



ANIMAL BEHAVIOR BULLETIN

Center for the Integrative Study of Animal Behavior

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Mark your calendars

Indiana University ANNUAL ANIMAL BEHAVIOR CONFERENCE

Friday, April 25, 2008

Plenary Speaker:

IRVING ZUCKER

UC - Berkeley

Mammalian reproduction,
behavior and hibernation

**News? Story Ideas?
Let us know!**

E-mail: sulinvil@indiana.edu

CISAB Members Elected AAAS Fellows

Two CISAB faculty members will be elected fellows of the American Association for the Advancement of Science at the society's annual meeting in Boston on Feb. 16, 2008, S. Holly Stocking and Michael Wade.

Election as an AAAS fellow is among the highest honors in American science. Scholars are selected by their peers for "scientifically or socially distinguished efforts to advance science or its applications," according to election administrators.

S. Holly Stocking is an associate professor at the IU School of Journalism. She was elected for outstanding teaching in the field of science writing and journalism ethics, for groundbreaking research on scientific igno-

rance and uncertainty, and for enhancing the interactions between scientists and journalists and increasing public understanding of science issues.



Michael Wade is a professor of biology at IUB. He was elected for his distinguished contributions to evolutionary biology, especially for theoretical and empirical work in evolutionary genetics, sexual selection and natural selection.



Center for the Integrative Study of Animal Behavior
Indiana University, 402 N. Park Ave, IN 47405
Phone: 812-855-9663 FAX 812-855-0411
E-mail: cisab@indiana.edu

Director's Message

I would like to wish the entire CISAB community a Happy Thanksgiving! I hope everyone had an enjoyable and relaxing holiday. 2007 was an exceptional year for animal behavior at IU and was marked by the arrival of many wonderful new colleagues as well as a host of scholarly honors and awards bestowed upon CISAB members, students and post-docs. The approaching new year promises continued success and growth for CISAB. I would like to take this opportunity to highlight some of the noteworthy accomplishments of 2007, as well as call your attention to some important events to look forward to for next year.

Rose Stewart joined CISAB in November of 2007 as the new director of the Animal Behavior Laboratory located in Jordan Hall. Rose received her Ph.D. in Animal Sciences from the University of Maryland while studying the reproductive physiology and endocrinology of felids. Rose brings a wealth of expertise in a variety of laboratory techniques with her and is a valued asset to the CISAB community. If you have not done so, please stop by to meet Rose and see what the lab has to offer.

CISAB members have accomplished great things and this past year has been no exception. Two of our own, **Mike Wade** in the Department of Biology and **Holly Stocking** in the School of Journalism, were elected into the prestigious American Association for the Advancement of Science (AAAS) for their "scientifically or socially distinguished efforts to advance science or its applications." In addition, **Bill Timberlake** was selected as this year's recipient of the Pavlovian Research Award by the Pavlovian Research Society "in recognition of seminal and creative contributions to understanding Pavlovian conditioning in the broader behavioral and ecological context of living organisms." Congratulations to all three!

A reminder to all grad students, CISAB and CTRD Fellowships will be available for the next school year (08-09). As in years past, the application materials for these fellowships will be available on the CISAB web page ([http://](http://www.indiana.edu/~animal/)

www.indiana.edu/~animal/). Applications will be due in February.

Planning is well underway for the Annual CISAB Animal Behavior Conference, which will take place in the Indiana Memorial Union on Friday April 25th, so reserve this date now! **Irv Zucker**, U.C. Berkeley has graciously accepted our offer to be this year's keynote speaker. As in year's past, we will have an excellent slate of intellectually stimulating talks from within the IU community, as well as participants from both the Center for Behavioral Neuroscience (CBN) in Atlanta and the Keck Center at North Carolina State University. In addition, we are contacting researchers from neighboring Midwest universities to welcome them to participate in the conference, so if you have colleagues at these schools please encourage them to attend the meeting. We hope to have a strong turnout this year.

Even though the trees are now barren and it's cold outside, Bill Timberlake and Linda Summers have been hard at work gearing up for this year's Summer REU program. They are pouring over applications as you read this, and they will be contacting members later in the Spring semester to help match applicants with home labs. Your collective support of this important program is critical to its success, so please be sure to let them know if you are interested in hosting a student. This program has been highly successful in years past and I look forward to its continued success in the coming year.

As always, I appreciate the hard-work and dedication of all of those affiliated with CISAB; it is your continued participation in CISAB-related activities that allows us to remain to be a vibrant and robust center of excellence. I wish everyone a wonderful Spring semester.

