

Notes from the Field

March 2009

Volume 6 No 1

Don't forget!

**The Ecology Mini-symposium will be held on Tuesday, April 7, 4-7 pm
in room 301D Life Sciences**

Anticipatory Learning for Climate Change Adaptation and Resilience in Ghana and Tanzania

–*Dr. Ken Tamminga*

In January we embarked on a three-year study of community adaptation to climate change in Africa. Our work is supported by a \$750,000 grant from the National Science Foundation's Human and Social Dynamics Program.

Our team hypothesizes that cyclical (loop) learning strengthens people's anticipatory capacity in decision-making with respect to climatic and other livelihood stressors. In Tanzania, for example, the predicted future climate changes presented in the Fourth Assessment Report of the IPCC (2007) show two contrasting trends, each with spatial and temporal uncertainties. While we can be confident of an increasing trend in rainfall, we can also expect long-term trends that treacherously obscure short-term extreme events such as floods and droughts. Our project attempts to anticipate and prepare for uncertainties associated with such extreme events. We propose a resilience-enhancing approach that emphasizes iterative ways of analyzing and learning about changes and uncertainties in the past, present and future.

Our Penn State team will travel to Africa in June to meet with collaborators, confirm study approaches, and begin

participatory pilot tests with rural community stakeholders. Initially, we plan to provide measures of people's individual and collective capacity for anticipation. On a more theoretical level, the objective is to illustrate how anticipatory learning works in the context of climate change. We also hope that this project brings collaborative spin-offs with African colleagues, and provides a stimulus to develop interdisciplinary courses on climate change adaptation here at University Park.

Penn State faculty include Dr. Petra Tschakert (PI, Geography), Dr. Ken Tamminga (Landscape Architecture/Ecology), Dr. Esther Prins (Education) and Dr. Robert Crane (AESEDA), assisted by graduate students Katie Dietrich and Maureen Biermann. Collaborators include faculty from Universities of Ghana, Cape Town, Dar es Salaam and NYU.



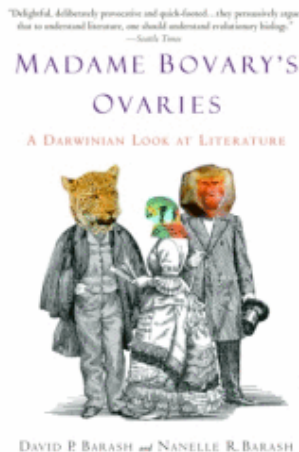
K. Dietrich
Fresh water gatherers in the Volta River, Ghana.

Book Review - *Madame Bovary's Ovaries: A Darwinian Look at Literature*

David P. Barash and Nanelle R. Barash,
New York, Delacorte Press, 2005, 262
pages, \$7.50 paperback

--Kristen Granger

This is the kind of idea I wish I had thought of first. Combining biology and literature? The Barashes do not claim authors intend to insert biological theory into their works. Rather, timeless literature resonates with us because of its realistic portrayal of human nature; part of which is due to tendencies that have been hard-wired into us through evolution.



The authors argue that characters' behavior can illustrate evolutionary theories and the influence of biology on human lives. For example, Jane Austen's romances show female inclination to be choosy about mates, picking the partner who will have more resources to contribute to the survival of offspring. The Corleones in the *The Godfather* practice kin selection by favoring their "family." (The authors quip: "How do I love you?' Don Corleone might have written. 'Let me count your genes.'")

The Barashes explain both evolution and literature in an approachable and often humorous way. Their understanding of evolution appears to be accurate (whether one believes it can explain characters' actions is up for interpretation, and may make for some interesting discussions). However, in their descriptions of evolutionary theory, the Barashes commit a disservice to both of their target audiences—readers who may want to take a more in-depth look at evolution

and critics who may need to do so in order to use biology in their own analyses. The book was published without a bibliography, and the Barashes rarely cite scientists by name. Therefore, this book is not necessarily the best venue for someone who aims to expand their knowledge of evolution and the major thinkers in the field.

However, this book explores an intriguing premise, and exemplifies the influence Darwin's ideas exert, 150 years after the publication of *The Origin of Species*, even outside the realm of science. For ecologists who also happen to be bookworms, *Madame Bovary's Ovaries* serves as an entertaining review of general evolutionary ideas, giving a different perspective to some books you may have thought you knew.

EGSO Winter Retreat at Black Moshannon a success

--Ruscena Wiederholt

In January, the EGSO held its third annual winter social. We rented out a large cabin in Black Moshannon state park during the last weekend of January. Anyone was welcome to stay overnight at the cabins or just come up for the day. The weather was perfect and many ecologists took advantage of the chance to come out and enjoy the snow. Skiing, sledding, hiking, dog chasing, and huddling inside for warmth were just a few of the activities that occurred. Hopefully the tradition will continue next year!



Glenna Malcolm
Angie Luis and Rebekah Wagner pause for a picture during the EGSO winter retreat at Black Moshannon

Thank you to all who volunteered with recruitment weekend! The prospective students reported feeling very welcomed and enjoyed their weekend.

