Animal Behavior Bulletin

2017

IN THIS ISSUE

Dear CISAB Community,

Thank you all for your participation in and support of CISAB! CISAB continues to thrive because of the commitment of its faculty and student members, both past and present.

Our B.S. degree in Animal Behavior continues to grow, with 18 students graduating in 2017! We are growing our curriculum accordingly: Our **new lab course in animal behavior**, ABEH-A350, taught by Adam Smith, was offered for the first time in Fall 2017. In addition to their coursework, our undergraduates continue to seek out new learning experiences tailored to their interests through internships and summer research, and to put their degrees to interesting use after they leave IU.

The CISAB Mechanisms of Behavior Lab leadership has changed, with Dr. Christy Bergeon Burns stepping aside to pursue a new career in genetic counseling. We wish Christy all the best in her new endeavors! Meanwhile, in August 2017, we welcomed new Lab Director David Sinkiewicz to the **CISAB Mechanisms of Behavior Lab**. David hails from Georgia State University, where he gained extensive experience using molecular techniques and genomic approaches in a variety of species.

In Summer 2017, Laura Hurley, with the help of graduate student and REU alum Misty Proffitt, again shepherded undergraduates from across the U.S. through our NSF-funded **Research Experiences for Undergraduates**. The highly successful, NIH-funded training grant **Common Themes in Reproductive Diversity,** directed by Ellen Ketterson, welcomed four new predoctoral trainees and continues to support two postdoctoral fellows.

The **2017 Animal Behavior Conference** continued the tradition of providing a welcoming venue for exchange of research updates and ideas. We were especially pleased to host keynote speaker, 2017 Exemplar Awardee, and longtime friend of CISAB **Elizabeth Adkins -Regan.**

Finally, we have been able once again to recognize our outstanding students and faculty with an array of **awards and fellowships**.

Cheers,

December 2017

News from the Mechanisms of Behavior Lab

From Lab Director David Sinikiewicz

Having spent the last 10 years developing my molecular biology and behavior skillsets, I am eager to embrace this new challenge and opportunity to work with the great scientists associated with the Center for the Integrative Study of Animal Behavior.

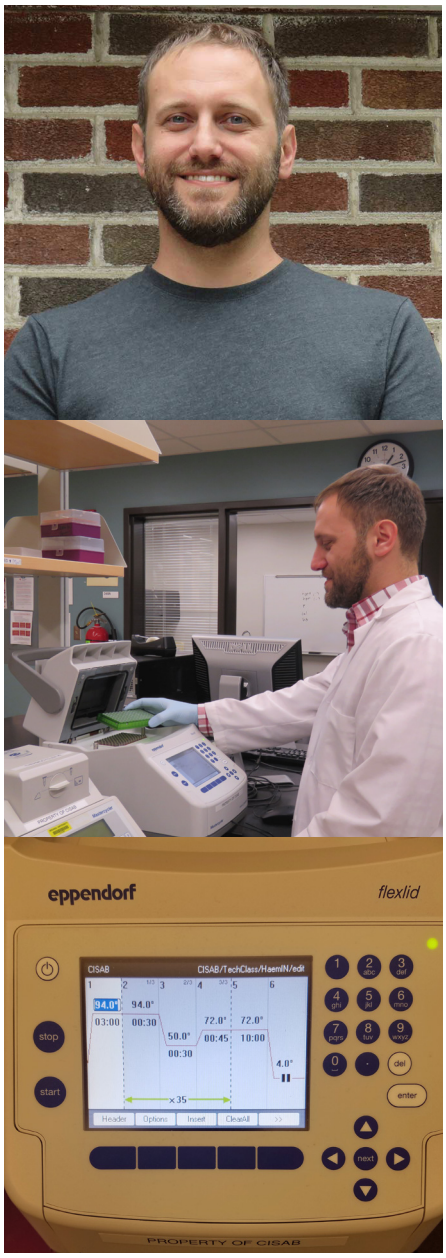
During my training, both as a laboratory technician and as a graduate student at Georgia State University, I have had the opportunity to learn many techniques that have prepared me to work with the diverse set of research programs here at CISAB. My graduate studies have focused primarily on gene expression in brains of green treefrogs. This work was focused on the development of a *de novo* brain transcriptome in this organism that is not traditionally used for genetic study. I also had the opportunity to collaborate with a fellow GSU lab in the production of the first de novo Syrian hamster brain transcriptome. While I have focused on these genetic techniques, I have also spent time extracting and analyzing steroid hormone levels in fish, birds, lizards, and frogs.

Under new direction the lab continues to thrive as a space for performing molecular techniques. Operating as a recharge center has allowed the lab to provide services and techniques on a per-sample basis, keeping the cost for each lab manageable. We also continue to provide free access to shared equipment that may not be available in every lab. Additionally, we offer consultations for experimental design and technical troubleshooting. This fall we have had the pleasure to have several visiting scientists from the University of North Carolina at Charlotte, New Mexico State University, and Bielefeld University in Germany use the resources of the CISAB lab. Having these visiting scientists in the lab has really highlighted the collaborative nature of the CISAB community.

