



University of Vermont, College of Arts and Sciences  
**Department of Biology Newsletter**  
 Spring 2014

## FACULTY NEWS

### Joseph J. Schall

*Professor of Biology Emeritus, College of Arts and Sciences*

By Dr. Alison Brody



It is with great honor and pride that we congratulate Dr. Joe J. Schall on his retirement. Joe earned his Ph.D. in only four years from the University of Texas in 1976 working with the legendary Eric Pianka. He then garnered a prestigious and highly competitive NIH Post-doctoral Fellowship at the University of California, Berkeley where he was for 3 years before joining the Zoology, now Biology, department here at UVM in 1980.

Joe is an extraordinary intellectual—one who is enthusiastic, engaging and caring. Joe’s exemplary academic achievement has been recognized by numerous awards: the Kroepsch-Maurice Award for teaching excellence, the College of Arts and Sciences Dean’s Lecturer award, the Golden Key honorary membership, and the University Scholar award for outstanding research success.

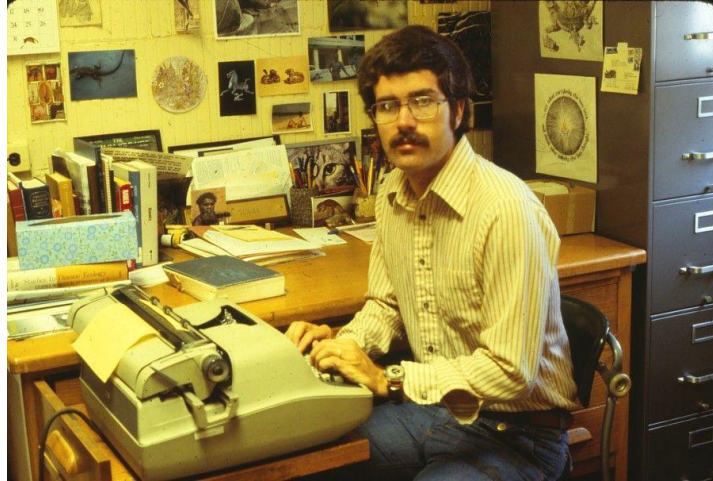
Joe has been continuously funded by NSF and NIH grants since the beginning of his career—no small achievement in today’s world of eight-percent funding rates! He was also awarded numerous other grants from the National Geographic Society, the Morris Foundation, and the Whitehall Foundation. Joe is a recognized world expert on malaria, having published 85 articles and numerous reviews in top-tier journals. He traveled the world to conduct research on lizard malaria and sent graduate students to exotic places as well. In addition to renowned prominence as a researcher, travel Joe has a sense of taste in the art of dressing for all occasions – layers above, khakis below.

In Joe we find a true scholar —equally at home with describing fossils from the Mesozoic as employing the latest molecular tools to reconstruct evolutionary relationships among parasites and hosts. He is also a lover of art and a foodie! I recall the day when Joe ran into my office, gleefully exclaiming, “Guess what?!” “You got your NSF grant!” I replied. “NO”, he said, “even better! The Single Pebble just opened a restaurant in Burlington!”

Joe Schall is also an all-around good guy and a great departmental citizen. He was the graduate coordinator for 15 years, he helped build the Biology graduate program to greatness, single-handedly organized our beloved “EcoLunch” for 30 years, and guided countless undergraduates through successful research projects as our Undergraduate Research Program Coordinator for 20 years.

Joe trained exceptional graduate students who went on to academic positions at traditional universities and prestigious institutions including the American Museum of Natural History, the Smithsonian Institute and the CDC.

The day Joe told me he was retiring I went home feeling like Eeyor. He promises to keep active in his personally-reconditioned office and lab just across the hall, and attend seminars and our new BioLunch. I hope to hold him to that promise, and look forward to Joe brandishing his trademark of extraordinary wit and insightful questioning at seminars and hallway gatherings for years to come.



**Young Joe Schall (is that a typewriter?)**



**Parasitology class Spring 1988: Nathan Hicks, Katie St. Denis, Allison Neal, Alice Ford, Joe Schall**



**Retirement Party 2014: Dr. Ellen Martinsen of the US National Zoo (PhD in Joe's lab), Jennifer Fricke Pinello, Grad Student at Cornell (Honors student in Joe's lab), Joe Schall, Carl Bromwich MD, Physician in Canada (MS in Joe's lab and his FIRST graduate student!), Alli Neal (current Grad Student), Erin Keller (Undergrad in the lab), and Leslie Barnard, Grad Student, Tulane University (Senior research student in Joe's lab)**

## Thank you Becky Miller!



We say goodbye to Dr. Becky Miller, a dedicated and beloved instructor in the department for the past five years. Becky joined the Biology Department in 2007 as a postdoctoral fellow in the Vigoreaux lab studying muscle function in *Drosophila*. Passionate about teaching, Becky returned to the classroom in 2009 offering courses ranging from introductory biology to advanced courses in histology and molecular endocrinology. Becky made significant improvements to all the courses she taught, in particular to the TAP course *Science as a Way of Knowing* where she incorporated scaffolded assignments that addressed the foundational writing goals adopted by the Faculty Senate. We will miss Becky and we wish her well in her future endeavors. Thank you, Becky!

## New Faculty Members Join the Department of Biology



**Dr. Melissa Pespeni**



**Dr. Brent Lockwood**



**Dr. Brandon Ogbunugafor**

The Department of Biology is pleased to announce three new faculty members who will be joining the department in Fall 2014. **Melissa Pespeni** is currently an NSF postdoctoral fellow at Indiana University working on ecological genomics and developmental genetics of horned beetle diversification under the guidance of Armin Moczek. Melissa obtained a B.S. degree in Ecology, Behavior & Evolution from University of California, San Diego and completed her PhD with Stephen Palumbi at Stanford University. **Brent Lockwood** also joins the department from Indiana University where he is currently an NIH postdoctoral fellow working on the evolution of embryonic thermal tolerance in *Drosophila* in the laboratory of Kristi Montooth. Dr. Lockwood is interested in how the abiotic environment shapes the evolution and biogeography of populations and species. He obtained a B.S. in Ecology, Behavior & Evolution from University of California, San Diego and a PhD with George Somero at Stanford University. Dr. Lockwood and Dr. Pespeni have been appointed Assistant Professors. **Brandon Ogbunugafor** will join the department as a George Washington Henderson Scholar. He is currently a postdoctoral fellow in the joint program of the Department of Organismic and Evolutionary Biology at Harvard University and The Broad Institute of MIT and Harvard. Dr. Ogbunugafor utilizes advanced techniques in next generation sequencing, bioinformatics and computational biology to ask pertinent questions in evolutionary biology. He graduated *Summa Cum Laude* with a Bachelor's degree in Chemistry from Howard University and a PhD in Ecology & Evolutionary Biology from Yale University.



## Department of Biology Professors Honored at UVM's First Investiture Ceremony

For the first time in its long history, the University of Vermont paused Wednesday to specifically honor dozens of its best and brightest faculty members in a colorful ceremony for endowed chairs and professors.

“Assembled here in this beautiful Ira Allen Chapel today are some of the finest intellects, the most talented teachers, and most gifted scholars among a faculty who in total make up an extraordinary and outstanding academic community,” UVM president Tom Sullivan told the honorees and guests.

