



Nature Boom Time! Coming soon to a screen near you

Imagine camping 300 feet up in a canopy of giant California sequoias, a feat accomplished by fewer humans than have soared to the moon. Now, you have a glimpse into Charlie Engelman's recent exploits.

Engelman has been caught in a whirlwind since winning the National Geographic Expedition Granted competition in fall 2014, while still a U-M undergraduate. His \$50,000 prize funded travels across the United States during summer 2015 to create entertaining and engaging science videos aimed to get youth fired up about nature. His video, "Get Pumped About Nature," beat out 700 entries garnering a quarter of the 400,000 votes cast. His sister, Kirby, his partner in crime, thinks they had an edge because they had such fun with their project and her brother thinks it also has to do with public engagement.



Another day in paradise: Charlie Engelman awakes in a hammock in a giant sequoia canopy 300 feet up.

Engelman feels a responsibility to teach people, especially the younger generation, about the environment. "There are a lot of things happening to the environment right now, often as a result of our actions, that we need to help fix," he said. "Now, kids are spending less time outside, so they're not as connected to nature, which is a problem. If the next generation is so disconnected from nature, they might not work to fix it. Also, I think there's not any good science media out there, specifically focusing on biology, that younger people can relate to that's fun and entertaining."

Shortly after graduating in December 2014 in ecology and evolutionary biology with a minor in museum studies, Engelman and his team spent 70 days on the road. They climbed the soaring sequoias in California with Cornell Tree Climbing and spent a night atop

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Photo credit: Charlie Engelman

Kirby Engelman having the time of her life.

alumni profiles

True blue. A perennial teacher and student of life



"As a black woman on the campus of U-M, I am inspired to hear stories like Sophia's," said Ellis' scholarship recipient, Antoyrie Green (left) with Sophia Holley Ellis (right).

Sophia Holley Ellis remembers the hungry homeless men who came to the back door of her family's home in northwest Detroit during the Great Depression. Although her parents had nine children to feed, her mother always gave the men a slice of bread spread with whatever she had to share and something to drink.

She'd turn on the hose

and water pump, wash their clothes and hang them to dry. Ellis recalls a neighborhood effort to assist these men, many of whom were veterans of World War I, who traveled through the city on trains.

A young girl learned the value of generosity and kindness firsthand. One of those men played the violin and a harmonica, which caught a young girl's eye and ear. He was leaving town on the train in a week's time but told Ellis that if she learned to play the harmonica, it was hers to keep. Full of determination, she's been playing ever since.

In 2009, Ellis, who earned bachelor's and master's degrees from the University of Michigan with the help of scholarships, started her own scholarship fund with a generous \$25,000 gift. The Sophia Holley Ellis Scholarship endowment gives priority to students in the College of Literature, Science, and the Arts from Detroit with financial need.

Ellis, the first African American to study at the U-M Biological Station, earned a bachelor's degree in biology and German in 1949, a master's degree in botany in 1950 and a master's degree in German in 1964.

She went on to teach biology in the Detroit Public Schools for 56 years and taught German for the last 20 of those years, before retiring in 2006. Ellis also taught earth science, horticulture,

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alumni profiles

Chair's note



Diarmaid Ó Foighil
Chair and Professor of Ecology
and Evolutionary Biology
Curator, Museum of Zoology

Greetings from Ann Arbor! I'm writing this on a glorious late fall morning in the EEB chair's office, perched just above the Kraus greenhouse. The view south across the U-M's storied "Diag" is currently a sea of multi-hued foliage: a glorious mosaic of greens, yellows, browns and reds. We are enjoying peak fall color on central campus at the moment and our aesthetic pleasure is heightened by the underlying awareness that winter is just around the corner.

