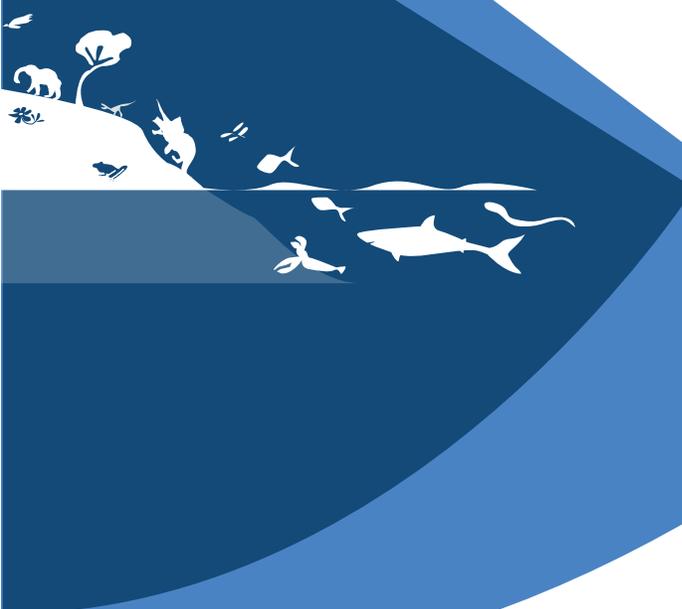


OEBnews

2017-2018

Newsletter of the
Department of Organismic
& Evolutionary Biology
HARVARD UNIVERSITY



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Welcome from the Chair



Elena Kramer

DEPARTMENT CHAIR
BUSSEY PROFESSOR OF ORGANISMIC AND EVOLUTIONARY
BIOLOGY, HARVARD COLLEGE PROFESSOR

Dear Colleagues, Alumni, and Friends,

Another year has come and gone in OEB, full of excitement, new friends and initiatives, and, of course, fantastic science. Graduation day on May 24th brought some of the loveliest weather in recent memory to greet 27 graduating Integrative Biology concentrators and 12 OEB graduate students who received their well-earned PhDs.

This was a particularly busy year for IB concentrators and their faculty and graduate student instructors, as roughly 70 undergraduates and 10 instructors from four different courses traveled over 30,000 miles roundtrip to visit far-flung field sites ranging from dry forests in Brazil to tropical forests in Costa Rica and Panama to marine environments off the shore of Panama. These amazing learning experiences were made possible by the generous support of MCZ, HUH and OEB departmental endowments.

It has been an equally exciting year in the OEB graduate program. As usual, our graduating PhDs have explored the full breadth of biological science from the level of the gene to the ecosystem scale. Likewise, the annual G4 Symposium reached new heights by highlighting a dizzying array of fascinating research being pursued by our graduate students. It is thrilling to see the way that this event has grown every year as the student presentations somehow become even more polished and professional, and all the attendees grow more enthusiastic. Next year's symposium, which will feature our rising class of 22 G4 students, promises to be a real blockbuster. We have taken equal pleasure in celebrating OEB alumni who have done amazing things with their PhDs with the 4th Annual OEB Alumni Career Panel. This year's panel featured Dave Blackburn (OEB PhD '08), Tonia Hsieh (OEB PhD '05), Brett Huggett (OEB PhD '13), and Laura Stone (SysBio '15), who led an animated discussion of careers across academic, industry, and collections science. OEB alumni should keep an eye out for invitations to serve on a future panel!

This would be a very long letter if I tried to cover the entire breadth and diversity of activities among our faculty, so I refer you to the newsletter for all the details. I do want to highlight, however, that FAS continues to recognize the exceptionally high standard of teaching among OEB faculty, as Prof. Robin Hopkins received a Fannie Cox Prize for Excellence in Science Teaching, and Prof. George Lauder was named a Harvard College Professor. Although we've had a few departures, including professors Andrew Richardson (N. AZ State), Elizabeth Wolkovich (UBC), and Jonathan Losos (Wash. Univ., St. Louis), we are very much looking forward to the addition of Prof. Javier Ortega-Hernández, who will be joining us in January, and the successful recruitment of our top candidate from the recent tenure track search in Global Change Ecology. More good news came in the form of two promotions and a new appointment: Thomas D. Cabot Associate Professor Ben de Bivort, Associate Professor Stephanie Pierce, and Professor in Residence Jim Mallet.

These exciting developments are really only the beginning, so please take some time to peruse the entire newsletter. Remember, you can follow all the latest news from OEB on our website and we always welcome updates on your activities and accomplishments!

Best wishes, *Elena Kramer*

Congratulations to our Graduates!