This year, thanks to support provided by the Environmental Resilience Institute, we were also able to replace our failing gradient thermal cycler with a brand new Eppendorf Nexus Gradient that will allow everyone to continue their PCR projects in the lab. The new thermal cycler offers a simpler interface, lab-specific logins, and the ability to use faster chemistries.

Additionally, we should soon have a filter that will allow for high-quality images to be taken of SYBR Safe-stained gels. This will allow us to phase out ethidium bromide, providing a healthier and safer approach to visualizing your PCR reactions.

Please stop by the lab to chat about what we can do to help with your research!



top to bottom
1. New Lab Director David Sinikiewicz
2. David demonstrates how the new thermocycler works
3. The new gradient thermocycler offers a user-friendly interface, allowing you to visualize your program as you create it. This thermocycler also simplifies primer optimization, allowing you to run reactions at multiple annealing temperatures simultaneously!

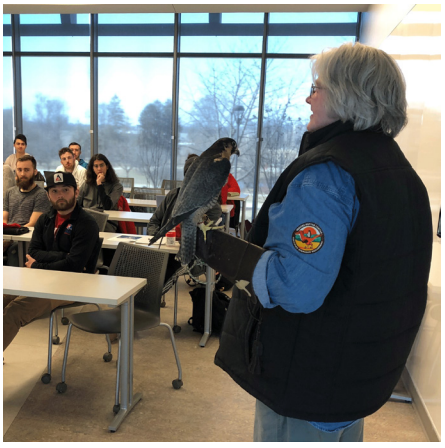
Animal Behavior Major Continues to Grow, with Increased Course Offerings and More Internship Sites

By Animal Behavior Lecturer Dr. Adam Smith

The continued growth of the Animal Behavior major has brought many changes to the program, including a new course, increased frequency of course offerings, and even a new student organization. The new Animal Behavior Laboratory course (ABEH-A350) is the latest addition to our course catalog, and was offered for the first time in the Fall of 2017. Students had a chance to work with live animals both in and out of the classroom, and even had to go collect their own research subjects in the case of crayfish. Students finished out the semester by designing their own group research projects and performing their experiments. The lab class is an exciting addition for our students and will allow them to get some hands-on experience with traditional techniques in animal research. Meanwhile, we have also started to offer the Animal Behavior Workshop courses (A200 and A400) during both the fall and spring semesters. This will help us promote group discussion by keeping class sizes down, while still making sure all of our students get a chance to meet with speakers and learn about careers in the animal behavior.

Finally, a pair of Animal Behavior majors established a new student organization, ICAN at IU. This student group partners with the nonprofit Indiana Canine Assistant Network (ICAN), which is devoted to the training of specialized service dogs for individuals in need. The students will help educate the community about ICAN and their mission, as well as organize and participate in fundraisers for the group. Of course, group members will have the opportunity to interact with service dogs in training!

As usual, the activities of our students continue to broaden the reach of the internship program for Animal Behavior students. Many of our students continue to work within the local Bloomington community, including in facilities devoted to public education or animal husbandry and rehabilitation. They are continually expanding our program through their own initiative and efforts, and because of that we can now proudly count the Cheyenne Mountain Zoo in Colorado Springs as one of our new official sites. We look forward to adding even more in the coming year!



Above, Top to Bottom:
1. Adam Smith with ICAN dogs
2. Students Quinn Ashley, Alex Ebenroth, and Jessica Lawson assess female mate preference in guppies with a dichotomous choice test.
3. Students Rachael Hearth and Karly Taylor with hissing roaches, which were used to test differential food preferences between males and females in ABEH-A350
Bottom Row, left to right
1. Laura Edmonds and Patty Reynolds of the Indiana Raptor Center give a presentation in A200 and A400
2. Ashton Asbury completed an ABEH Internship at the Cheyenne Mountain Zoo.

What are Animal Behavior Majors Up To?

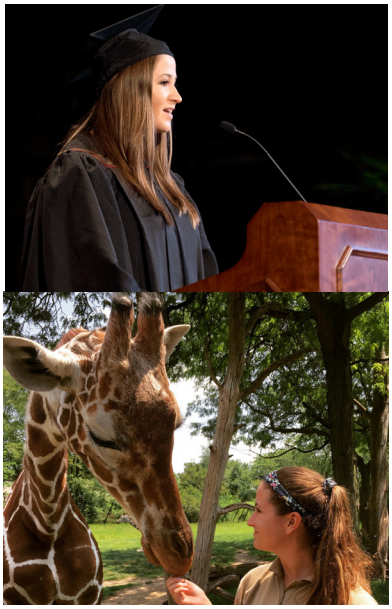
Julie Mathias and Ashton Asbury Start Indiana Canine Assistant Network IU Chapter

Top: Dinah, Ashton, Little Dezie, Julie and Tess, photo courtesy of Nichole Lynette. 2nd Row: 1st Photo- Koontz, photo courtesy of Kennedy Reynolds, 2nd Photo- Obie, photo courtesy of Julie Mathias

Indiana Canine Assistant Network (ICAN) is the only service dog training organization in Indiana accredited by Assistance Dogs International (ADI). ICAN takes a unique approach to service dog training. The organization does all of the training within the prison system in Indiana. The dogs go into the prisons to learn all of the cues that they will one day need to know as a service dog. Every six weeks, the dogs will leave the prison for a three-week stint on "furlough" with ICAN volunteers to acclimate to the broader community. ICAN's mission is to "unleash abilities and change lives on both ends of the leash".