I'm pleased to report that the EEB department continues to thrive and that it stands to benefit from very significant investment by LSA and by the U-M in the biological sciences over the next three years. Although our biology program has undergone multiple organizational changes at the department level over the past century (previously Botany and Zoology, then Biology, now EEB and MCDB), its home has remained in the Kraus Building, built in 1914. That is about to change. A new state-of-the-art Biological Sciences Building, situated next to Ruthven Museums, has begun construction. It will house both biology departments plus the Museum of Natural History and we will move in by fall 2018. Meantime, our priceless research collections in the Museum of Zoology and the Herbarium will be co-located for the first time in 90 years, together with the paleontology and anthropology collections, in a new centralized museum complex on Varsity Drive. Although the process of implementing change and relocation is challenging, the end result will be spectacular. As of 2018, our program will be rehoused in modernized research and teaching space, poised to explore new frontiers in 21st century science. Our future is indeed bright!

Most years involve some degree of faculty transition and during 2015 we are losing one faculty member to retirement and gaining three. Ronald Nussbaum, who retires at the end of the year, has been a faculty member and curator since 1974. His research focuses on the biology of amphibians and reptiles worldwide with special emphasis on western North America and on the fascinating but endangered herpetological fauna of Madagascar. We are most fortunate to be the recipients of three exciting faculty hires as of September 2015. Assistant Professor Nyeema Harris studies the ecology of mammals and their parasites both in North America and in Africa.

It is hard to believe that she has only been a faculty member for two months – such has been her impact and contributions in the classroom and throughout our program. Dr. Harris is profiled in this issue of *Natural Selections* on pages 3 and 5 – do not miss it. In addition, EEB continues its extraordinary run of success through the Michigan Society of Fellows with two new incoming assistant professors: Lydia Beaudrot, who studies tropical forest ecology and conservation and Benjamin Winger, whose specialty is avian evolution.

Because EEB's research and teaching span the full range of biological diversity, from molecules to ecosystems, it can be difficult to succinctly summarize our academic program. However, this year's edition of *Natural Selections* provides outstanding examples of what makes our program special. On our first page, we profile two outstanding alumni, one newly minted, the other an awe-inspiring veteran, both united in their infectious enthusiasm for biology and education. Last year, EEB major Charlie Engelman garnered 100,000 online votes to win a nationwide competition that may well be the start of a famous career. It was gratifying to see how the whole department supported Charlie and celebrated his success. I had the great pleasure of meeting Sophia Ellis at EEB's Early Career Scientist Symposium earlier this year. It is hard to convey just how impressive and inspiring Ms. Ellis is one-on-one, but read her profile to get an inkling of this extraordinary pioneer and philanthropist's accomplishments. In addition to the profile of Nyeema Harris (referred to above), this issue also contains a short summary article by William Foreman (Michigan News) on Professor John Vandermeer's long-term agroecology field research station in Chiapas, Mexico – see the associated links for a series of in-depth articles and videos on this research program produced by Foreman and his team. There's also an art-meets-science article that outlines how the Stamps School of Art & Design's Making Science Visible class takes inspiration from the Museum of Zoology collections – be sure to check out the tumblr link to see the resulting artwork. We end with the ultimate family tree: Assistant Professor Stephen Smith and colleagues recently published an interactive "Tree of Life" for all 2.3 million described species – the first comprehensive genealogy of life on earth.

I invite you to stay in touch over the coming year. Please take advantage of the many electronic portals to departmental news and events, including our website (lsa.umich.edu/eeb), Facebook, Twitter (#UMichEEB), Instagram, EEBlog, YouTube channel, RSS newsfeed and newsletter. If you are visiting Ann Arbor, please feel free to drop in and visit me at Kraus 2019.

With my best wishes for a peaceful holiday season and a healthy and prosperous new year!

Diarmaid Ó Foighil

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Mark S. Schlissel, *ex officio*





Infectious enthusiasm: Wildlife ecologist brings multi-faceted research program to EEB

Nyeema Harris in Hwange National Park, Zimbabwe, Africa.

Nyeema Harris, the newest assistant professor to join the Department of Ecology and Evolutionary Biology, credits the transformative experiences of her childhood with setting her on a path to become a wildlife ecologist.