SETH DONOUGHE

“Germ cell specification, syncytial development, and egg diversity in insects” (C.Extavour)

OLEG DMYTRENKO

“The enigmatic Calvin cycle in chemoautotrophic symbionts” (C.Cavanaugh)



AMANDA EVANS

“Molecular phylogeny of the wood-boring beetle family Buprestidae and insights into the evolution of host use” (B.Farrell)

DANNY HAELEWATERS

“Studies of the Laboulbeniomyces: diversity, evolution, and patterns of speciation” (D.Pfister)



STEPHEN KLOSTERMAN

“Perspectives on plant phenology in deciduous forest ecosystems at multiple spatial scales” (A.Richardson)

JENNIFER KOTLER

“What’s good for the goose is good for the gosling? Evolutionary theory, parent-offspring conflict and genetic disorders” (D.Haig)



WESLEY LOO

“Host speciation and microbiomes: Ecological and evolutionary factors shaping gut microbial communities in Darwin’s finches” (C.Cavanaugh)

CLAIRE MEADERS

“A whole new whorl: An exploration of the morphology, genetics, and ecological function of the staminodes of *Aquilegia*. (E.Kramer)



JACOB PETERS

“Distributed control of microclimate by honeybee colonies, *Apis mellifera* L. (L.Mahadevan)

CALLIN SWITZER

“Bee pollination biology: Buzzing, behavior, and biomechanics” (R.Hopkins)



REBECCA POVILUS

“Reproduction and seed development in the water lily *Nymphaea thermarum* - A new perspective on the evolution of flowering plant seeds” (N.Friedman)

CHENG-CHIANG WU

“Gene duplication and evolution of the MADS-box floral homeotic, *WUSCHEL-RELATED HOMEBOX*, and *PIN-FORMED* gene families in angiosperms” (E.Kramer)



Faculty News

Research Highlights

NASA tasked **Peter Girguis** and colleagues at Woods Hole Oceanographic Institution to develop the ultimate deep-ocean observatory, ABISS (Autonomous Biogeochemical Instrument for In Situ Studies). ABISS launched in August 2017 and will be wirelessly controlled for the next two years from the ship, [E/V Nautilus](#). Girguis and his colleagues' findings will help NASA in their quest to explore Jupiter's moon, Europa, which may have the necessary ingredients for life. Videos of ABISS's deployment were featured in [Scientific American](#) and [The Harvard Gazette](#).

L. Mahadevan recreated complex birdsongs using air blown through a stretched rubber tube. The study, in the [Journal of the Royal Society Interface](#), found the complexity of birdsongs may be due to a simple controllable instability in the structure of the syrinx, a specialized organ used to create songs. [The Harvard Gazette](#) and [SEAS](#) provided audio and video of the recreated songs.

Gonzalo Giribet was part of two teams of researchers that discovered four specimens of the new arachnid, *Chimerarachne yingi*. The discovery and study findings of the *Chimerarachne yingi* - an ancient relative of spiders that had eight legs, fangs and a scorpion whip-like tail - are published in two papers in [Nature Ecology & Evolution](#) and was featured in [The New York Times](#), [The Washington Post](#), and [Nature](#).

George Lauder teamed with Harvard engineers and colleagues from the University of South Carolina to find a bioinspired structure that could improve aerodynamic performance of airplanes, wind turbines, drones, and cars. The study, in the [Journal of the Royal Society Interface](#), looked at sharkskin denticles (thousands and thousands of small scales) to determine a decades-old mystery of their function. Past research focused mainly on drag-reducing properties of denticles, but Lauder and his team looked at whether the denticles' shapes were best suited for in-

Notable Awards

Mansi Srivastava received the NSF Career Award.

E.O. Wilson awarded the Reed Environmental Writing Award.

Pardis Sabeti awarded L'Oreal USA For Women in Science Programs' 2017 Changing the Face of STEM.

Andrew Knoll awarded Doctor of Science *honoris causa* from the Richard Gilder Graduate School at The American Museum of Natural History.

Gonzalo Giribet received an honorary doctorate from the University of Copenhagen.

James McCarthy awarded the 2018 Tyler Prize for Environmental Achievement.

Brian Farrell appointed Faculty Dean of Leverett House.

Naomi Pierce elected to the 2018 Class of the American Academy of Arts & Sciences.

Colleen Cavanaugh awarded the 2018 Star Family Challenge for joint research with Karine Gibbs (MCB).

Hopi Hoekstra elected to American Philosophical Society.

George Lauder appointed Harvard College Professor.