“They represent the pinnacle to which their colleagues can aspire,” Sullivan said. “I feel so strongly about the importance of outstanding nationally recognized faculty that the leadership team at the university and the UVM Foundation have committed to doubling the number of endowed faculty positions by 2019. When I arrived as president nearly two years ago, we had 53 endowed faculty positions. I am proud to say that as of this week, we have 84 endowed positions committed by our generous donors, an addition of 31 in 22 months.” [COMPLETE STORY](#)



**Dean Antonio Cepeda-Benito and Drs. Jim Vigoreaux, Judith Van Houten and C. William Kilpatrick**

Dr. Jim Vigoreaux is Chair of the Department of Biology and is the current Breazzano Family Green and Gold Professor. Established in July 2008 by David and Roxanne Breazzano, the Breazzano Professorship was created to support an endowed faculty position in the College of Arts and Sciences

Dr. Judith Van Houten is a professor of biology and University Distinguished Professor in the College of Arts and Sciences and is the current Perkins Professor Zoology. The Professorship was established in 1931 to honor George H. Perkins, a teacher of science and dean of the College of Arts and Sciences

Dr. C. William Kilpatrick is a professor of biology in the College of Arts and Sciences and is the current Howard Professor of Natural History and Zoology. The Howard Professorship was established in 1881 by John Purple Howard, a generous benefactor of the University.

## Science: Surprising Species Shake-up Discovered



Dr. Nick Gotelli

*Photo and story by Joshua E. Brown*

The diversity of the world's life forms — from corals to carnivores — is under assault. Decades of scientific studies document the fraying of ecosystems and a grim tally of species extinctions due to destroyed habitat, pollution, climate change, invasives and overharvesting.

Which makes Nick Gotelli's [new report](#) in the journal *Science* rather surprising.

Gotelli, a professor in UVM's biology department, with colleagues from Saint Andrews University, Scotland, and the University of Maine, re-examined data from one hundred long-term monitoring studies done around the world — polar regions to the tropics, in the oceans and on land. They discovered that the number of species in many of these places has not changed much — or has actually increased. [COMPLETE STORY](#)

## Boat Noise in Bocas Potentially Harmful to Dolphins



By Laura May Collado

Celebrating 10 years of research at the Smithsonian Tropical Research Station of Bocas del Toro our research was selected to be on the cover page of STRI News magazine this month. With my students (from Colombia, Costa Rica, Puerto Rico, Panama, Germany, and USA) we have acquired 10 years of data on the Bocas del Toro dolphin population. Projects have ranged from basic ecological studies (occurrence and distribution) to behavioral studies evaluating the impact of underwater engine noise. In this special issue of STRI News we described the results from our latest paper discussing how dolphins acoustic communication is affected by boat traffic associated with intense dolphin-watching activities. This year two UVM undergraduate students, Giselle Veve and Cole Tanner, will join my research team. They will participate in the genetic, acoustic and behavioral projects acquiring unique skills used in dolphin research. Next summer we will be offering a marine mammal field course which will be based at the STRI-Bocas del Toro station, stay tuned for more news on this.

Laura May Collado is a Postdoctoral Research Associate at UVM. [STRI News Article](#). Laura May Collado's [HOME PAGE](#)

## Congratulations to Current Faculty Members

Congratulations to **Amanda Yonan** on her recent promotion to Senior Lecturer. Amanda joined the department in 2005 after completing a PhD in Genetics at Columbia University. She teaches a variety of courses in genetics, including widely popular courses that she developed in Human Genetics, Forensic DNA Analysis, and Introduction to Forensic Biology. Dr. Yonan, together with Professor Deborah Blom of Anthropology, is the recipient of a College of Arts & Sciences award [Enhancing Excellence through Interdisciplinary Experiential Engagement](#) (IEE) to develop a course in human diversity and evolution. The course will be offered in Spring 2015.

We also wish to congratulate **Ingi Agnarsson**, Assistant Professor of Biology, and **Alicia Ebert**, Assistant Professor of Biology, on their successful first reappointments.



## Dr. Kilpatrick Introduces Students to Diversity of Mammals

The Mammalogy course, offered every fall, introduces students to the diversity of mammals around the world and gives students the chance to experience small mammal diversity in Vermont through field trips in the Northeast Kingdom of Vermont. In the field trips, students learn basic field techniques used while studying small mammals such as live trapping, handling, tracking, and preparing specimens in the field.

Small mammal monitoring is done on a yearly basis at the Northwoods Stewardship Center to determine yearly fluctuations in populations and long term changes in small mammal diversity. The effectiveness of management practices to increase small mammal diversity is also investigated. Data on small mammal captures at the Northwoods Stewardship Center goes back to 1988 and includes captures of rare species such as the southern bog lemming and the yellow-nosed vole.



Deer mouse tagged with powder. The trail of fluorescent powder can then be followed after dark with the use of a UV lamp



Dr. Kilpatrick demonstrating how to handle a live mammal



Mammalogy student, Kyle Isherwood, with a woodland jumping mouse



Photo by Allison Neal



Photo by Nabil Nasser

## Faculty Talks and Presentations

Dr. Jim Vigoreaux presented a talk at the 2013 Society for Experimental Biology Conference held in Valencia, Spain in July. Dr. Vigoreaux was one of the platform speakers in the Protein Versatility scientific session and his talk was entitled “*The evolution of flightin across Pancrustacea: achieving functional adaptability through separately evolving protein domains*”.

Dr. Judith Van Houten was an Invited speaker at the NIH NIGMS TWD meeting, June 2013 in Chicago; The FASEB Ciliate Molecular Biology meeting, July 2013; The INBRE meeting, October 2013 in Bethesda and the ICOP Vancouver, BC August 2013

Dr. Bryan Ballif presented talks at the Department of Molecular Pharmacology, Albert Einstein Medical College, Yeshiva University, Bronx, NY and Cell Signaling Technology, in Danvers, MA. He was a Guest Lecturer-Proteomics Outreach Instructor at the following institutions: Green Mountain College Biology Course, Poultney, VT; Norwich University Biology Course, Northfield, VT; Marlboro College Biochemistry Course, Marlboro, VT; Castleton State College Biochemistry Course, Castleton, VT; Middlebury Chemistry Course, Middlebury, VT.; Plant Biology Course, University of Vermont. Dr. Ballif was also a Guest Lecturer at the following Classes: Cells and Physiology, Biology 1212, Lyndon State College, Lyndonville; Ecology, Biology 4040, Lyndon State College, Lyndonville, VT; Clinical Chemistry, Medical Laboratory Science 221, University of Vermont

Dr. Nick Gotelli was the Keynote Speaker at the International Biogeography Society, “The Geography of Species Associations”, Montreal, November 2013. Invited Talks include: NEON, Boulder, 2013; University of Colorado, Boulder, October 2013; Ceske Budjovice, Altitudinal Gradients Workshop August 2013; Paul Smith’s College, Brighton April 2013 and Harvard Forest, Petersham, March 2013

Dr. Sara Helms Cahan attended the 2013 Ecological Genomics annual conference, South Bend, IN (1 selected for oral presentation, 1 poster: L. Orantes\* *et al.*), and presented a poster at the Arthropod Genomics annual conference, South Bend, IN.

Dr. Eugene Delay & Kondoh, T. (2013) gave a presentation at the Association for Chemoreception Sciences, Huntington Beach, CA. Title of talk was “Dried bonito *dashi*: Taste qualities evaluated using CTA methods in wild type and T1R1 KO mice”. Dr. Delay also gave a talk at Brandeis University, Waltham, MA entitled “Behavioral analysis of umami taste in rodents” and a talk at the University of Colorado, Health Sciences, Denver, CO entitled “Chemotherapy-induced changes in the taste system”.

Dr. Rona Delay was an Invited Speaker at Michigan State, Neurobiology & Behavior (Sept 30, 2013) Her talk was entitled “Oxytocin and behavior”.

Charles Goodnight attended the ISHPSSB International Conference, Montpellier France (invited round table) (2013) and he will be attending the 60<sup>th</sup> Brazillian Congress on Genetics in August 2014.

Dr. Ingi Agnarsson presented talks at the 2013 International Congress of Arachnology, Taiwan; at the 2013 Annual Meeting of the American Arachnological Society, and at the 6<sup>th</sup> International Conference of the International Biogeography Society, Miami 2013. Dr. Agnarsson is also invited to give one of four plenary talks at the 2014 Latin American Congress of Arachnology.