"I grew up in the city of Philadelphia, which isn't surrounded by beautiful landscapes and even seeing deer was a treat," she recalled. Much of her exposure to wildlife came from the Philadelphia Zoo, where she had her first job. When she was about 13 years old, a safari to Africa with the zoo confirmed her passion and interest in wildlife conservation. Having a biology teacher for a mom certainly helped along the way.

"It's really interesting to think of the transformative experiences people have that lead them on different career trajectories. I think it's imperative for us in the natural sciences to promote transformative experiences to ensure the next generation of ecologists, microbiologists, and other ologists reflect the ethnic and cultural diversity our nation."

Prior to joining the University of Michigan, Harris worked with the World Wildlife Fund in Switzerland at the Luc Hoffmann Institute. The institute brings together conservation practitioners with academicians to co-create and implement applied research projects.

So, rather than scientists working in a vacuum generating information and then trying to disseminate it to users, the model is reversed, with users of the information at the table. In this way, "we design a research project that we know is going to be beneficial because we had consultations at the start," Harris explained. "Thinking about the process of research and the use of science definitely broadened my perspective. It changes my approach to teaching, mentoring and scholarship.

"In the 21st century, given the environmental problems we have, ecologists are uniquely placed to demonstrate our relevance to society and to contribute to global issues."

Harris is now setting up her lab and the team is forming quickly with new graduate and undergraduate students already on board. She's been surprised by the interest and enthusiasm her research program has garnered. Her research blends concepts from community ecology and biogeography to study mammal species interactions – namely parasitism, competition and predation. Much of her work aims to have conservation and societal relevance.

"Saving parasites is a hard sell. It's much easier for people to support the charismatic megafauna. But if conservation is meant to be inclusive with goals of maintaining ecosystem health and biodiversity,

we should actually be expressing gratitude to parasites for their function. But, I think we are a long way from a save-the-cestode campaign."

Harris is beginning to develop a program she calls Beyond Carver (named after George Washington Carver, the famous African-American botanist, agricultural scientist and inventor) to broaden the participation of underrepresented minorities in the sciences. Working with colleagues at U-M and other universities, initial plans are for a threefold program: 1. Ensure that we are profiling scientists of color in introductory

Harris coauthored a recent paper in *Conservation Biology*, "Paradigms for parasite conservation." Read more: bit.ly/harris-con-bio

Biodiversity research on Mexican organic coffee farm makes headlines

by William Foreman, associate director of international communications, Michigan News

Mosquitoes flitted around his face and buzzed by his ears, making the annoying “zeeeeeeep” sound. Beads of sweat built up on his brow. The late morning Mexican sun tried its best to burn a hole in his neck. But it didn’t seem to faze Zach Hajian-Forooshani. With one knee planted in grass crawling with ants and the other balancing a notebook, Zach stayed focused as he bent low to count the coffee rust spores



Ivan Monagan. Image credit: Michigan News - International.

growing on one of the plants he’s studying for his master’s thesis.


I’ll never forget this scene and many others just like it from the week in June that I spent with John Vandermeer and EEB graduate students on an organic coffee

farm in the mountains of southern Chiapas state. Vandermeer has been researching the site for nearly 20 years.

I marveled at master’s student Ivan Monagan’s super human talent for spotting an Anole lizard 100 yards away in the

bushes. Every day, doctoral student Beatriz Otero Jimenez was out the door before sunrise to check 120 rat traps she set in the forest and fields. Vandermeer and his research partner Ivette Perfecto from SNRE would spend hours numbering hundreds of leaves on a coffee plant, measuring the branches and calculating the angles so that they could create a computer model that shows how coffee rust moves on the plant. Doctoral student Senay Yitbarek spent his mornings on steep slopes, baiting 154 sites with oily chunks of tuna and observing what kind of ants came to eat it. Then he would collect all the bits of fish and do it again the next day.