Robin Hopkins awarded the Fannie Cox Prize for Excellence in Science Teaching.

creasing lift. The study showed shark-inspired vortex generators achieved lift-to-drag ratio improvements up to 323 percent and opened the door to exploring more bioinspired aerodynamic designs. The study was highlighted in the [The Harvard Gazette](#).

Paul Moorcroft and researchers identified rising temperatures, drought, fire, and rising CO₂ as a few causes of increasing rates of tree mortality in moist tropical forests. The study, in [New Phytologist](#), examined the drivers, mechanisms, and interactions for increasing mortality rates and suggested steps to better understand and predict future mortality under climate change.

L. Mahadevan and Olivier Pourquié, Harvard Medical School, used mouse cells to create a segmentation clock for the first time in a petri dish. A segmentation clock creates repetitive arrangement in developing embryos and with each tick of the clock a vertebra starts to form. The study, published in [Cell](#), leads to discoveries of where the clock is located, what makes it tick and how the vertebral column takes shape, as well as improved understanding of human spinal defects.

Peter Girguis and Postdoc **Sunita Shah Walter**, led a research team that showed underground aquifers near the undersea Mid-Atlantic Ridge act like natural biological reactors, pulling in cold, oxygenated seawater, and allowing microbes to consume more refractory carbon than scientists believed. The study's results, published in [Nature Geoscience](#), increase our knowledge of the carbon cycle. The research was supported by NSF's Division of Ocean Sciences.

Martin Nowak examined how strategies can foster or destroy cooperation. The study, in [Nature Human Behavior](#), finds that across repeated interactions, the environment that individuals find themselves in can affect whether they act as partners or rivals. Only partners allow for evolution of cooperation, while rivals attempt to put themselves first, which leads to defection. The study was featured in [The Harvard Gazette](#).

Benjamin de Bivort Promoted to Thomas D. Cabot Associate Professor of OEB

Benjamin de Bivort's work straddles the fields of neurobiology and behavior, driving pioneering discoveries about the biological bases of behavioral biases. He largely invented the study of random variation in the brains and behaviors of individual animals whose genetic and environmental differences have been minimized.



James Mallet Appointed Professor of OEB in Residence

James Mallet uses the tropical *Heliconius* butterflies to explore the roles that ecology, hybridization, and adaptation have played in the diversification of this group. By integrating field biology with genomics, he has broadened how we think about species and highlighted the potential impact of persistent genetic exchange.



Stephanie Pierce Promoted to Associate Professor of OEB

Stephanie Pierce's broad use of modeling and experimental methods, combined with creative analyses of fossil and living vertebrates, drives important, novel discoveries about how evolutionary innovations have generated diversification of vertebrate form and function. Her interdisciplinary and integrative approaches to the study of vertebrate evolution has led to a new paradigm for her field.



Andrew Knoll and a team of researchers from Rensselaer Polytechnic Institute and the Carnegie Institution for Science used a metric they termed “swing factor” to determine the ecological impact from the change in the number of animals within each palaeo-community in a given time-frame. The study, published in [Proceedings of the National Academy of Sciences](#), showed that of the five extinction events, the Permian-Triassic event had the largest swing. Using the swing factor, paleontologists can now compare the ecological impact of the Permian-Triassic extinction event with others.

Nature uses a set of simple growth rules to make complex shapes in nature and human faces. Building on previous research to explain naturally morphing structures, **L. Mahadevan** sought to unlock those rules and reverse engineer nature’s ability to grow an infinitely diverse array of shapes. The study, published in [Proceedings of the National Academy of Sciences](#), demonstrates a technique to grow any target shape from any starting shape. The article includes three videos of the work and was featured on [NSF Science 360 Radio](#).

N. Michele Holbrook and lab members, Juan Losada (Postdoc) and Jessica Gersony (PhD student), collaborated with Michael Knoblauch, Washington State University, and former Holbrook Lab Postdocs, Jessica Savage and Kaare Jensen, to answer the long-lasting question of how trees maintain efficient sugar transport as they grow taller. The study, in [Nature Plants](#), showed the key to the mystery of how taller trees can move nutrients longer distances lies in the ability of the phloem structure, which transports carbohydrates, to change with increasing height. The study provides evidence that plants of all sizes use the same system to transport sugars and was featured in [The Harvard Gazette](#).



Bob Woollacott retired on June 30, 2018 after 46 years on the faculty.