ICAN at IU is a group of students at Indiana University - Bloomington with a mission to educate, fundraise, and volunteer with the Indiana Canine Assistant Network (ICAN). What does this look like? This is accomplished through fundraising events like Dine and Donates, partnerships on campus such as Destress Events with Balance at Kelley School of Business, and educating the public on service dog etiquette via flyers and social media as well as by volunteering to take the dogs into the community on "furlough," or as Julie and Ashton put it, "volunteer community training".

Caroline Fischer is Student Speaker at the College of Arts + Sciences Freshman Induction Ceremony



Caroline Fischer, who was in Animal Behavior's first class of Direct Admission Scholars in 2015, was selected as the student speaker for the College's inaugural Direct Admission Scholars induction ceremony in Fall 2017. In her remarks, she stated that IU was not on her list of potential colleges—until she learned of the Animal Behavior major, which was the critical factor in her decision to enroll at IU. Caroline has taken full advantage of her time as an Animal Behavior major: in addition to excelling in her coursework, she has also done supervised research in Dr. Troy Smith's lab, volunteered at a local wildlife rehabilitation center, completed an internship at the Indianapolis Zoo, and served on IU's prestigious Scholarship Advisory Committee.

What are Animal Behavior Majors up to? (Continued)

Sienna Gonzalez Uses Internships to Gain International & Local Skills

I recall feeding livestock and collecting eggs on my grandfather's farm when I was 4 years old. I knew then that I wanted to become a veterinarian. I was speaking Chinese at the age of 12 and wanted to work with pandas. In the summer of 2016 I applied for an internship in the Animal Behavior Program, hoping to pursue an internship abroad using my Chinese language skills and to receive hands-on experience with endangered animals.

The Animal Behavior Program accepted my application as their first international internship at the Bifengxia Panda Breeding and Research Center in Chengdu, China. During my internship in China I created an ethogram project to monitor the behavior of the pandas using images and descriptions. After returning to the US, I enrolled in my first animal behavior courses and was confident this was a major I wanted in addition to Biology and Chinese.

In the fall of 2017 I applied for my second animal behavior internship at Arlington Heights South Animal Hospital. This was my first experience working with domesticated animals. During this internship, I learned how to assist in x-ray exams, give both heart worm and vaccination examinations, and prep a patient for surgery. I also learned about the medications in the pharmacy, plus many more valuable insights on how an animal hospital functions.

The Animal Behavior Program has prepared me to apply for Veterinary School in the fall of 2019. I plan to specialize as a wild animal surgeon.

Top: Panda kindergarten-An enrichment program offering socialization and enrichment toys for panda cubs to stimulate themselves while being bred in captivity

Bottom: A Great Dane after x-ray and diagnosis of arthritis. One treatment option is use of the machine in the background. A laser is used to treat problem areas, providing pain relief and increased mobility.

2017 Animal Behavior Graduates

In May, CISAB hosted a reception for our 2017 Animal Behavior graduates.

Attendees included, From Left to Right: Back Row: Dr. Cara Wellman, Leah Erickson, Klayton Harmon, Austin Schlenz, James Hood

Middle row: Jordan Bradley, Shannon Howe, Emily Howard

Front Row: Carsen Dean, Taylor Avery

Undergraduates use CISAB Summer Scholarships to Gain Hands-On Experience

Top: adoption of Bunny following adoption counseling
Bottom Left: Bald Eagle during exam
Bottom Right: Loki, a WildCare education Ambassador is a captive bred pearl morph red fox

Megan spent her summer interning at both Bloomington Animal Care and Control (BACC) and WildCare Inc.

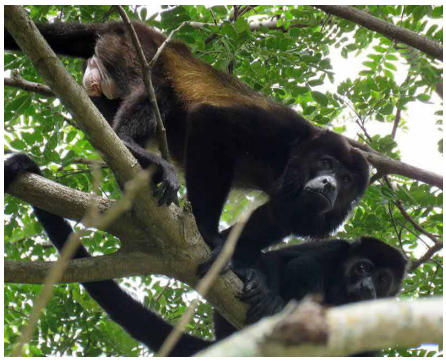
During her time at BACC, Megan enjoyed seeing the more human related side of Animal Care where she provided adoption counseling and ventured to the Bloomington Farmers' Market with adoptable dogs. At these events she helped socialize the dogs and educate the public about BACC. When not working with the public, Megan enjoyed socializing and grooming the adoptable cats, dogs and rabbits.

