



University of Vermont, College of Arts and Sciences  
**Department of Biology Newsletter**  
Spring 2018

Dear Biology Department Alumni,

We are glad to be able to send you stories about all of the amazing people and exciting research going on in our department through our newsletter. A newsletter is not all that interactive, however, and does not give you the opportunity to connect with your fellow alumni or with our current students and recent graduates who may be looking for career advice, mentorship, or internship/employment opportunities. Would you be interested in talking with, mentoring, or hosting a UVM Biology, Zoology or Neuroscience undergraduate or graduate student? How about a recent UVM grad who has moved to your area of the country, or is entering professional school, a MS or PhD program, or the job market in your area of expertise? Or are you looking for network opportunities or former classmates yourself? Tapping into our accomplished and diverse UVM alumni talent pool as a resource for our students is something we would really like to develop over the next few years, including job shadowing, research opportunities, internships, and/or informational interviews with UVM alums across the country. To help you connect with us, our recent and current students, and each other, **UVM has recently launched a new alumni networking platform, UVMConnect**, that you can sign up for very easily (using a LinkedIn or Facebook account, or with your e-mail) and that facilitates secure communication with the click of a button. Take a minute and join up at

[www.UVMConnect.org](http://www.UVMConnect.org)

**UVMCONNECT**  
POWERING THE UVM NETWORK

- 1. Reconnect**  
Find and reminisce with fellow Catamounts, see what they have been up to, stay in touch.
- 2. Offer Support**  
Connect, mentor and advise students and young professionals. Share job opportunities.
- 3. Network**  
Leverage personal and professional connections to network with UVM's worldwide community.
- 4. Advance Career**  
Explore career opportunities and job postings open to members of UVM Connect.

**UVM CONNECT IS LIVE. JOIN TODAY!**

Not to worry, the newsletter is not going anywhere, so you'll still be able to keep up with things even if you don't sign up. But we'd love to see you on UVMConnect! Cheers, Sara Cahan

## FACULTY NEWS



## 2018 Emeriti Faculty Recognition Dinner

This May, the department bids a fond farewell to Prof. Judith Van Houten, who is retiring after 38 years at UVM. Her research gained international recognition for the use of the single-celled organism, *Paramecium*, as a model for understanding how cells respond to external chemical stimuli. Her knowledge and passion for her tiny subjects, which she lovingly refers to as “little swimming neurons”, have made her a sought-after expert in this research field. She received the Manheimer Award for Career Achievements in the Chemical Senses in 1996.

Throughout her career, Dr. Van Houten has advocated forcefully and successfully, in Montpelier and in the halls of Congress, for research and development in Vermont. She secured the two largest federal grants in the history of UVM, for the Vermont Genetics Network and Vermont EPSCoR, both of which are still going strong today.

Her vision and advocacy also helped to mold the Biology department into the research-intensive, intellectually rigorous department that it is today. Her laboratory-intensive advanced course in genetics was renowned for the training it provided in precise technical skills at the bench and paired with rigorous and sophisticated conceptual understanding of modern genetics. Dr. Van Houten served her colleagues faithfully as Biology Department Chair from 1995-2005. And she is one (if not the one) most honored faculty in the history of the department, having achieved three of the four highest awards UVM bestows on faculty: an Endowed Professorship in 1997, one of the first four University Distinguished Professor awards in 2009, and the inaugural President’s Distinguished University Citizenship and Service Award in 2014.

UVM, and science research and education throughout the state, have been profoundly shaped by her wisdom, leadership and advocacy. We are lucky to have been the home for her long and distinguished career. We wish Dr. Van Houten the best as she heads off into new adventures and warmer weather.

## Congratulations Dr. Bryan Ballif



Biology faculty member Bryan Ballif was recently promoted to Professor. Dr. Ballif joined the Biology Department in 2006 and brought an expertise in biochemical analyses of signal transduction pathways, particularly as they relate to neurodevelopment and cell proliferation. One of the main tools employed by Dr. Ballif is mass spectrometry-based proteomics. This expertise has led to collaborative projects with many in the Biology Department and with other scientists local to international. In one international collaboration, Dr. Ballif identified the molecular basis of four novel blood group systems. Dr. Ballif has published 84 research articles and has been the recipient of several NSF and NIH awards. Dr. Ballif currently teaches developmental biology, proteomics, cell signaling and neuroscience. Since 2006, he has trained numerous students: over 50 undergraduates, ten Ph.D. students, three M.S. students, one technician, one visiting professor, and nine pre-college students. Dr. Ballif received the selective Dean's Lecture Award for Scholarship and Teaching in 2016.

## Congratulations Dr. Alicia Ebert



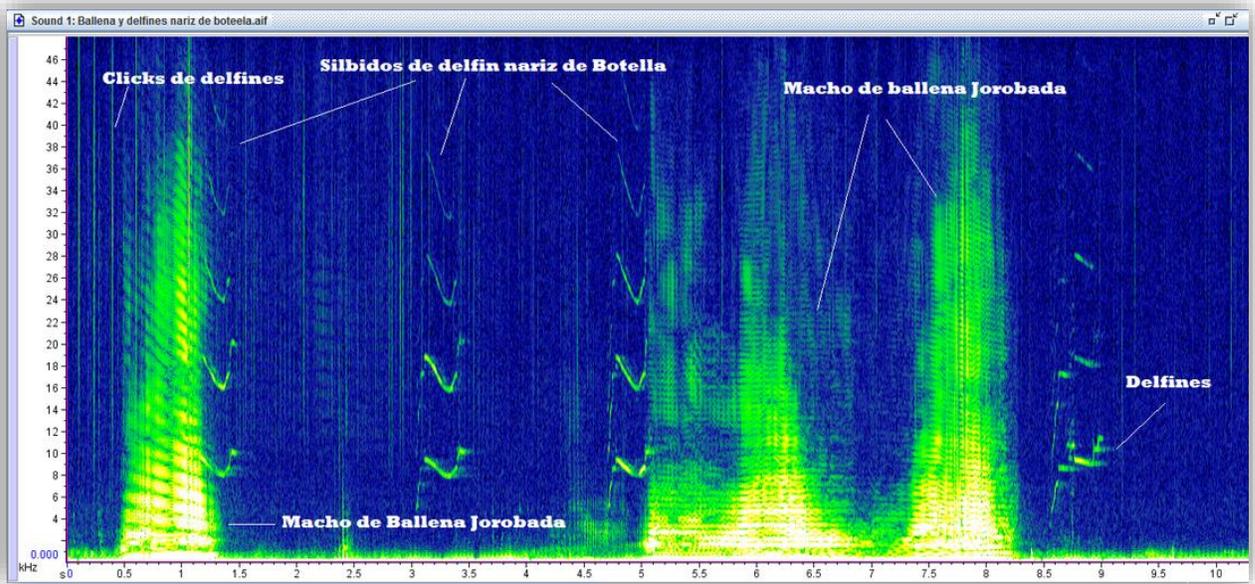
Biology faculty member Alicia Ebert was recently promoted to Associate professor with tenure. Dr. Ebert joined the Biology Department faculty in 2012 and brought an expertise in Developmental Neuroscience to the department. Her research on pathways and mechanisms that regulate development of the nervous system using zebrafish as a model organism has led to two National Science Foundation grants and several publications. She has mentored three PhD students, two Master's students, and over 20 undergraduates. Dr. Ebert has contributed several new courses to the undergraduate Biology and Neuroscience programs and was recently appointed as Co-Director of the undergraduate Neuroscience program. The utility of zebrafish as a model organism and Dr. Ebert's expertise in Developmental Biology has led to several collaborations within the Biology Department as well as the Departments of Biochemistry, Molecular Physiology and Biophysics, and Biomedical and Health Sciences.

