

Don't forget!
The Ecology Mini-symposium will be held on Wednesday, December 2 from 4-7 pm in 301D Life Sciences Building

Frank A. Andersen Ecology Travel Award for Graduate Students: Recipient Reflections

Reflections from the 26th Meeting of the International Society of Chemical Ecology

-Emily Hohlfeld Kuhns

Last year Penn State hosted the 25th anniversary meeting for the International Society of Chemical Ecology. After listening to talk after talk on plant and insect chemical ecology, I was left with an overwhelming feeling that I wasn't in the right field. I find the concepts and phenomena incredibly entertaining, but in general I was never very enthusiastic about working on insects or plants—since I seem to only have a knack for rearing cacti. Then, at the peak of my inner-turmoil, Dr. Ted Turlings from the University in Neuchatel, Switzerland, gave an overview of the location and the content for the 2009 meeting. Much to my surprise, he said that there would be a section devoted to the chemical ecology of vertebrates. In a field dominated by people working on plant and insect chemical ecology, this was quite off the beaten path. I decided that I needed to attend the vertebrate section of that meeting

to know if I wanted to continue a career in chemical ecology.

Flash forward twelve months and with poster in hand, I boarded the plane at the State College airport. Two flights, a two hour delay, pay toilets and a train ride later, I arrived in Neuchatel, Switzerland. After a trip to the local dive shop and checking out my new Swiss digs, I passed out at 7pm—1am EST.



Members of the Penn State Ecology Program at ESA in Albuquerque, NM

Front: Laura Russo, Sarah Johnson, Kristen Granger, Britta Teller, Tom Raffel.

Back: Rebekah Wagner, Eelke Jongejans, Suann Yang, Angie Luis, Ruscena Wiederholt, Rui Zhang (Biology).

The meeting, as any meeting, had its ups and downs, but I found it extremely rewarding. I was a little grumpy that I had to present a poster rather than a talk because of the vast number of people who requested to give talks. But the grumpiness disappeared

when I found several copies of my poster and a few copies of my C.V. had grown legs and walked off with conference attendees. I was able to attend many lectures on vertebrate chemical ecology, including three talks on the chemical ecology of reptiles and amphibians—and for a reptile/amphibian fanatic, that was about as good as it gets! I met several really interesting people including Dr. Peter Apps from Botswana, who is searching for major odor compounds in African wild dog scent markings to creating biofences for conservation. At one point, as we waited for admission to the Swiss Chocolate Factory tour, I found myself conversing with some of the giants in chemical ecology: Hans Alborn, Paul Pare, Baldwin Torto, and John Hildebrand just to name a few. More importantly, socializing with the students and post-docs made me feel for the first time that I was a part of the society. By the end of the conference, I felt I had gained many friends within the field from around the world—Brazil, Switzerland, Africa, and Germany. I came home with an expanded facebook-friend list and a redoubled desire to finish my dissertation the right way, not the quick way.

Reflections on the 4th International Symposium on Chemosynthetic-Based Ecosystems in Okinawa, Japan

--Stephanie Lessard-Pilon

For six days in late June, I had the privilege (partly made possible due to the Frank A. Anderson travel award) to attend the 4th International Symposium on Chemosynthetic-Based Ecosystems in Okinawa, Japan. The symposium highlighted recent research on these ecosystems, ranging from ecological, physiological, evolutionary, geochemical, paleontological and microbiological topics. There were no concurrent sessions, so each day consisted of listening to talks from scientists across disciplines, with frequent breaks for coffee

and discussion. Poster sessions enabled researchers across all levels of study to present their results and encouraged further mingling.

I presented a poster with results from one of my thesis chapters, which described temporal change patterns at Gulf of Mexico cold seeps. It was fantastic to meet people whose papers I had read for inspiration, discuss my work with them, and learn a bit about what they're currently working on. I also had really stimulating conversations with some people whose fields I hadn't considered closely related to my work, such as paleontologists who were interested in the small-scale changes observed at current seeps.

During our free time, we visited a smaller island in Okinawa for some amazing snorkeling, while at night, we met up and explored Nago city, experiencing Japanese food, culture, and karaoke. In addition to meeting great scientists and students from around the world, I was also able to reunite with people I'd met during fieldwork. The symposium was a great opportunity to reunite with old friends, meet new people, explore a new country and absorb science. As a result, I was left with renewed enthusiasm for my research, potential future collaborations, and several ideas to apply to my own work.

From Wetlands to Deserts

--J.B. Moon

An initial search of the presentations at this year's ESA Meeting in Albuquerque, NM, revealed that 153 included mentions of "heterogeneity" (75 of which included "spatial") and 463 included mentions of "disturbance". Given that these are some of the central issues in my own research, I had a feeling that this was going to be a great conference.

