



Smithsonian

Volume 8

NHRE NEWS

REU Site, OCE-1560088



Autumn 2019

The Newsletter of the NSF REU Site: Natural History Research Experiences Summer Internship Program

NHRE 2019, In brief

4
Number of new species of mydas-fly encountered

Hyperiid amphipods

Organisms studied this summer most likely to be confused with movie aliens

6
Number of times a swimming lifestyle has been lost in jellyfish and their relatives

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Status of inferred phylogenetic relationships among delphinine dolphins, after a mitochondrial study

176
Number of baboon skulls studied in search of skeletal anomalies caused by vitamin D deficiency

9
Age, in days, of the youngest California condor included in a study of this species' skeletal growth

Directors' Corner

Hello again! We are back again to report on NHRE 2019, in this, the tenth year of the NHRE program. We had another great summer of natural history wonder and fun, with great new projects spanning sex in ferns, species delimitation in kissing bugs, bone health in captive baboons, and much more. We returned to a popular field trip spot for us, Calvert Cliffs, to collect Miocene fossils along the shore of the Chesapeake Bay. The weather was unusually lovely, though the tides were high enough to make some of the target rocks inaccessible.

In terms of the program, we continued along mostly as in years past. We did add a new workshop on non-research careers in science, which seemed to be well received. The interns interacted with about 6,000 museum visitors during the Outreach Day, and the Research Symposium was its usual success, with crowds of NMNH staff packing the Director's Hall.

This summer, our normal three-person NHRE team was down to two, because Liz was away on sabbatical in France. As punishment for abandoning us, Liz had to endure record heat-waves of 110 degrees, with no air-conditioning. But the food and science were great! Gene and Virginia soldiered on in her absence, both reaching deep to tap hidden reserves of extroversion, to make up for Liz's absence.

On October 1st, Gene becomes Chair of the Paleobiology department. It is therefore likely that next summer Liz and Virginia (thank goodness for Virginia!) will be managing the program. Does this mean that Liz will suddenly become level-headed, circumspect, and responsible? Probably not.

As we prepare for NHRE 2020, the last year funded by our current NSF grant, Liz and Gene have been starting to think about succession planning for the program. While it is hard to imagine lives without free pizza on Fridays, ten years is a long time, and the program could use some fresh perspective. With some luck, we'll convince two new curators to step in and write a successful proposal to keep NHRE moving forward for years to come.

Thanks to all of you who contributed information to this year's newsletter. So many great updates – please, keep them coming!

Jack Boyette on Museum Outreach Day



Back row left to right: Jack Boyette, Madeleine Becker, Kelly Walls, Claire Boschert, Maya Samuels-Fair, Srishti Sathir, Paul Machabee, Middle row: Marissa Sandoval, Karen Robles, Austin Weber, Front row: Regina Fairbanks, Sorilia Ruiz-Escobar, Laura Pott, Ciara Bernal, Samantha McComb, Hoano Rosario, Zahara Domin.

NHRE Class of 2010

Submitted by Sarah Ehlinger

For the past few years, I have been leading the Milwaukee Global Health Consortium, a nonprofit that connects the area's largest institutions in health care, academia, and government on initiatives related to health equity.

This work sparked my passion in the role of public-private partnerships for addressing world-scale problems. As such, I have decided to undertake an MBA at the University of Oxford starting this fall. The MBA will be partnered with a program in water science, policy and management. It will allow me to engage better with the private sector, especially in clean water projects in Ghana, which I intend to focus on professionally.

On top of that, my husband and I recently welcomed our first child, Ari. It was a "fun" challenge trying to get a passport picture of a 3-week-old!



Post-Doc in South Africa

Submitted by Jessica Glass

I just completed my PhD in Ecology and Evolutionary Biology from Yale this fall, and will soon be starting a post-doc position at the South African Institute for Aquatic Biodiversity in Grahamstown, South Africa. It was originally called the JLB Smith Institute of Ichthyology, named after Smith who first described the famous Coelacanth. I have kept in touch with Carole Baldwin, my NHRE mentor, over the past nine years and she was a valuable member of my dissertation committee.

Alumni update 2010

Rebecca Richards now works as an anthropologist at the South Australian Museum and is getting ready to open a new art exhibition. The exhibition features her local culture and people with a beautiful display of old photographs.

NHRE Class of 2011

Submitted by Rhi Lavine

Despite facing just about every curveball that life can throw at me throughout my time as a graduate student, I'm on track to defend my dissertation by the end of this year. My work has focused on using agnostine arthropod fossils to tackle the question of how developmental constraints can influence larger patterns of morphological diversity.

Between now and the end of the year, I'm both frantically putting together a thesis and planning a wedding as I will be marrying my fiancé, Brooks, on October 13th. We will be having a small ceremony and celebration at a brewery near San Diego, CA. I'm quite excited about our rehearsal lunch as that will take place at the San Diego Zoo Safari Park with all proceeds going toward helping the animals and conservation efforts.

This fits in very well with how I've kept my sanity throughout grad school: volunteering at a local animal shelter, PAWS Chicago. I've volunteered in several roles including feline behavior counselor, leading a fundraising running team, and developing a clicker training program for adoptable cats. Last year, I was humbled to receive the title of Volunteer of the Year. I can't emphasize enough how important it is to do something that makes you feel as though you're making a difference while you're enduring the stresses of graduate school.