**ONDAS Humpback Whale Project**



**Project ONDAS** lead by Dr. May-Collado deployed another two underwater recorders in Central America in 2017. Her team successfully recovered the recorders in April 2018 with the help of local scientists. The goal of this initiative is to create a network of underwater recordings that can help scientists and managers to monitor specific marine organisms, boat traffic, and the overall soundscape of marine protected areas (MPAs). Since the project began in September 2016, the project has accumulated over half a million 1-minute recordings. In collaboration with researchers at ARBIMON- University of Puerto Rico, the recordings are being catalogued in an online platform for analysis and sharing with other scientists. Last year biology undergraduate student Emma Chereskin participated in the deployment of one of the units in the Gulf of Chiriquí, a location used by southern humpback whales during their breeding season (see photos below). For her honor's thesis, Emma studied humpback male singing patterns and song structure at two Central American breeding grounds, and successfully defended her thesis in April 2018. Last year in collaboration with five other undergrads at UVM, Dr. May-Collado submitted a manuscript to the Journal of the Acoustical Society describing the daily male singing activity in relation to boat traffic. The paper is currently under consideration. Data from this acoustic network will be use in Fall 2018 by undergrad students enrolled in the CURE course Soundscapes and Behavior Research to develop independent research projects. The project was founded by Conservation International, Panacetacea, United Nations Development Programme, Ministry of Environment Panama, and the Department of Biology UVM (through development funds), and involves collaborators from Central America, Puerto Rico, and the USA. Dr. May-Collado has been nominated to apply to be one of the 2019 Pew Marine Fellows. This project will be the core of her application.





The screenshot shows the Arbibon dashboard for the "ONDAS-Humpback Whale Project". The dashboard includes the following information:
 

- Project Description:** "This project describe the acoustic activity of humpback whales and other cetaceans in the Pacific coast of CR in relation to boat traffic".
- Progress:** A progress bar with a green segment and a purple segment.
- Sites:** 11
- Recordings:** 47192
- Storage usage:** 48% (47,893,259 / 100,000 minutes)
- Species:**
  - sp1
  - sp10
  - Megaptera novaeangliae
  - Megaptera novaeangliae
  - Tursiops truncatus
  - ...

 On the right side of the dashboard is a map of the Pacific coast of Costa Rica and Panama, with several red location pins indicating recording sites. The map shows major cities like Managua, San José, and Panama City.

## UVM's Stolen Rhino Horn Recovered, Returned to University



*A black rhino horn valued at \$200,000 that was stolen from UVM's Zadock Thompson Zoological Collections 11 months ago was recovered in Ridgefield, Conn. on March 6 and returned to the university. (Photo: Brian Jenkins)*

A prized black rhinoceros horn that was stolen in April 2017 from the University of Vermont's Zadock Thompson Zoological Collections in Torrey Hall has been recovered and returned to the university. "I never thought we'd see it again," said Bill Kilpatrick, curator of vertebrate section of the collection and a professor emeritus of biology at the university. "Needless to say, we couldn't be happier."

The horn, valued at \$200,000 and dating from the early 1900s, is significant from a scientific standpoint because it contains genetic material that would provide insight into black rhinoceros about 100 years ago, when the genetic diversity of the species was much more robust than it is today. There are only about 5,000 black rhinoceros in existence.

UVM Police began investigating the crime immediately after the horn was stolen, issuing a press release and a reward offered jointly by UVM and the U.S. Fish and Wildlife Service. The press release resulted in a tip to UVM Police that the horn was in Ridgefield, Conn.

But the tip and investigation didn't reveal enough information for police to secure a warrant to search the property of the suspect and bring criminal charges if the horn was found, so investigators and prosecutors in Connecticut and Vermont determined that the best strategy was to offer the suspect immunity if the horn was returned.

“Without such an offer, the return of the property would have been unlikely,” said Tim Bilodeau, UVM's deputy police chief.

On March 6, the Ridgefield Police Department, working from information given to them by UVM Police, was able to successfully recover the rhinoceros horn.

This case remains open pending further information, so no information about the suspect is being released. The possibility remains that the case could result in criminal charges against individuals other than the suspect who was granted immunity.

Horn acquired by UVM in early 1900s

When it was acquired at the beginning of the last century, the rhino horn was mostly likely housed in Williams Hall, where the museum's natural history collection the university's Zoology Department were located.

In about 1950, the Fleming transferred ownership of the rhino horn, and the rest of its natural history collection, to the Zoology Department. But the paperwork didn't move with the rhino horn – so the details of the horn's provenance are vague.

In the mid-1980s the collection and the rhino horn moved to Torrey Hall as part of the Zadock Thompson Natural History Collections. The collections are the official research zoological collection of the State of Vermont. While the collection includes birds, amphibians, lizards, snakes, fish, mollusks, and other taxonomic groups, the historical focus has been on mammals and arthropods. The mammalian collection is strong with over 10,000 mostly local mammals, while the insect collection comprises the vast number of specimens, with over 250,000 samples. The collection is used for teaching and scholarship and is not open to the public

## GRADUATE STUDENTS



**2018 GTA of the Year Emily Mikucki**

## **Graduate Teaching Assistant of the Year: Emily Mikucki**

The graduate program in Biology is very proud of the effort and dedication of our graduate teaching assistants. Biology courses present a big intellectual challenge to students, who simultaneously have to learn lots of specialized content while employing their quantitative and reasoning skills to solve problems. Our graduate students serve as guides in this process, helping students to gain the vocabulary, problem-solving skills, and communication techniques to engage with the material and excel in the classroom and beyond.

The winner of the 2018 Graduate Teaching Assistant of the Year Award is Emily Mikucki. Emily is a third-year PhD student co-advised by Drs. Brent Lockwood and Alison Brody, whose research concerns the physiology and hibernation strategies of butterflies. Emily has extensive teaching experience, beginning as an undergraduate TA at Bennington College as well as in Costa Rica for tropical Ecology courses. Here at UVM, she has served as a laboratory teaching assistant for courses across our entire curriculum, from the introductory core sequence to our senior capstone course, Comparative Physiology. In all of these courses, she has received outstanding reviews. Here is a typical comment from a student: “Emily has been an awesome TA. She is excited about the subject matter, is 100% knowledgeable about everything we have learned, and definitely cares that we not only do well in our lab but also that we really enjoy ourselves too. Best TA I have had!” One of the instructors she has worked with commented that Emily goes above and beyond, particularly in providing helpful comments to students to improve their writing. Another relayed that “it’s wonderful to have a graduate student teaching assistant that is an inspiration to me as a fellow instructor.”

Emily is passionate about teaching, knows her subject thoroughly, and is a star in the classroom. She is a mentor and role-model for women in the sciences. We are fortunate to have Emily as a member of our department, and we congratulate her not only on this well-deserved award from Biology, but also for being selected as one of two GTAs of the year university-wide by the Graduate College!