The opening scientific plenary was given by Monica Turner. In her stimulating talk,

titled “Disturbance and Landscape Dynamics in a Changing World,” she presented examples such as the 1988 Yellowstone Fires, where disturbance increased heterogeneity in the landscape. She also addressed the complexity of multiple disturbances (e.g., fires and pine beetle outbreaks), the legacy effects of disturbances, and the importance of linking changes in ecosystem functions to landscape dynamics in the presence of disturbances. Many sessions that followed touched on nonequilibrium system dynamics and the resilience of ecosystem functions, including the importance of measuring spatial complexity and connectivity. A supplementary excursion to the Kasha-Katuwe Tent Rocks National Monument revealed striking vertical heterogeneity, formed through a compilation of 6 to 7 million year old geological disturbances (including volcanic eruptions) and continued wind and water erosion. From these presentations and observations we might conclude that disturbance carves heterogeneity into the landscape, creating complex resilience systems.

But, what happens when you look at disturbances across different ecological/spatial scales? The wetlands of Pennsylvania are generally small, averaging approximately 1 hectare in size. Yet despite their small size these systems provide a disproportionate share of valuable ecological functions, such as flood mitigation and water quality improvement. While it is true that disturbances such as seasonal flooding help shape the spatial/temporal variability of these systems, other more chronic disturbances such as surrounding land cover change can homogenize the internal wetland landscape (e.g., invertebrate communities, soil microhabitats). Knowing this, some researchers at Riparia are now asking how these disturbed systems will react in the face of future changes to seasonal flooding regimes due to climatic change. In order to find out, we might have to wait until next year’s ESA conference in Pittsburgh, PA, where climate change will be the theme.



Katuwe Tent Rocks National Monument:
Slot Canyon Entrance

Reflections on the Ecological Society of America Meeting

--*Ruscena Wiederholt*

As I boarded my flight, I knew I was heading in the right direction when I noticed my fellow passengers reading ecological journal articles. I was traveling to this year’s Ecological Society of America meeting which was held in Albuquerque, New Mexico from August 2nd – 7th. The theme of this year’s meeting was “ecological knowledge and a global sustainable society” and there were a number of sessions oriented around this topic. For instance, there were sessions dedicated to building sustainable and resilient communities, traditional ecological knowledge, and global sustainability. The weather in Albuquerque was sunny and an unusual cool (for New Mexican summer) 90 degrees. This didn’t deter from the beautiful desert setting, but did definitely encourage us to remain in the air-conditioned conference center. However, safe from the heat, I heard a number of great talks ranging on a wide variety of topics from sacred forest groves in Ghana, individual-based modeling of predator prey interactions, and the impacts of climate change on neotropical frogs. The meetings were also a good opportunity to meet fellow

ecologists, see old friends and colleagues, and discuss my own research. Despite the number of people attending the meetings, I kept bumping into familiar faces in the hallways; Penn State was well-represented with a large number of Ecology Program grad students and faculty this year. Overall, I felt I learned a lot at the meeting; I was able to hear about the most current research, was exposed to new areas in ecology, and spent an enjoyable week doing so.

Welcome, New Graduate Students!



Kristine Averill: I am a Ph.D. student in the Mortensen Weed Ecology lab. I grew up on my family's apple farm in Connecticut and then spent 6+ years in Ithaca, New York. At Cornell University, I completed a BS in plant sciences and an M.S. in invasive plant ecology and management. I appreciate good food, a range of musical genres, cavorting outdoors, and trying new foods and activities!



Bradley Carlson: My name is Bradley but I usually go by Brad (or B. Evan Carlson in publication). I graduated from Bethel University in Minnesota, where I was born and raised. My Ph.D. will be with Tracy Langkilde, likely working with frogs (or some other herp) and exploring my interest in the intersection of animal behavior and population/landscape scale patterns and processes. I also enjoy the outdoors, backpacking, film, and being Minnesotan.



Jeff Kerby: I am joining the Post lab to work on spatial population modeling. I am broadly interested in herbivore movement ecology, and for the past two years I have applied this interest to

the study and conservation of *in situ* populations of Mongolian gazelles and gelada monkeys. I spend my free time backpacking, playing pick-up soccer, and listening to NPR.



Aliana Reichert-Eberhardt: I graduated from Drake University in Des Moines, Iowa a year ago and spent a year doing vegetation surveys for the BLM in northwestern Nevada. My background is in environmental science and biochemistry, and I am excited to apply both while working on my Ph.D. in Dr. Wardrop's lab working on the biogeochemistry of wetlands.



Erica Stuber: I recently completed a B.S. in Wildlife and Fisheries Science here at PSU and I am sticking around a couple more years for a M.S. working with Dr. Bartell. I will be working with white-throated sparrows, studying their biological clocks and the regulation of migratory behaviors. Although I've worked for many years with birds, I have a slight obsession with cats and I am starting a collection (two) of my own!