After I finish up in Chicago, I will be off to Lawrence, Kansas as I have just been offered an amazing position as an IRACDA postdoctoral fellow. This is a wonderful opportunity that will allow me to do research at the University of Kansas with Dr. Bruce Lieberman while receiving training in teaching and mentoring at the Haskell Indian Nations University. I'm very much looking forward to the wealth of awesome things on the horizon for me! I've included a couple of pictures: the first is from my last visit to the type section of the Cambrian Spence Shale. I worked with my colleagues Dr. Julien Kimmig (right) and Dr. L.J. Krumenacker (left) to trench the entire section. The second photo is a little peek into some of my recent work for PAWS, helping pull and vet kitties from another shelter in order to get them into our no-kill adoption program.

Alumni update 2011



Anthony Deczynski officially completed his PhD in Entomology at Clemson University. His theses focused on the evolution and host plant diversity of the hairy nightshade flea beetles *Epitrix Foudras*

Anikó Tóth is continuing her studies at Macquarie University in Sydney, Australia. She is interested in using co-occurrences to study the assembly of plant and animal communities over narrow to broad spatial and temporal scales. This research can provide insights to the workings of complex ecosystems with many moving parts, how these systems change over long timescales, and how they react to disturbances.

Anikó is also leading the network analysis project for ETE. She is analyzing the structural features of communities through time using co-occurrence networks and a newly developed predictive framework.



NHRE Class of 2012

PostDoc at the Field Museum

Submitted by Dakota Rowsey

In the past year I published two articles in *Evolution* and I completed my Ph.D. I am currently working as a post-doctoral researcher at the Field Museum of Natural History in Chicago, with my advisor, Larry Heaney. I'm currently working on a description of a new genus and species of carnivorous rodent known from a single mountain on Mindanao Island in the Philippines. I am also working on a project exploring the effects of island age, area, and peak elevation on rates of speciation, extinction, and colonization by Philippine small mammals.

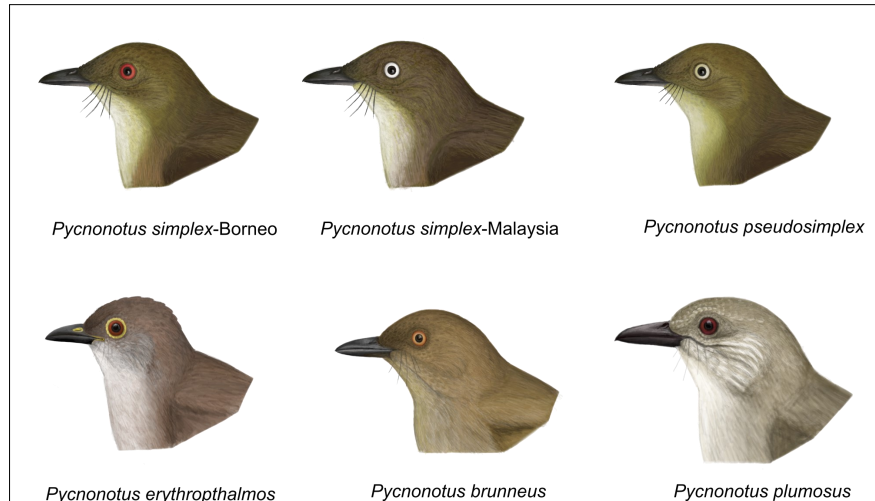
NHRE Class of 2013

Submitted by Amy Rutter

After spending the past 4 years since graduating from Penn State traipsing around the country (including PA, CA, ID, MT, OR, WA, UT, GA, and RI) as a wildlife field biologist and environmental educator, I am finally heading to graduate school (well, technically I'm already there because I started summer research in July) to pursue a Ph.D. in Ecology and Evolutionary Biology at Brown University. While my first year research project and subsequent thesis topics are still in development, the lab I am in studies vertebrate (especially frog) locomotion and biomechanics focusing on muscles.

A Museum Detective Story and the Discovery of a New Species.

Submitted by: Subir B. Shakya



I have been leading expeditions and doing field work in the remote mountains of Sumatra as a part of a collaboration between Louisiana State University Museum of Natural Science (LSUMNS) and the Museum Zoologicum Bogoriense (MZB) in Bogor, Indonesia for the past year. The last time any scientific expedition went to collect bird specimens on these mountains were by the Dutch, a hundred years ago. Our expeditions have yielded the first tissues for most of the bird species from Sumatra. Once I get back from the field though, naturally, the first thing I do is sequence some mitochondrial loci of each of the species and compare them to sequences from birds from other parts of the region such as Borneo, Java, and mainland Asia. This gives us an idea of how these Sumatran birds fit into the big picture among SE Asian birds.

This is where this detective story begins. One of the birds we collected was the aptly named, Red-eyed Bulbul (*Pycnonotus brunneus*). There are four species of uniformly brown bulbuls in Southeast Asia and eye-color is an important distinguishing trait between them, something that will be an important piece of the puzzle later in the story. I sequenced the gene from the Sumatran birds, Bornean birds, and one bird from mainland Malaysia along with some outgroup species for comparisons. Once we got the sequences back we generate a maximum likelihood tree to see how the individuals are related to one another. In most cases all the birds from one region group together and are part of a larger group constituting populations of the species from other places. The Sumatran birds grouped together as expected but something weird happened with the other birds. The Bornean and Malaysian birds were placed in four different parts on the tree. So what happened? This was originally very confusing. I checked for contamination, and the samples didn't seem to be contaminated. Something truly bizarre was going on.

One of the good things about the samples was that they were all vouchered, meaning the specimens for those tissues are present in a museum. My first step was to go track down these specimens.