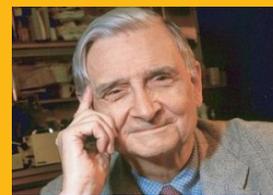
Welcome Javier Ortega-Hernández

Javier Ortega-Hernández will join OEB in January 2019 as Assistant Professor of OEB and Curator of Invertebrate Paleontology at the MCZ. Ortega-Hernández is an invertebrate



paleontologist whose work explores the early evolution of arthropods by integrating fossils, developmental molecular biology, and systematics. The main goal of his research is to better understand the substantial extinct biodiversity of invertebrate metazoans that first appeared and rapidly diversified during the Paleozoic Era, the period of time comprising between 541 and 251 million years ago. Most of his current work focuses on the study of several Lower Paleozoic sites of exceptional preservation around the world. These remarkable fossiliferous deposits contain critical information on the morphology and organization of soft-bodied organisms, including details of the internal anatomy, which are otherwise dramatically underrepresented in the rock record.

Emeritus News



A new species of antbird, discovered in 2016 in Northern Peru, has been named for E.O. Wilson in recognition of his lifetime contribution to scientific discovery and conservation. The new antbird species, *Myrmoderus eowilsoni*, is described in the scientific journal, *The Auk*.

E.O. Wilson discussed his book, “*The Origins of Creativity*,” in a Q&A with [The Harvard Gazette](#) and at the [Chicago Humanities Festival](#) with actor, Alan Alda. “*The Origins of Creativity*” was reviewed in [The New York Times](#) and [The Times](#).

Graduate News

Research Highlights

Kristel Schoonderwoerd (N.Friedman) is part of the eFLOWER Project, an international effort to reconstruct the evolution of flowers. The study, in [Nature Communications](#), reveals insight into the early evolution of flowers and the major patterns found across all living flowering plants.

Brianna McHorse (A.Biewener, S. Pierce), used beam bending to study fossil horses to shed light on the evolutionary forces that led to digit reduction. The study, in [Proceedings of the Royal Society B](#), supports two historical hypotheses, increased body mass and limb elongation, and elucidates the mystery of the modern horse. One of the most extreme examples of digit reduction, the horse evolved from four toes in front and three toes behind, to a single toe on all fours. The study was featured in [The Guardian](#), [Science Daily](#), and [Smithsonian Magazine](#).

Danny Haelewaters (D.Pfister) worked with a team of six researchers to capture bats using mistnets for seven subsequent nights in a cloud-forested reser-

ve in Darien, Panama. The team captured 227 bats representing 17 species to study the bat's parasitic associations. Their study, published in [Parasite](#), found blood-sucking bat flies living on more than half of the bats. Thirty of the 437 bat flies were parasitized by ectoparasitic fungi in the order Laboulbeniales, while other fungi are still undescribed.

Austin Garner (R.Hopkins) worked with the Hopkins lab to synthesize and review the patterns of genomic variation expected when natural selection acts during the formation of species. The study, in [Genes](#), predicted what patterns might arise when selection favors traits that stop closely related species from hybridizing where they grow together. The work aimed to understand if genetic patterns could be used to infer evolutionary processes.

Shane Campbell-Stanton (PhD '15, J.Losos, S.Edwards) offered a rare view of natural selection in the anole lizard due to extreme weather events in a study in [Science](#). In 2013 Campbell-Stanton collected

Notable Awards

Mara Laslo (J.Hanken) awarded Graduate Women in Science 2017 Fellowship. Laslo received the Nell Mondy, the Eloise Gerry and the Elizabeth Weisberger Fellowships for her work, "*Evaluating the role of thyroid hormone in limb development in a direct-developing frog.*"

Austin Garner (R.Hopkins) awarded the 2017 NSF Graduate Research Fellowship.

Michael Miyagi (M.Desai, J.Wakeley) awarded the 2017 NSF Graduate Research Fellowship

Jenny Pham (D.Hartl) awarded Harvard's Bowdoin Prize for Graduate Essay in the Natural Sciences for her project, "*Bacteriophages and experimental evolution: A modern role for a time-honored system.*"

Min Ya (E.Kramer) awarded the Society of Developmental Biology Emerging Models Grant for her work developing *Aquilegia* as a model system to investigate regulations of floral meristem proliferation and termination.

Tauana Cunha (G.Giribet) awarded the Schlumberger Foundation 2018-2019 Faculty for the Future Fellowship for her work in phylogenetic relationships of gastropods, their biogeography in the marine environment and the evolution of shell shape across large time scales.

Dave Matthews (G.Lauder) awarded the 2018 NSF Graduate Research Fellowship Program (GRFP) grant.

DNA from lizards in Texas and Oklahoma and then again in 2014 after an unusually harsh winter. With before and after samples, he was able to track natural selection at both the level of the whole organism and the level of gene sequence and expression in the lizards forced to face natural selection and to quickly evolve a tolerance to cold. The study offers insights into the effect of climate change and extreme weather events on natural populations and was featured in [Harvard Magazine](#), [The Harvard Gazette](#), and [Phys.org](#).