## Alex Burnham receives Graduate Research Fellowship

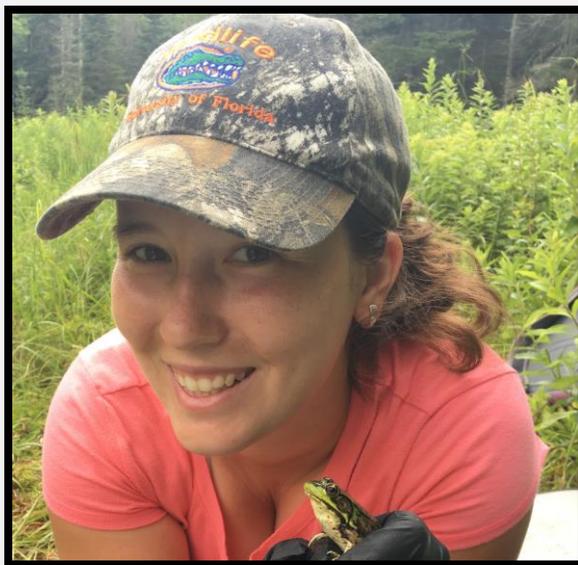


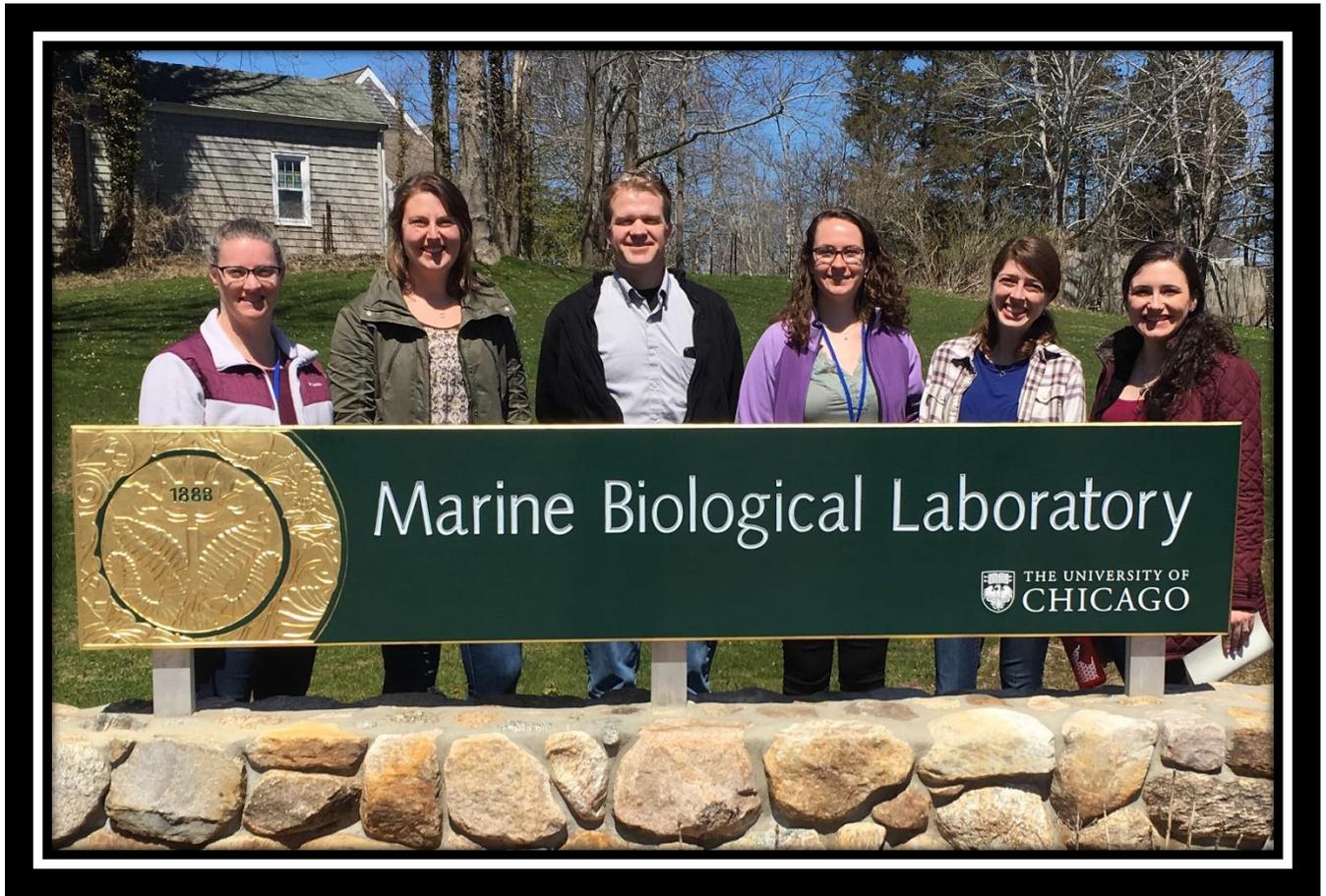
This past spring, Alex Burnham, a Ph.D. student in the University of Vermont Department of Biology, was awarded a National Science Foundation Graduate Research Fellowship (NSF-GRFP). This year, over 12,000 submissions were considered and 2000 awards were made. This competitive fellowship will provide a stipend for the remaining three years of his Ph.D. and covers all tuition expenses. Alex's interests include disease ecology, epidemiological modeling, statistics and pollinator conservation. He graduated from the University of Vermont with a B.S. in zoology where he began combining his interest in pollinators with a passion for statistics and computer science. Advised by Dr. Alison Brody and Dr. Nicholas Gotelli, his work broadly aims to examine how RNA viruses and the microsporidian parasite (*Nosema spp.*) spread from one species of bee to another and how these two pathogens interact within the host. Alex's work uses a combination of mathematical modeling and empirical work to better understand how disease spillover and temporal variation in disease load and prevalence influences patterns of co-infection in both native and managed bees. In addition, Alex is a member of the Vermont Complex Systems Center's data science program and spends his summers as the Vermont Assistant Coordinator for the National Honeybee Survey (USDA-APHIS), a national study designed to gather baseline data on honey bee disease in North America.

## **Lauren Ash, Winner of the 2018 Roberto Fabri Fialho Award**

Lauren grew up in Tampa, FL, and she became interested in the field of ecology through an introductory biology class in her sophomore year at the University of Florida. While obtaining a B.S. in Wildlife Ecology and Conservation, she gained valuable knowledge in ecological concepts and field techniques and had the opportunity to travel to and conduct research in Belize and Africa. She then attended University College London and received a Master of Research degree in Biodiversity, Evolution, and Conservation. One of her research projects focused on predicting the distribution of anthrax across Africa, and through that project, she discovered her passion for computational modeling and disease ecology.

Lauren is now a third year Biology Ph.D. candidate in Dr. Nicholas Gotelli's lab. Her research integrates field, computational, and genetic approaches to answer questions on the distribution, ecological drivers, and host-pathogen dynamics of ranavirus, the emerging infectious disease in amphibian communities. She hopes her work can add to the further understanding of disease ecology and inform local and global conservation efforts of amphibian populations





“Members of the Ebert and Ballif labs attended the Northeast Society for Developmental Biology in Woods Hole, MA in April. Helaina Stergas, Caroline Dumas, and Kristen D’Elia presented posters and Ashley Waldron gave a talk.”

### **2018 APLE Award Recipients**

Margaretta Kuhn, Kimberley Mack Nair, Cai McCann, Aubrey Pelletier and Claire Wilcox

**Congratulations!**

### **2018 Wheeler Graduate Award Recipients**

Anish Ali Sarkar won for his proposal on: "Inflammation of the taste system: Cyclophosphamide and Amifostine"

Ravi Nagori won for his proposal on: "Investigating the effect of ergogenic nutritional supplement on muscle function in ageing *Drosophila Melanogaster* ".