Bird 1: This case was really easy to solve—a case of mistaken identity. While looking at the study skins all the birds look alike but reading the data that was recorded on the specimen tag, one of the lines read, “Red eyes with yellow eye-ring.” The yellow eye-ring does not occur in *P. brunneus* but is a trait of another species, the Spectacled Bulbul (*P. erythrophthalmos*). One down.

Bird 2: This bird had been skeletonized so there was not a skin associated with it. However, similar to the previous case on the specimen tag it read, “Dark red eyes.” The Red-eyed Bulbul (*P. brunneus*) has a bright crimson eye and is two-toned, which is usually how it is reported on the tags. The dark red eyes belong to yet another

species, the Cream-vented Bulbul (*P. simplex*). So even without a study skin, I could guess this was *P. simplex*.

Bird 3: Unfortunately, the voucher for bird 3 was in Malaysia so there was no skin or tag to check. However, all researchers keep a field catalog in which they record all the details that go on the tag. I knew this bird was collected by one of my advisor's, Dr. Sheldon's, former students H. C. Lim. I found his field catalog and located the information for this bird. The line for eye color read, "Brown eyes," a trait for juvenile birds. This bird was a juvenile and so could have been any four of the brown bulbuls in reality. However, as we figured out that Bird 2 was *P. simplex* and Bird 3 was clustered with Bird 2 on the phylogenetic tree, the odds were that Bird 3 was also *P. simplex*. Here, I will note that this species *P. simplex* while it has dark red eyes on Borneo actually has white eyes in Malaysia and Sumatra and yes this is very confusing.

Bird 4: The true identity of this bird was relatively easy compared to the others as it had clustered with *P. brunneus*, the actual bird I was trying to figure out the relationships between. The tag for this bird read, "Crimson red eye, two-toned," the trait for *P. brunneus*. So at last problem solved. Not quite.

Resolving the identity of these birds created a new problem, this one dealing with *P. simplex*. Bird 2 and 3 as I mentioned was presumed to be *P. simplex*. But wait, I had included a *P. simplex* sequence for comparison, a specimen housed in the University of Kansas (KU) Natural History Museum and sequenced by another of Dr. Sheldon's former students, Dr. Rob Moyle. And it turns out this bird was not at all related to these other *P. simplex*. I had a hunch what was going on here and to prove it I had to sequence multiple individuals of *P. simplex* to do similar comparisons as with *P. brunneus*. I had known that there were birds in Borneo that had the dark red eyes and also white eyes. Until now I had only sequenced red-eyed birds so in the next round of sequencing I added a few more red as well as all the white-eyed birds from LSU. I got the sequences back, made a tree, and voila *P. simplex* still grouped in two clusters but all red-eyed birds were clustering with Birds 2 and 3 and all the white-eyed birds were clustering with KU bird. The significance of this result was pretty big. It meant that the two birds cohabit the same area (aka are syntopic) were not mating with one another and exchanging genes, or in a nutshell were two different species.

Here is the last twist to the story, a few days later the same H. C. Lim, as I mentioned above, emailed me and said he was sequencing the same gene for all the birds they had recently collected on a Smithsonian expedition to Borneo and he was getting this *P. simplex* bird falling in two different places and asked me if I knew what was going on. Yes, I knew what was going on. I asked him if one of these clusters were white-eyed birds and the other were red-eyed birds and he looked at his data and replied yes. At the same time I emailed the curators at KU to confirm that the KU bird had a white eye, and they said yes. So all the pieces of the puzzle fit together into a nice finished product. The next step was giving this bird a name. We decided to name the Bornean white-eyed birds, Cream-eyed bulbul (*P. pseudosimplex*). The eyes are actually slightly off-white and the name *pseudosimplex* is a reference to how these birds look like *simplex* but was not *simplex*. Describing a new species had been a bucket list item for me and this was great way to discover one.

I'll end my story with a note that probably would add to all the eye-color confusion in case you were not already lost with the eye colors. As I mentioned *P. simplex* on Malaysia and Sumatra have white eyes, but it turns out the white-eyed Malaysian and Sumatran birds are actually the same species as the red-eyed Bornean birds but not the white-eyed Bornean birds. Let that sink in.

NHRE Class of 2014

Submitted by Jennifer Kenyon

I am currently in my 4th year of my PhD in Chemical Oceanography as an NSF GRFP fellow in the MIT-WHOI (Massachusetts Institute of Technology – Woods Hole Oceanographic Institution) Joint Program.

Last fall I spent an incredible 10 weeks at sea as a part of the GEOTRACES program, sailing from Alaska to Tahiti, where I used the radioactive isotope Thorium-234 to measure carbon and trace metal fluxes in the Pacific Ocean. The experience of being at sea for so long was taxing, to say the least, but also reaffirmed my love for science and adventure!

Currently, I am the co-president and K-12 Education Coordinator for the WHOI-based Broader Impacts Group, where I spend a lot of time with young scientists-in-the-making. I also spent 3 weeks earlier this year travelling across New Zealand with my wonderful partner, where the geologist in me had an absolute blast.



Securing heavy equipment during the Fall 2018 GEOTRACES cruise.