Rare phoretic beetle observation

--Laura Russo



Laura Russo

Seen here as the little copper colored insect beneath the bumblebee *Bombus impatiens*, the silken fungus beetle (*Antherophagus*, Cryptophagidae) travels by proboscis. This phoretic beetle hitchhikes by hiding in flower heads and clamping onto the tongues of bumblebees when they visit for a sip of nectar. The unwelcome hitchhiker refuses to drop off until the bee returns to its nest, and the beetle finds other members of its species. Despite the awkwardness, this is probably a totally harmless, and probably mutualistic interaction, for the bumblebee because the beetles feed only on the detritus and fecal matter that would otherwise clutter the nest.

Please join me in welcoming Tom Bentley, who will be the 2009-2010 Program Service Assistant!

Welcome to our new faculty!

Dr. Sarah Goslee, who is an adjunct associate professor in the Crop and Soil Sciences department and a member of the Grazing Lands Ecology project at the USDA-ARS Pasture Systems and Watershed Management Research Unit. She studies the

factors controlling plant species diversity in managed grasslands, including climate, soils, biotic interactions and landscape pattern. Her objective is to develop methods to support pasture productivity and sustainability by managing plant diversity and functional composition. She also studies dissimilarity-based multivariate statistical methods appropriate for complex autocorrelated ecological field data.

Dr. Tyler Wagner, who is an adjunct assistant professor of fisheries ecology and also the assistant unit leader for the Pennsylvania Cooperative Fish and Wildlife Research Unit. His research interests lie in fisheries ecology, multiple spatial scale assessment of aquatic resources, land-water interactions and hierarchical modeling.



Congratulations to...

Dr. Alan Taylor, whose paper "Widespread Increase of Tree Mortality Rates in the Western United States" was recently published in *Science*.

Dan Grear along with **Sarah Perkins**, and **Dr. Peter Hudson**, whose paper "Does elevated testosterone result in increased exposure and transmission of parasites?" was recently accepted in *Ecology Letters*.

James Julian, who has been awarded the "Intercollege Graduate Student Outreach Achievement Award." This award recognizes outstanding achievements that relate to bringing scholarship to the community in order to benefit society. His advisor, Dr. Brooks, says, "Jim has been one of my most active students/staff members in the Cooperative Wetlands Center, delivering frequent outreach presentations to local

organizations, schools, and recruiting programs. He has given generously of his time despite his substantial commitments toward his doctoral program. His enthusiasm for all aspects of the biological world has made him a popular speaker! For example, he spent weekends during the spring of 2005, 2006 and 2008 offering his vernal pool field trips to the community through ClearWater Conservancy's "Adventures in Conversation Series"; a program that was well received and enjoyed by children and adults alike."

Dr. Rob Brooks, who was awarded the 2009 University Faculty Outreach Award. This is a prestigious, university-wide award that is designed to recognize faculty who make significant contributions to Outreach through teaching, research, and/or service to address the social, civic, economic, and environmental issues and opportunities facing our Commonwealth, nation, and world. The award recognizes faculty who have extended scholarship to external constituents that has resulted in a significant outcome for individuals, organizations, or communities in problem solving or development.

Casey Godwin and Dr. Hunter Carrick, whose paper "Periphyton nutrient status in a temperate stream with mixed land-uses: Implications for watershed nitrogen storage" has just been published in *Hydrobiologia* 623:141-152.

Dr. Consuelo De Moraes and Dr. John Tooker, whose paper "A gall-inducing caterpillar species increases essential fatty acid content of its host-plant without concomitant increase in phytohormone levels" is in press in *Molecular Plant-Microbe Interactions*. This paper demonstrates that a gall insects can nutritionally enhance their food source without inducing concomitant increases in phytohormones and associated defense responses.

Dr. Tracy Langkilde, whose paper, "Invasive

fire ants alter behavior and morphology of native lizards" was published in *Ecology* 90(1) 208-217. This research was also featured in *Science*, on the front page of MSNBC and National Geographic, and on Discovery Channel News and the CBS program "Brink".

Evolutionary Ecology Spring Seminar Series Upcoming Schedule

Please join us for the remaining seminars in this semester's Evolutionary Ecology series. Seminars are at 4:00 in 112 Borland. The seminar series is cosponsored by PSIEE, ENRI, the Department of Biology, the IGDP in Plant Biology and the Huck Institute. Upcoming speakers and dates are as follows:

March 16th – Norm Ellstrand

"Lessons from crop (trans)genes out of place – environmental and other implications."

**time and room change – 12:10 in 108 Wartik*

March 23rd – David Winkler

"Life history variation in Tachycineta swallows over time and space"

March 30th – Fred Gould

"Can release of genetically engineered pests help sustain biodiversity?"

April 6th – Susan Kalisz

"Finding Darwinian heroes: among family variance in inbreeding depressions"

April 13th – Al Savitsky

"Purlouined poisons: Sequestered chemical defense in a Japanese snake."

April 20th – Steve Hubbell

Title TBA

***April 21th – Bill Hansson ***

"The contrivances by which orchids and other flowers are pollinated"

April 28th – Craig Benkman

"Specialization and coevolution in the adaptive radiation of crossbills"

**At 4:00, but room change to 101 Althouse*