In addition to an educational summer at BACC Megan continued to intern at WildCare Inc. where she worked with several native Indiana species. Megan enjoyed such opportunities as fostering eastern cottontail rabbits and flying squirrels, assisting the Virginia Opossum Teamleader in routine care, and learning to vaccinate raccoons prior to release. A highlight of the summer was participating in an initial exam of a fledgling Bald Eagle. Megan's continued work with WildCare Inc. has allowed her to receive specialized training with non-releasable education ambassadors where she helps with routine training and presenting education outreach programs. Lastly, Megan excelled at working on the Herpitle Rehabilitation team and became the Teamleader. In this position she oversees the care of injured reptiles and amphibians from their initial entrance exam to creating treatment and dietary plans ending in their release back into the wild.

Kathryn Tafoya used her scholarship to participate in a field course in Costa Rica's rainforest.

My classmates and I hiked miles of trails near the station, while our director taught us to use clinometers, densitometers, and hygrometers as we tracked and studied the daily activity budgets of groups of howler monkeys, squirrel monkeys, capuchins, and spider monkeys. My partner and I formulated a research project where we measured the distribution, abundance, and utilization of food resources by the four primate species living in fragmented rainforest. We hoped to use this information to help conservationists determine which trees are most important to specific species, which would be useful in creating forest corridors between isolated primate habitats.

Each day brought a new discovery – we saw koatis, tayras, toucans, flocks of 20+ scarlet macaws, and more. I made friends with one of the local wild horses, and he allowed me to pet his forehead as I fed him grass. There were hot days, where the sun burned our skin so badly we couldn't sleep at night, and there were stormy days, where when we emerged from the jungle soaked, clutching our equipment in plastic bags. But each day, we steadily gathered more data, until our Rite-In-The-Rain notebooks were full. By the end of the course, most of my classmates had decided against a career in primatology. That didn't stop us from laughing together late into the night, as we played card games and learned how to meringue with the local Ticos. My experience in Costa Rica confirmed that I love what I'm studying, and I can't wait to return to the rainforest.



Top: Howler Monkeys perched in a tree one of the species Kat studied

Bottom: Kat looking for monkeys at 5am as the sun rises

What Are They Doing Now? How Animal Behavior Majors Are Using their Degrees

Meet Morgan Napier, second year master's student at the University of Connecticut

After starting my undergraduate career in 2013, I quickly changed majors three times. All I knew was I that I loved science, so I sat down with one very understanding advisor (thanks, Danielle!), who had the perfect solution for me: the newly created Animal Behavior major. In Animal Behavior, I studied everything from coral reef ecosystems to neuroscience. I loved every minute of my program, but Dr. Wellman's seminar "The Microbiome, Physiology, and the Brain," finally helped me discover a passion: the microbiome. Before I knew it, I was applying to graduate school to study the microbiome and practical applications in conservation biology.

Before graduating from IU, I had one more task to complete: an internship. There were many options of pre-approved internship sites for the animal behavior program, but none of them fit my interests. I made a phone call to Ouabache State Park in Bluffton, IN, where there is a small herd of American Plains Bison. During my internship, I researched genetic conservation, led educational walks at the park, and wrote a 5-year plan for the park to ensure genetic conservation of the herd was being managed. All the while, I continued to roll around ideas about microbiomes and how they affect captively bred animals and conservation efforts.

At the end of the summer, I moved to Connecticut to begin my master's program in Conservation Biology at the University of Connecticut. Though I study conservation biology, ecology, and biodiversity, I am charging headfirst into the realm of microbiome-centric conservation. In the summer of 2017, I completed my first field season sampling the microbiomes and diets of terns on Great Gull Island. I am very excited to see where my research takes me.

Without the Animal Behavior program, I would not be where I am currently. I will be forever grateful for the faculty and staff at IU that I encountered along my way as an animal behavior student, who believed in my ideas enough to recommend me for graduate studies, and who have kept in touch since I left IU. Indiana University will forever hold a very dear place in my heart for the opportunities she afforded me and the foundation I was able to build for all my future endeavors.

Photo courtesy of Morgan Napier. Handling adult Common Tern to record data

Photo courtesy of Morgan Napier. Collecting diet samples from terns at Great Gull Island

Photo courtesy of Morgan Napier. Banding juvenile Common Tern

What Are They Doing Now? How Animal Behavior Majors Are Using their Degrees (continued)

Photos courtesy of Jared Simoneaux while at Camp Rancho Framasa.

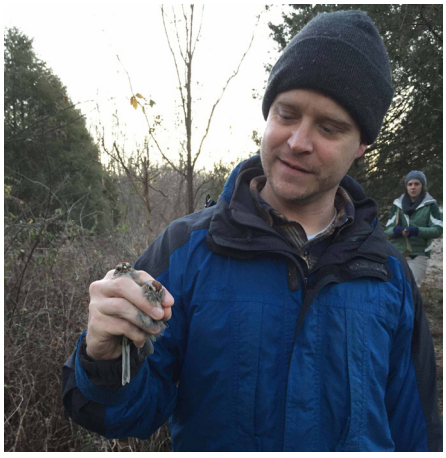
Meet Jared Simoneaux, currently School Year Program Director at CYO Camp Rancho Framasa

As a student in the Animal Behavior program at IU you discover the countless pathways in which you can start you career path. Having a passion for soaking up knowledge and sharing with others led me to an internship at CYO Camp Rancho Framasa. During my CISAB internship, teaching students of all ages and abilities allowed an opportunity to share aspects of learning gained from the Animal Behavior program. When teaching was not on the daily agenda, enhancing the Interpretive Nature Center (INC) was where I could be found. Some additions brought to the INC during this internship project included interactive posters, rotating "tree cookies" that displayed different pictures of animals and information, touchable bones, pelts, and skulls, along with various other elements.