Submitted by Hollis Miller

I am still a PhD student in anthropology at the University of Washington in Seattle. I have spent the past three summers in Old Harbor, Alaska working on my dissertation fieldwork. My project explores persistence and resistance within Sugpiaq/Alutiiq communities of the Kodiak Archipelago during the period of Russian colonialism (1784-1867 CE). This past summer, I began test excavations at a village called Ing'yug, which was occupied prior to and through the Russian occupation of Alaska. I focus on diet, foodways, labor and gender to understand how Sugpiaq/Alutiiq communities navigated and weathered the demands of Russian mercantile colonialism and the devastation of epidemic disease. This project is done in collaboration with the Alutiiq Tribe of Old Harbor and the Old Harbor Native Corporation, and we plan on running a kids' camp at the site during the summer of 2020. You can follow the project at <https://hollismiller.com/> or on Twitter [@Hollisene](https://twitter.com/Hollisene)



Claudia Mazur (left) and Jennifer Kenyon (right) in Cambridge, MA in August 2019

I often reflect on my days as an NHRE intern where I made such loving and long friendships (including Claudia Mazur, pictured, who I still see on a regular basis). I was also mentored by an incredible scientist-- Cara Santelli, now at University of Minnesota, who in many ways served as a brilliant role model for me and inspired me to unabashedly pursue my dreams.

In addition to my research, I am leading a year-long Alternative School Break team from the UW in working with 5th graders in the Makah community of Neah Bay, WA. Our goal is to mentor the students as they imagine career pathways for themselves that lead them to higher education and then back to Neah Bay to serve community needs.

NHRE Class of 2015

Submitted by Meena Said

I have been quite busy- here are the some of the things that I've been up to:

1. Officially a PhD candidate at the University of Notre Dame as of March 2019.
2. This summer 2019, I've been at Lawrence Livermore National Laboratory conducting nuclear forensics research as a Glen T. Seaborg Summer Fellow.
3. This fall I'm attending the STEM Diversity Conference (SACNAS) in Honolulu.
4. I was second author on a paper published in the spring of 2019 titled "Calcium-Facilitated Aggregation and Precipitation of the Uranyl Peroxide Nanocluster U60 in the Presence of Na-Montmorillonite."

Submitted by Johanna Obenda

I graduated in May 2019 with an MA in Public Humanities from Brown University. At Brown, I was also a graduate fellow in the public history of slavery at the Center for the Study of Slavery and Justice. Through my grad coursework and fellowship I was able to work on a variety of projects from museum object interpretation to documentary film. This past spring, I curated an exhibition on African diasporic cooking, which centers the oral histories of six Rhode Island families. Feel free to check out the digital exhibition <https://www.memorydishes-cssj.org/>. I am now in New Haven, CT where I have begun a two year fellowship in the education department at the Yale University Art Gallery exploring the relationship between art and empathy.

Alumni update 2015

Lindsey Schwartz received a 2019 SI Predoctoral Fellowship! She started working in NMNH Invertebrate Zoology Department again, this time with Ellen Strong and Vanessa Gonzalez, and is continuing with her PhD work on thermal tolerance in mussels.

NHRE Class of 2016

Submitted by Ashley Dafoe



I will be graduating with my master's in applied Anthropology this fall from Mississippi State University. I did my thesis research on human skeletal remains excavated from the Potter's Field associated with the Mississippi State Asylum.

I am excited to report that I wrote a book chapter in an edited volume with my advisor about how bioarchaeology can be used to help solve modern day climate issues. It will be published in the next year (hopefully).

I will be graduating with my master's in applied Anthropology this fall from Mississippi State University. I did my thesis research on human skeletal remains excavated from the Potter's Field associated with the Mississippi State Asylum.

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Also I am currently serving as the Senior Co-chair (like a president position) for the Paleopathology Association Student Group. I love it and I work with a great team of officers!

On a more personal note, I am moving back to Wyoming where I will be taking a year or two off to work and learn how to read fiction novels again! It amazing what all of that academic reading does to your brain. Following this break, I hope to attend law school so that I can write health policy.

Alumni update 2016

Asante Crews graduated from Brown University in May 2019 and has been in touch with her former mentor Neal Woodman, at NMNH

NHRE Class of 2017

Submitted by Caroline Abbott

I just graduated this past year! I finished up at William & Mary and got my BS in Geology, and am starting on my PhD this year in the Committee on Evolutionary Biology at UChicago! I met my new advisor through the continuation of my NHRE project, which became my undergrad honors thesis at W&M. I'll still be working on synapsid paleobiology for my PhD, which I'm really excited about.

I love seeing all the updates from current cohorts on Facebook. It makes me so happy to see other students getting the same kind of mentorship, support, and fun I did from the program. I wouldn't be here if it wasn't for the opportunities provided through NHRE, and I'm looking forward to this next chapter of my academic life.

Submitted by Even Dankowicz

Chris Cohen (2013 NHRE intern) and I recently collaborated on an article in the North American Dipterists' Society newsletter about interesting records on iNaturalist: <http://www.nadsdiptera.org/News/FlyTimes/issue62.pdf>
For the last year-and-a-half I have been working at the Pierce lab at Harvard on butterfly phylogenetic studies and specimen curation/photography.

I have also been working on Diptera pupal morphology and identification over the last year and spent part of the summer at the Smithsonian working on this with Torsten Dikow. I've visited the MCZ and INHS to find specimens for this project and help sort Diptera, and I will probably do the same at the natural history museum in Tel Aviv during my visit there in late summer.

Alumni update 2017

Myria Perez is currently working as a fossil preparator for the Perot Museum of Natural Science n Dallas. She is working on Alaskan Dinosaurs.

NHRE Class of 2018

Submitted by Ashley Espinoza

I will be starting a Master's program this fall at NYU! It is a MA in Human Skeletal Biology under the Anthropology Department at NYU. I received a tuition scholarship.

I have also been very busy this past summer, in June I was a TA for a Forensic Anthropology course at Duke Tip and in the beginning of July i was in Spain working at Atapuerca. I was excavating in Portalon which is part of Cueva Major. I was an awesome experience!