No one complained about the cold showers back at the base – a farmhouse that has been converted to a research station. Or the way it took days for a pair of socks to dry on the line in the soupy humidity. There was no Internet. And coral snakes have been known to slither into the house at night. I asked Vandermeer what you do if one bites you. “You die!” he replied.

The experience made me fully appreciate how grueling – sometimes even perilous – scientific fieldwork can be. It can also be tedious, uncomfortable and lonely. No doubt, to do it well, you need to be intelligent. But a huge amount of passion, endurance, sacrifice and dedication is essential as well. And I saw these things in abundance. 

Discover more stories, photos and videos:

EEBlog: eeblog.lsa.umich.edu/

EEB YouTube channel: bit.ly/eeb-youtube

Global Michigan stories: global.umich.edu/newsroom/

Getting to know you: unique scientific illustration class explores UMMZ collections

How would you like to spend 16 weeks getting intimately acquainted with a dung beetle?

The undergraduate students of the Stamps School of Art and Design class, Making Science Visible, began the winter semester at the University of Michigan’s Museum of Zoology. For many, this is an introduction to scientific illustration.

After touring the museum, students chose their own critter to get acquainted with. The extensive UMMZ collections include birds, fish, insects, mammals, molluscs, reptiles and amphibians. The collections managers played a key role in the success of the class by sharing their knowledge and enthusiasm and opening up their spaces to the students.

Rachel Snyder selected the dung beetle (*Scarab oxysternon*) because she liked the plane of its exoskeleton. “The curves and ridges of the beetle inspired me to create rich cavernous shapes and imagery,” Snyder said. Her favorite creation is a stone lithograph depicting an abstract representation of the beetle.

“The most interesting discovery I made about my specimen is that dung beetles can navigate using the Milky Way! They actually gaze at the stars to guide them home.”



Photo credit: Dale Austin

Eva Roos sketches a Barred Owl (*Strix varia*) from an interesting perspective.

The praying mantis (*Stagmatop petra*) was the choice of Sidney Krandall, who liked the cultural association and bright color of the insect.

“Studying a small, mostly monochromatic insect provided me with the opportunity to better study all of the intricate textures and details of its anatomy,” Krandall said. It gave her

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courses to promote an environment of inclusion. 2. Build a community of scientists of color to increase their interactions and profile the work of these individuals in a video to enhance visibility. 3. Provide (more) potentially transformative experiences with K-12 students and develop ways to assess the success of these programs.

“This service piece is really important to me,” Harris said. She seeks to broaden participation and share the wonders of the natural world beyond the academic community. “Increasing our relevance happens in part through visibility and requires us to step out of our comfort zones. Scientists can be intellectuals whilst being champions and entertaining. We have to disseminate our science and the value of our science more broadly.”

Conservation is a common thread running through Harris’ multi-faceted research program. She investigates spatial patterns of biodiversity, the role of protected areas and the ecological and social implications around species loss. “We recognize that species have roles to play within different ecosystems and that they are part of multiple complex interactions. When one of those interactions is removed, either the community has to compensate or things just start to collapse.”

Regarding economics, especially in the African context, tourists flock to see large, charismatic mammals. “Imagine there were no tourists visiting the Serengeti because there were no more elephants or lions. How much revenue would Tanzania lose because of that? Therefore, the conservation of species and their ecosystem services, particularly within protected areas, has broad societal relevance.”

Another new direction for Harris’ research program in a trans-boundary protected area in West Africa has important implications for wildlife management conservation. Even as she selected a top predator – critically endangered West African lions – as her focal species, she realized that something consumes even top predators, namely parasites. She will be investigating how parasitism influences predator-prey systems and asking how parasites might influence or maintain biodiversity.

“We often vaccinate, deworm or delouse animals as part of our conservation efforts. We think we are improving fitness and survival, and sometimes perhaps we are, but we really don’t understand the intricate implications that manipulating the parasite community could have on the carnivore community from a behavioral, ecological or physiological perspective.”

