



Animal Behavior Bulletin

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SUMMER 2010

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REU Students This Year!

Student, School and Lab/Mentor(s)

Amin, Randa
University of Maryland:
Baltimore County
Ken Mackie/Dan Morgan

Bellingheri, Kaisha
Alabama Agricultural &
Mechanical University
Emilia Martins/Mayte Ruiz

Buono, Anthony
Providence College
Heather Bradshaw

Gress, Brian
Iowa State University
Jim Goodson/James Klatt

Holman, Chelsea
University of Calif. - Santa Cruz
Troy Smith

Palmer, Brittany
Tuskegee University
Jeff Alberts

Pertilla, Mia
Tuskegee University
Emilia Martins/Mayte Ruiz

Saldate, Johnny
University of Arizona
Laura Hurley/Jes Hanson

Tonge, Natasha
Swarthmore College
Ellen Ketterson/ Kim Rosvall

Stringfield, Sierra
University of Michigan - Ann Arbor
Michael Muehlenbein/Lisa Becker

Weatherly, Lisa
Thiel College
Troy Smith

Wharton, Philip
Indiana University - Blgtn
Greg Demas/Jacqueline Ho

Carter, Carol
Teacher, Clear Creek Elementary,
Bloomington, IN
Emilia Martins

CISAB Members Awarded

NEWS, STORIES & IDEAS

IF YOU HAVE
NEWS YOU
WANT TO
SHARE WITH
THE CISAB
COMMUNITY
CONTACT US
AT:

cisab@indiana.edu

Or

855-9663

Dr. Colin Allen receives Humboldt Research Award

Colin Allen, Professor of History and Philosophy of Science and Cognitive Science, has been chosen by the Alexander von Humboldt Foundation to receive a Humboldt Research Award. The Humboldt Foundation promotes academic cooperation between excellent scientists and scholars from abroad and from Germany. Research fellowships and research awards bring awardees to Germany to work on a research project with a host and collaborative partner. Allen will be spending up to 8 months of the coming year in Germany as a guest and collaborator of Prof. Albert Newen, currently of Bochum. He will also be participating regularly in Prof. Andreas Bartels' "knowing how and knowing that" working group. In connection with these collaborations, in August he will be a panelist at the European Society for Philosophy & Psychology meeting in Bochum, and in September he will participate in a workshop in Bonn. During the coming year he will be working on a new book on animal cognition.



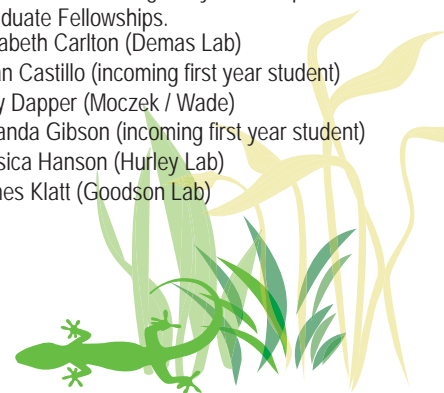
Colin Allen

NSF graduate fellowship recipients 2010

Please join us in congratulating the following CISAB students who were among this year's recipients of NSF Graduate Fellowships.

- Elizabeth Carlton (Demas Lab)
- Dean Castillo (incoming first year student)
- Amy Dapper (Moczek / Wade)
- Amanda Gibson (incoming first year student)
- Jessica Hanson (Hurley Lab)
- James Klatt (Goodson Lab)

Continues Page 3...



Message From the Director

Greetings to the CISAB community!

Once again, summer is here and another academic year is behind us. I hope everyone's summer break is off to a fun and fruitful start. As in previous years, I'd like to take the opportunity to fill you in on some of the happenings within CISAB this past academic year.


Thanks to Ellen Ketterson and Laura Hurley for two wonderful A501 courses on Techniques in Reproductive Diversity (Fall, 2009) and Sensory Ecology (Spring 2010), respectively. The students really enjoyed these courses and they brought a wealth of knowledge to the IU campus in the form of seminar speakers as well as novel methods for conducting animal behavior research.