Excavation in Portalon, Spain

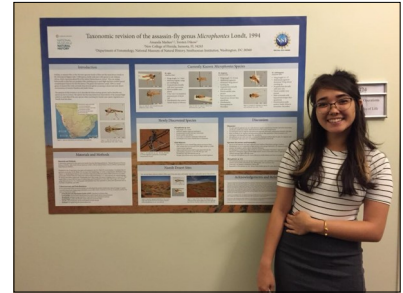
Submitted by Amanda Markee

I now work at the Florida Museum of Natural History as the molecular lab manager for their systematics lab. I graduated New College of Florida in May, and wanted to take a few years of gaining lab experience before going into grad school. I love this job so much. I get to do all of the things I love in this lab and hop from project to project, which always gives me something fun and academically stimulating to do.

Currently I'm helping with a few projects: One on creating a phylogeny of all North American butterfly genera, and another involving community sequencing to determine the effects of river noise on insect species distribution.

Working in another museum has allowed me to continue doing the genetics work I'm passionate about, and lets me apply it in a natural history context. I'll be presenting some of the research I've done this past year at the Entomological Society of America meeting this November in St. Louis Missouri.

I really think that I couldn't have gotten here without the help of the NHRE program, and those ten weeks were extremely meaningful and helpful to pushing me further into the field I work in.



Submitted by Jonathan Huie

I have a couple of things to share. Since being an NHRE intern last summer, I've attended four different conferences across the country. At one of them, I presented my NHRE research. Unfortunately, when I went up to present, the projector didn't work so I did not have slides for at least half my talk! However, I presented anyway and everyone has said that I did a really good job regardless.

I also have graduated from undergrad at the University of Washington in Seattle this year. I'm now a lab technician at the University of Washington Friday Harbor Labs -- a marine station. Lastly, I got my first first-authored paper published this year and another one submitted.

Submitted by Mason Scher

After such a great experience with NHRE last year, I decided to continue my work with Rich Barclay and Scott Wing again this summer at NMNH.



In addition to working on the relationship between carbon isotopes in Ginkgo and CO₂ levels, I joined Scott in the field for 2 and a half weeks collecting flora in the Bighorn Basin, Wyoming.

Scott's trusty field vehicle, "Dino", a 1970 Chevy suburban got us any and everywhere we wanted to go!

I look forward to continuing to work on this research through my senior year of undergrad at Drew University.

Alumni update 2018

Hannah Ranft presented her NHRE research at the Botany 2019 conference. She was the recipient of this year's Wherry Award, which is given for the best paper presented in the Pteridological Section. This is particularly noteworthy, as the award typically goes to a finishing Ph.D. student.

NHRE Publications

- Anzaldo, S. S., J. Dombroskie, and J. W. Brown. 2014. Morphological Variation, Taxonomic Distribution, and Phylogenetic Significance of Cornuti in Tortricinae (Lepidoptera: Tortricidae). *Proceedings of the Entomological Society of Washington* 116(1):1-31.
- Blaimer, B. B., M. W. Lloyd, W. X. Guillory, and S. G. Brady. 2016. Sequence Capture and Phylogenetic Utility of Genomic Ultraconserved Elements Obtained from Pinned Insect Specimens. *Plos One* 11(8).
- Castillo, S., and T. Dikow. 2017. Taxonomic revision of *Plyomydas* Wilcox & Papavero, 1971 with the description of two new species and its transfer to Mydinae (Insecta: Diptera: Mydidae). *Revista Brasileira de Entomologia* in press.
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- Nielsen, M., and M. Buffington. 2011. Redescription of *Stentorceps* Quinlan, 1984 (Hymenoptera: Figitidae), with a description of five new species. *African Entomology* 19(3):597-613.
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- Stull, G. W., W. A. DiMichele, H. J. Falcon-Lang, W. J. Nelson, and S. Elrick. 2012. Palaeoecology of *Macroneuropteris scheuchzeri*, and its implications for resolving the paradox of 'xeromorphic' plants in Pennsylvanian wetlands. *Palaeogeography Palaeoclimatology Palaeoecology* 331:162-176.
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- Markee, A., and T. Dikow. 2018. Taxonomic revision of the assassin-fly genus *Microphontes* Londt, 1994 (Insecta, Diptera, Asilidae). *African Invertebrates* 59(2):195-237.