“Changing fitness, behavior or movement could have massive implications because of how important they are in that system,” Harris explained.

Harris will travel to West Africa in January 2016 for several months to set up shop. The shorter grass during dry season makes the study area more accessible and increases visibility. (She once accidentally walked within about 30 meters of a lion in tall grass!)

Harris collaborates with park authorities and is establishing relationships with local university partners in order to work with

graduate students and project managers. This will open doors for collaborations and exchanges for U-M students as well.

Launching her research project involves setting up remote camera traps to assess the area’s biodiversity including the distribution of lions, and the abundance and diversity of prey. Essentially, photos are taken as animals or people cross the camera’s field of vision.

Harris is exploring opportunities to perform similar research much closer to home in the Upper Peninsula of Michigan. Based on species composition and distribution, she’ll choose a focal species, like skunk, raccoon or fox, and begin field work next summer after returning from Africa. She explained, “We

“In the 21st century, given the environmental problems we have, ecologists are uniquely placed to demonstrate our relevance to society and to contribute to global issues.”

will be asking the same question about how parasites influence behavior and predator-prey interactions.”


Another research project Harris will pursue will involve the U-M Museum of Zoology collections with a goal of trying to understand if historic interactions detected from museum records and specimens were maintained, despite alterations to the landscape, through urbanization, agricultural expansion or climate change. She stresses that conservation efforts seek to maintain species interactions as well as the species themselves.

“The work I do requires me to be outside,” Harris said, with peals of laughter. “It’s really hard for me to move back to a bed from my beloved tent when I return from the field.” She found a nature sound app so she can fall asleep to the sounds of crickets or wolves.

Harris’ most exciting class as an undergraduate was general ecology, and as luck has it, she is teaching general ecology at U-M. She redesigned the course so that each semester bears a different theme. This year’s theme is ecology in every day, covering food, sex, music and water.

She will deploy cameras next month in Michigan’s U.P. to survey the carnivore guild, which will stay out until spring. “These cameras have cellular capacity, allowing images to be transmitted without returning to the sites. Imagine getting disrupted by a text or email that shows a bobcat at station six. We will be able to bring real-time data into the classroom.”

“Hopefully I can be a source of inspiration and encouragement,” Harris said. “That’s part of our obligation as instructors. If I don’t want to come to class, why should students want to?”

Outside of work, Harris kicks back with photography, poetry and jazz. 

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physical science, and ecology when it was a brand new discipline. Ellis taught in kindergarten, elementary, middle and high school classrooms up to Wayne County Community College.

“Look at all the things I’ve done in this world because I am a U-M grad.”

Although she earned a modest salary as a teacher, she privately funded several students’ college educations before establishing her U-M scholarship. Meeting her first recipient, Antoyrie Green, was one of the high points of her life.

“I can still see the light in Antoyrie’s eyes,” recalled Ellis, who recently moved from her home in Detroit to assisted living at Brookdale Southfield. “She told me she was ready to come home from school (due to financial concerns), and then the scholarship office told her that they had some money for her. The thrill of meeting her was more bubbly than champagne.”

“The University is the reason I am,” said Ellis. “I hope this scholarship will bring kids like me to Michigan – students who are smart but just wouldn’t have the money to come to our great school otherwise – the kids who are dreamers.”

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the trees where they watched the stars and awoke at sunrise. Engelman directed a film shoot suspended from ropes 300 feet in air. On the other side of the spectrum, they scuba dove in Monterey, Calif. in a kelp forest, where directing presented different challenges. “It was hard to communicate with each other. Seals were swimming everywhere. It was really fantastic!”

The two Engelmans and another partner, Patrick Rahill, are in the process of producing about a dozen video shorts, which will likely be released by January 2016. The next adventure begins when Engelman and Rahill start a production company to make the second season on marine life and scuba diving for television.