Talia Moore (PhD '16, A.Biewener, J.Losos) looked at the unpredictability of the jerboas, bipedal desert rodents, and the benefits for survival over their quadrupedal neighbors in a study in [Nature Communications](#). The study showed when being chased, sudden changes in direction, gait and speed help jerboas elude hungry predators and make them less anxious in open areas where more food exists. The study can aid engineers in designing systems with more life-like variation.

Welcome 2018 G1s!

- Tom Alisch (de Bivort Lab)
- Alexandria DiGiacomo, (Edwards Lab)
- Tyler Garvin (Girguis Lab)
- Eva Hoffman (S. Pierce Lab)
- Richard Knecht (Ortega-Hernández Lab)
- Sarah Losso (Ortega-Hernández Lab)
- Grace Pisano (Kramer Lab)
- Artur Rego Costa (Desai Lab)
- Honghao Song (Extavour Lab)

Becky Povilus (PhD '17), and her former advisor, Ned Friedman, pinpointed how mother plants of an extinct species of water lily take control of rearing offspring. The study, in [Proceedings of the Royal Society B](#), was featured in [The Harvard Gazette](#).

Student Spotlight



Jennifer Kotler (D.Haig) was first in a [series](#) of profiles in [The Harvard Gazette](#) featuring some of Harvard's stellar 2018 graduates. Diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) at age 8, Jennifer spent years combining multiple therapies to manage her symptoms, and credits the help of her family and early ADHD diagnosis for her mission to help others who face similar arduous paths. Jennifer and her doctoral advisor, David Haig, worked to create a program that would accommodate her condition. Haig and Jennifer met weekly to maintain structure and accountability and recorded the meetings. At Jennifer's request, Haig helped to insure her workspace had limited lab members and no glass walls or windows to help her focus. Jennifer says Prof. Haig supported her broad academic interests and never expected any less of her than the other students he advised. Jennifer advises students with her condition to get to know their potential advisors early and let them know your strengths and weaknesses so that you can develop an exciting research plan together. Ask for help and network with other faculty and collaborators who can work with you to develop new projects and help maintain goals and deadlines. Jennifer, who will be working in Professor Steven Pinker's lab as a postdoc and as a lecturer in the Department of Psychology, plans on maintaining a regular routine, staying on top of small, measurable goals and setting realistic, but firm deadlines in her new career. As a final piece of advice, Jennifer says to not assume what anyone else is experiencing. Many in academia have struggles they work on everyday, and listening and helping them can help you in your struggles. We wish you the best of luck, Jennifer, in your new career!

PostDoc News

Research Highlights

Barnabas Daru's (C.Davis) study in *New Phytologist* points to sampling biases in a number of herbarium collections around the world. Daru suggests researchers focused on climate change should take these biases into consideration. The study was highlighted in *The Harvard Gazette*.

Robert Kambic (S.Pierce) used biplanar X-rays on wild turkeys to evaluate the three-dimensional cervical joint range of motion in their necks to determine patterns of mobility. Previous studies mostly focused on dorsoventral flexion, but Kambic's study, in *Frontiers in Zoology*, provides a system that can be repeated in a broad array of comparable taxa and lays a foundation for future work on the evolution of neck mobility from non-avian dinosaurs to birds.

Sunita Shah Walter (P.Girguis) and Peter Girguis showed underground aquifers near the Mid-Atlantic Ridge act like natural biological reactors, pulling in cold, oxygenated seawater, and allowing microbes to consume more refractory carbon than scientists believed. The study, in *Nature Geoscience*, increases

knowledge of the carbon cycle and was featured on the [NSF website](#) and [Science Daily](#).

The fiercely debated question, "Did spiders evolve to spin the orb web only once? Or multiple times?" may have an answer in a study in *Current Biology* led by **Rosa Fernández** (G.Giribet). Fernández and researchers, including Gonzalo Giribet, compared approximately 2,500 genes from 159 spider species to draw a new family tree containing multiple distinct branches of orb-weaving spiders. Based on their analysis, the team believes the ability to make orb webs arose multiple times. The study was featured in *The New York Times*.

The process of species formation involves the evolution of barriers to reproduction between closely related taxa. **Sevan Suni's** (R.Hopkins) study in *Evolution* quantified these barriers between three closely related Texas wildflowers. The study describes patterns in the strength of these barriers and uses these patterns to understand the evolutionary forces that drive the process of species formation.