-Greg Demas



CISAB Welcomes New Faculty Members



Sari M. van Anders received her PhD in Behavioral and Cognitive Neuroscience from Simon Fraser University. As a new CISAB member, she is currently an Assistant Professor in the Department of Psychological and Brain Sciences, an Assistant Research Scientist for the Kinsey Institute, an Affiliate in the Department of Gender Studies and a Core Faculty member in the Program in Neuroscience.

van Anders' research interests focus on human neuroendocrinology. She is interested in bidirectional associations between hormones, social behaviors and their contexts. She is specifically interested in the social modulation of androgens. In her research, she examines behaviors related to partnering and sexuality in their social contexts as well as competition and nurturance. She is interested in gender and sexual behavior in diverse populations and the implications of hormone mediated behavior on health and evolutionary processes.

Along with her social neuroendocrine research, van Anders is interested in examining the relationship between biological rhythms and hormones and their implications for health, individual differences, and evolutionary considerations. She is also interested in the impact of temporal patterns like diurnal rhythms, age seasonality and menstrual cycles on endocrine parameters and associated behaviors.

Publications:

van Anders SM, Hamilton, LD, Watson, NV. 2007. Multiple partners are associated with higher testosterone in North American men and women. *Hormones and Behavior*, 51:454-459.

van Anders, SM, Hamilton, LD, Schmidt, N, Watson, NV. 2007. Associations between testosterone secretion and sexual activity in women. *Hormones and Behavior*, 51: 477-482

van Anders, SM, Hampson, E, Watson, NV, 2006. Seasonality, waist-to-hip ratio, and testosterone. *Psychoneuroendocrinology*, 31:895-899.



Heather B. Bradshaw is an Assistant Professor in the Department of Psychological and Brain Sciences, and Assistant Research Scientist at the Kinsey Institute.

Bradshaw studied behavioral and neural responses to uterine and vaginal stimulation in rats by measuring neurophysiologic measurements in the brainstem. With these studies, she identified novel processing in the brainstem and demonstrated that both the behavioral and neuronal responses changed with variations in circulating hormones.

To further understand this neuronal processing at the cellular level, Bradshaw began examining the importance of endogenous cannabinoid lipid signaling, focusing her research on the regulation of uterine contractions by these signaling lipids.

Presently, she is studying how different chronic pain conditions in humans may be caused by the loss of regulation of uterine and vaginal neurophysiology. Her goal is to provide better understanding of chronic conditions involving vaginal function.

Bradshaw, HB and Walker, JM. 2005. The expanding field of cannabimimetic and related lipid mediators. *British Journal of Pharmacology*, 144:459-465. Review.

Bradshaw, HB and Berkley, KJ. 2003. the influence of ovariectomy with or without estrogen replacement on responses of rat gracile nucleus neurons to stimulation of hindquarter skin and pelvic viscera. *Brain Research*, 986: 82-90.

Bradshaw, HB and Berkley, KJ. 2002. Estrogen replacement reverses ovariectomy-induced vaginal hyperalgesia in the rat. *Maturitas*, 41:157-165.

Marcy Kingsbury is an Associate Scientist in the Biology Department. She is interested in the development and evolution of the cerebral cortex and the neural mechanisms underlying cortical cell diversity.

Kingsbury's research specifically focuses on the role of a class of lipid molecules, called lysophospholipids, which together with their G-protein coupled receptors, regulate cerebral cortical formation during development. Using a whole brain culture system, she is able to examine how exposure to these lipids alters cortical size and anatomy. By studying this relationship, she hopes to gain insight into how developmental disorders such as microcephaly (small brain size) and polymicrogyria (many cortical folds) arise.

She is also interested in developmental mechanisms that increase cortical cell diversity. Her early work focused on the role of incoming sensory thalamic afferents, and recent work identified a source of genetic variation in neurons.

Kingsbury, M. A., Yung, Y. C., Peterson, S., Westra, J. and Chun, J. (2006) Aneuploidy in the normal and diseased brain. *CMLS*, 63, 2626-2641.

Rehen, S. K., **Kingsbury, M. A.**, Almeida, B. S., Herr, D. R., Peterson, S. and Chun, J. (2006) A new method of embryonic culture for assessing global changes in brain organization. *J. Neurosci. Methods*, 158, 100-108.





Michael P. Muehlenbein is an Assistant Professor of Anthropology at IU whose research interests include evolutionary medicine, endocrinology, immunology and emerging infectious diseases.

Muehlenbein's research focuses on the biology and ecology of infectious diseases. He is particularly interested in human and non-human primate physiological adaptations to disease as well as the impact of environmental change on transmission potential between human and non-human primate populations.

Part of Muehlenbein's research examines hormone-mediated trade-offs between the immune and reproductive systems. His studies with testosterone focus on hormone variation within individuals. Because testosterone modulates immune, reproductive and somatic metabolic functions, he is assessing interactions between testosterone, measures of metabolism, and immune factors during infection to understand male physiological ecology and the optimization of hormone levels under various environment conditions.