Lindsey Swierk: I'm studying the behavioral ecology of reptiles in the Langkilde lab. I attended the University of Pennsylvania for my B.A. and Masters, but I'm originally from New Jersey and love "going to the shore". While at Penn, I worked at the Academy of Natural Sciences, and also participated in research projects in some great ecosystems. I enjoy poking around museums, creating art, and generally being outdoorsy.



Jennifer Tennesen---I'm a native Chicagoan who completed

my B.S. in zoology and M.S. in conservation biology and sustainable development, all from the University of Wisconsin-Madison. For my masters research I studied the effects of anthropogenic noise on the vocal behavior of killer whales in Washington state. I am excited to be joining Susan Parks' lab for my Ph.D. research, to continue to explore the acoustic and behavioral ecology of cetaceans, and particularly to explore the effects of noise on whale and dolphin behavior. Aside from my academic interests, I also love kayaking, biking, dancing, ice skating, camping, and rollerblading, as well as trying new sports and building houses with Habitat for Humanity.



Jamie Troupe: I recently graduated from the University of Tennessee at Knoxville. I have studied the behavioral ecology of spiders for the last four years, but I am very excited to make the jump to fish behavior. I will be working in the Braithwaite group on problems pertaining to restocking fish populations beginning this fall.

Congratulations!

Tom Bentley received an NSF Graduate Research Fellowship. His proposal was entitled, "Ecological and evolutionary effects of heritable variation in plant-insect signaling."

Ottar Bjornstadt received the College of Agricultural Sciences' Alex and Jessie C. Black Award for Excellence in Research. The award acknowledges significant contributions to agricultural research.
<http://live.psu.edu/story/39192>

Quanying Du, Franklin Egan, Christopher Fernandez, Jason Hill and **Larry York** passed their candidacy exam last spring, and are now officially Ph.D. candidates in Ecology.

Jason Hill received an award for Best Student Oral Presentation at the 2009 Joint Meeting of the Wilson Ornithological Society and The Association of Field Ornithologists, for his talk, "Postfledgling Movement Behavior and Habitat Use of Adult Female Saltmarsh Sharp-tailed Sparrows."

Sarah Johnson and Marc Abrams have recently published two articles:

-Johnson, S.E. and Abrams, M.D. 2009. Basal area increment trends across age classes for two long-lived tree species in the eastern U.S. TRACE (Tree Rings in Archaeology, Climatology and Ecology) Proceedings 7: 127-134.

-Johnson, S.E. and Abrams, M.D. Age class, longevity, and growth rate relationships: Protracted growth increases in old trees in the eastern United States. *Tree Physiology in press.*

Jason Kaye is the 2009 recipient of the ENRI Early Career Award. This award recognizes faculty and staff in the College of Agricultural Sciences who, according to the award website, "show exceptional potential for discovery and leadership at the frontiers of knowledge in the environmental and natural resources sciences."
http://enri.cas.psu.edu/awards/early_career.asp

Jonathan Lynch has received a grant from the Howard G. Buffett Foundation. The grant will support research in Africa developing maize and bean varieties for use in drought-prone and low-fertility environments.
<http://live.psu.edu/story/41611/nw63>

Susan Parks was named one of only 100 recipients of the 2009 Presidential Early Career Award for Scientists and Engineers (PECASE). This award recognizes "outstanding researchers who are beginning their independent research careers, and to provide recognition of their potential for

leadership across the frontiers of scientific knowledge during the 21st century.” She will receive the award at the White House later this year.

<http://grants.nih.gov/grants/policy/pecase.htm>

Beth Shapiro is a recipient of the MacArthur Fellowship. The award, which is given with no strings attached, recognizes individuals who have demonstrated creativity and whose past accomplishments show the ability to make important advances in their fields.

<http://www.macfound.org/>

Erica Smithwick has been awarded several grants, including a grant from the Joint Fire Sciences Program entitled "Climate, Fire, and Carbon: Tipping Points and Landscape Vulnerability in the Greater Yellowstone Ecosystem," a DOE/NICCR grant named "Consequences of novel disturbance regimes on climate-induced biogeographic shifts along the Appalachian Trail" and a grant from National Science Foundation Coupled Natural and Human Systems Program titled "Climatic Extremes, Mining, and *Mycobacterium ulcerans*: A Coupled Systems Perspective."