NHRE Presentations

- Rowsey, D.; Helgen, K. 2012. Species boundaries of brushtail possums. Annual Meeting of the Gilbert Ichthyological Society (Oral presentation).
- Toth, A.B.; Behrensmeyer, A.K.; Lyons S.K. 2012. Increased diversity and decreased uniqueness in Kenyan mammal communities over the past century. Ecological Society of America Annual Meeting (Oral presentation).
- Deczynski, A; Chamorro, M L; Konstantinov, A S. 2011. Morphology of the head and associated structures in New World Cryptocephalini (Coleoptera: Chrysomelidae: Cryptocephalinae). Entomological Society of America Annual Meeting (Poster presentation).
- Corrigan, C. M.; Cohen, B. A.; Hodges, K.; Lunning, N. G.; Bullock E. S. . 2012. 3.9 Billion Years Ago and the Asteroid Belt: Impact Melts in Ordinary Chondrites. 43rd Lunar and Planetary Science Conference (Poster presentation).
- Lavine, R. J., Wagner, P. J.; Erwin, D. H. 2011. A phylogenetic dissection of the gastropod subfamily Knightitinae across the Permian-Triassic boundary. Geological Society of America Annual Meeting (Oral presentation).
- Kuwahara, A; Meyer, C; Collins, A. 2013. Assessing Autonomous Reef Monitoring Structures (ARMS) as Biodiversity Monitors. Society for Integrative and Comparative Biology Annual Meeting (Oral presentation).
- Lopez, O; Cottrell, E; Warren, J. 2012. Upper mantle oxygen fugacity in ridge and subduction zone settings recorded by spinel peridotite. Fall Meeting of the American Geophysical Union (Poster presentation).
- Goots, Alexis; Bruwelheide, Kari; Owsley, Doug. 2013. Post-traumatic bone loss in Civil War soldiers. Meeting of the American Association of Physical Anthropologist (Poster presentation).
- Rowsey, Dakota M; Helgen, Kristofer M. 2013. Species boundaries of brushtail possums in the Queensland wet tropics. Annual Meeting of the American Society of Mammalogists (Poster presentation).
- Imfeld, Tyler S; Chaput, Dominique; Santelli, Cara M. 2013. The effect of nutrients on the growth and manganese oxidation of fungi and bacteria. Ecological Society of America Annual Meeting (Poster presentation).
- Atta, Calder J; LaFlamme, Marc; Sessa, Jocelyn A; Tweedt, Sarah; Erwin, Douglas H. 2012. Taphonomic biases influencing exceptionally preserved *Naraoia* from the Burgess Shale. Geological Society of America Annual Meeting (Poster presentation).
- Jagani, Sheel; Rick, Torben; Hofman, Courtney. 2011. Ancient Oyster Fisheries of the Chesapeake Bay: Methods and Implications. Annual Meeting of the Society for American Archaeology (Poster presentation).

- Burke, Janet; Behrensmeyer, Anna K; Badgley, Catherine; Barry, John; Lyons, S Kathleen. 2014. Assessing the impact of time-averaging on a Miocene vertebrate fauna from northern Pakistan. North American Paleontological Convention (Poster presentation).
- Ramirez, Gabrielle; Andrews, Benjamin; Dennen, Robert. 2013. Transport and sedimentation in unconfined experimental dilute pyroclastic density currents. Fall Meeting of the American Geophysical Union (Poster presentation).
- Stabile, F; Woodman, N. 2014. Functional limb morphology of African myosoricine shrews (Mammalia, Soricidae). Society for Integrative and Comparative Biology Annual Meeting (Poster presentation).
- Keil, K; Osborn, K. 2014. Associations between hyperiid amphipods and gelatinous zooplankton. Society for Integrative and Comparative Biology Annual Meeting (Poster presentation).
- Lavin, Luke; Bell, Joshua. 2012. Exploring the Collections and Relations of A.C. Haddon At the Smithsonian. American Anthropological Association Annual Meeting (Oral presentation).
- Gil, J; Watson, W. 2014. Improving the learning experience of museum visitors: Examining different types of experience in the Genome: Unlocking Life's Code exhibit. Ocean Sciences Meeting (Poster presentation).
- Kandlikar, Gauruv; Freund, Forrest; Johnson, Gabriel; Taylor, W. Carl; Zimmer, Elizabeth. 2014. Chloroplast DNA reveals uniparental plastid inheritance from *Isoetes engelmannii* in two allotetraploid speciation events. Botany 2014 (Poster presentation).
- Zimmer, Elizabeth; Johnson, Gabriel; Nagi, Suzanne; Wollaeger, Heide; Figlar, Richard. 2014. Genetic variability in *Magnolia acuminata* (L.) populations in the United States. Botany 2014 (Poster presentation).
- LaVine, Rhiannon J. 2014. Ecological gradient structure in the Mississippian Lodgepole Formation, southwest Montana. Geological Society of America (Poster presentation).
- Alison Post. 2014. Experimental Evolution of Divergence with Gene Flow: Testing for Local Adaptation in Yeast. Society for the Study of Evolution (Poster presentation).
- Tyler Imfeld. Dominique Chaput. Cara Santelli. 2013. The effect of nutrients on the growth and manganese oxidation of fungi and bacteria. 98th Meeting of Ecological Society of America (Poster presentation).
- A Rutter, J Maldonado, K Helgen, E Gutiérrez. 2014. Neotropical Deer: Morphometrics and Taxonomy of the *Mazama americana* Species Complex (Mammalia: Cervidae). American Society of Mammalogists 94th Annual Meeting (Poster presentation).
- Boas, Caitlin. 2014. Phylogenetics within Bellerophon: breaking down a classic wastebasket taxon. GSA Annual Meeting (Poster presentation).
- Cooper, G; Bell, J. 2014. Fixing Things: The Politics and Techniques of Cell Phone Repair. 2014 Annual Meeting for the Society For Applied Anthropology (Poster presentation).
- Hill K. N. Bullock E. S. Corrigan C.M. McCoy T. J.. 2014. Unscrambling the History of Enstatite Chondrites. 45th Lunar & Planetary Science Conference (Poster presentation).
- Katie Keil. 2013. Associations between hyperiid amphipods and gelatinous zooplankton. . Society of Integrative & Comparative Biology (Poster presentation).
- Jackson, C M; Cottrell, E; Kelley, K A. 2010. Mineral-melt partitioning of V and Sc at arcs: implications for mantle wedge oxygen fugacity. Fall Meeting of the American Geophysical Union (Poster presentation).
- Wall, K; Davis, F A; Cottrell, E. 2014. Oxygen fugacity recorded by xenoliths from Pacific oceanic islands. Geological Society of America (Poster presentation).
- Cohen, Christopher; Dikow, Torsten. 2014. Taxonomic revision of the robber-fly genus *Leptopteromyia* Williston, 1907. Annual Meeting of the Entomological Society of America (Oral presentation).

