

**Department of Ecology, Evolution, and Natural Resources
and
Ecology and Evolution Graduate Program Newsletter**

February 2012

Previous newsletters may be found at:
<http://www-rci.rutgers.edu/~deenr/news.html>

Release of Rehabbed Red Fox to RU EcoPreserve

Feb 23, 2012

Sometimes you're at the right place at the right time. Driving home one rainy winter's evening along River Road in Piscataway, Nicole Golden from the Mercer County Wildlife Center spied the flashing lights of a police car and a cluster of people gathered around the cowering form of a red fox. Nicole pulled over and jumped out ready to help the hapless fox, evidently hit by a car while crossing the road from the Rutgers Ecological Preserve towards Johnson Park. Nicole bundled the fox into a carrier and off to the Mercer Wildlife Center for medical treatment. Wounds healed and 5 pounds heavier from 3 square meals a day, the male red fox was ready to be released back to the wild. Rather than release the fox back



along River Road and
hazarding another car

collision, Nicole called Rick Lathrop, faculty director of the Ecological Preserve about releasing the fox back there. On a bright sunny February morning, the release was arranged. Carting the crated fox into the Kilmer Woods section of the EcoPreserve, the small group assembled (Nicole, Rick, and grad student Orion Weldon and EcoPreserve intern Dan Merchant) fully expected the released fox to be a red blur



hightailing it for cover. As the photo attests, Ol' Reynard had a bit of a show-off about him and treated the group to a display before ambling off.

Photo credits: Orion Weldon Story: Rick Lathrop

Presentations:

Ignacio (Nacho) Bartomeus (post-doc in Rachael Winfree's lab, Department of Entomology) gave a presentation at Bowman's wildflower preserve in Pennsylvania titled "Native bees in a changing world."

Josh Caplan gave a presentation on January 4th at the Annual Meeting of the American Society of Horticultural Science – Northeast Region, Philadelphia, Pennsylvania.

- Caplan JS, Grabosky JC, Ehrenfeld JG (2012). Characterizing plant architecture in 3D using magnetic data acquisition and multiscale graph analysis.

David Ehrenfeld was an invited speaker and panelist at the "Symposium on Biodiversity: Science, Policy, and Society," held at the University of Massachusetts/Boston on Dec. 9th. David's talk was titled "Biodiversity and Global Trade."

Steven Handel presented the Howland Lecture at the University of Virginia School of Architecture. *The Dirt*, the American Society of Landscape Architecture's online news, contained a long essay on Steven's presentation on Nov. 30. "City Landscapes, Urban Habitat," by Brian Davis.

(<http://dirt.asla.org/2011/11/30/city-landscapes-urban-habitat/>)

Steven Handel gave the opening keynote address at the International Congress on Urban Green Spaces in New Delhi, India March 3rd. The meeting is sponsored by UNESCO, the Indian government, and International Union for Conservation of Nature. See www.cugs.in for more information.

Lea Johnson gave a presentation January 18th in the quarterly research seminar series of The New York City Urban Field Station, a partnership between the USDA Forest Service Northern Research Station and New York City Department of Parks Recreation. Lea's talk was titled "Long-term outcomes of urban forest restoration in New York City"

Lea Johnson gave a second presentation on February 6th at the New York City Department of Parks and Recreation Natural Resources Group Restoration Practitioners Annual Meeting. This presentation was titled "Future Urban Forests: Restored and Unrestored Woodlands in NYC Parks after 17 Years"

Rachael Winfree (Department of Entomology) gave the following invited presentations:

- Entomological Society of America, Reno, NV, 13-16 Nov 2011, Impact of land use on wild bee communities
- Entomological Society of America, Reno, NV, 13-16 Nov 2011, Pollinator biodiversity and pollination function
- Dept of Entomology, Pennsylvania State, 21 Oct 2011, Native pollinators, ecosystem services, and global change

Talia Young, a Ph.D. student working with Olaf Jensen, gave a talk with students from Mastery Charter High School in Philadelphia at the Mongolian Ecological Research Symposium on February 25th in Tuckerton, NJ. The talk was titled "Making connections: Examining trophic relationships in a pristine Mongolian lake using stable isotope analysis with high school students in Philadelphia."

Publications:

Ignacio (Nacho) Bartomeus (post-doc in Rachael Winfree's lab, Department of Entomology) has the following publication:

- Novy A., T Schuler, I Bartomeus, J Katz, and M Robson. (2012) Honey bee colony winter losses and treatments against *Varroa destructor* in New Jersey, USA, 2010-11 *Science of Bee Culture* (In Press)

Josh Caplan reports the following publication:

- Dwight, R.H., Caplan, J.S., Brinks, M.V., Catlin, S.N., Buescher, G. & Semenza, J.C. (2011) Influence of Variable Precipitation on Coastal Water Quality in Southern California. *Water Environment Research* 83, 2121-2130.