Alan Taylor has received the E. Willard and Ruby S. Miller Professorship in Geography. The award recognizes excellence in teaching and research in the department, as well as contributions to the faculty member's field. Dr. Taylor was also awarded the Wilson Award for Excellence in Teaching by the College of Earth and Mineral Sciences.

http://www.eesi.psu.edu/Taylor_Award.shtml

Peter Wilf was named a 2009-2012 Distinguished Lecturer by The Paleontological Society. The Society "selects outstanding scientists whose current research or other work in paleontology is highly regarded and of broad interest to serve as distinguished lecturers." He has also received an NSF grant titled "Collaborative Research: Ancient Biodiversity Hotspot in Southern South America: Evolution of Speciose Floras in Patagonia from Latest

Cretaceous to Middle Eocene."

http://www.eesi.psu.edu/PDF/Wilf_story.pdf

Recent Publications by Ecology Faculty:

-Yonovitz, M. and **P.J. Drohan**. 2009. Pore morphology characteristics of vesicular horizons in undisturbed and disturbed arid soils; implications for arid land management. *Soil Use and Management*. 25:293-302.

-Elliott, P.E. and **P.J. Drohan**. 2009. Clay accumulation and argillic-horizon development as influenced by aeolian deposition vs. local parent material on quartzite and limestone-derived alluvial fans. *Geoderma*. 151:98-108.

-**Drohan P.J.** and Merkler D.J.. 2009. How do we find a true gypsophile? *Geoderma*. 150:96-105.

- Boxell, J. and **Drohan, P.J.** 2009. Surface soil physical and hydrological characteristics in *Bromus tectorum* L. (cheatgrass) versus *Artemisia tridentata* Nutt. (big sagebrush) habitat. *Geoderma*. 149:305-311.

-**Langkilde T.** 2009. Holding ground in the face of invasion: native fence lizards (*Sceloporus undulatus*) do not alter their habitat use in response to introduced fire ants (*Solenopsis invicta*). *Canadian Journal of Zoology* 87: 626-635.

- Niitepõld K., Smith A.D., Osborne J.L., Reynolds D.R., Carreck N.L., Martin A.P., **Marden J. H.**, Ovaskainen O., Hanski I. 2009. Flight metabolic rate and *Pgi* genotype influence butterfly dispersal rate in the field. *Ecology* 90 (80): 2223-2232.

-**Post, E.**, Forchhammer M.C., Bret-Harte M.S., et al. 2009. Ecological dynamics across the arctic associated with recent climate change. *Science* 325 (5946): 1355-1358.

-Steltzer, H. and **Post, E.** (2009) Seasons and Life Cycles. *Science*, 324(5929): 886-887.

-**Smithwick, E. A. H.**, Kashian D.M., Ryan M.G., and Turner M.G.. 2009. Long-Term Nitrogen Storage and Soil Nitrogen Availability in Post-Fire Lodgepole Pine Ecosystems. *Ecosystems* 12:792-806.

-**Smithwick, E. A. H.**, Ryan M.G., Kashian D.M., Romme W.H., Tinker D.B and Turner M.G. 2009. Modeling the effects of fire and climate change on carbon and nitrogen storage in lodgepole pine (*Pinus*

contorta) stands. *Global Change Biology* 15:535-548.

-Van Mantgem, PJ; Stephenson, NL; Byrne, JC, **Taylor, A.H.** et al. 2009. Widespread increase of tree mortality rates in the western United States. *Science* 323(5913):521-524.

-Crisp, M., Arroyo M. L. Cook, M.A. Gandolfo, G. Jordan, M. McGlone, P. Weston, M. Westoby, **P. Wilf**, H.P. Linder. 2009. Phylogenetic habitat conservatism on a global scale. *Nature* 458: 754-756.

Ecology Fall Seminar Series Schedule

Please join us for the Ecology Fall Seminar Series, featuring lectures by new faculty and post-docs. All lectures take place from 1:00-2:00pm.

September 14th – Adam Miller 301D LSB
Coexistence in disturbance-prone communities: how a resistance-resilience trade-off generates coexistence via the storage effect.

September 21st – Richard Smith 118 ASI
Can lessons from agriculture inform invasive plant ecology?

September 28th – Sarah Goslee 118 ASI
Plant diversity, ecosystem function, and grassland agriculture

October 12th – Baptiste Faure 118 ASI
Speciation in the deep sea: divergence and gene flow between two hybridizing species of hydrothermal vent mussels

October 19th – Courtney Murdock 118 ASI
Studies on the ecology of avian malaria in an alpine ecosystem

October 26th – Margot Kaye 118 ASI
Ponderosa pine woodlands in the Great Plains: seeing the forest through the grass

November 9th – Jennifer Dean 118 ASI
Soil factors influence sugar maple herbivory and defense signaling

November 16th – Kusum Naithani 301D LSB
Interactive effects of climate and stand age on carbon and water fluxes in a semi-arid sagebrush ecosystem.

December 7th – Paul Bartell 118 ASI
The role of biological clocks in avian reproduction

December 14th – Tyler Wagner 118 ASI
Linking lakes and landscapes: applying principles of landscape limnology to the management of inland lakes