As always, our distinguished members of CISAB received many awards for their teaching, research and scholarship. Congratulations to Ellen Ketterson who joins CISAB members Jeff Alberts, Curt Lively, George Rebec, Holly Stocking, Bill Timberlake and Mike Wade as a newly elected member of the American Association for the Advancement of Science (AAAS). In addition, Dale Sengelaub was awarded the Lieber Memorial Award for distinguished teaching. Laura Hurley was awarded an IU Trustees Teaching Award. Colin Allen was chosen to receive a Humboldt Research Award to promote academic cooperation between excellent scientists and scholars from abroad and from Germany. Jonathan Atwell (Ketterson Lab) became the second CISAB graduate student to be selected as Herman Well Graduate Scholar. And Linda Summers was a finalist for a university-wide staff merit award. Congratulations to everyone!

For the first time in CISAB history, the 2010 Animal Behavior Conference was expanded across multiple days (March 25th-26th with Animal Cognition Workshop on the 27th). We had a record number of registrants, with 135 undergraduates, graduates and faculty, as well as several high schools students, in attendance. The conference included 20 research talks and 32 posters by students, postdocs and faculty from over 10 different states, as well as an extraordinary plenary talk by Dr. Roy Caldwell from U.C. Berkeley, this year's winner of the Exemplar Award. I would like to thank the Departments of Psychological and Brain Sciences and Biology, as well as the Alliance for Graduate Education and the Professoriate and the IU Graduate and Professional Student Organization for their support of the conference.

A special thanks to Linda Summers, Andrea Gillman, Jennifer Miller and Maggie Quinchia for all their help organizing the conference and Kathy Schick and Nick Toth for again being gracious hosts to a wonderful reception at the Stone Age Institute. And thanks also to Robert Bowers and Alejandra Rossi for organizing the workshop. Lastly, I would like to thank all of the graduate students on the organizing committee for their hard work and dedication to make the conference a success.





The CISAB Animal Behavior Lab, located in Jordan Hall, has been in the process of upgrading and expanding its facilities and equipment, thanks to generous contributions from the IU Office of the Vice Provost for Research (OVPR) and the Department of Biology. A big thank you to Dr. Rose Stewart, the director of this facility, for all her help and efforts to develop this facility into a first-class core research laboratory in animal behavior. The utility, and thus the use, of this lab has continued to grow substantially over the past several years and has truly become an important and invaluable resource for students, postdoctoral fellows and faculty across the IU campus. Please swing by and see all our new toys and find out if the lab can be of use to your own research.

Once again, the REU program has begun and is going strong. I'd like to welcome the REU students who have arrived in Bloomington from across the country for several months of science and fun with us this summer. As always, many thanks to all the faculty, postdoctoral fellows, and graduate students who are serving as mentors; it is your commitment to the program that makes it such a success. In addition, I would like to offer a special thanks to Linda Summers, Mayte Ruiz and Dr. Emilia Martins whose tireless efforts ensure that the program runs smoothly.

As always, I wish everyone the best for a healthy, happy and productive summer.



-Greg Demas

2010 CISAB faculty Awards

Ellen Ketterson, Professor of Biology, selected as an American Association for the Advancement of Science Fellow. Honorees are selected for "their scientifically or socially distinguished efforts to advance science or its applications," according to the AAAS press release. Ketterson was chosen for her "contributions to novel research in animal behavior and evolutionary biology, especially for experimental field research involving 'phenotypic engineering.'" Phenotypic engineering refers to the experimental modification of species behavior and life history traits using hormones in order to test whether the modified animal performs better in nature than the unmodified animal. In this way researchers can ask whether or not natural selection has shaped organisms that are the best performers in particular environments, and if not, begin to ask why.

Laura Hurley, Professor of Biology, received a 2010 IU Trustees Teaching Award. These awards were established to recognize and enhance excellent teaching at Indiana University, especially at the undergraduate level.