*Cochliomyia macellaria*, is one of the most important blow flies in forensic entomology studies in the Americas. It is found from Canada to Argentina. This specimen was collected in Monte Christi, Dominican Republic, during the field trip conducted in June of 2012. Photo taken by Sohath Zamira Yusseff, Biology Department Graduate Student in Dr. Agnarsson’s lab.

## ALUMNI NEWS

### 2014 ACCOMPLISHED ALUM Dr. Rebecca Eisen



Dr. Rebecca Eisen has been selected to receive the 2014 Department of Biology Distinguished Alumni Award. Becky is a Research Biologist at the US Centers for Disease Control, Division of Vector-Borne Diseases in Fort Collins, Colorado. She received her Ph.D. from the Biology Department in 2000 after taking the BS at the University of Michigan in 1995. After receiving her PhD, Becky joined the laboratory of Dr. Robert Lane at the University of California – Berkeley to conduct research on the transmission biology of the bacterial agent of Lyme Disease. Since joining the CDC in 2005, Becky has worked on a very wide range of pathogens and vectors in the USA and other countries taking both a field and laboratory approach. These studies have resulted in over 100 publications in the top journals in public health and medical entomology including *The American Journal of Tropical Medicine and Hygiene*, *PLoS One*, and *Emerging Infectious Diseases*. Her association with the Colorado State University has led to teaching as well, by mentoring many students and postdoctoral fellows.

Dr. Joseph Schall was Becky’s advisor for her PhD program and reports that he is not at all surprised by her great research productivity and distinguished status in the scientific community. “Becky stood out from the very beginning of her graduate program because of her intellectual creativity; it seemed that she had at least one hypothesis every day to turn over in her head and to pose to anyone who would listen. For example, she was looking at data we had on the local variation in a blood parasite of lizards at a study site in California. Becky wondered if the variation could be very local, even just a few meters. Despite my doubts, Becky found a mentor to teach her GIS methods to map a study plot to a fine grain, then she carefully caught lizards to test, but also mapping their location. She discovered that the parasite has very local hot spots. I have been a bit fixated on that result ever since and her study, published in *Parasitology*, led us to look at fine scale geographic patterns in the genetics of the parasite, the lizard, and the insect vector.”

What leads a student to have such a productive publication record? Joe Schall has his own observations. “From the very start of her career, Becky was determined to turn her research into publications. Her first publication resulted from a study done during the summer prior to formally beginning her graduate career! I never sensed that this drive was due to a need for personal recognition. In fact, Becky is about the least self-serving person I have ever met. She was just determined to share her finding with the scientific community, she regarded this as her duty.”

The Department of Biology offers its congratulations to Dr. Rebecca Eisen for her outstanding scientific career and being named as our Outstanding Graduate Alum for 2014.



## Steve Rozen's Mission to Honduras



I graduated in 1958 after spending 2/3 of my time at UVM in the Williams Science Hall. I then attended NYU Dental School. Two years serving our country 1962-1964 and then 3 years as a resident in Oral And Maxillofacial Surgery at Albert Einstein/Bx Medical Center. Private practice at Wallingford Ct and Clinical Instructor at Yale New Haven/St Raphael's for 40+ years. I am now semi retired. I have just returned from a UConn Dental School sponsored Mission to Honduras. We set up a Mash Style Dental Clinic where Dental students delivered excellent care. They did Oral Surgery, Operative Dentistry, Oral Hygiene, and Endodontia. It was a remarkable experience for my wife and myself, seeing these patients who would never have had Dental care, if not for this group.

These incredibly poor people were really helped and were so thankful for what we accomplished. Many took three hours to get to the Pentacostal Church where we worked. In 100 degree heat I instructed these students and watched their confidence grow by the hour. We also had a number of PreDental students acting as assistants as did my wife.

What impressed me was that volunteers and a faith based organization accomplished so much in one week. You cannot fathom how poor these people are and yet they appeared happy. There is nothing in the US that can compare with this poverty that most likely has no way out.

My wife and I left with an incredible feeling. I loved teaching these Dental students as my wife did assisting. We wished we had done this type of Mission when we were younger. I probably with luck may get in another trip or two.

UVM gave me the tools in the Biology Department for my career including ethics and compassion. There were 7 Dentists, 14 Dental Students, and 11 Pre-Dental students on the trip. This Mission has been going on for 8 years and gets better every year with new equipment purchased by the group or donated.

Let me end by saying to Biology majors that volunteering after graduation may be for some, but there is a need for obtaining an advanced degree. A physician, dentist, or nurse can do long lasting good to the poor of this world. I suspect the way we feel right now is an incredible high that will last a long time. I do not mean to demean those who dig wells and support other health projects. Potable water is not to be had by these poor.

The warmth of Hondurans and the hugs we got after treatment was the best payment for services I have ever gotten.

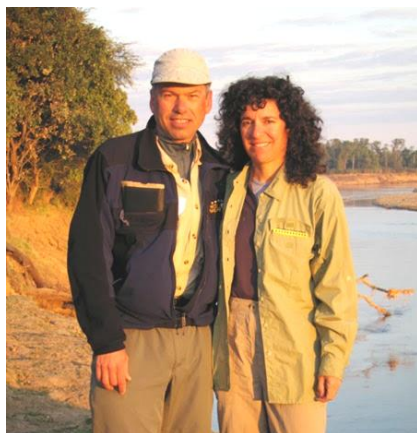
## James Betts, Surgeon-in-Chief, Director of Trauma Services, Children's Hospital Oakland



James M. Betts, M.D.  
Surgeon-in-Chief  
Director of Trauma Services  
Children's Hospital Oakland  
UVM '69, MD '73

My educational experience in Zoology and Chemistry from the UVM College of Arts and Sciences afforded me an opportunity to successfully secure a position in our College of Medicine. Were it not for UVM, not only would I have never had a chance to fulfill a childhood dream to "become a doctor", but an undergraduate education would have been out of my single parent family's reach, as well. For all Vermont kids aspiring to whatever career paths they desire, I urge all to support our University, through whatever Foundation contributions you feel are appropriate. Your support will provide others the same opportunity as many of us received. As I approach the culmination of my career, which has been an honor and privilege to provide healthcare to the most needy of children throughout Northern California, I can most respectfully thank UVM for being there for me. Warmest regards to all in A&S as well as throughout the UVM Family!!!

## Peggy Foucher, 1980 Dept of Biology Grad Student, Doing Volunteer Work in Africa



Marc and Peggy Foucher; Peggy in Kaziranga National Park



Peggy on the Kongma La

I graduated with a degree in biology way back in 1980! My husband and I are avid travelers and enjoy doing volunteer work in Africa with animals. We live in South Burlington, but are currently in Nepal. If you would like to hear our stories and see our photos, please click [HERE](#)

## Dr. Laura Hill Bermingham Wins the Joseph E. Carrigan Award



Dr. Laura Hill Bermingham, PhD in 2008 in the Department of Biology, has won the Joseph E. Carrigan Award for Excellence in Teaching and Undergraduate Education. The Carrigan Award is the most prestigious faculty teaching award in the College of Agriculture and Life Sciences. It recognizes outstanding effort and achievement in undergraduate teaching, student advising, and undergraduate education.

Laura is currently a Lecturer and Research Associate in Plant Biology at UVM. Congratulations Laura!

