



Notes from the Field

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Even two peas in a pod can't get along

Dr. Omer Falik, a post-doc currently working with Ecology faculty David Eissenstat and Roger Koide, has been receiving a lot of press lately, after his presentation at the 90th Annual Meeting of the Ecological Society of America on Tuesday, August 8th in Montreal, Canada.

Omer studied how plants determine who is an 'enemy' when competing with other roots for limited resources. He and his colleague, Dr. Ariel Novoplansky at Ben-Gurion University of the Negev, Israel, set up experiments to test if plants recognize their own roots and avoid competing with them and how they might do this. Using common garden peas, they found that plants grew significantly more and longer secondary roots near the roots of their competitors.

To determine if this self/non-self discrimination could be based on either individually specific chemical recognition or physiological coordination between roots that belong to the same plant, the researchers used

plants that had two roots and two shoots and split them into two separate plants that were genetically identical, but physiologically separated. The plants acted as if their separated twin was a non-self plant, even though genetically it was identical.



"This eliminated the possibility that the mechanism was based on specific chemical recognition," said Falik. "The results prove that at least in the studied plants, self/non-self root discrimination is based on physiological coordination between roots belonging to the same plant."

Omer's work was presented at the annual ESA meeting which was held from August 7th -12th in Montreal, Canada. Other Penn State Ecology attendees included Tiffany Bogich, Loren Byrne, Joe Dauer, Jenny Edwards, Matt Ferrari, Glenna Malcolm, Emily Rauschert, Zeynep Sezen, Louise Comas, Andy Hulting, Eelke

Jongejans, Olav Skarpaas, Ottar Bjornstad, David Eissenstat, Jason Kaye, Dave Mortensen, Eric Post and Kat Shea.
~ some data adapted from Penn State Live

It's a tough life

~Andy Wilson, PhD student, School of Forest Resources

Graduate school brings welcome opportunities to get involved in a variety of research projects. All the better when they involve fieldwork. This summer, for the second year, I was lucky enough to be involved in gathering data for the 2nd Pennsylvanian Breeding Bird Atlas (PBBA), a five-year project to map the distributions of breeding birds across the state. Up to 2,000 volunteers are involved in the project, surveying the state's 4,928 atlas "blocks" to assess the range of each species. This is the second such project. Fieldwork for the first atlas, published in 1992, was completed in 1983-89. It will be interesting to see how ranges have changed in the 15 years between the two projects. The 2nd PBBA, though, will also provide maps of species densities across the state – PA will be the first American state to achieve such a feat. To assess densities, a team of fieldworkers will be counting birds at more than 30,000 randomly chosen points across the state. This is an enormous undertaking, taking a team of nine or so fieldworkers five years to complete.

In 2004, I spent my first couple of months in PA traveling around the north-central part of the state carrying out counts for the 2nd PBBA; this year I was given a new area to discover – the Ridge and Valley province



Bobolink: one of the declining grassland birds that it is hoped farmland conservation programs will help. Photo by Andy Wilson

stretching from State College south to the Maryland border. Between late May and early July, I completed bird counts at close to 600 locations, in the process counting 12,000 individual birds of 125 species. In addition to the data being used for the 2nd PBBA, Ecology grad student Trish Miller will be utilizing the same data for her thesis, and for extra added value, the data collected will also be of particular use to my own research, with my advisor Dr. Margaret Brittingham, on the potential benefits of farmland conservation programs for grassland bird communities. The data were gathered in such a way that will allow cross comparisons of the variety of "Point Count" methods used for assessing bird populations – it is somewhat surprising that these widely used methods have not been fully assessed in this way.

So, my summer was spent swanning around Pennsylvania, birding, watching wildlife, taking photographs and sampling the full range of eateries and hostleries that southern PA has to offer (good, bad and very ugly). All under the thinly veiled guise of ecological research! At the end of the survey season, our employers, based at Carnegie Museum's Powder-mill Nature Reserve, asked if we wanted to go on a bird-banding expedition to Arizona, to assist with research for a forthcoming six-volume identification guide – well, it would have been churlish not to, wouldn't it?

Now that the fall semester is here, it's time to put my binoculars to one side and re-acquaint myself with statistical analysis – I had a great summer, so can't complain about that. Joking aside, fieldwork is one of the great privileges of ecological research. I say - grasp any opportunity you can to, literally, get out in the field.



Ridge and Valley farmstead in early morning fog.

photo by Andy Wilson

The Ecology Fall Welcome Picnic is this Sunday, August 28th at 1PM in Sunset Park. We'll be getting organic grass fed grillables from Lyn Garling's farm, and everyone is welcome to bring additional goodies to share. Everyone is invited! Please RSVP to Matt (mferrari@psu.edu). See you there!

On August 22nd, the Center for Infectious Disease Dynamics (CIDD) hosted a workshop on the Dilution Effect, which plays an important role in the transmission of some vector borne diseases, such as Lyme Disease and West Nile Virus. The Dilution Effect occurs when vectors feed on non-competent hosts; these hosts act as a "parasite sink", and the parasite is lost from the system. Several leaders in the field of disease ecology participated, including:

Bob Holt (U. Florida)
 Andy Dobson (Princeton)
 Rick Ostfeld (Institute of Ecosystem Studies)
 Felicia Keesing (Bard College)

For more info see: www.cidd.psu.edu

Life after graduation...

Some of the Ecology graduates of 2005 fill us in on their plans now:

Jenny Edwards (MS) - Jenny is investigating several potential avenues for employment and hopes to begin a PhD program in the near future. Alternatively, she plans on living with her parents and starting a banjo punk rock band.

Danielle Garneau (PhD) – Danielle has moved to St. Lawrence University in Canton, NY to teach Vertebrate Natural History, Conservation Biology, and General Biology. Next semester she will get to develop her dream course, possibly, Desert Ecology or Species Interactions.

Stacey Hoeltje (MS) – Stacey has moved to New Jersey to work for the Department of Environmental Protection in the Land Use Regulation Program, working primarily with wetlands.

Susan Laubscher (MS) – Suzy is working as a research assistant at the Penn State Cooperative Wetlands Center (located in the Geography Dept, 217 Walker).

Teodora Orendovici (PhD) – Teodora is now working as a post-doc with John Carlson in the School of Forest Resources here at Penn State.

Nora Peskin (MS) - Nora is off to Davis, California where she will enter the work force.

Mike Turns (MS) - Mike just started a new job at the Pennsylvania Housing Research Center on campus, where he is working on a West Penn Power Sustainable Energy Fund grant to assist in establishing a statewide Energy Star Homes program for Pennsylvania.

Jennifer Withington (PhD) - Jennifer and RP have moved to Plattsburgh, NY where they are both working hard on manuscripts and job searches.

Congratulations and Good Luck, Grads!



**We are always looking for news and stories!
 Send submissions for the next newsletter to
 Angie Luis (ADL12@psu.edu).**