Dale Sengelaub, Professor of Psychological and Brain Sciences won the Frederick Bachman Lieber Memorial Award for distinguished teaching. The Frederick Bachman Lieber Award was established in 1954 by Katie D. Bachman in honor of her grandson. Over the years, Sengelaub's work

in Bloomington has involved many different lines of research, including sexual differences in the brain and spinal cords of rats, sexual differences in the brains of birds and how they affect their singing, and now, neurotherapeutic hormone therapies for motor neurons. His studies have demonstrated, for example, that testosterone has therapeutic effects in the spinal cord, protecting surviving motor neurons from atrophy after the death of neighboring motor neurons, and regulating the expression of receptors for trophic factors, proteins critical for the maintenance of normal structure and function. His work could have important implications in the treatment of degenerative diseases such as amyotrophic lateral sclerosis -- also known as ALS or Lou Gehrig's Disease -- which can destroy spinal cord motor neurons, resulting in paralysis.



Ellen Ketterson



Laura Hurley



Dale Sengelaub

CISAB Lab Update



New Equipment is Arriving!

CISAB recently received funding from IU's Office of the Vice Provost for Research and the Department of Biology to purchase much-needed laboratory equipment for the Animal Behavior Laboratory (Jordan Hall 136). These items have greatly enhanced our capacity to support CISAB members interested in conducting endocrine and molecular research.

Our list of new equipment includes a Biotek Epoch spectrophotometer, which can be used for nucleic acid/protein quantification and cell-based assays such as ELISA. The Epoch includes a specialized plate that allows for low volume (2 μ l) measurements, similar to a NanoDrop system. Our suite of endocrine equipment has more than doubled with the addition of a large benchtop centrifuge (with tube and microplate adaptors), a plate washer, a sonicating water bath and a multi-tube vortexer. On the molecular side, a rotor-stator homogenizer, an incubator and a digital gel imaging system have been added to our existing equipment pool. We are also very excited about our new Millipore system, which provides nuclease-free water suitable for both molecular and endocrine analyses.

New equipment items are arriving daily and our Millipore system is up and running- stop by Jordan Hall 136 to check things out!

Summary of Lab Equipment

- Biotek Epoch microplate spectrophotometer
- Biotek microtiter plate washer
- Millipore ultrapure water system
- Standard refrigerated centrifuge
- Digital gel imaging system
- Multi-tube vortexer
- General-purpose incubator
- Rotor/stator homogenizer
- Sonicating and standard water baths
- Full selection of pipettors/repeaters
- Standard and gradient thermocyclers
- Electronic balance
- Refrigerated microcentrifuge
- Freezers (-20°C and -80°C)
- pH meter
- Dry heating block
- Vacuum manifold system
- and much more!



"Bloomington High School North student Hannah Bleecker helping to set up our new gel imaging system. Hannah has been mentored by CISAB graduate student Mark Peterson as part of Bloomington North's science research program"



Updated Pricing Structure

The CISAB Lab operates as a non-profit service to members of the IU research community. We continue to strive to keep supply costs and equipment maintenance fees low for our users. We are currently working to update our schedule of fees, which will be the first major overhaul of its kind since 2008. In most cases this will result in a small increase in price due to continually rising supply and reagent costs. We also need to better account for reagent loss due to expiration and individual usage patterns, and this will be reflected in the new pricing structure. The updated summary of lab fees will be available on or before June 1, 2010 and prices will go into effect on July 1, 2010.

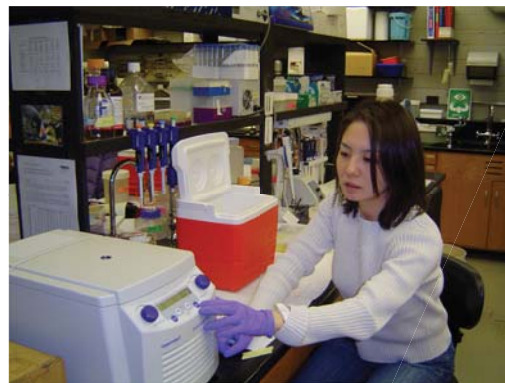
About the Lab

The CISAB Lab provides individualized training, consultation, equipment and bench space to members of the IU community. We work with a wide-range of users,

from undergraduates beginning their research career to experienced faculty members interested in expanding their repertoire. Time and space permitting, we consult and collaborate with non-IU research institutions. Specific techniques performed in the lab (or in collaboration with partner labs at IU) include: steroid/protein hormone extraction, EIA, RIA, nucleic acid extraction, PCR, cloning, qRT-PCR, gel electrophoresis, sequencing and genotyping.