“As a black woman on the campus of the University of Michigan, I am inspired to hear stories like Sophia’s,” said Green. “Stories of black women who came before me, defied all the odds, and pursued – and reached – their dreams only push me to do the same.”

For the last four years, the Ellis Scholarship has been awarded to Laura Ann Seay, a screen arts and cultures, molecular and integrative physiology major.

Over the years, Ellis has received prestigious accolades including the Phyllis Layton Perry Educator of the Year in 2006 by the National Council of International Visitors, U.S. State Department, who also named her a Citizen Diplomat in 2012. The German Federal Republic bestowed its highest citizen award, the Federal Cross of Merit, upon Ellis in 1995.

Up until recently, Ellis taught German and piano. She’s currently studying Arabic and knows a little Russian. At her new residence, she is getting to know everyone’s name and is affectionately known as the harmonica lady. She loves to entertain her news friends with her rendition of The Victors. “Look at all the things I’ve done in this world because I am a U-M grad. I don’t think I’ve graduated yet,” she said laughing.

Read more in EEB alumni news: bit.ly/um-eeb-ellis

Including excerpts from an LSA article by Marianne George

More Charlie coolness!

- First video shot on his iPhone starring frogs
- Team captain, U-M Random Acts of Kindness Club
- Actor with the U-M Educational Theater Co.
- Docent at the U-M Museum of Natural History
- Player of campus carillon bells, piano, guitar, ukulele, trumpet, harmonica
- Dream job: producer and host of film series, fusion of David Attenborough and Bill Nye Science Guy

Discover more about this rising star

bit.ly/umeeb-ce-insect-videos
bit.ly/umeeb-ce-natgeo
 YouTube World By Charlie

Twitter @WorldByCharlie
 Instagram WorldByCharlie

Engelman shot his first ever video on his iPhone during a horticultural internship at Winterthur, Delaware. “There wasn’t much to do in Delaware in the summer,” he recalled. Every day after work, he spent time splashing through rivers in his boots. “I would catch snakes, frogs and turtles. I was fascinated with these frogs for some reason. I thought they were absolutely outstanding.” A combination of too much time on his hands and wanting to share with his family led him to piece the videos together. “I had such a blast doing it that I just kept it up.” The resulting “Nature Time” series he created resulted in an offer from a company in San Francisco to produce a YouTube video for them and his story continues from there.

“If you’re really enthusiastic about something, really excellent things can happen,” Engelman said. And he should know.

Stay tuned to Engelman’s Twitter account @WorldByCharlie for updates on where and when to watch “Nature Boom Time!”

'Tree of life' for 2.3M species released

By Robin A. Smith, Duke University, and Jim Erickson, University of Michigan

A first draft of the “tree of life” for the roughly 2.3 million named species of animals, plants, fungi and microbes has been released, and two University of Michigan biologists played a key role in its creation.

A collaborative effort among 11 institutions, the tree depicts the relationships among living things as they diverged from one another over time, tracing back to the beginning of life on Earth more than 3.5 billion years ago.

Tens of thousands of smaller trees have been published over the years for select branches of the tree of life – some containing upwards of 100,000 species – but this is the first time those results have been combined into a single tree that encompasses all of life. The end result is a digital resource that is available free online for anyone to use or edit, much like a “Wikipedia” for evolutionary trees.

Understanding how the millions of species on Earth are related to one another helps scientists discover new drugs, increase crop and livestock yields, and trace the origins and spread of infectious diseases such as HIV, Ebola and influenza.

Rather than build the tree of life from scratch, the researchers pieced it together by compiling thousands of smaller chunks

that had already been published online and merging them into a gigantic “supertree” that encompasses all named species. A paper summarizing the findings was published September 2015 in *Proceedings of the National Academy of Sciences*.