**Congratulations!**

### **2018 Oppenheimer Undergraduate Award Recipient**

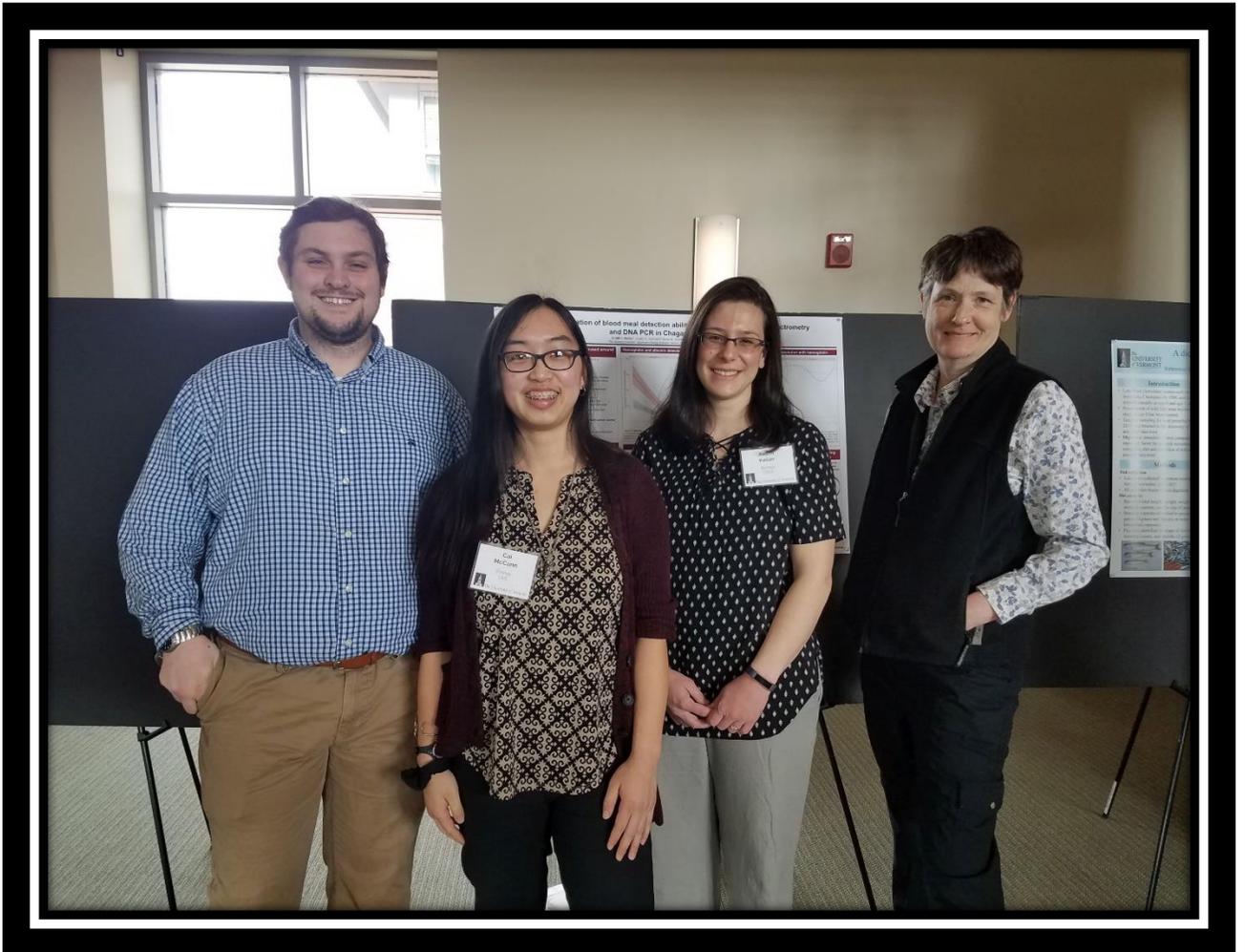
Cai McCann

**Congratulations!**



**Amanda Northrop attended the New England History Conference in April.**  
 Her Presentation was on *“Driver-dependent hysteresis in an enriched aquatic ecosystem”*.  
 (Advisor: Dr. Nicholas Gotelli)

## Dr. Lori Steven's Lab

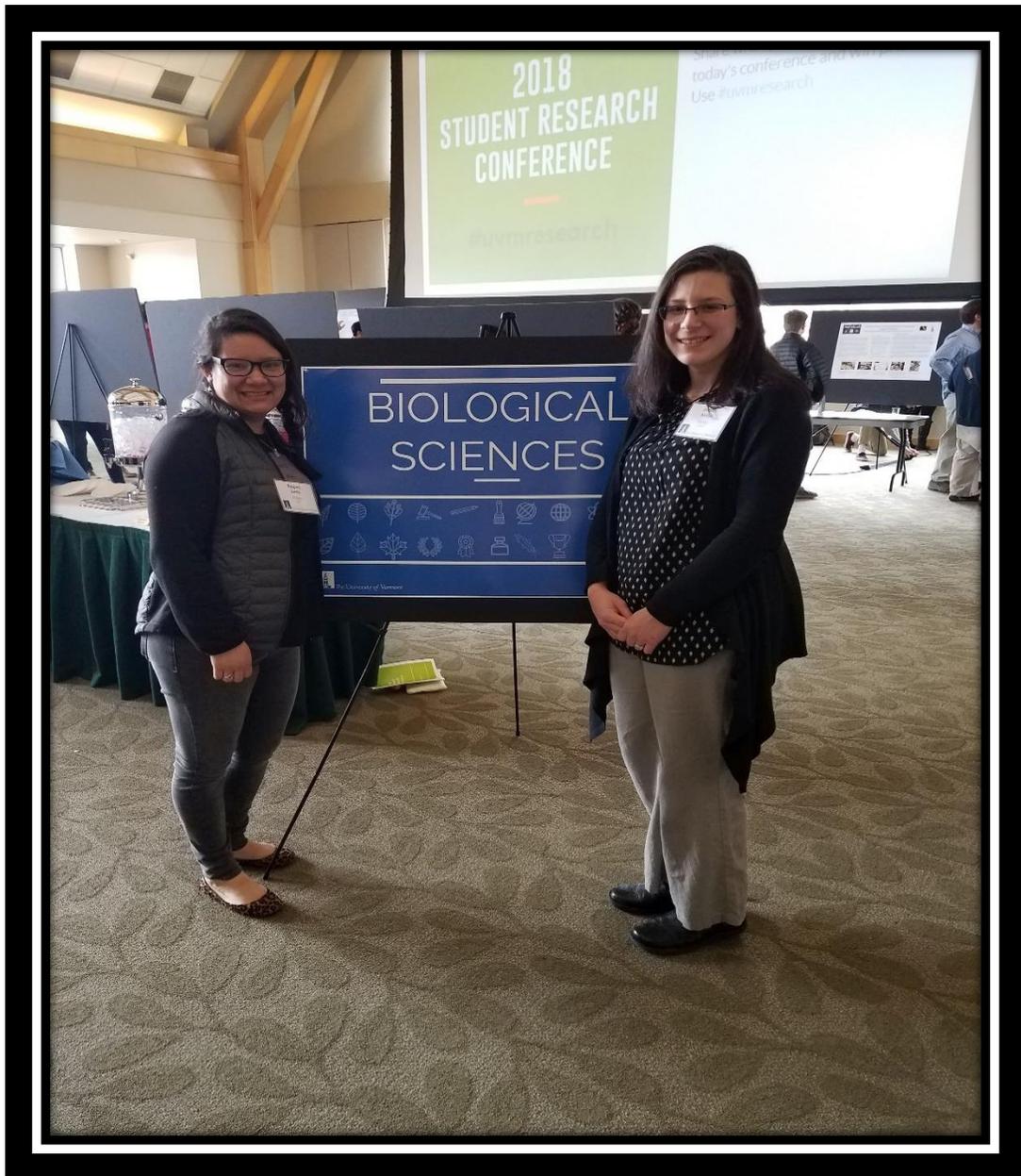


**Dr. Lori Stevens with Students from her lab: Joseph Gallant, Cai McCann and Judith Keller attend the UVM Student Research Conference.**