Although the internship at Camp seemed short lived, all the connections made with support staff and coworkers were not lost when the internship concluded. Camp became a home and place to launch my career foundations after graduation. This internship allowed me to progress quickly starting as an intern/Summer Staff, moving to school year Program Staff, becoming Program Manager, and most recently School Year Program Director - all since graduation in December 2015. Without the classes and education gained from the Animal Behavior program, certainly my career path would be much different. The passion, skills, and knowledge gained from those classes are now being passed from myself, to fellow staff, and eventually students and campers who then positively influence our world.

CISAB Welcomes New Faculty Member Dr. Adam Fudickar

A Research Scientist at the Environmental Resilience Institute with adjunct appointments in Biology and the School of Public and Environmental Affairs, Adam studies the environmental cues and neuroendocrine and genetic mechanisms responsible for the timing of seasonal reproduction and migration in animals. Working with animals in the wild and in the lab, Adam uses a range of methods, including biotelemetry, hormone assays, and gene expression studies. The overarching theme of his research is to identify the capacity of animals to persist in the face of environmental change.



2017 REU Capstone Presentations

Front Row: Misty Profitt (REU Facilitator), Samantha Westcott, Krysten Garcia, Theresa Jones, Grascen Shemantle, Ashlee Webb, KeTiara Phillips Back Row: Alex Koo, Tiana Sanders, Belen Rogers, Isabella Salinas, Omar Kane, Will Kinkel (Research Scientist) Picture taken during Exotic Feline Rescue Center Field Trip

KRYSTEN GARCIA, John Hopkins University, Baltimore, MD
Hippocampal Dependency of Episodic Memory Replay in Rats.
(Drs. Jonathon D. Crystal and Danielle Panoz-Brown, Dept. of Psychological & Brain Sciences)

TERESA JONES, Mary Baldwin University, Staunton, VA
How Do Parasites Choose Their Hosts?
(Dr. Farrah Bashey-Visser lab and Ashwini Ramesh Dept. of Biology)

M. OMAR KANE, Salve Regina University, Newport, RI
The Effects of Early Life Stress on Fear Learning and Glucocorticoid Receptor Expression in Adolescent Rats.
(Dr. Cara Wellman and Rachel Skipper, Dept. of Psychological & Brain Sciences)

ALEXANDER KOO, Vassar College, Poughkeepsie, NY
Localizing the Source if Context-dependent 5-HT Release in the IC.
(Dr. Laura Hurley and Chris Petersen, Dept. of Biology)

KETAIRA PHILLIPS, University of Central Florida, Orlando, FL
Modeling the Effect of Architectural Modularity in an Evolvable Neural Network.
(Dr. Sue Carter, Allison Perkybile and Will Kenkel, Kinsey Institute and Department of Biology)

BELEN ROGERS, Mount St. Mary's University, Emmitsburg, MD
Maternal Offspring Microbiome Transfer, Antibiotic Exposure, and Neurobehavioral Development.
(Dr. Jeffrey Alberts and Chris Harshaw, Dept. of Psychological & Brain Sciences)

ISABELLA SALINAS, St. Mary's University, San Antonio, TX
Sex Differences in- and Chronic Stress Effects on- Microglial Morphology and ΔFos B Induction in Medial Prefrontal Cortex.
(Dr. Cara Wellman and Justin Bollinger, Dept. of Psychological & Brain Sciences)

TIANA SANDERS, Okalahoma State University, Stillwater, OK
Telomeres Predict Life History Trade-Offs in Wild Female Tree Swallows.
(Dr. Kim Rosvall and Sarah Wolf, Dept. of Biology)

GRASCEN SHIDEMANTLE, Slippery Rock University, Slippery Rock, PA
Agression and Chirp Behavior in Free-Swimming Dyadic Encountrers of *Apteronotus albifrons*.
(Dr. G. Troy Smith and Megan Freiler, Dept. of Biology)