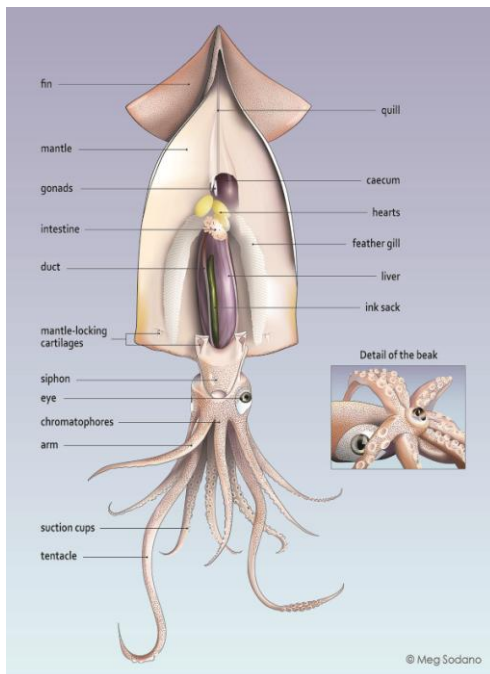
For information on the award click [HERE](#)

## Natural Science Illustrator and Alum, Meg Sodano



Ten years before I became a natural science illustrator, I spent my undergraduate years focused on pre-veterinary studies at UVM. I was a double major in biological science and animal science. My schedule was packed with classes in anatomy, ecology, and biochemistry. I participated in the CREAM program and did research in lactation physiology. With a double science major, there was no time to pursue my other interest, studio art. Academically, the two disciplines seemed so unrelated, so I stuck with science. Years later, seeking a way to weave biology into my artistic roots, I received formal illustration training and a certificate in Natural Science Illustration at Rhode Island School of Design. Now I spend my time drawing animals and their environments, and applying more of that biology education than I ever imagined. I am reminded daily that I couldn't be the illustrator I am now had I not first learned how the process of science works: how to design an experiment, conduct research, and present my findings.

A successful scientific illustration must communicate complex information in an organized and interesting way. The procedure relies on careful observation: an ability to pick apart the subject, investigate its environment, and recognize its relationships and behavior patterns. For each project, I do extensive research by collecting reference materials, visiting the natural environment, accessing specimens, and consulting experts. My sketches incorporate everything I see and learn. Revising a sketch or drawing is like reworking the steps of an experiment: things go wrong, the result can be disappointing. So I evaluate and make changes to my process, look at the problem from a new perspective, and develop a better design. This requires the same determination, patience, and problem-solving skills I learned in my senior year while testing milk samples from dairy cows.



In the end, the full-color illustration is the report of my findings. It is essential that I present the information with enthusiasm and so that it can be understood clearly by others. I want my audience to believe in my subject, to feel inspired by its complexity and its unique role in nature. This is where my artistic abilities make their contribution. They tap into my curious, analytical side to translate concepts into exciting visual experiences.

My illustration projects can be simple, like the stippled drawing I made of a stone discovered at a Mayan ruin. Or they can take months of observations, dissections, and planning, as did the series of anatomical images of marine invertebrates I created for Mystic Aquarium. Yet all are equally important pieces of art. My drawings and paintings can help scientists explain their work and create interest among their academic peers or the general public. They can help educators nurture the next generation of conservation enthusiasts. I cannot imagine a more rewarding way to make my contribution to science.

Meg (Brewster) Sodano '01 is a member of the Guild of Natural Science Illustrators. To contact her and view her portfolio, click [HERE](#)



## Shawn Taylor (Zoology '94) has retired from active duty with the United States Army



Prior to attending UVM, Shawn had served as an Infantryman in the Airborne Rangers. While attending UVM, he also served as a Staff Sergeant in the Vermont National Guard Mountain Infantry. After graduation, he returned to active duty and attended the USU School of Medicine and completed Emergency Medicine training at military trauma hospitals. Lt. Colonel Taylor served with 7th Special Forces Group and Special Operations Command. He completed multiple combat and hostile fire zone deployments to Afghanistan, Iraq, Colombia, and the Horn of Africa. He has authored several publications in *The Journal of Emergency Medicine*, *Prehospital Emergency Care*, *The Journal of Special Operations Medicine*, *Southern Medical Journal*, *Military Medicine*, and *Academic Emergency Medicine*.



Photo by Allison Neal

## Fond Memories of “Ecology of the Bog”



### Milton Potash with a group of students in Lake Champlain

In the spring of 1960, we were taking a new biology course called “Principles of Ecology” given by Dr. Milton Potash. It was at that time a new concept and most people did not even know what the word “ecology” stood for. As part of the course we had to take a trip and study the characteristics of a quacking bog. Since it was a beautiful day, we decided to bring along a six-pack of beer which we happily consumed behind a moss-covered rock while the good Doctor was lecturing about the ecology of the bog. We will never forget that day that occurred 44 years ago.

Partners in “Crime”:

Carl J. Perlmutter, UVM '61, D.M.D., F.A.C.D.  
Associate Clinical Professor of Orthodontics  
Tufts University School of Dental Medicine  
Boston, Massachusetts

Frederick J. Crane, UVM '60

Frederick Crane is a retired dentist living in NJ who practiced in Manhattan and the Bronx for many years

Milton Potash, Professor Emeritus in the Biology Department, passed away on April 17, 2011 at the age of 86. Milt Potash served the Zoology Department (now Biology Department) for nearly 40 years, teaching a wide variety of courses, conducting landmark research on Lake Champlain, and advising a great number of students. Milt had the reputation that stands to this day of working with more students as teacher, advisor, and member of the Premedical/Pre dental Advisory Committee than any other faculty member in the College of Arts and Sciences. At one point, a large fraction of all the practicing physicians in the state of Vermont had been one of Milt’s students or advisees. He was highly respected by his colleagues in the department and was promoted to Full Professor and elected Chairman of the Department. The students also had the highest regard for Milt’s guidance, and he was awarded the George Kidder Award for his service to the student community. Even after retirement, Milt continued to serve as special advisor to students with special academic challenges, revealing his kindness and generosity.

# GRADUATE STUDENTS

## GRADUATES 2014

*Congratulations to the following graduate students who completed their degrees!*



Dr. Alison Brody, Gretel Clarke, Pedro Alvarez-Ortiz, Dr. Jim Vigoreaux, Dr. Bryan Ballif (Suraj Cherian, Luiz Fernando Fracassi Gelin, David Lucero and Anne McHugh are not in the photo)

**Pedro Alvarez-Ortiz** – Expression and Function of Flightin and Glutactin, Two Taxonomic Restricted Proteins in Arthropods Important for Muscle Function. Advisor: Dr. Jim Vigoreaux.

**Suraj Cherian** – The Role of Estradiol in Modulation of Odor Responses and Voltage-Gated Conductances in Mouse Vomeronasal Sensory Neurons. Advisor: Dr. Rona Delay

**Gretel Clarke** – Roles of Pollinators, Seed Predators, and Vertebrate Herbivores in Maintaining Females in the Gynodioecious *Polemonium foliosissimum*. Advisor: Dr. Alison Brody

**Luiz Fernando Fracassi Gelin** – Phylogenetic Analysis of Three Genera of Swarm-Founding Neotropical Wasps (Hymenoptera, Vespidae, Polistinae). Advisor: Dr. Sara Helms Cahan

**David Lucero** – The Spatial Distribution of Chagas Disease Vectors in Latin America. Advisor: Dr. Lori Stevens

**Anne McHugh** – Caribbean Biogeography: The Colonization and Diversification of Two Spider Lineages. Advisor: Dr. Ingi Agnarsson

## 2014 Department of Biology Graduate Teaching Assistant of the Year Awarded to Michael Herrmann



Dr. Jim Vigoreaux and Michael Herrmann

“I am interested in the evolution and maintenance of complex social systems, particularly in eusocial insects. My main research focuses on two major aspects of social behavior; Conflict arising from the social structure, as well as communication between individuals in these social groups. My current dissertation research involves a complex system of sexual conflict in hybridizing harvester ants in a unique case where the reproductive benefits for males and females are very different. In addition, I am studying the impact of major chemical communication molecules located on an insect’s exoskeleton and how it plays a role in conflict within ant colonies”.

*Congratulations Michael!*



Photo by Allison Neal

## UVM Biology Students Receive NSF Graduate Research Fellowships



**Katie Miller, Samantha Alger and Amanda Northrop**

Three Department of Biology graduate students have been recognized in the 2014 National Science Foundation Graduate Research Fellowship competition. Katie Miller has received a National Science Foundation (NSF) Graduate Research Fellowship Award. This prestigious fellowship is awarded to graduate students who demonstrate outstanding intellectual merit and who have the potential to have a broad and significant impact in their respective fields.

