at Wesley College doing research on the bacteria *Dehalococcoides* and clay content at the aquifer level. He is scheduled to present his thesis in December 2012.

**If you have announcements to add or general comments regarding the Newsletter, please email [dlprice@salisbury.edu](mailto:dlprice@salisbury.edu).**

**Editor:** Dr. Dana Price

**Coeditor:** Dr. Ronald Gutberlet