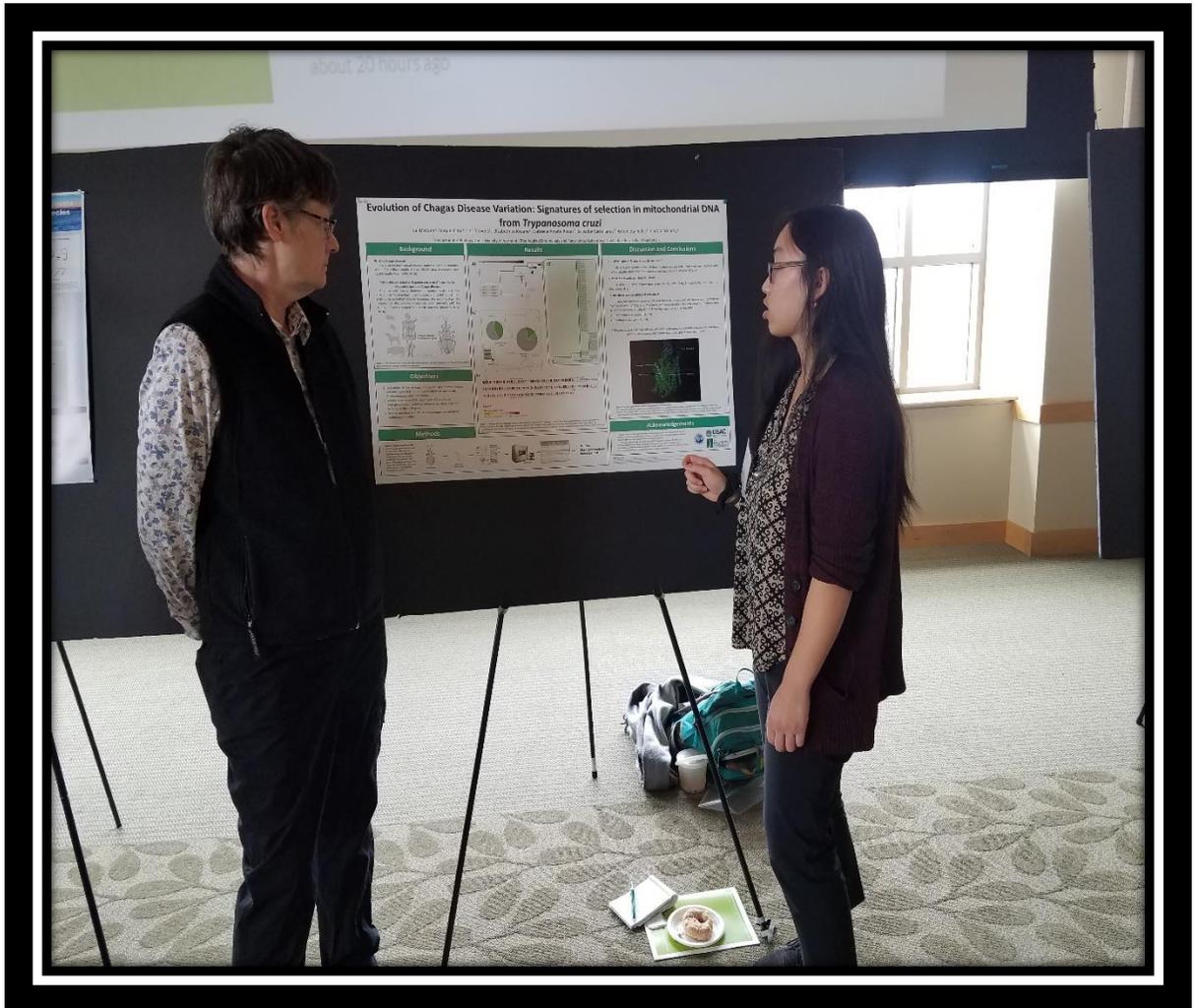
Professor Lori Stevens and the students in her lab study a rich assortment of topics revolving around Chagas Disease, a neglected tropical disease causing over a million cases of heart disease, especially in Latin America. We study various aspects of the disease, currently focusing on understanding the ecological and population genetic factors that can contribute to infection and virulence variation. Over the last year, our lab has been working on publishing several papers, including one by 4<sup>th</sup> year PhD candidate Judith Keller who is exploring innovative ways of detecting what insect vectors of Chagas disease are feeding on using mass spectrometry with the help of her co-advisor Dr. Bryan Ballif. Judith received a College of Arts and Science Award for summer funding. Raquel Lima, 3<sup>rd</sup> year PhD candidate, is in the process of publishing a large collaborative data set spanning several years of Ecohealth interventions in Central America, while recently graduated Pharmacology Accelerated Master's student Joseph Gallant is revising his thesis on Chagas parasite drug targets for publication. Joseph will be pursuing his PhD in Pharmacology at the University of Minnesota starting this coming fall. Dr. Silvia Justi, our lab's post-doc, has also published several papers on Triatominae vector evolution and systematics, before moving onto her new post-doc position working on mosquito systematics at the Walter Reed Biosystematics Unit, Smithsonian Institution Museum Support Center. Our lab's undergraduate researcher, Cai McCann recently received an APLE award from the College of Arts and Science, an Honors College Mini Grant, and an internship award for the summer to study genetic variation in the parasite transmitting Chagas disease. The lab most recently participated in UVM's Student Research Conference presenting several posters. We are looking forward to all the exciting additional research this coming year!

Check out <https://www.chagasecohealth.com/> for more information on our projects.

## 2018 UVM Student Research Conference

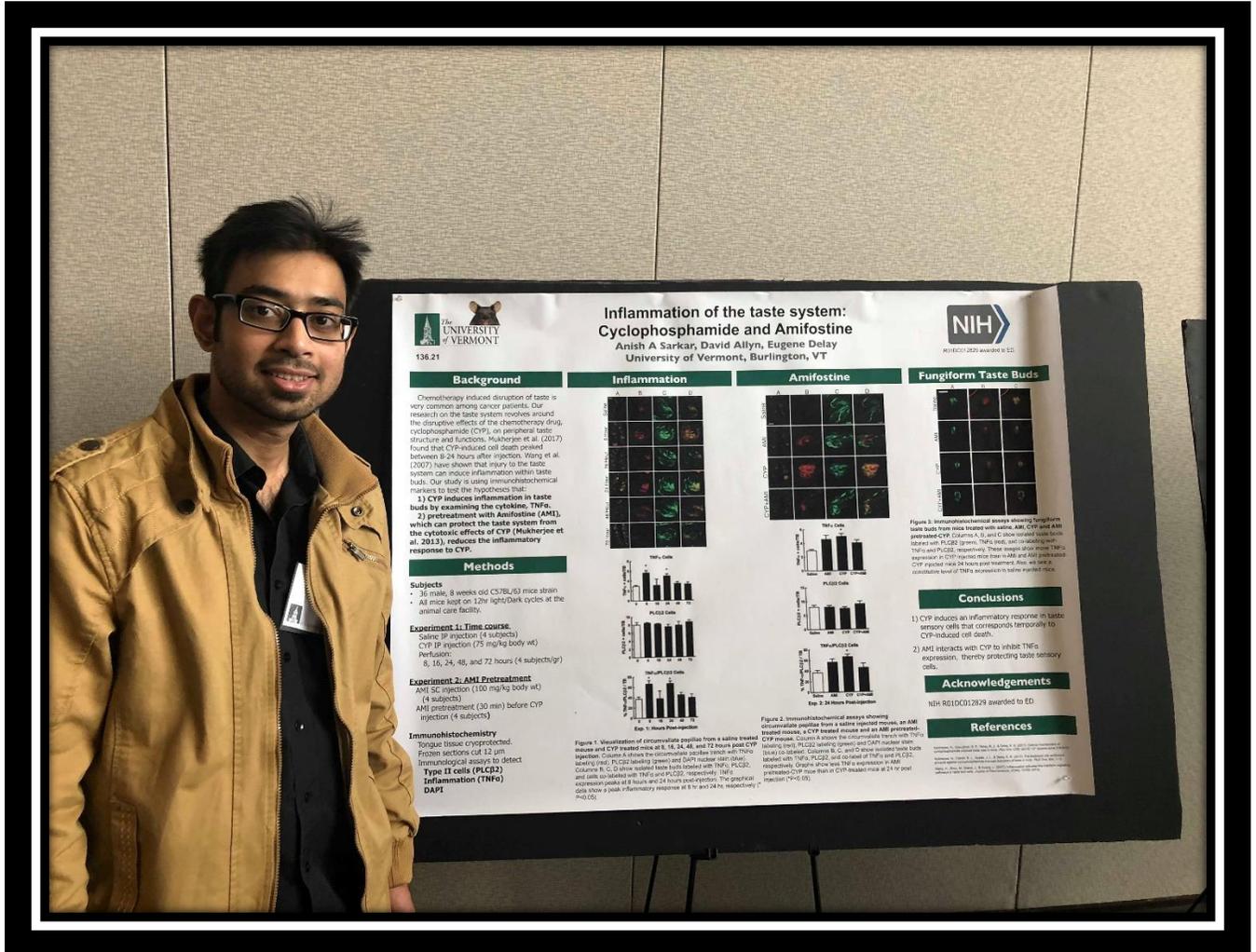


**PhD students Raquel Lima and Judith Keller presenting at the UVM Student Research Conference in April.** Raquel Lima's presentation was "*A description of *Triatoma huehuetenanguensis* and its epidemiological importance for Chagas transmission in Guatemala*". Judith Keller's presentation was "*Temporal variation of blood meal detection ability comparing protein mass spectrometry and DNA PCR in Chagas disease vectors*". (Advisors: Lori Stevens and Bryan Ballif)