As an early-career graduate student and NSF Fellow, Katie Miller will receive a three-year annual stipend of \$32,000, a \$12,000 cost of education allowance for tuition and fees, as well as additional opportunities for international research and professional development. This year the NSF received 14,000 applications for the 2014 competition and made 2,000 fellowship award offers.

A doctoral student in biology, Miller's research interests broadly focus on physiological ecology and evolution. She is developing an expertise in how the primary elements that make up living organisms (carbon, nitrogen, phosphorus, etc.) are used for different physiological processes, and how these elemental requirements impact behavior, species interactions and overall food web dynamics. Under the guidance of Dr. Sara Helms Cahan, she is studying the influence of climate on the elemental composition of the ant *Aphaenogaster ruidis*, the effects of diet and temperature on elemental composition and protein synthesis rates in ants, and the effects of climate change on nutrient cycling in temperate forest ecosystems.

UVM graduate students Samantha Alger and Amanda Northrop received Honorable Mention recognition in this year's NSF-GRFP competition. Alger is a current doctoral student in UVM's biology department. Under the guidance of Dr. Joseph Schall and Alison Brody, Alger is currently studying the prevalence, effects and transmission of RNA viruses among native bumblebees in Vermont. Northrop graduated from UVM in 2012 with a bachelor's degree in zoology and was encouraged by her undergraduate mentor, Helms Cahan, to continue her studies in graduate school. Now a doctoral student in the biology department, Northrop works with Drs. Nicholas Gotelli and Bryan Ballif; her current research focuses on predicting and preventing regime shifts (or state changes) in aquatic ecosystems. Such work, she says, can help scientists understand, predict and prevent accelerated eutrophication and toxic algal blooms in larger bodies of water (such as lakes or ponds). Click [HERE](#) for complete story.



## Icy Research Drills Down on Summer Algae Blooms

*Story and Photos by Joshua Brown*



**Peter Isles and Trevor Gearhart**

Where's the phosphorous? Historically, there have been few wintertime studies of lakes. Students Peter Isles and Trevor Gearhart are helping to change that as they cut through twenty-seven inches of ice to collect mud from the bottom of Lake Champlain. They'd like to know where algae-enabling nutrient pollution is lurking.



**Heading west, for science**

We've walked a mile out on the frozen skin of Missisquoi Bay. Clouds, snow and ice blend into an abstract collage of white shapes. To the west, a thin grey line, the New York shore, cuts the world in two. To the south, a pea-size pick-up truck creeps over the lake toward a pinhead-size ice-fishing shack. Trevor Gearhart checks our location on a handheld GPS. "Yep, this is it," he says. Peter Isles fires up a reassuringly large, safety-yellow drill. [FULL STORY](#)

## Neal and Degrassi Panelists at Grant Writing Workshop



Allison Neal and Allyson Degrassi were invited panelists for a break out session addressing graduate student support from NSF and NIH at a grant writing workshop co-sponsored by the Vermont Genetics Network (VGN) and Vermont's branch of the National Science Foundation Experimental Program to Stimulate Competitive Research (NSF EPSCoR). The workshop was held at the Sheraton Hotel in Burlington in September and focused on tips and strategies for successful grant writing. Allison Neal is a fifth year PhD student working with Dr. Joseph Schall who studies the evolution of sex ratios in malaria parasites. Allyson Degrassi is a third year PhD student working with Dr. Nick Gotelli who studies small mammal communities and their interactions with different forest types. Both are currently funded by NSF Graduate Research Fellowships and spoke on the application process for the Graduate Research Fellowship Program (GRFP) and their tips for succeeding.

## Nasseri Awarded Welder Wildlife Foundation Fellowship



Nabil Nasseri was awarded the Rob & Bessie Welder Wildlife Foundation Refuge Fellowship. The Welder Fellowship will help fund Nabil's PhD research on the effect of ant-hemipteran mutualisms on the arthropod community on an invasive tree, honey mesquite, in south Texas. Congratulations Nabil! (photo by Nabil Nasseri)

## 2014 SUITER PRIZE RECIPIENTS

Each year the Ronald Suiter Prize provides up to \$1,000 each to six or more students in the College of Arts and Sciences to support attendance at conferences, seminars, workshops, etc., by undergraduate and graduate students in the College of Arts and Sciences at UVM. Prizes are awarded based upon merit and decisions are made by a faculty committee. The Ronald Suiter Prize was established in memory of Ronald Suiter, Vice President for Development and Alumni Relations at the University of Vermont from 1988 to 1990.

**Alexandra Beattie** - Alexandra attended the Experimental Biology Conference in San Diego in April. Her talk was entitled: "β-Hydroxy- β-Methylbutyrate (HMB) extends lifespan and attenuates age-dependent loss of flight ability in *Drosophila*".

**Shreoshi Pal Choudhuri** – Shreoshi Presented a poster titled "L-amino acid taste: Are multiple receptors and signal pathways involved?" at the Association of Chemoreception Sciences (Achems) Conference in April in Bonita Springs, Florida. She also received an Achems Housing Award.

**Samantha Alger** - The Suiter Prize will help pay for a 9-day course on bee identification held at the Southwestern Research Station in Portal Arizona, August 24-September 3. The course will provide Samantha with the taxonomic skills necessary to identify specimens collected for her PhD research concerning the prevalence of RNA viruses among native bee species in Vermont.

*Congratulations to all!*

## Allison Neal Presents Lecture to the Honors College



Alli Neal with a bluefish in the Florida Keys

Each year the Honors College asks one speaker to welcome the first-year Honors students with the annual plenary lecture. Our graduate student Alli Neal was asked to give the lecture in 2011, and because the talk went so well, was asked again in 2012. This year, Alli made it a three-peat by being asked again to speak. Her talk in early October was on the evolution of pathogens, but also emphasized the importance of Honors research. More than 200 students attended. Alli is an NSF Graduate Fellow in our department, and she was also awarded the NSF grant for outstanding dissertation research. She works on the sex ratio of the malaria parasite, *Plasmodium*, and has already published four papers in major journals.

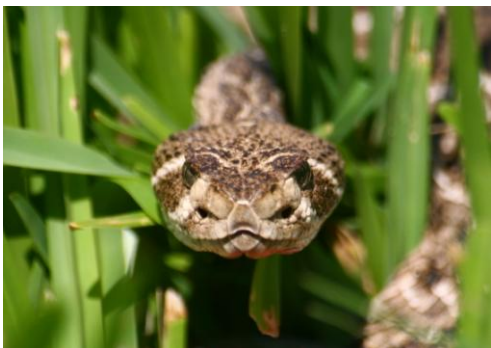
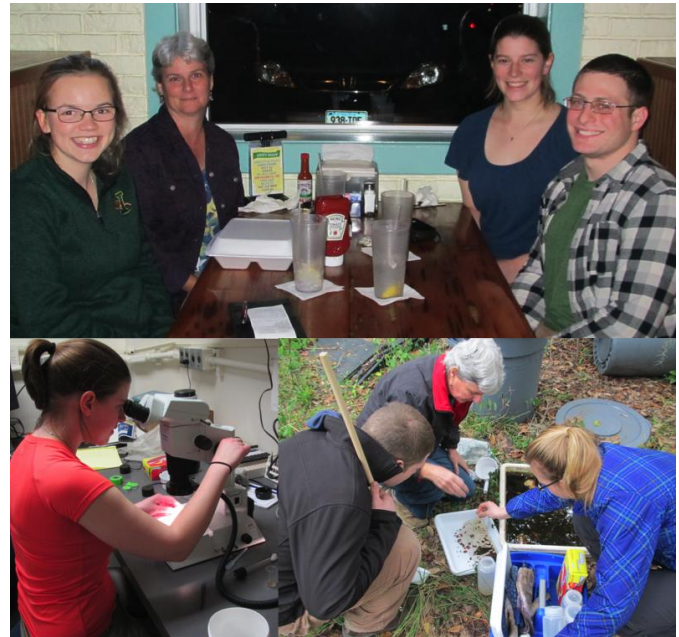