Derek Bok Certificate of Distinction in Teaching

Lecturers and Preceptors

Fall 2017: Andrew Berry (OEB 53, SCIPHUNV 20); Kathleen Pritchett-Corning (OEB 104)

Spring 2017: Andrew Berry (OEB 53), James Mallet (OEB 278), Steven Niemi (OEB 104); Kathleen Pritchett-Corning (OEB 104).

Teaching Fellows

Fall 2017: Abigail Burrus (MCB 60); Tauana Cunha (OEB 275R); Morgan Furze (OEB 10); Alyssa Hernandez (OEB 10); Alexander Heyde (MATH 19A, MATH 153); Ryan Hulett (MCB 60); Julian Kimura (OEB 58); Mara Laslo (OEB 399); Amaneet Lochab (SCRB 10); Dakota McCoy

(OEB 101); Brianna McHorse (OEB 101); Claire Meaders (OEB 399); Zachary Morris (OEB 101); Shayla Salzman (OEB 53); Kira Treibergs (OEB 399).

Spring 2017: Nicole Bedford (OEB 278); Meghan Blumstein (OEB 52); Mark Cornwall (OEB 57); Nathan Edelman (OEB 242); Molly Edwards (OEB 52); Elizabeth Fiore (OEB 290); Jessica Gersony (OEB 52); Vanessa Knutson (OEB 51); Philip Lai (OEB 126); Avantika Mainieri (OEB 53); Dakota McCoy (OEB 114); Callin Switzer (STAT 149); Carl Veller (OEB 242); Melissa Whitaker (OEB 57).

Integrative Biology News

RESEARCH:

Annie Opel (C. Cavanaugh) spent part of her undergraduate thesis research diving in and around the coral reefs off St. Croix in the U.S. Virgin Islands.

Opel's research, published in *Marine Biology*, shows efforts to restore coral reefs have a positive impact on local fish populations, both in the short term and over time, and was featured in *The Harvard Gazette*.

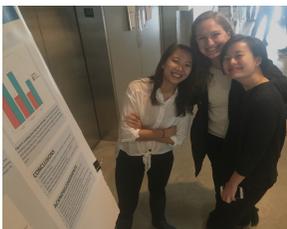


(Image: Opel threads a nursery tree with lines of coral pieces. Photo by Kemit-Amon Lewis)

AWARDS:

- **Annika Gompers** (M.Srivastava) winner of the 2018 Thomas T. Hoopes Prize for her senior thesis, "*Identification of transcriptional regulators of whole-body regeneration.*"
- **Rebecca Greenberg** (H.Hoekstra) awarded the 2018 NSF Graduate Research Fellowship Program (GRFP).

POSTER SESSION:



The 2018 Senior Thesis Poster Session took place April 4th and featured twelve seniors thesis posters.



Congratulations Graduates!

- Ethan Alley
- Ada Bielawski
- Kara Birkenmayer (Fall '17)
- Juliet Bramante
- Hayoung Chang
- Rachel Chapman
- Andre Dempsey
- Ella Duncan (Fall '17)
- Mike Dybala (Fall '17)
- Annika Gompers
- Sarah Gonzalez
- Rebecca Greenberg
- Annelie Herrmann
- Valerie Kahkejian
- Grigory Khimulya
- Sarah Kim
- Olivia Kivel (Fall '17)
- Evan Komorowski
- Vanessa Lam
- Maya Leamed
- Scott Leonard
- Gaia Linfield
- Evan Liu
- Hanon McShea
- Nina Morales
- Patrick Moran
- Lenny Murphy
- Shunn Theingi
- Christie Tzelios
- Emma van der Heide
- Greta Wong

Field Trips!

OEB 51: Biology and Evolution of Invertebrate Animals. **Instructor: Gonzalo Giribet**

OEB 51 spent Spring Break in the Archipelago of Bocas del Toro, in the Caribbean side of Panama, close to the border with Costa Rica. This archipelago is home to a state of the art laboratory from the Smithsonian Tropical Research Institute and is located in an area of high marine biodiversity. In addition, it always offers sheltered localities for working in the water. There, students explore different marine ecosystems, from mangroves to coral reefs and sponge reefs, as well of areas of high and low currents. This offers students the opportunity to study in situ and in the lab a great variety of invertebrates that include most major animal phyla.