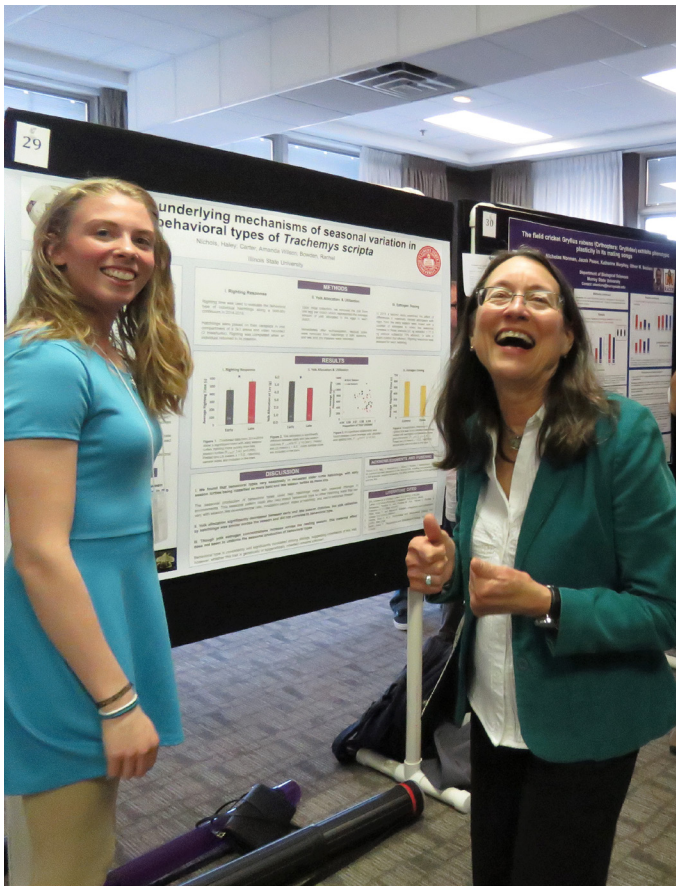
ASHLEE WEBB, Boise State University, Boise, ID
Differences in Gonadal Response to GnRH in a Sympatric bird.
(Dr. Ellen Ketterson and Abby Kimmitt, Dept. of Biology)

SAMANTHA WESTCOTT, Lyon College, Batesville, AR
Characterization of Smoke Alarm and its Role in Nociception
(Dr. Dan Tracey and Stephanie Mauthner, Dept. of Psychological & Brain Sciences)

2017 Animal Behavior Conference

CISAB's 24th Annual Animal Behavior Conference in April 2017 once again brought together animal behaviorists from across the country to present and discuss thier research. The students and trainees comprising the Organizing Committee, with assistance from our expert staff, as always pulled off the feat of seamlessly stitching together all of the pieces of this complex event.

The conference was attended by 237 participants, from undergraduates to senior faculty members, from 36 institutions across 10 states. Twenty-one talks were given by students and postdocs Friday and Saturday, while 42 posters were presented at the Friday night session. Exemplar awardee Dr. Elizabeth Adkins-Regan of Cornell University (right) gave the Friday plenary address on neuroendocrine and developmental mechanisms that underlie male-female relationships and biparental care in pairbond-forming avian species. On Saturday, our own Dr. Laura Hurley gave a keynote address on neural mechanisms underlying context-dependent communication.



ABC Undergraduate Poster Awards

1st Place

Caitlin Post

The Ohio Sate University,
Anxiety during the postpartum period: examining the role of GABA in the medial prefrontal cortex
(Departments of Neuroscience & Psychology)

2nd Place

Shawn Gompa

Indiana University
Early life active sleep as a mechanism for normal behavioral development in mice

(Department of Psychological & Brain Sciences)

3rd Place

Ryan Madden

Purdue University
Effects of traffic noise on advertisement call plasticity in Japanese Kajika frog

(Department of Biological Sciences)

2017 Animal Behavior Conference: Awards

Exemplar Award 2017: Dr. Elizabeth Adkins-Regan

Dr. Adkins-Regan earned her PhD in Physiological Psychology at the University of Pennsylvania before completing postdoctoral work at Bucknell. She joined the Psychology faculty at Cornell University in 1981, and is currently a Professor in the Psychology and Neurobiology and Behavior departments there. A behavioral neuroendocrinologist, Dr. Adkins-Regan's research focuses on neural and hormonal mechanisms of sociality in several bird species. Her work, supported by among others NSF and NIH, has resulted in about 150 published journal articles and book chapters. She has earned numerous accolades for her work, including being named a Fellow of AAAS, the Animal Behavior Society, and the Association for Psychological Science. Dr. Adkins-Regan is committed to teaching and training, and has mentored numerous graduate students and postdocs who have gone on to successful careers in behavioral neuroendocrinology. She has made a lasting mark on her students and the field, and has been a lifelong friend of CISAB, having visited on many occasions for seminars and colloquia.

Rowland Award 2017: Mikus Abols-Abolins

A graduate student in Biology, Mikus worked with Dr. Ellen Ketterson, studying the impact of stressors on reproduction in a life history context, combining comparisons of populations of urban versus rural juncos, with experimental manipulations to assess hormonal interactions. Mikus is a gifted teacher and researcher who stands out for his enthusiasm, original thinking, and generosity. That gift for teaching really shines in the lab, where Mikus mentored 4 summer NSF REU students over his graduate career, as well as many IU undergraduates in the lab. Many students and faculty over the years have remarked on the quality and extent of his mentoring. Says Hanna Kassab, an IU undergrad who worked with Mikus, "I can honestly say that his mentorship merits an incredible amount of praise; I have grown so much as an independent researcher under his tutelage. As a teacher and mentor, Mikus never fails to prioritize helping his students achieve new goals and capitalize on fantastic opportunities."