U-M evolutionary biologist Stephen Smith heads the multi-institutional group that tackled the nitty-gritty details of piecing together all the existing branches, stems and twigs of life’s tree into a single diagram. Cody Hinchliff, formerly a post-doctoral researcher in Smith’s lab who is now at the University of Idaho, did much of the heavy lifting on the project and shares first-author credits with Smith on the PNAS paper.

EEB Professor Smith and Hinchliff brought both computer savvy and knowledge of evolutionary biology to the project, which required them to write tens of thousands of lines of computer code and to create several new software packages.

“In addition to the process of combining existing trees, much of what was done at the University of Michigan was the development of tools and techniques and the analysis of the tree itself,” Smith said. “To complete this project, we had to code our own solutions. There was nothing out of the box that we could use.”

Read PNAS paper: bit.ly/pnas-tree

Read full press release: bit.ly/umnews-tree

Open Tree of Life: bit.ly/opentreeoflife

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a better appreciation for organisms she sees every day around Ann Arbor.

Krandall found the final assignment most meaningful. She produced pamphlets embossed with a depiction of the mantis, inspired by her wish for visually impaired individuals to experience the mantis’ intricate beauty.

Emily Mylrea selected the shell of an eastern lamp mussel (*Lampsilis radiata*) because she was interested in the creature’s biology. “I didn’t realize the larval stage is parasitic,” she said. “They cling on the gills of fish and use them as vectors to disperse upstream.”

Her favorite assignment was an experimental one where students used different methods to capture a characteristic of the specimen. She crafted a piece of jewelry to clamp onto her ear the way the mussels cling to fish gills.

Jacob Dwyer selected a red fox (*Vulpes vulpes*), partly because it’s a rare animal that lives in Michigan. For his first assignment, he sketched the fox with pencil and then planned to add watercolor.

“I learned a lot about the fox’s hunting techniques, including a study that suggests that they may use the Earth’s magnetic field to aid them in winter predation.”

The winter 2015 semester marked Professor Brad Smith’s fourth time teaching Making Science Visible, a class of his



Rachel Snyder selected the dung beetle (*Scarab oxysternon*) because she liked the plane of its exoskeleton.

own design. Smith is a professor in the Penny W. Stamps School of Art and Design and a research professor in the Department of Radiology.

Discover more

Tumblr blog: makingsciencevisible.tumblr.com/

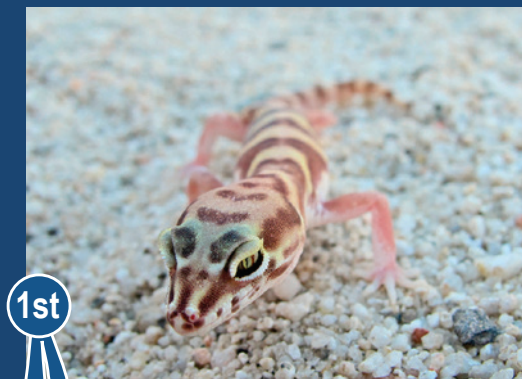
Read full story in EEB web news: bit.ly/umeeb-news-ummart

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PHOTO FINISH



Pascal Title



Ivan Monagan



Jason Dobkowski

Honorable mentions



Anat Belasen



Brian Metzger



Johanna Nifosi



Pamela Murillo Rojas

EEB Honorary Photographer at Large Contest 2014

First: Pascal Title, Desert banded gecko, Anza-Borrego Desert, Calif.

Second: Ivan Monagan, Harlequin grasshopper, Elgin, Ariz.

Third: Jason Dobkowski, Autumn grizzly, Denali Park, Alaska

Honorable mentions:

Anat Belasen, Distinguished, Brazil

Brian Metzger, Blyde River, South Africa

Johanna Nifosi, The colors of life, UMMZ bird collection

Pamela Murillo Rojas, Baby sloth, Costa Rica

The photo contest is in memory of David Bay, "photographer at large" for EEB and its predecessor departments for 34 years. See all photos from the 2014 contest here: <http://bit.ly/um-eeb-photos14> (the 2015 contest is underway).