OEB 52: Biology of Plants. **Instructors: Elena Kramer and** **N. Michele Holbrook**



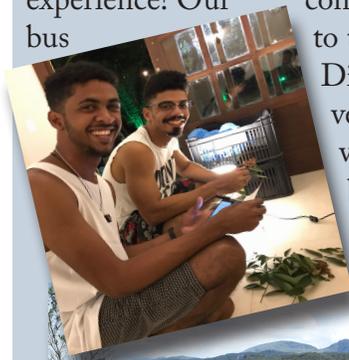
OEB 52 takes four field trips each spring - an overnight to Harvard Forest as well as afternoon trips to the Arnold Arboretum, Ponkapoag Bog, and Garden in the Woods. All of these trips are full of fun, food, and most importantly, flora! The overnight trip to Harvard Forest is really the lynchpin of the course, helping everyone get to know each other through botanical charades, long hikes in the woods, and conversation over shared meals. This year the weather mostly cooperated and our great class of undergrads made every field trip special.

OEB 103: Systematics and Evolution.

Instructor: Charles Davis

OEB 103 traveled to the Chapada region of eastern Brazil, in the state of Bahia. Our plane carried us overnight from Boston to Miami and onward to São Paulo with our final destination in Brazil's 3rd largest city, Salvador. From there, we joined forces with students and faculty from two Brazilian universities, the Federal University of Bahia and the State University of Santa Cruz. It was a true international learning experience! Our bus

combined classes, including ~30 students, traveled by to the town of Lençóis in the heart of the Dry Forest Diagonal, a region of mixed caatinga and cerrado vegetation. During the week, we explored the rich vascular plant diversity of the region—spanning beautiful orchids, prickly cacti, leathery-leaved bromeliads, and tough legumes. Our days were characterized by long hikes and evening lab activities investigating the phylogenetic, morphological, and ecological diversity among the plants of the region. The landscape was rich with stunning mountain vistas and high waterfalls. And there was even time for occasional recreational swimming, and camaraderie was shared by all.



OEB 167: Herpetology. Instructor: James Hanken

OEB 167 traveled to Costa Rica for Spring Break. Arriving in the capital, San José, after a red-eye flight from Boston via Mexico City, the group took a bus to Veragua Rainforest Reserve on the Caribbean slope north of the port city of Limón. After several days, the group migrated to La Selva Biological Station, the flagship field station operated by the Organization of Tropical Studies. At both sites, forest hikes occupied the group morning, noon and (especially) night. Conditions were good, which allowed us to see an abundance of frogs, lizards and snakes (especially the venomous kind), as well as a smatte-



ring of turtles and even a caiman or two. Birding and mammal watching rounded out the trip, along with a banana plantation tour, river boat cruise, and lectures on amphibian conservation.



OEB 190: Biology and Diversity of Birds. Instructor: Scott Edwards

OEB 190 has a strong emphasis on field trips throughout the semester. We begin in February with a trip to Halibut Point State Park and other areas in Gloucester, MA, frigidly observing wintering ducks, raptors and passerines. Other locations for local fieldtrips include Alewife Brook Sanctuary, Fresh Pond, Plum Island, Daniel Webster Wildlife Sanctuary, Rock Meadow Conservation Area to observe displaying woodcocks, and, of course, Mt. Auburn Cemetery. A highlight of the course is the Spring Break field trip, which in 2018 took us to the Yucatán Peninsula in Mexico. For nine days we viewed a stunning diversity of tropical birds and Neotropical migrants, often in the mystical environs of ancient Mayan ruins. Moving around in two rental vans, 18 students and three instructors covered everything from coastal habitats near Sisal and Laguna Bacalar, to the tropical forests surrounding the Mayan site of Calakmul. Students are not only deeply immersed in field identification and field techniques, such as mist netting and recording of bird vocalizations, but also are able

to observe interesting bird behaviors, such as the chaos of a large colony of nesting herons, ibises and flamingos. We hope this exposure to the fragile habitats of the Neotropics impresses upon the students the urgent need to conserve them and the international scale on which effective conservation must be conducted.



Event Highlights

OEB Seminar Series

The 2017–2018 seminar season had a successful year with an incredible lineup of speakers from all over the world. **Fall 2017:** Scott Edwards, OEB, Harvard University; Irene Pepperberg, Department of Psychology, Harvard University; Marlene Zuk, University of Minnesota; Martin Nowak, Program for Evolutionary Dynamics, Harvard University; Axel Meyer, University of Konstanz; Deborah Gordon, Stanford University; Detlef Weigel, Max Planck Institute for Developmental Biology, Nicholas Strausfeld, The University of Arizona; Sheila Patek, Duke University. **Spring 2018:** Lacey Knowles, University of Michigan; Stephanie Pierce, OEB, Harvard University; Nitin Phadnis, The University of Utah; John Wakeley, OEB, Harvard University.