- Cabrero, Alan; Dikow, Torsten. 2014. Taxonomic revision of the robber-fly genus *Acronyches* (Diptera: Asilidae). Annual Meeting of the Entomological Society of America (Oral presentation).
- Snider, A; Knowlton, N; Al-Rshaidat, M; Leray, M. 2014. Barcoding and metabarcoding the cryptofauna of the northern Red Sea. Western Society of Naturalists (Poster presentation).
- Lyons, S K; Toth, A; Behrensmeyer, A K. 2012. Changes in mammal community structure in Kenya over the last 100 years. Annual Meeting of the American Society of Mammalogists (Oral presentation).
- Toth, A; Behrensmeyer, A K; Miller, J; Lyons, S K. 2013. Species richness, community dynamics, and time-averaging in recent Kenyan ecosystems. 10th North American Paleontological Convention (Oral presentation).
- Marshall, B; Andrews, B J; Fauria, K. 2015. What's all the talc about? Entrainment in dilute pyroclastic density currents. American Geophysical Union Fall Meeting (Poster presentation).
- Miller, H; Rogers, J D. 2015. Using agent-based modeling to examine the effects of social connectivity on resilience. Annual Meeting of the American Association of Geographers (Poster presentation).
- Ehlinger, S. Q.; Wendler, J. E.; Wendler, I.; Huber, B. T.; Macleod, K. 2010. Influence of early diagenesis on foraminiferal shell chemistry and isotope signatures: Results from the Tanzania Drilling Project. Annual Meeting of the Geological Society of America (Poster presentation).
- Rodriguez-Russo, C. A.; Huber, B. T.; Macleod, K. G. 2010. Subtropical Turonian stable isotope ratios from "glassy" foraminifera: No evidence for greenhouse ice sheets. Annual Meeting of the Geological Society of America (Poster presentation).
- Huber, B. T.; Macleod, K. G.; Bryant, R. M.; and Dickie, M. 2014. Oxygen isotope paleotemperatures across the Cretaceous Super greenhouse at southern high latitudes (Naturaliste and Agulhas Plateau). Annual Meeting of the Geological Society of America (Oral presentation).
- Wall, K; Cottrell, E. 2014. Oxygen fugacity recorded by xenoliths from Pacific oceanic islands. Fall Meeting of the American Geophysical Union (Poster presentation).
- Cottrell, E; Davis, F; Birner S K; Warren, J M; Wall, K. 2014. Oxybarometry of peridotites from various tectonic settings. Annual Meeting of the Geological Society of America (Oral presentation).
- Birner, S.K.; Warren, J.M.; Cottrell, E.; Lopez, O.G.; Davis, F.A.; Falloon, T.J. 2014. Oxygen Fugacity Variations Among Tonga Trench Forearc Peridotites. Goldschmidt Geochemical Conference (Oral presentation).
- Birner, S.K.; Warren, J.M.; Cottrell, E.; Lopez, O.G.; Davis, F.A.; Falloon, T.J. 2013. Variations in Oxygen Fugacity among Forearc Peridotites from the Tonga Trench. Fall Meeting of the American Geophysical Union (Oral presentation).
- Herron, S; Wen, J; Zimmer, E. 2015. Nuclear and Chloroplast Sequences Resolve the Concord Grape Mystery. Botany 2015 (Poster presentation).
- Rosenfeld, C; Kenyon, J; Santelli, C. 2014. Environmental selenium transformations: Distinguishing abiotic and biotic factors influencing Se redox transformations. Fall Meeting of the American Geophysical Union (Oral presentation).
- Kenyon, J; Rosenfeld, C; Santelli, C. 2015. Investigating the effects of Se on fungal growth and biomineral production. Goldschmidt Conference (Poster presentation).
- Fernandez, A; Hunt, D. 2015. Sex determination from the human sacrum: A re-assessment. Annual Meeting of the American Association of Physical Anthropologists (Poster presentation).
- Lu, Shaina; Chesser, R. Terry. 2015. Patterns of genetic variation in the Australian Grey Fantail complex: *Rhipidura albiscapa* and *Rhipidura phasiana*. Evolution 2015 (Poster presentation).
- Kralick, Alexandra E; Tocheri, Matthew W. 2014. A 3D quantitative comparative analysis of wrist morphology among western and eastern gorillas. Annual Meeting of the American Association of Physical Anthropology