For more information, please contact Rose Stewart (stewarra@indiana.edu; 812-856-1139) or stop by the CISAB Lab in Jordan Hall 136.

 Rose Stewart, Lab Director



Sayuri Kojima, Alberts' lab

Where are they Now?

We wanted to introduce a new section in our CISAB newsletter, highlighting some of our previous REU students, grad students and post-docs. It is fun and nostalgic and a great way to share CISAB's many success stories. Mabel Lopez, Ph.D. was an REU nearly 15 years ago!



Hi, I am an REU alumni of CISAB; I had the opportunity to complete a summer program in the Summer of 1995. I am grateful for having been part of your program 15 years ago. I have had a very successful career in part because of the opportunity afforded to me in 1995.

Dr. Mabel Lopez is currently Director for Mental Health Services at Florida Spine and Brain; Chief of Psychiatry and Psychology for Lee Memorial Health Systems; Advisory Board Member for the Alvin A. Dubin Alzheimer's Resource Center; American Psychological Association (APA), Division 40 (Neuropsychology) Committee Board Member for Ethnic Minority Affairs (EMA); and President and President-Elect for the local Calusa Chapter of the Florida Psychological Association.

To know more about Dr. Lopez visit this link: <http://www.linkedin.com/pub/mabel-lopez/1b/220/794>





The 11th Annual W.M. Keck Center for Behavioral Biology Student & Postdoc Symposium was

held on Friday February 5, 2010 at North Carolina State University. CISAB has a partnership with the Keck center as well as the Center for Behavioral Neuroscience (CBN) at Georgia State University in Atlanta that promotes student exchange during annual symposia. This year, the CISAB representatives to the Keck Center Symposium were Jennifer Hackney, who discussed the effects of injury on developmental timing and steroid hormone synthesis in *Drosophila*, and Ian Hall, whose presentation discussed how social interactions influence serotonin in the auditory system in mice. Also participating in the symposium exchange program were two students from the CBN in Atlanta, Laura Been and Amy Ross.

The daylong conference kicked off with a warm welcome from Keck Center director Robert Anholt followed by 4 sessions of graduate student and postdoc presentations. The presentations included a wide range of topics including, but not limited to, investigations into reproductive behavior in Syrian hamsters, genetic characterization of the common bedbug, and signals initiating the departure of a honey bee swarm from its hive. Sessions were interspersed with short breaks which allowed time to enjoy the undergraduate poster presentations. Talented NCSU undergraduates presented their work on topics ranging from aggressive behavior in *Drosophila* to cytoplasmic calcium in adipose-derived stem cells.

During the first session, Keck Center student Adrienn Uzsak presented her research on the "Grouping Effect" in cockroaches. Grouping has been found to play a significant role in regulating behavior and physiology in certain species of birds and locusts. Earlier studies demonstrated that grouped female cockroaches display accelerated oocyte development when compared to isolated females prompting Adrienn to examine which sensory cues were involved in the effects of grouping on reproductive maturation. She examined the effects of visual, chemical and tactile signals and found that tactile stimulus had the most significant influence on enhancing oocyte maturation. Adrienn's work highlighted one of the strengths of the Keck Center in using invertebrates to address a wide variety of topics in animal behavior.

Shortly after lunch, CBN student Amy Ross presented her research on the effects of a high fructose diet. Because a high fructose diet can lead to insulin resistance and insulin signaling is beneficial for memory, she examined the effects of a high fructose diet on memory in mice. She found that high fructose diets can impair hippocampal-dependent memory and can lead to non-alcoholic fatty liver disease, results that made everyone thankful for the sugar-free beverages that were served with lunch! Amy later won an award for giving the best presentation of the day.

Following the symposium, we accompanied our gracious student hosts, Shilpa Swarup and Lauren Dembeck, to the home of Keck Center Faculty member, Bob Grossfeld, who was decked out in a stunning, shimmering, bright purple shirt and matching Fedora hat. This set the mood for a very entertaining evening during which we were treated to a delicious Italian dinner and enjoyed stimulating conversations with Keck center colleagues.

The Keck Center Symposium was a wonderful experience, allowing students, postdocs, and faculty members a venue to interact both socially and scientifically in the pursuit of a broad understanding of animal behavior.