**Dr. Lori Stevens and Undergraduate, Cai McCann**, discussing a poster at the UVM Student Research Conference. *“Testing for Natural Selection on the COII Gene of the Chagas Disease Parasite, Trypanosoma cruzi”*

Our lab’s undergraduate researcher, Cai McCann recently received an APLE award from the College of Arts and Science, an Honors College Mini Grant, and an internship award for the summer to study genetic variation in the parasite transmitting Chagas disease.



**PhD Student, Anish Sarkar, presenting on “Inflammation of the taste system: Cyclophosphamide and Amifostine”**  
 (Advisor: Eugene Delay)

## ALUMNI NEWS

### ACCOMPLISHED ALUM 2018

Graduate Alum, Dr. Carl Bromwich



Following my happy years at UVM, I spent a year doing supply teaching and working on a dairy farm in the Adirondacks before heading to Dartmouth for medical school. After four years at Dartmouth I returned to my home and native land to spend four years doing an internal medicine residency at McGill. The only thing I was sure of as I completed my residency in internal medicine was that I did NOT want to spend my life doing internal medicine. In lieu of that, I headed further north in the interest of exploring the arctic for a couple of years, while providing consultation services in VERY GENERAL internal medicine for the Inuit of Nunavik. Unlike general internal medicine in most clinical settings, this included obstetrics, pediatrics, traumatology and a regular dose of parasitology (human and beyond)....in other words, I was playing family physician/veterinarian without the credentials. It was a blast. In fact, it was so much fun that instead of spending a couple of years doing it, I stayed for eleven years. During that amazing time I became zoologically trilingual. That is to say that I knew the names of most of the animals in Inuktitut as well as in French and English. I also kept a thumb in the academic pie, by holding the title of clinical professor of medicine at McGill.

If it hadn't been for an unusual adventure in the reproductive realm, I would probably still be in the north, but I was not comfortable raising my children there, so with two Inuktitut-speaking children I returned south in 2004. On returning, I decided to explore an interest that lay dormant during my time in Kuujuaq and Kangiqsualujuaq and did a one-year fellowship in palliative medicine at the University of Ottawa. For the past 13 years I have been on the Faculty of Medicine at l'Université de Sherbrooke, where I am now a professor and the residency program director in palliative medicine. In the last couple of years I have also become one of the local experts in the provision of medical-aid-in-dying.

Throughout the process, I have maintained my interest in the life sciences, choosing to live in the sticks, raise countless different kinds of animals alongside my children and have planned most of my family vacations around the possibility of showing off the lizard-hunting skills I acquired at UVM under the tutelage of Jos Schall. As there are no lizards native to Quebec, I now indulge my inner zoologist by focusing on birds and participating in citizen science projects like Bird Studies Canada's the Feederwatch and Nestwatch initiatives and am looking forward to acquiring a bird-banding permit when I retire from medicine. Truth be told, much as I loved zoology and my time at UVM, I recognized that I did not possess the creative genius of the likes of Jos Schall and so followed a different path. Observation and data collection was my zoological forté at UVM and, in my early dotage, it is to data collection and observation that I have happily returned.

## Undergrad Alum, Dr. Barbara Block

Dr. Barbara A. Block holds the Charles and Elizabeth Prothro Professorship at Stanford University. Her research is focused on how large pelagic fish utilize the open ocean. She and her team have pioneered the successful development and deployment of electronic tags on tunas, billfishes and sharks. Dr. Block is Co-founder with the Monterey Bay Aquarium of the Tuna Research and Conservation Center the only facility in North America holding tunas for research. The lab studies bluefin and yellowfin tunas from a whole organism to genome perspective with interests in physiology of migrations, thermogenesis, cardiac biology, energetics and reproduction. Dr. Block was first introduced to endothermy at UVM in a class with Dr. Charles Woods and remembers well her excellent courses in animal physiology, structure and function. At Stanford, the combination of lab and field research has led to a rapid increase in the understanding of movement patterns, population structure, physiology and behaviors of pelagic fish and sharks. Block and her tuna team have deployed electronic biologging tags on tunas (bluefin, yellowfin and albacore) in the Atlantic and Pacific oceans, and performed genetic and isotopic analyses that provide insight about physiology, migrations, population structure, ecology and management models for tunas' in the Atlantic and Pacific oceans. Dr. Block was a Chief Scientist for the Tagging of Pacific Predators program (TOPP), organized under the Census of Marine Life. This international program, the largest electronic tagging program on the globe, succeeded in placing 4000 electronic tags on 23 predators in the California Current to better understand how pelagic animals (tunas, sharks, sea turtles seabirds, seals and whales) use the North Pacific ecosystem. She earned her B.A. at the University of Vermont, and began her oceanographic career at Woods Hole Oceanographic Institution in 1979 with Dr. Francis G. Carey. She earned her Ph.D. in 1986 at Duke University with Dr. Knut Schmidt Nielsen, and a postdoctoral research fellowship at the U. Pennsylvania. She was an assistant professor at the University of Chicago (1989-1993) and joined the Stanford faculty as an Assistant Professor in 1994. Block has published over 200 peer reviewed papers, edited two books on tunas, and has received the NSF Young Investigator Award, a MacArthur Fellowship, a Pew Fellowship for Marine conservation, a Rolex Award for Enterprise and the Benchely Award for ocean science. Block founded the TAG A Giant Fund at The Ocean Foundation to elevate the science and conservation initiatives for bluefin tuna globally in 2006. She is committed to science communication and has helped design aquarium and science museum exhibits featuring pelagic fish and tracking work. Block has worked on 5 films with Discovery, Disney and Nat Geo, the most recent film is the award winning documentary called *Blue Serengeti*.





Kyle Rhodes graduated from UVM in 2010 with a B.A. in Biology, Pre-med. This year she will be graduating from the National University of Natural Medicine (NUNM), located in Portland, Oregon, with a Doctorate in Oriental Medicine. Her training certifies her to treat patients with Acupuncture, Chinese medicinal herbs and various forms of Asian body work & manual therapy as well as nutritional coaching & Qigong/Tai chi exercises.

It has always been a dream of hers to serve people with natural medicine and this year she will be hitting a huge landmark of that goal.

So grateful for her experience at UVM which prepared me with an appreciation for the natural world through hard work and curiosity.

One of my teachers leading in front and the other is a picture of myself during the initial trek to the monastery. Both took place on Emei Shan Mountain, Sichuan, China.