- gists (Poster presentation).
- Sherwood, Kate D; Owsley, Douglas W; Bruwelheide, Kari S; Rouse, Stephen L; Hurlbert, Donald E. 2015. Basketmakers revealed: Physical, CT, and 3D analyses of mummified human remains from the southwest. American Association of Physical Anthropologists (Poster presentation).
- Kate Sherwood. 2015. Basketmakers Revealed. American Association of Physical Anthropologist (Poster presentation).
- Romero, Ashly; Sholts, Sabrina; Hakansson, Helen; Vilukela, Matti. 2016. Craniofacial and dental effects shown in rats following in utero/lactational exposure to 2,2',3,4,4',5,5'-heptachlorobiphenyl (PCB-180). Annual Meeting of the American Association of Physical Anthropologists (Poster presentation).
- Schwartz LC; Gonzalez VL; Goetz FE; Maslakova SA; Wirshing HH; Norenburg JL. 2016. Carcinonemertidae: ribbon worms in search of their family history. SICB Annual Meeting 2016 (Poster presentation).
- Cunningham, Andreana; Hunt, David R; Coolidge, Rhonda H. 2016. Biocultural evidence through taphonomic observations in the Karluk Salmon Cannery Chinese of Kodiak Island, Alaska. Annual Meeting of the American Association of Physical Anthropologists (Poster presentation).
- Galezo, Allison. 2016. Morphometrics of the dolphin genus *Lagenorhynchus*: deciphering a contested phylogeny. Southeast & Mid-Atlantic Marine Mammal Symposium (Poster presentation).
- Kaufman, SV; Corrigan, CC; McCoy, TJ; Bullock, ES. 2016. Mineral Associations in Enstatite Chondrites: Possible Insights into Minerals on Mercury. 47th Lunar and Planetary Science Conference (Poster presentation).
- Obenda, Johann; Pobiner, Briana; Potts, Richard. 2016. The effect of context on visitor responses to the question "What does it mean to be human?". Annual Meeting of the American Association of Physical Anthropologists (Poster presentation).
- Said, Meena; Birner, Suzanne; Cottrell, Elizabeth. 2015. Oxygen Fugacity of Abyssal Peridotites Along the Gakkel Ridge. Fall Meeting of the American Geophysical Union (Poster presentation).
- Plaza-Torres, Stephanie; Wagner, Peter J; Darroch, Simon A F. 2015. A phylogenetic analysis of the brachiopod genus *Leptaena*. Geological Society of America Annual Meeting (Poster presentation).
- Winters, Noah P; Kula, Abigail A R; Kula, Robert R. 2015. Tall grass, small wasps: Measuring the biodiversity of braconid wasps (Hymenoptera: Ichneumonoidea) in two warm season grasslands.. Entomology 2015 (Oral presentation).
- Rondinelli, M; Droege, S; Kula, Abigail A R; Smith, David R; Kula, Robert R. 2015. Is pan trapping an effective method for estimating hymenopteran diversity in grasslands?. Entomology 2015 (Poster presentation).
- Said, M; Birner, S K; Cottrell, E. 2015. Oxygen fugacity of abyssal peridotites along the Gakkle Ridge. Fall Meeting of the American Geophysical Union (Poster presentation).
- Said, M; Birner, S K; Cottrell, E. 2015. Oxygen fugacity of abyssal peridotites along the Gakkle Ridge. Meeting of the Geological Society of America (Poster presentation).
- Sorman, Melanie; Fraass, Andrew; Huber, Brian; Acha, Beatrice; Wiggins, John Wesley. 2016. Morphometric and stratophenetic study of the *Rotalipora* lineage (planktic foraminifera) during the middle and late Cenomanian. Geological Society of America Annual Meeting (Poster presentation).
- Dafoe, Ashley C; Hunt, David R. 2017. The Accuracy of Nutrient Foramen Versus Midshaft Measurements of the Tibia for Sex Determination. Annual Meeting of the American Academy of Forensic Sciences (Oral presentation).
- Florez, D; Andrews, B J. 2017. Entrainment and runout of Martian pyroclastic density currents. Lunar and Planetary Science Conference (Poster presentation).
- Sosa, E S; Lunning, N G; McCoy, T J; Bullock, E S; Corrigan, C M; Gardner-Vandy, K G. 2017. Constraining the petrogenesis of the paired achondrites GRA 06128/9 through partial melting of an oxidized chondrite. Lunar and

- Planetary Science Conference (Poster presentation).
- Woolard, Katherine; Pobiner, Briana. 2017. Cautionary tales in the use of captive carnivore tooth mark data. Society for American Archaeology (Oral presentation).
- Aoki, N; Mushegian, N; Katija, K; Osborn, K. 2017. Kinematic description of locomotion in tomopterid polychaetes. Meeting of the Association for the Sciences of Limnology and Oceanography (ASLO) (Oral presentation).
- Abbott, Caroline P; Sues, Hans-Dieter; Lockwood, Rowan. 2017. The Dimetrodon dilemma: reassessing posture in sphenacodonts. Geological Society of American Annual Meeting (Poster presentation).
- Brook, Zev; Barclay, Richard S; Wing, Scott L. 2017. Cell size in Ginkgo and the paleo-CO₂ proxy. Geological Society of America Annual Meeting (Poster presentation).
- Wood, HM; Flynn, BI. 2018. You Are How You Eat: Chelicerae Orientation and the Diversification of Spiders (Arachnida: Araneae). Society for Integrative and Comparative Biology (Poster presentation).
- Benavidez, B M; Hunt, D. 2018. What teeth can tell you: oral health in two Paleo-Indian populations. American Association of Physical Anthropologists Annual Meeting (Poster presentation).
- Carreon, S; Austin, R; Sholts, S. 2018. Dental Caries Analysis of the Channel Islands. Society for American Archaeology (Poster presentation).
- O'Brien, Elizabeth; Edwards, Robert D; Radosavljevic, Aleksandar; Funk, Vicki. 2018. Patterns of plant endemism and diversity in the Guiana Shield. Botany 2018 (Poster presentation).
- Scher, Mason; Barclay, Richard S; Wing, Scott L. 2018. The effect of CO₂ concentration on carbon isotope discrimination in Ginkgo. American Geophysical Union Fall Meeting (Poster presentation).
- Richards, JC; Vecchione, M. 2019. The Diversity and Distribution of Cephalopods in the Charlie-Gibbs Fracture Zone. Society for Integrative and Comparative Biology Annual Meeting (Poster presentation).
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