Hanna Award 2017: Briana Whitaker

Briana is a graduate student in Biology. Working with Dr. Keith Clay, her research focuses on diversity of fungal endophyte communities of switchgrass, and nature/nurture interactions in endophyte community makeup. In addition to mentoring students in the lab, she has worked closely with IU Biology Outreach, a program that brings together local public-school teachers, IU professors, and students to implement statewide learning objectives by bringing hands-on science activities to elementary schools in Bloomington. Through the program, Briana has been directly engaged in classroom instruction, student interaction and science lesson design for elementary school children. Briana was also one of the founders of IU's new science blog, ScIU-Conversations in Science at Indiana University, where science issues and experiences, and new advances, are communicated to a broad audience in a personal and general-audience format. Her research record is clearly outstanding but her efforts and one-on-one tutoring and advising, and science outreach to the public and elementary school children is extremely impressive.

2017 Conference Student Exchange Program

Trainees attend 18th Annual Student and Postdoc Symposium at North Carolina State's W.M. Keck Center for Behavioral Biology

by Kelly Ronald

I was very thankful for the opportunity to visit the NC State Keck Center for their 18th annual graduate student and postdoctoral researcher symposium! Chris Petersen and I represented the Hurley lab from Indiana University and CISAB as a part of their long-running exchange program between the two universities. We were warmly welcomed and Chris Petersen and I were introduced as guests to the other Keck Center members before the symposium began. We thoroughly enjoyed the excellent hospitality of all our hosts and both Chris and I were honored to be a part of the largest Keck symposium to date! We were treated with 25 talks throughout the day in addition to two poster sessions during the coffee breaks.

The Keck Center is extremely integrative, pulling graduate students and their work from across scientific departments including chemistry, entomology, biology, etc. The variety of talks were impressive: from the genetic underpinnings of behavior to ecology to animal personality to the translation work on behavior. The audience was receptive and engaged and people asked great questions that turned into even deeper conversations in the reception that followed.

I personally really enjoyed being able to reconnect with a former peer of mine from Purdue: Ashley Elias, who is now an NSF-funded postdoc in the Reade Roberts laboratory as well as Li-Byarlay Hongmei, who just accepted an assistant professorship. These connections help me as a new postdoc to navigate the job market and post-doctorate life. Ashley also helped introduce me to another postdoc in her lab that has led to an e-mail exchange even after the conference has ended. It is wonderful to have opportunities like this where we can reconnect with peers, make new connections, and share our love for science together in a community!

By Christopher L. Petersen

I was grateful for the opportunity to participate in this year's student exchange program between the Center for the Integrative Study of Animal Behavior at Indiana University, and the W.M. Keck Center for Behavioral Biology at North Carolina State University. I have enjoyed meeting, hosting, and talking shop with Keck Center students at the past several Animal Behavior Conferences. I was thus thoroughly unsurprised with the wonderful hospitality we received and, more importantly, the quality of the talks and science going on at NC State.

Dr. Kelly Ronald, a postdoc also in the Hurley Lab, and I were greeted at our hotel by 2 graduate students (Samantha and Andrea) who took us to a Lebanese restaurant in downtown Raleigh. There we met two additional graduate students (and former Keck Center/CISAB exchangees), Leslie and Jaime, who all did a wonderful job of making us feel at home and at ease.

This year's Keck Symposium was the largest to date, and included 25 research talks as well as poster presentations interspersed with coffee breaks. As daunting as the program sounded, the interesting research coupled with quality speakers and the efficiency of the graduate student moderators/organizers made it a breeze! The Keck Center, just like CISAB, is highly integrative and comparative. We were treated to talks ranging from patch-clamp electrophysiology in rats, to cichlid genetics and ecology, all the way to addiction-like behaviors in *Drosophila.* One of the highlights was engaging in detailed discussions regarding my research and future directions with students and faculty during the wine and cheese reception immediately following the symposium.

2017 Conference Student Exchange Program

Kelly Moench Attended the 2017 Annual Brains and Behavior Retreat at Georgia State University

By Kelly Moench

I would like to thank CISAB and the Center for Behavior Neuroscience (CBN) for the remarkable opportunity to have attended the 2017 Annual Brains and Behavior Retreat at Georgia State University. Similar to our own community within CISAB, at the Retreat, I was surrounded by a highly integrative and interdisciplinary group of researchers with a passion for studying the many facets of animal behavior. The schedule of talks included topics ranging from mouse models of Rett Syndrome, to mathematic modeling of ventricular myocyte contraction, to the ramifications of DNA damage. Despite the large attendance of the talks, the discussion sparked by each topic was dynamic, collegial, and inclusive, as researchers from a variety of disciplines probed both the presenters and other attendees about the nuances of the data presented. This experience exemplified the strength of collaborative research, and underscored the importance of having a variety of viewpoints when studying animal behavior. The poster session was equally as engaging, where I had the fantastic opportunity to present my research to this diverse group of researchers. Overall, the Brains and Behavior Retreat was filled with stimulating conversation and obvious collegiality amongst attendees, and I am beyond grateful to have had this unique opportunity.