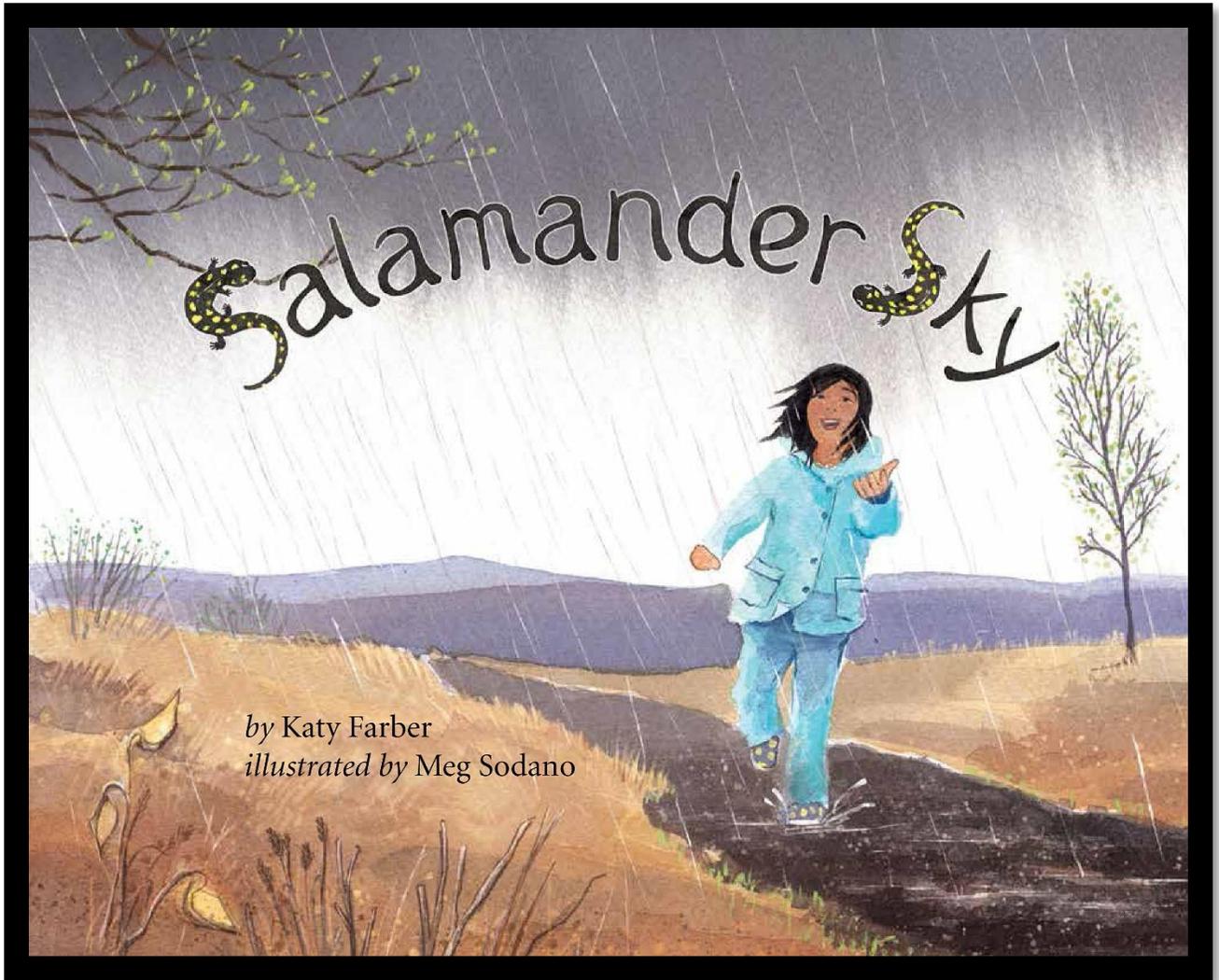


In 2016, Kyle had the opportunity to accompany her teachers and colleagues to Sichuan, China where she met, Wang Qing Yu, the 80 year-old lineage holder of the (Jin Jing Gong) Qigong form. This practice is at the Heart of the Chinese medicine program at NUNM and something that makes it truly unique. This form has been passed down by Heiner Fruehauf, the founding member of the program here in Portland, OR.

On the trip, we would wake at sunrise each morning and walk up the hill to the Buddhist monastery on the sacred Emei Shan Mountain for our daily practice. Although our lineage holder, Wang Qing Yu, is a Daoist healer, Daoist temples are a rarity in China these days. In the tradition, the healer held a self-cultivation practice (Qigong or Taiqi) along-side their medical practice. This is vital so that the practitioner keeps their hands skilled and senses keen to be able to diagnose and treat properly.

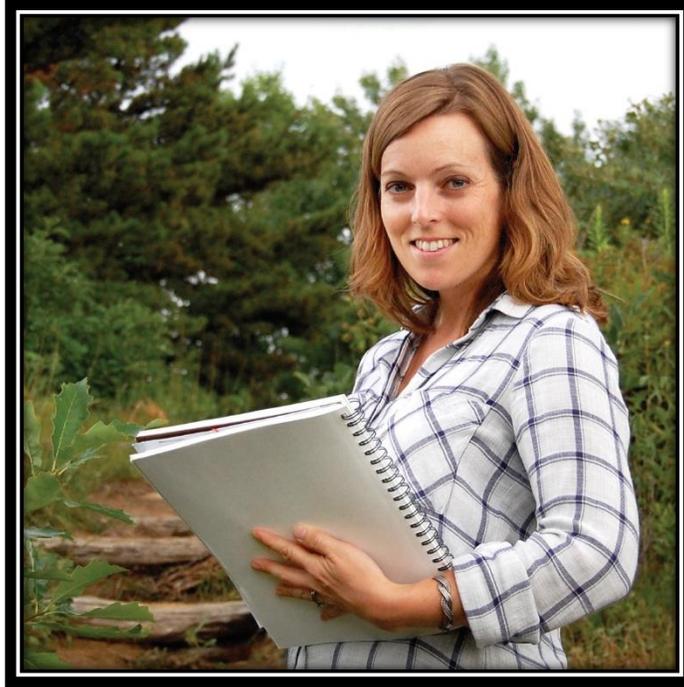
This experience is something she could have never imagined in her future and has enriched my dream of becoming a natural healer.

Attached is a picture of her class practicing Qigong in the temple with one of my teachers leading in front and the other is a picture of herself during the initial trek to the monastery. Both took place on Emei Shan Mountain, Sichuan, China.



Meg Brewster Sodano (studied biological science and animal science at UVM, 2001) has illustrated a natural science picture book called *Salamander Sky*, written by Vermont author, Katy Farber, and published by Green Writers Press. Every spring in the eastern region of the United States, warmer nights with steady rain bring the migration of thousands of spotted salamanders to ponds and pools, often across busy roads. *Salamander Sky* features a mother and daughter who go out on a rainy night to help the salamanders cross the road safely. The book introduces readers to the salamanders' life cycle, habitat, and conservation challenges. Amphibians worldwide desperately need protection. *Salamander Sky* is a valuable tool for getting children actively engaged in conservation. Age range 4-8 years. Visit Meg's website at [msodanoillustration.com](http://msodanoillustration.com) to see more.

**Meg Brewster Sodano (studied biological science and animal science at UVM 2001)**



***Salamander Sky*, written by Vermont author, Katy Farber, and published by Green Writers Press.**



**UVM Alumni Working Together at [Wood Pond Veterinary Service, PLLC](#)**



## Wood Pond Veterinary Service

Andrew Krause graduated from UVM in 1997 and went to North Carolina State University for veterinary school. Prior to his time at UVM he thought he would go into companion animal practice (cat and dog work). Working at the UVM farm and working with the CREAM herd in particular changed his focus to dairy. Most of the students in vet school were somewhat intimidated by thought of going into dairy practice unless they grew up on a farm or had a lot of background experience in the industry. It's easy to understand that point of view because vet school teaches you a lot about the animal standing right in front of you but often times not so much about the farm as a whole entity. He really appreciated his UVM experience because it exposed him to farm management on many different levels so I never had any concerns about being unprepared for what I would face on farms. There aren't many kids growing up in agriculture anymore so it is a benefit to the whole industry when graduates of a program like UVM can feel that dairy production medicine is open to them even if they don't choose to follow that path.