PBI Symposium

The 13th Annual Plant Biology Initiative Symposium, “*Natural History Collections in the Anthropocene*,” took place May 8th at the Arnold Arboretum Weld Hill Research Building. This year’s event was hosted by Charles Davis, OEB, and Aaron Ellison, Harvard Forest. Invited Speakers:

- **Hernán Burbano**, Max Planck Institute for Developmental Biology
- **W. John Kress**, National Museum of Natural History, Smithsonian Institution
- **Susan Mazer**, University of California, Santa Barbara
- **Emily Meineke**, Harvard University Herbaria
- **Corrie Moreau**, Field Museum of Natural History
- **Neil Pederson**, The Harvard Forest
- **Cassandra Quave**, Emory University
- **Pamela Soltis**, Florida Museum, University of Florida
- **Peter Wilf**, Pennsylvania State University

Upcoming Events 2018-2019

OEB Seminar Series

- **September 6:** Paul Moorcroft, OEB, Harvard University
- **September 13:** Ian T. Baldwin, Max Planck Institute for Chemical Biology
- **September 20:** Erika Edwards, Yale University
- **October 4:** Steven Haddock, Monterey Bay Aquarium Research Institute
- **October 18:** Daniel Matute, The University of North Carolina at Chapel Hill
- **November 1:** Peter Girguis, OEB, Harvard University
- **November 15:** Ted Farmer, Université of Lausanne
- **January 31:** Lindy McBride, Princeton University
- **February 14:** Felicity Jones, The Friedrich Miescher Laboratory of the Max Planck Society
- **February 28:** Betsy Arnold, The University of Arizona
- **March 28:** Mark A. Kirkpatrick, The University of Texas at Austin
- **April 11:** Becca Safran, The University of Colorado
- **April 25:** Tom Gilbert, Centre for GeoGenetics, Natural History Museum of Denmark

2019 PBI Symposium

- The [14th Annual Plant Biology Symposium](#) will take place on May 7, 2019 at Weld Hill Research Building.

OEB Staff News

Welcome New Staff!

- **Vanessa Poirier**, Laboratory Technician (Srivastava Lab), July 2017
- **Matthew Farnitano**, Laboratory Technician (Hopkins Lab), September 2017
- **Kaitlin Sheridan**, Laboratory Assistant (Giribet Lab), January 2018
- **Fengyun Duan**, Laboratory Assistant (Zhang Lab), January 2018
- **Diana Gjino**, Senior Research Administrator, OEB Administration, January 2018
- **Laura Clerx**, Research Assistant 1 (Friedman Lab), February 2018
- **Maggie Lopes**, Manager of Administrative Operations in the MCZ, February 2018
- **Laura Benoit**, Administrator, Faculty and Research Support Services (OEB/AA), June 2018

Community Outreach

OEB participated in the 2017 Mayor's Summer Youth Employment Program (SYEP). Building on Harvard's longstanding tradition of partnering with Boston and Cambridge to hire local teens, SYEP offers a unique six-week experience for hiring managers and students alike. SYEP provides valuable work experiences to Boston and Cambridge high school youth, while contributing to Harvard's summer staffing needs. OEB Administrative offices hosted Cambridge Rindge and Latin High School (CRLS) senior, **Rakeyah Ahsan**.

For the fourth year in a row, OEB again participated in the 2017-2018 School-to-Work (STW) program, a collaboration among the HUCTW, the Cambridge Office of Workforce Development, Harvard University and CRLS. OEB Administrative offices hosted CRLS junior, **Katherine Dam**.

Milestones In Service

45 Years of Service:

- **Paul Dwyer**, OEB Administration

25 Years of Service:

- **Elena Lozovsky**, Principal Staff Scientist (Hartl Lab)

10 Years of Service:

- **Shuli Bigelow**, Faculty Assistant (Ölveczky, Zhang Labs)
- **Jason Green**, OEB Administration
- **Amie Jones**, Faculty Assistant (Farrell Lab)
- **Peg Richards**, OEB Administration
- **Jennifer Thomson**, Faculty Assistant (de Bivort, Desai, Srivastava, Lewontin Labs)
- **Nikki Hughes**, Faculty Assistant (Hoekstra, Mallet Labs)

5 Years of Service:

- **Michael Butts**, Faculty Assistant (Sabeti Lab)
- **Christian Flynn**, OEB Administration
- **Donna Gadbois**, OEB Administration
- **Melinda Peterson**, Research Lab Coordinator (Davis, Pfister Labs)

Notable Awards

- **Paul Dwyer**, OEB Administration, awarded the 2018 FAS Dean's Distinction Award.
- **Kristin Pennarun**, Director of Research Administration Services, awarded the 2018 FAS Dean's Distinction Award.

Acknowledgements and Credits:

Editor

Wendy Heywood

Design

Catherine Musinsky

Wendy Heywood



OEBnews

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