-Jennifer Hackney and Ian Hall



Dr. William D. Timberlake

The Career Achievement Award

Dr. Timberlake, Professor of Psychology, Psychological and Brain Sciences Department, College of Arts and Sciences

Co-Director—Center for the Integrative Study of Animal Behavior, 1990-2002

Adjunct Professor of Biology
Biology Department.

Some kind and very touching words from Dr. Eillen Ketterson, co-founder of CISAB, when she presented The Career Achievement Award to Dr. Timberlake at the Animal Behavior Conference, 2010

"Today it's my pleasure to pay our respects and express our gratitude to a colleague, friend, and teacher on the occasion of his retirement from the Department of Psychological and Brain Sciences, William David Timberlake.

Bill Timberlake's many scholarly achievements were focused on the integration of reinforcement learning with evolution and ecology. One of Bill's missions was to insist that learning psychologists interpret behavior - motor patterns and performance - in light of the animal's natural history.

Bill would say that pigeons and rats may be great learners, but how they learn and what they learn is nevertheless a function of their biology. To ignore that in the search for general laws of learning was inevitably to miss the full picture. Bill's role as a leader in the field of animal learning came in part from his understanding that in order for the field to go forward, it was necessary to undo some of the oversimplified conclusions that his predecessors had championed.

If you check out the text books in Bill's area, you will find citations to his work throughout, and his career output includes more than 150 peer-reviewed publications. Bill's efforts to clarify and insist on better models of learning have won him acclaim. Bill was chosen for two major awards from the academic societies in his discipline: the Pavlovian Society Investigator Award and the Logan Learning Award. Bill is a fellow of the APS (association for psychological science), a charter fellow of the MPA (Midwestern psychological

association), and an APA (American psychological association) Fellow in 4 separate divisions. He is also a fellow of AAAS.

But what I would really like to emphasize is the Bill Timberlake who led us to today. Bill was the co-founder of the Center for the Integrative Study of Animal Behavior or CISAB, and the person whose vision it was that we could develop an animal behavior community on the Indiana University campus that would truly cross disciplinary boundaries. He foresaw that we could create a forum for learning and research that would compete successfully with the existing centers of excellence in the country and draw the finest student and faculty minds to Bloomington. And he succeeded.

The Center has only grown in importance since it was founded 20 years ago and it has been a game changer for the field as a whole. The people you see around you, the faculty and the students, were made more likely to choose IU because of the Center and Bill.

A little history: CISAB as we know it grew out of an NSF supported program entitled RTG or Research Training Groups that later morphed into the IGERT program or Integrative Graduate Education and Research Training. Bill and I and 13 other colleagues prepared a successful proposal to NSF, and an outcome of receiving the grant was to establish the Center and to create the learning environment we enjoy today. Many of the Founding Members are still here - which says how young we must have been - and many new members have joined in the interim.



What began as a melding of evolution, psychology, and neuroscience has become a forum not only for these disciplines and also for cognition, sex research, anthropology, gender studies, and more. People affiliated with the Center do genomics, neuroscience, and field research. We meet in a house designed by Bill. We study using a curriculum that was envisioned by Bill. We function under an administrative structure established by Bill. We participate in an ethics seminar that Bill knew we needed to create.

And we attend a yearly conference that Bill urged us to hold. And we benefit from an REU program that Bill played a critical role in creating and sustaining. And to top it all off, in one of the finest administrative decisions ever made, we have Linda Summers who makes it all work.

At every step Bill thought about what we needed and helped to persuade the rest of us to his point of view - leading to some choppy moments for sure, and some absolutely great outcomes.

So Bill please accept our admiration for your achievements, our acknowledgment of our deep debt to you, and our heartfelt thanks for your vision and your labor. It would never have happened without you. Please also accept our warmest wishes for your retirement, and our hope that you will include CISAB in your post-retirement plans. We thank you very much”.



Animal Behavior Conference. March 26th, 2010



March 25th -27th, 2010

CISAB sponsors an annual, two-day Animal Behavior Conference in the spring of each academic year. Attended by over 130 undergraduate and graduate students, postdoctoral fellows, research scientists and faculty from within and outside the IU community, the conference offers

an outstanding opportunity for researchers to meet one and another and present their latest research findings to their colleagues.