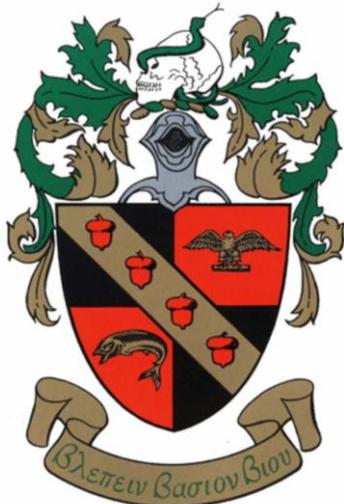
He graduated from NC State in 2001 and spent a little over a year working in Bradford VT before he started my own practice in 2002 just across the river in North Haverhill NH. It was a solo practice at first and it was all bovine. There was a pretty strong demand for equine vets in the region so horses gradually started making their way into the practice as well. Erin Nelson joined the practice in 2004, she was Erin Snarski when she graduated from UVM but after vet school at Purdue she married local dairy farmer and another UVM alumn Ethan Nelson. Erin and I worked together for 10 years and Megan Foy joined us in 2014. Megan is the daughter of dairy farmers in Danville VT and went to the University of Wisconsin after Vermont. The most recent addition to the practice is Tyler McGill who is from St. Johnsbury. Tyler went from UVM to Virginia Tech for a masters degree and then a veterinary degree before he joined our group in 2017. When we are looking to add new associates to the practice we place a high value on people that have a strong connection to the area. It's not surprising that we all ended up being UVM graduates but it certainly has been nice that the University has provided so many good prospects.

[www.woodpondvet.com](http://www.woodpondvet.com)

## UNDERGRADUATE STUDENTS

Emma Chereskin is a senior in the Biology department finishing up her senior thesis. She is working with Dr. Laura May-Collado to look at humpback whale songs in Pacific Central America. We're analyzing recordings dating back to 2007 to see if we can establish a rate of change for the songs sung during breeding season while simultaneously developing a novel classification scheme to more accurately describe humpback whale songs. We are also interested in examining the effects of boat traffic noise on the acoustic activity of these breeding whales. As the whale watching industry increases in these areas (Costa Rica and Panama) developing eco-friendly policy is of the utmost importance. She has attached a picture of some whales taken during her time in Panama over the summer of 2017 as well as some spectrograms of the songs.

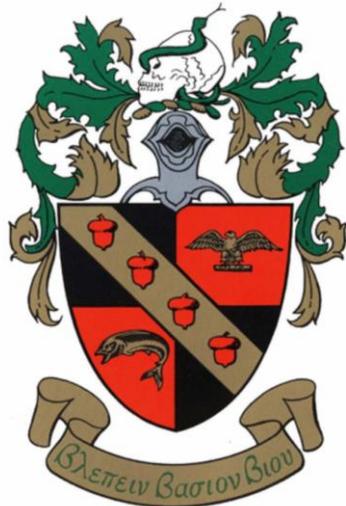




**BETA BETA BETA NATIONAL  
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**Tri Beta Honor Society Graduates**



**BETA BETA BETA NATIONAL  
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**Tri Beta Honor Society Inductees**

## DEPARTMENT OF BIOLOGY Student Honors Awards 2018



Each year the Department of Biology recognizes and awards undergraduate students with outstanding academic performance and excellence in research.

Dr. Sara Helms Cahan, Chair of the Biology Department, presented the awards.

George M. Happ Award  
Delaney Curran

George Perkins Marsh Award  
Lucy Rogers

Joan M. Herbers Award  
Claire Wilcox

Bernd Heinrich Award  
Colleen Yancey

Kurt Milton Pickett Award  
Lorraine Dang

## STUDENT HONORS AWARDS 2018

Each year the Department of Biology recognizes and awards undergraduates who have excelled academically and have made outstanding contributions to research. Dr. Sara Helms Cahan, Chair of the Biology Department, presented the awards. Congratulations to all!

*Delaney Curran - Received the George M. Happ Award in Biology*



After I graduate, I will be furthering my studies at medical school, which starts this August. I am excited to apply what I have learned in the field of biology at UVM to taking care of people on a daily basis. Because I am very interested in almost everything that pertains to medicine, I remain very undecided about my specialty, but I am excited to explore my options over the next few years.

**Lucy Rogers - Received the *George Perkins Marsh Award in Ecology/Evolution***



**Thesis Title:** Wildlife Values of Conservation Professionals: A Case Study of the International Bear Association.

I am a biology major focused on wildlife conservation and population genetics, and I am interested in the interdisciplinary aspect of scientific research. I am completing my senior thesis, Wildlife Values of Conservation Professionals, in the geography department in order to explore the perspectives held by conservationists and ways in which those perspectives influence conservation research. During my sophomore and junior years at UVM, I worked in on a project in Dr. Kilpatrick's genetics lab looking at the population structure of mud puppy salamanders in Vermont. As a senior now, I am enrolled in Dr. Pespeni and Dr. Keller's Ecological Genomics class and I would like to pursue future research related to molecular evolution. Outside of biology, I am a math and Chinese double-minor and I help my parents grow a vegetable garden and raise animals.

## Claire Wilcox - Received the *Joan M. Herbers Award in Biology*



**Thesis Title:** "Life or Death? It's HARS to tell: A Characterization of Histidyl-tRNA Synthetase Function in Zebrafish Eye Development"

Claire completed her Honors Thesis working in Dr. Alicia Ebert's lab, where she used zebrafish as a model organism to explore the role of histidyl-tRNA synthetase (HARS) in eye development. Understanding how HARS affects early eye development may provide insight into why mutations in the *hars* gene can cause progressive deafness and blindness in humans. While Claire's eventual interests lie in medicine, she is taking some time to pursue her passion for Mandarin Chinese and will be moving to China after graduation. She hopes her position teaching science in a primary school will allow her to share her experiences with her students and pass on her excitement for learning.

**Colleen Yancey - Received the *Bernd Heinrich Award in Physiology or Evolution***



**Thesis Title:** Hubbard Brook Ice Storm Experiment: Understanding the Effects of Extreme Ice Storm Events on the Symbiotic Relationship Between Mycorrhizal Fungi and their Respective Tree Species.

I am broadly interested in studying and modelling microbial communities and how their interactions and dynamics shift in a changing world. I am specifically interested in how climate change and other anthropogenic factors can alter community dynamics. At the University of Vermont I have had the opportunity to do biogeochemical research with Dr. Carol Adair of RSENR. My honor's thesis focused on Ice Storm mediated disruptions of mycorrhizal symbiosis in Northern hardwood forests. I have also worked on projects including assessing the microbial activity and its contribution to denitrification in riparian zones in Northern Vermont, as well as a project that assessed nutrient leaching in mesocosms subjected freeze thaw conditions. Next fall, I will be starting my PhD at the University of Michigan in geomicrobiology and bioinformatics. I will specifically be researching harmful algal blooms in the Great Lakes, modelling their community structures, and studying their genomes to better understand their toxin release. Ultimately, my hope is that I will be able to enter academia or work in a governmental position to continue research in my field of field of interest.

*Lorraine Dang - Received the Kurt Milton Pickett Award*



**Thesis Title:** “Determining the Mechanism by which the LCMV Matrix Protein Z Recruits Cellular ESCRT Machinery”

I have been working in Dr. Jason Botten’s laboratory since summer 2015 conducting research on the interactions between host and viral proteins in the release of viral particles in arenaviruses. Arenaviruses might cause many human diseases. There are currently no FDA-approved treatments for arenavirus infections; thus, my study is to better understand the mechanism of viral life cycle in order to discover therapeutic targets against this infection. Due to my exposure to virology and my interest in cancer biology, I become fascinated by how our immune system works to fight against infectious diseases and its practical application in cancer immunotherapy. As a result, I am applying to MD or MD/PhD program this coming cycle to pursue further education and research experience in this field. During my gap year, I have been admitted to the Master’s program at University of Cambridge, but am still waiting for the funding.

## **Donations Made to the Department of Biology in 2017 and 2018**

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



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*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!**

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