Photo by Nabil Nasser

## Grad Student Allison Neal and Undergrad Students Max Ross and Leah Rogstad visit the University of Florida Medical Entomology Lab



Graduate student Allison Neal (top, 2nd from right) and undergraduate students Max Ross (top, far right) and Leah Rogstad (top, far left) visited the University of Florida Medical Entomology Laboratory (FMEL) during the last week of winter break (January 2014). Their host, Cynthia Lord (top, 2nd from left), is also a former University of Vermont student; she graduated from UVM with a degree in Zoology in 1983 and is now an associate professor at FMEL. Alli and Max have been researching the population genetics of a sand fly in the genus *Lutzomyia*, which transmits a lizard malaria parasite, with Dr. Joseph Schall. Leah has been studying the distribution of *Triatoma* bugs, a group of insects that transmit Chagas disease in South America, with Dr. Lori Stevens. During their visit to FMEL, all three students learned new techniques for collecting and identifying larval and adult mosquitoes and ticks and dissecting mosquitoes to find the midgut, salivary glands, and spermatheca. They also met with other researchers at FMEL and had the opportunity to discuss their own research and the research of their hosts.

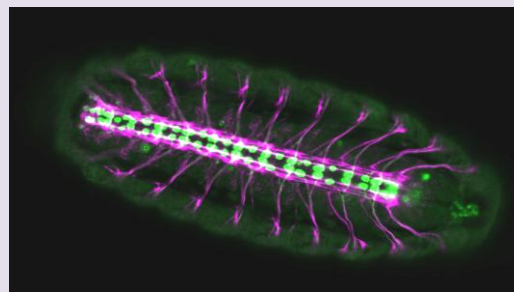
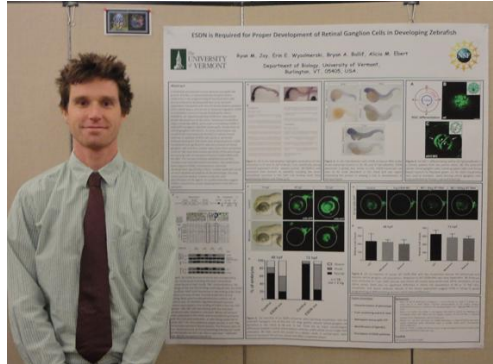


Photo by Benjamin James Moody



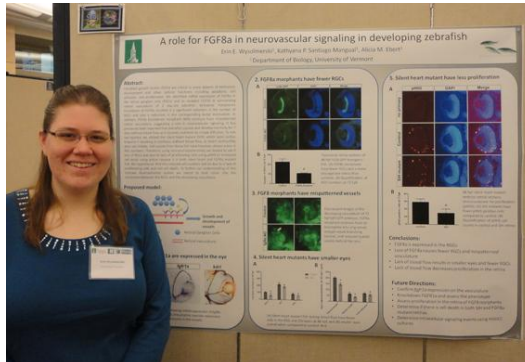
## Neuroscience, Behavior and Health Research Forum Participants

The following Department of Biology students presented posters at the Fourth Annual Neuroscience, Behavior and Health Research Forum at the Davis Center on January 24 and 25.



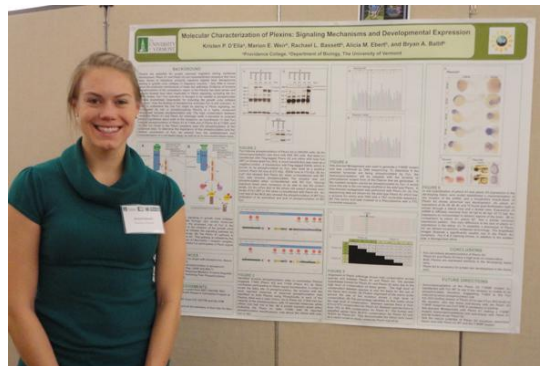
**Ryan Joy, Grad Student**

**Title: Endothelial and Smooth Muscle Derived Neuropilin Like Protein is Required for Proper Development of the Retina in *Danio rerio***



**Erin Wysolmerski, Grad Student**

**Title: A role for FGF8a in neurovasculature signaling in developing zebrafish**



**Rachael Bassett, Undergrad Student**

**Title: Molecular Characterization of Plexins: Signaling Mechanisms and Developmental Expression**

# UNDERGRADUATE STUDENTS

## STUDENT HONORS AWARDS 2014

Each year the Department of Biology recognizes and awards undergraduates who have made outstanding contributions to research. Dr. Jim Vigoreaux, Chair of the Biology Department, presented the awards. Congratulations to all!



**Dr. Jim Vigoreaux, Michael Kosofsky, Katie Bedard, Shad Orechovesky, Zach Silberman  
(David Viscido not present)**

### **David J. Viscido Received the *George Perkins Marsh Award in Ecology/Evolution***

**Thesis Title:** Taste identification of L-arginine, L-serine and L-MSG by WT and T1R KO mice using CTA methodology  
 “I will be using part of the summer continuing my independent studies in preparation for the MCAT this August/September. Then, I will use the time until the next Committee Review Application deadline to reaffirm my determination for a career in medicine. I plan to pursue the “Art from the Heart” volunteer opportunity at Fletcher Allen. I’ve always considered drawing/art to be a hobby of mine; in fact, studio art was my major until sophomore year, before I made the leap to biology. I will most likely be staying with my family in Vermont, while pursuing these goals. Granted all goes well, I’m considering UVM for med school.”

### **Shad A. Orechovesky Received the *Joan M. Herbers Award in Biology***

“Next semester I will be attending Tufts University Cummings School of Veterinary Medicine in a combined Doctorate of Veterinary Medicine and Masters of Public Health program. Parasites and infectious diseases have been an interest of mine throughout my undergraduate career; my goal is to further public health in developing countries by decreasing the prevalence of zoonotic diseases. I wish to work in the field, involved directly with implementing public health efforts, as well as working closely with researchers to find or create a way that increases the efficacy of vaccines and other prophylactic tools intended for animals.”

### **Michael E. Kosofsky Received the *Bernd Heinrich Award In Physiology or Evolution***

**Thesis Title:** Variant ESDN truncated mutant will not rescue ESDN morphant Zebrafish  
 “My research interests are in cellular signaling and blood coagulation. I will be working at Haematologic Technologies, Inc in Essex Vermont performing blood protein isolation and characterization for the next few years. After this I plan to go to medical school in order to pursue a career as a physician.”

### **Zach H. Silberman Received the *Paul A. Moody Award in Biology***

**Thesis Title:** Identification of Regulatory Mechanisms of the ERK/MAPK pathway by Pituitary Adenyl Cyclase Activating Polypeptide Stimulation  
 “My current research focuses on developing a better understanding of the PACAP/PAC1 receptor pathway, which has been implicated in several disease processes including Post Traumatic Stress Disorder. After graduation, I will be working in the Boston area Biotech community while I prepare for med school. I want a career that will allow me to promote health awareness and science education in underprivileged communities, ideally through the fields of pediatrics or public health.”

### **Katie L. Bedard Received the *Kurt Milton Pickett Award***

**Thesis Title:** The Effects of Aging and Cancer on the Number and Spacing of Myonuclei in Human Skeletal Muscle Fibers  
 “My primary research interests lie in the field of physiology because it seeks understanding at the whole body, tissue, and molecular levels to allow for a comprehensive basis of knowledge. My research focuses around disease and aging as I have a particular interest in human health. Ultimately, I hope to attend medical school in 2015.”