The conference consists of a evening poster session on day one and ~20 research talks across multiple sessions as well as an open poster session on day-two, and culminates with a Plenary Lecture by a highly accomplished researcher in the field of animal behavior and an Evening reception open to all participants.





Stomatopods, science, and socializing: another successful Animal Behavior Conference

By Karen Bohorquez

This year's 17th annual Animal Behavior Conference was held on March 25th – 27th, 2010. People crowded into the cozy CISAB building for a friendly welcoming reception on

Thursday night. The delicious Avers pizza helped energize the participants while they discussed science, socialized, and waited for the evening's poster session. Meanwhile over at the Indiana Memorial Union, rain drizzled down on a group of hearty volunteers dashing in and out of the building with armloads of pipes to build poster frames. They may have all been Ph.D. students, but only one person was intelligent enough to wear a poncho. Then again, getting rained on in Bloomington happens so often that people get used to it.

Because of the efficiency of the volunteers, the poster boards went up quickly. Presenters this year included a large number of talented undergraduate, as well as graduate, students. Chatting groups of scientists

streamed into the Solarium right on time, and the enthusiastic conversations around the posters didn't stop until the full two hours had lapsed. The only negative was the lack of refreshments. Several presenters started going hoarse, and had to excuse themselves to make a run to the drinking fountain or Starbucks.

A tasty buffet breakfast and jovial welcome from CISAB director Dr. Greg Demas greeted participants the next morning. The talks ranged wildly, starting out the day with an exploration of a sexually dimorphic neuromuscular system, eventually jumping around to the philosophy of canine play, later exploring resource tradeoffs in sagebrush lizards, and finally finishing with the relationship between glutamate transmission and cocaine-seeking behavior. Nevertheless, this year's moderators did a wonderful job keeping everything on schedule

Our final plenary speaker, Roy Caldwell, delivered a fascinating and wide-ranging talk on stomatopods, or mantis shrimp. His interesting video clips and vivid photography spellbound the audience. During the talk he touched on biomechanics, sensory systems, learning, aggression, and communication. It was great.

After a break, everyone convened at the Stone Age Institute for the closing reception. This beautiful building, festooned with primate skulls and a double helix staircase, was the perfect social scientific setting. CISAB members wowed both guests and colleagues with their potluck dishes, and many people stayed late discussing theories until the caretakers had to kick everyone out.



2010 AB Conf. Undergraduate Presentation Awards

Best Undergraduate Poster presentations:

Jacob Callis, 1st place
Amanda Buck, 2nd place
Meelyn Pandit, 3rd place

Best Undergraduate Talk Presentations:

Grant Lin, 1st place
Kim Long, 2nd place



ACKNOWLEDGEMENTS

A special "Thank You" to the Student Committee members for organizing the conference:

Christy Bergeon Burns
Emily Chester
Ian Hall
James Klatt
Alejandra Rossi
Aaron Wilber

Karen Bohorquez
Mollee Farrell
Jessica Hanson
Dawn O'Neal
Mayte Ruiz

Rob Bowers
Nicki Gerlach
Jacqueline Ho
Mark Peterson
Deanna Soper

Liz Carlton
Andrea Gillman
Winnie Ho
Harald Prazer
Tom Verhovshek

Thank you Students!

Thanks also to our sponsors who made our 2010 Animal Behavior Conference possible!

Department of Biology, Indiana University, Department of Psychological and Brain Sciences, Indiana University, Alliance for Graduate Education and the Professoriate, Graduate and Professional Student Organization, Indiana University, W.M. Keck Center for Behavioral Biology, North Carolina State University, Center for behavioral Neuroscience, Atlanta, GA and Sinauer Press

←← *Up Comming... Behavior Related Meetings* →→

Animal Behavior Society
College of William and Mary,
Williamsburg, VA
July 25-29, 2010

**International Society for Applied
Ethology Congress**
Uppsala, Sweden
August 4-7, 2010

**Society of Behavioral
Neuroendocrinology**
Toronto, Canada
July 18-21, 2010

CogSci 2009
Portland, Oregon
Aug 11-14, 2010

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