Thank You to the Keck Center and CBN Student Ambassadors to the 2017 Animal Behavior Conference

From Left to Right: Megan Serr, Hongmei Li-Byarlay, Anna Rosenhauer, and Joseph Terranova

MEGAN SERR, *Graduate Student, W. M. Keck Center for Behavioral Biology and Genetic Engineering and Society Center, North Carolina State University; Genetic Biocontrol of Invasive Rodents Program, Island Conservation*
Assessing Reproductive Competitiveness between Wild and Laboratory Mice

HONGMEI LI-BYARLAY, *Postdoctoral Fellow, W. M. Keck Center for Behavioral Biology and Department of Entomology, North Carolina State University*
Social Caste Determination in Honey Bees via Genome-Editing

ANNA M. ROSENHAUER, *Graduate Student, Neuroscience Institute, Georgia State University*
An Acute Social Defeat Stressor during Puberty Increases Susceptibility to Conditioned Defeat in Adulthood

JOSEPH IGNAZIO TERRANOVA, *Graduate Student, Neuroscience Institute and Center for Behavioral Neuroscience, Georgia State University*
Sex Differences in the Effects of the Selective Serotonin Reuptake Inhibitor, Fluoxetine, on Resistance to Social Stress in Syrian Hamsters

Congratulations CISAB and CTRD Fellowship Recipients

CISAB Fellowship Recipients 2017-2018

Abby Kimmitt
Ketterson Lab

Amrita Bhattacharya
Bashey-Visser Lab &
Lively Lab

Melissa Proffitt
Smith Lab

Mikus Abolins-Abols
Ketterson Lab

CTRD Predoctoral Fellows 2017-2018

Chris Petersen
Hurley Lab

Justin Bollinger
Wellman Lab

Kristyn Sylvia
Demas Lab

Samantha Cohen
Todd Lab

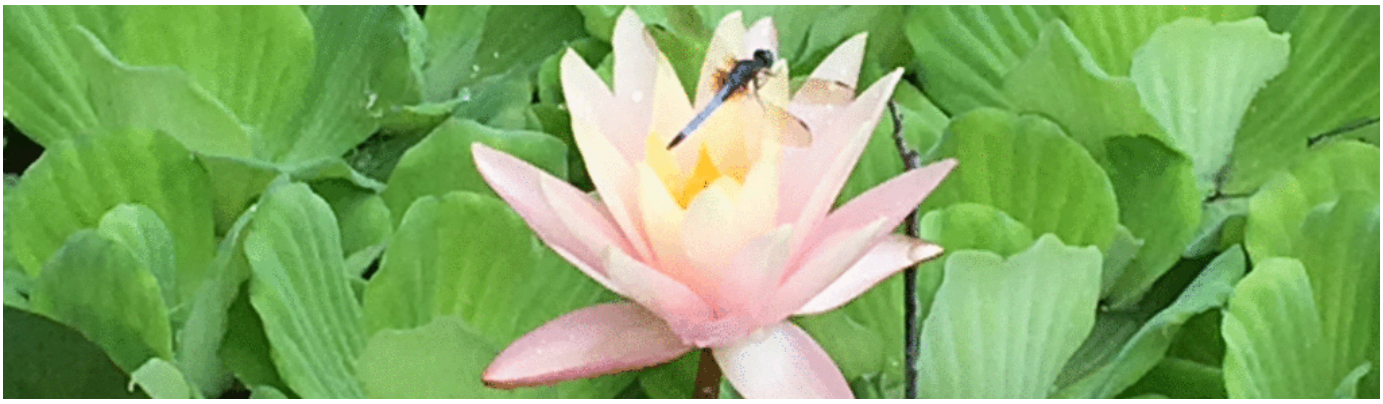
CTRD Postdoctoral Fellows

Left: Courtney Fitzpatrick, Wade Lab

Right: Kelly Ronald, Hurley Lab

In Remembrance of Dr. Ron Villarreal 1965 -2017

We are saddened to share the news that one of our CISAB alumni, Dr. Ronald Villarreal, a former postdoctoral fellow and research scientist in the laboratories of Joe Steinmetz and Laura Hurley, respectively, passed away. During their time at IU, both Ron and his wife, Jill Menge Villarreal (PhD 2006, Indiana University), were integral members of the CISAB community. Ronald was especially committed to mentoring of undergraduates and CISAB's Research Experiences for Undergraduates program. The CISAB community extends deep sympathy to Ronald's family, especially Jill and their son Paul. Ronald was born in 1965 in El Paso, Texas and earned his undergraduate degree in Psychology from the University of Texas, El Paso. He went on to earn a PhD from The University of Texas, Austin in Behavioral Neuroscience, specializing in Animal Learning. He taught courses in Learning and Animal Behavior at Indiana University and Missouri Western State University. In his free time, Ronald enjoyed spending time with his wife and son, mentoring students, traveling, sports, and helping animals in need.



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