## Erin Hayes-Pontius: A Career in Fresh Water Biology



Undergraduate student research helps launch careers! While an undergraduate here, Erin Hayes-Pontius was very active in the fresh water ecology group both in the Biology Department, but also in collaboration with Dr. Declan McCabe at St. Michael's College. Declan received his PhD in our department with Dr. Nick Gotelli and has helped a number of our students over the years with research. During her project, Erin became an expert on the insects of local streams, and produced spectacular photographs of insects that livened up the walls of Marsh Life Science. She is now a coauthor of a recent paper with Declan in the journal *Freshwater Science*, "Measuring standardized effect size improves interpretation of biomonitoring studies and facilitates meta-analysis." This paper required an enormous effort in sampling insects and doing many ecological measurements. Erin's career has been on the fast track since graduation. Declan hired her to supervise a small army of field technicians for a study of Mallett's Bay; the report has now been presented by the Lake Champlain Basin Program. Erin then went on to receive her MS from SUNY, and is now in the PhD program at the University of Maine on a National Science Foundation IGERT Fellowship. Other good news is that Erin is now engaged to marry George Maynard, also PhD student at the University of Maine. Of course George will have to understand that Erin loves insects too! We wish Erin great success in her career and always enjoy learning good news from our graduates.



Photo by Nabil Nasseri



## Undergrad Leslie Barnard leads three lives!



**Leslie Barnard at the East Coast College and University Shooting Championships**

One recent Friday afternoon, Biology major Leslie Barnard packed her car full of 12 gauge double barreled shotguns and four of the UVM shooting team (guns in the trunk and people in the seats), and she was off to Virginia for the East Coast College and University Shooting Championships. Twelve hours later they arrived at 2 AM, then got a few hours of sleep before the competition began at 8 AM the next day. Each of the next two days, Leslie got 100 shots each for skeet and trap (trap is tough, with two targets in the air at once). Sixteen schools participated, with almost 200 competitors. When the smoke blew away (literally in this case), Leslie emerged in overall 4<sup>th</sup> place and was the top woman shooter! Leslie seems more pleased with her 4<sup>th</sup> overall place because she beat so many of the men (who seem to think men are always better shooters). Back in the car for 12 hours drive back to UVM, and onward for Leslie's second life as a Biology major with minors in Chemistry and Nutrition. She is taking a series of tough courses in preparation for a career in public health.



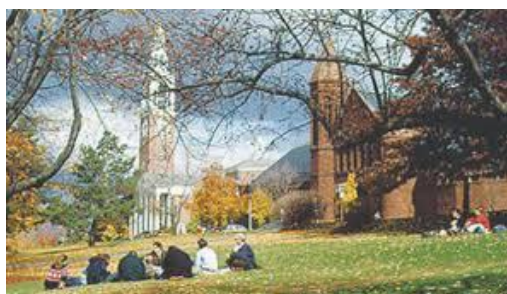
**Leslie in the Lab**

Leslie has a third life here at UVM: she is a student researcher in Dr. Joe Schall's lab where she is working with another Senior, Max Ross, on the population genetics of a sand fly. Sand flies are important vectors of disease-causing pathogens of both humans and wildlife, and almost nothing is known about their genetic diversity in the USA. How Leslie manages to lead three such successful lives remains a mystery to Dr. Schall and the other Biology faculty. But her work pays off: Leslie was accepted into two of the best Public Health programs in the country and has decided to pursue her graduate studies in Public Health at Tulane University in New Orleans, one of the very best programs in the country. Congratulations Leslie on your outstanding performance!

## Recipients of APLE Funding

The following students, working with Biology Department faculty, are among the recipients of the College of Arts & Sciences Academic Programs for Learning and Engagement (APLE) awards:

Harshal Athalye (mentor: Dr. Jim Vigoreaux)  
 Cody Aylward (mentor: Dr. C. William Kilpatrick)  
 Leslie Barnard (mentor: Dr. Jos. J. Schall)  
 Rachael Bassett (mentor: Dr. Bryan Ballif)  
 Jimmy Contompasis (mentor: Dr. Jim Vigoreaux)  
 Anna Duong (mentor: Dr. Alicia Ebert)  
 Brian Jencik (mentor: Dr. Ingi Agnarsson)  
 Sarah Light (mentor: Dr. Alicia Ebert)  
 Rebecca Nelson (mentor: Dr. Jim Vigoreaux)  
 Ferasha Patel (mentor: Dr. Alicia Ebert)  
 Kerri Pinder (mentor: Dr. Sara Helms Cahan)  
 Cole Rachman (mentor: Dr. Ingi Agnarsson)  
 Zachary Silberman (mentor: Dr. Bryan Ballif)  
 Giselle Veve (mentor: Dr. Ingi Agnarsson)  
 Barbara Zvarova (mentor: Dr. Gene Delay)



Awards are made on a competitive basis to grant proposals submitted by undergraduate students and evaluated by a committee of College Faculty. Students work with a faculty research advisor to design a research project that the student then writes up as a mini-grant proposal. *Congratulations to all!*

## New Phi Beta Kappa Members



Biology majors Annika Nilsson and Zach Silberman and minor Ian Martel have been elected to membership in Phi Beta Kappa. The spring induction ceremony took place on Saturday, May 17 in the Royall Tyler Theatre.

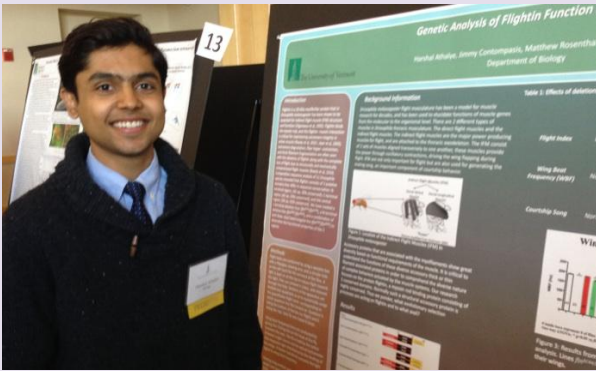
Congratulations on your outstanding academic achievement!

## OTHER NEWS

### Student Research Conference

The UVM Student Research Conference on April 16 was a daylong event highlighting the quality and breadth of undergraduate, graduate, and medical student research being conducted at the University. The purpose of the conference is to promote and facilitate the exchange of interdisciplinary perspectives and to encourage student intellectual growth. Below is a list of the Biology Department's participants and their research titles

#### Poster Presentations



**Harshal Athalye**

Rachael Bassett - Molecular Characterization of Plexins: Signaling Mechanisms and Developmental Expression

Jonathan Karp - Phospho-dependent 14-3-3:histone Protein Interactions and Implications for Ras-MAPK Signaling

Shreoshi Pal Choudhuri - L-amino acid taste: Are multiple receptors and signal pathways involved?