At his field site in Sabah, Malaysia, he is assessing the potential of a disease transmission between humans and wild orang-utans and other species brought on by increasing human populations, increases in tourism and encroachment from palm-oil plantations.

Publications:

Muehlenbein, MP. 2006. Intestinal parasite infections and fecal steroid levels in wild chimpanzees. *American Journal of Physical Anthropology*, 130:546-550.

Muehlenbein, MP, Bribiescas, RG. 2005. Testosterone-mediated immune functions and male life histories. *American Journal of Human Biology*, 17: 527-558.

Muehlenbein, MP. 2005. Parasitological analyses of the male chimpanzees (*Pan troglodytes schweinfurthii*) at Ngogo, Kibale National park, Uganda. *American Journal of Primatology*, 65:167-179.

CISAB MEMBERS ON THE MOVE

Kevin T. Ball presented his PhD research at a seminar in August entitled: “Electrophysiological and structural alterations in striatum associated with behavioral sensitization to MDMA (ecstasy) in rats: role of drug context.” He found that MDMA-treated rats displayed long-lasting behavioral sensitization that was accompanied by adaptations in striatal physiology and morphology. Additionally, drug context altered both the behavioral and neural effects of MDMA. These results provided insight into the long-term neuronal changes associated with repeated use of MDMA in a brain region believed to play a central role in the compulsivity characteristic of drug addiction and relapse.



Kevin is now an Assistant Professor at his alma mater, Bloomsburg University in PA.

Joel W. McGlothlin received his PhD in June from the Department of Biology after presenting his research entitled: “Phenotypic integration of sexually selected traits in a songbird.” His work in Ellen Ketterson’s lab on dark-eyed juncos (*Junco hyemalis*) found that tail whiteness and body size were inherited together, and males with whiter tails have the ability to produce higher levels of testosterone. He also found that testosterone production naturally co-varies with both mating and parental behavior. Combined, his research suggested central roles for testosterone on a physiological level, and correlational selection on an evolutionary level, as integrators of male mating phenotype.



Joel is presently a post-doctoral research associate at the University of Virginia where he is collaborating with Butch Brodie on a project that explores the evolution of the G matrix in Caribbean *Anolis* lizards.



Sue Anne Zollinger presented her PhD research this fall. Her dissertation was entitled: "Performance constraints and vocal complexity in birdsong: evidence from a vocal mimic." Her research with mockingbirds found that a vocal mimic copies the song of another species by using the same vocal motor pattern. She also showed evidence supporting hypotheses for mechanical and acoustic coupling between the two sides of the syrinx. She also found that nonlinear dynamics within the syrinx give rise to subharmonics, frequency jumps, biphonation and chaos that increase song complexity.

Sue Anne will be starting her post-doctoral fellowship with Peter Slater at the University of St. Andrews in Scotland in January 2008.

Allen receives Porter Physiology Fellowship

Antino Recio Allen was awarded a distinguished Porter Physiology Fellowship this year. The goal of the Porter program is to encourage diversity among students pursuing full-time studies toward a PhD in physiological sciences and encourage participation in the American Physiological Society.

Antino's research focuses on the physiological mechanisms that attribute to recovery of the electric organ discharge in the weakly electric fish. His primary goal is to determine if proliferating ependymal cells provide a new source of neural components to the regenerating spinal cord. This offers a unique opportunity to examine neural mechanisms which may contribute to the functional recovery of the mammalian spinal cord following traumatic injury.

CISAB Awards Martins' for Leadership

This fall, at the annual CISAB open house, Greg Demas honored Emilia Martins for all her outstanding accomplishments in shepherding CISAB through the past four years. She was presented with a plaque during the event to thank her for her dedication and service to the center.



Greg Demas, Emilia Martins, Bill Timberlake

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Indiana University
402 N. Park Avenue
Bloomington, IN 47405
Phone: 812-855-9663
FAX: 812-855-0411
E-mail: cisab@indiana.edu

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NATIONAL MEETINGS 2008

Ninth Annual Graduate/Post-doc Symposium for Behavioral Biology
Jan 26 Keck Center, University of North Carolina

International Neurophysiological Society Meeting
Feb 6-9 Waikoloa, Hawaii

Cognitive Neuroscience Society
Apr 12-15 San Francisco, CA

Society of Behavioral Neuroendocrinology
July 9-12 Groningen, Netherlands

Animal Behavior Society
Aug 16-20 Snowbird, UT

International Primatological Society Congress
Aug 3-8 Edinburgh, Scotland

International Society for Behavioral Ecology Conference
Aug 9-14 Ithaca, NY