Angela Brisson, John (Jack) King, Dave Harris - Hedonics and Aversion Threshold of Bitter Taste Following Acute Cyclophosphamide Injection

James Contompasis -Quantification of Myosin Associated Proteins in Transgenic Drosophila

Nelish Pradhan - Phylogeny and Biogeography of Apodemus

Mary Struziak - Age- and sex-dependent expression of estrogen receptors in vomeronasal sensory neurons

Megan Valentine - Polycystin-2 In The Cell Membrane And The Cilia

Clare Martin, Stephanie LeQuier - Effect of the nutritional supplement  $\beta$ -hydroxy- $\beta$ -methylbutyrate (HMB) on lean body mass and motility in Drosophila

Harshal Athalye, James Contompasis - Dual Heterozygote Flightin Protein Analysis

Sierra Bruno - Characterization of Nebl in zebrafish eye development

Anna Duong - Characterization of Shootin1 in zebrafish eye development

Douglas Lane, Anthony Carbonar, Benjamin Weaver - Conditioned Taste Aversion to Salts in Mice

Sarah Light - Role of PlexinA1 in Visual System Development of Danio rerio

Elizabeth MacNeill - Behavioral Effects of Oxytocin Administration on Sensory Neurons of the VNO

Jackson Mathews - Determining Shared Working Memory Systems for Rhythmic Incongruities in Music and Language using functional Near-Infrared Spectroscopy

Ravi Nagori - Designing a high throughput system to analyze Drosophila locomotion and spontaneous flight activity

Tyler Picariello - Meckelin (MKS3) function in the guided movement and orientation of duplicating basal bodies in Paramecium tetraurelia

Hannah Rickner - Molecular Identification and the Immunolocalization of Purinergic Signaling Receptors in the Mammalian Vomeronasal Organ

Riley St. Clair - Sema6a-PlxnA2 Signaling Negatively Regulates ras11b to Maintain Proliferation of Retinal Precursor Cells during Zebrafish Eye Development

David Viscido, Daniella Thorsdottir, Michael Gomella - Taste identification of L-arginine, L-serine and L-MSG by WT and T1R KO mice using CTA methodology

Marion Weir, Rachael Bassett - Elucidation of PlexinA2 Signaling Mechanisms Critical for Zebrafish Eye Development

Erin Wysolmerski -A role for FGF8a in neurovascular signaling in developing zebrafish

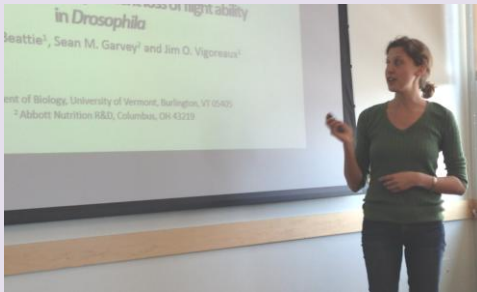
Jonathan Karp – Phospho-dependent 14-3-3:histone Protein Interactions and Implications for Ras-MAPK Signaling

Kerri Pinder - The impact of nutritional status on responses to climate change in the ant, Aphaenogaster picea

Nicole Redmond - Temperature Tolerance in Aphaenogaster picea



## Student Research Conference Oral Presentations



**Alexandra Beattie**

**Alexandra Beattie** –  $\beta$ -Hydroxy- $\beta$ -Methylbutyrate (HMB) extends lifespan and attenuates age-dependent loss of flight ability in *Drosophila melanogaster*

**Lynda Menard** – The structural and functional coordination of glycolytic enzymes in muscle: evidence of a metabolon?

**Katherine O'Shea** – Genetic Study of Recent Samples of American Marten (*Martes Americana*) from Vermont

**Emily Price** – Flies, flight, and fitness: model organisms under non-model conditions

**Max Ross** – Population Genetics Study of *Lutzomyia vexator*

## Former UVM Honors Student, Melissa Donovan Defends at Tufts



Former UVM Honors Student Melissa Donovan graduated in 2005 and successfully defended her PhD in December at Tufts. Melissa worked in Dr. Judy Van Houten's lab while at UVM and is currently living in Philadelphia with her husband.

Her thesis project was entitled: "Picking (apart) the Nose: Characterization of Nrg1 and ErbB expression in the olfactory epithelium and function in a 3-D model of olfactory regeneration."

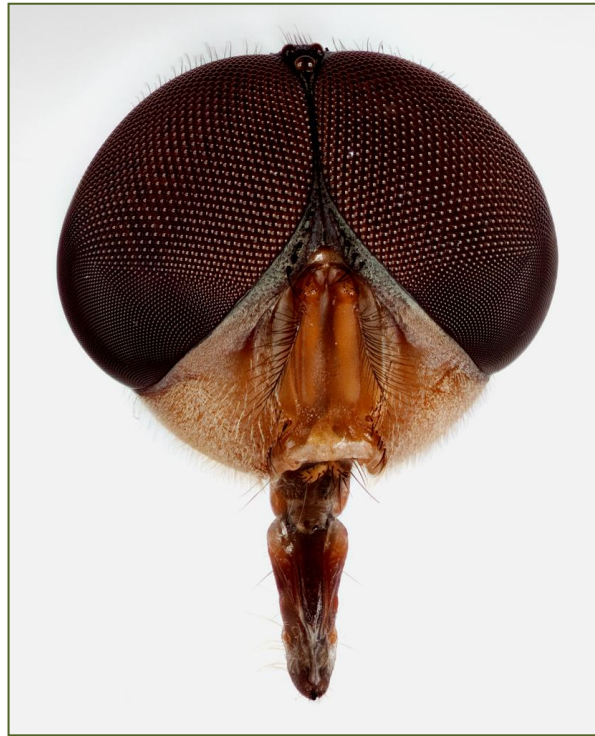
## Boston Strong and Vermont Strong!



**Heather Axen (far left), and her twin sister Melissa at the Boston Marathon, Meg Valentine (middle), at the Mad Half Marathon in Waitsfield, VT (2012) and Dr. Ingi Agnarsson at the finish line of the Burlington City Marathon 2014**

Heather Axen, Biology Department Lecturer and Meg Valentine, Lab Research Tech in Dr. Judith Van Houten's Lab ran in the 2014 Boston Marathon. A record crowd of one million people, twice the usual number, watched and cheered the runners on. Meg Valentine, Dr. Ingi Agnarsson, Assistant Professor, Ryan Joy, John Stanton Geddes, and Fernando Gelin (all members of the Biology Department) ran in the Burlington City Marathon on Sunday May 25!

## 2013 Art of Biology Contest Winners



**1<sup>st</sup> Place Winner:** This photo shows the head of a male blow fly *Chrysomya megachepala*. This specimen was collected in the East National Park, Dominican Republic during one of the trips throughout the Caribbean Islands in 2012. The males of this species have an unusual particularity, the upper eye facets are much enlarged than the lower ones. Photo taken by Sohath Zamira Yusseff, Biology Department Graduate Student in Dr. Agnarsson's lab



**2<sup>nd</sup> Place Winner:** Bees are a crucial player in any terrestrial ecosystem as pollinators. Here is a bee collecting pollen from mesquite (*Prosopis glandulosa*) and carrying the pollen on specialized sacs located on the hind legs. Not only is pollen a valuable food source, due to the waxy outer layer, pollen is also a great building material. Part of my PhD work is determining what effect arboreal ants have on mesquite pollinators. Photo was taken at the Welder Wildlife Refuge in Sinton, TX with a Canon EOS 30D by Nabil Nasser, Department of Biology Graduate Student in Dr. Alison Brody's lab

## 2013 Halloween Characters!

While my guitar gently weeps....



Erin Wysolmerski, Graduate Student in Dr. Alicia Ebert's Lab, remembers the good old days!

Defenestration in Process



Lynda Menard, Graduate Student in Dr. Jim Vigoreaux's Lab

## Donations Made to the Department of Biology in 2014

*The Department of Biology would like to thank the generous contributions made by the following. Your donations are very much appreciated!*



**Dr. and Mrs. William Berry**  
**Mrs. Jennifer Hollister-Lock and Mr. Michael Damian Lock**  
**Mr. Anthony Poulin**  
**Ms. Wendy Sara Rosenblum**

*Thank you all very much!*



**Yes! I am pleased to support the UVM Department of Biology and its commitment to excellence in education and research!**

*We are grateful for your contribution to the Biology Department of any amount*

**Please click the following link to make your donation. Scroll down, choose “Other” and type in “Department of Biology”** <https://alumni.uvm.edu/foundation/giving/online/>

Or send a check in the amount of \$\_\_\_\_\_ made payable to the University of Vermont Foundation. On the memo line of the check write “Department of Biology”. Cut this box out and send it with the check.

**Please send to:  
UVM Foundation  
Grasse Mount  
411 Main Street  
Burlington, VT 05401**

**Thank you for your support!**

## Alumni Update – The UVM Connection



**Check out the online connection to communicate with classmates from the past:**

<http://www.alumni.uvm.edu/>



**DEPARTMENT OF BIOLOGY  
WEBSITE**