The article "The New Geography of Trade" by Fred Curtis and **David Ehrenfeld** published in the National Security Issue of *Solutions* has just been picked up and republished in its entirety by *Al Jazeera*

<http://www.aljazeera.com/indepth/opinion/2012/02/201224134459331948.html>

Jeremy Feinberg, a Ph.D. candidate in Joanna Burger's lab has a publication in which they describe a new species of leopard frog:

- Newman, C.E., J.A. Feinberg, L.J. Rissler, J. Burger, and H.B. Shaffer. 2012. A new species of leopard frog (*Anura: Ranidae*) from the urban northeastern US. In press. *Molecular Phylogenetics and Evolution*.

Karlo Hock and Nina Fefferman have the following publications:

- Violating Social Norms when Choosing Friends: How Rule-Breakers Affect Social Networks. Hock, K. and N.H. Fefferman. 2011. *PLoS ONE*.6(10):e26652.doi:10.1371/journal.pone.0026652
This was reported on in the science news media "SciGuru" at <http://www.sciguru.com/newsitem/10870/Choosing-Friends-Wisely-Rule-breakers-Affect-Social-Networks>
- Extending the role of social networks to study social organization and interaction structure of animal groups. Hock, K. and N.H. Fefferman. e-Pub ahead of print. *Annales Zoologici Fennici*.

Siobain Duffy reports the following publication:

- D.J. Cardinale and S. Duffy. 2011. Single-stranded genomic architecture constrains optimal codon usage. *Bacteriophage*. 1:219-224.



Rebecca Jordan together with Maria Ruibal-Villasenor, Cindy Hmelo-Silver, and Eugenia Etkina have recently demonstrated in a paper published in *Journal of Research in Science Teaching* (Vol. 48, No. 9, pp. 1010-1025 .2011) that Rutgers undergraduates have a 'rocket scientist' ingenuity. Assigned the task of designing experiments to measure plant transpiration, students given materials to work with came up with two solutions. In contrast, students not given materials came up with five novel solutions in addition to the standard two, supporting the notion that lack of access to materials leads to collaborative planning and ingenuity. Rebecca's recent publication is summarized in the "Editor's Choice" section of the November 18th issue of *Science* .

Rebecca Jordan reports the following publication:

- Jordan, RC, WR Brooks, D Howe & JG Ehrenfeld. Evaluating performance of volunteers in mapping invasive plants in public conservation lands. *Environmental Management* 49:425-434.

George McGhee (Department of Earth and Planetary Sciences) has a paper in *Geology*:

- McGhee, G. R., Sheehan, P. M., Bottjer, D. J., and Droser, M. L. 2012. Ecological ranking of Phanerozoic biodiversity crises: The Serpukhovian (early Carboniferous) crisis had a greater ecological impact than the end-Ordovician. *Geology* 40(2): 147-150. [February 2012]

Marci Meixler reports the following:

- **Meixler, M. S.** and M. B. Bain. 2012. A GIS framework for fish habitat at the river basin scale. *International Journal of Ecology* 2012: 146073.

Orin (Robbie) Robinson and **John (Curtis) Burkhalter**, both Ph.D. candidates in the Lockwood lab, have the following publication in press:

- Robinson, O.J., Burkhalter, J.C., and Dindo, J.J. (in press) Conservation and management implications regarding local avian diversity following the Deep Water Horizon disaster. *Southeastern Naturalist*.

Lena Struwe has the following publication:

- Eisenman, Sasha W., Arthur O. Tucker, Lena Struwe. 2012. Voucher Specimens are Essential for Documenting Source Material Used in Medicinal Plant Investigations. *Journal of Medicinally Active Plants* 1(1):30-43. Available at no charge from: <http://scholarworks.umass.edu/jmap/vol1/iss1/8/>

Holly Vuong, a Ph.D. candidate co-advised by Peter Morin and Rick Ostfeld, was a co-author on the following:

- "Predicting the effect of climate change on African trypanosomiasis: integrating epidemiology with parasite and vector biology" in the *Journal of the Royal Society Interface*. Nov 2011
<http://rsif.royalsocietypublishing.org/cgi/reprint/rsif.2011.0654?ijkey=BLhZQfXPzywtBSY&keytype=ref>

Rachael Winfree (Department of Entomology) together with her post-docs and graduate students (indicated by *) report the following publications:

- *Bartomeus, I , J Ascher, S Colla, D Wagner, B Danforth, **S Kornbluth, and R Winfree. 2011. Climate-associated phenological advances in bee pollinators and bee-pollinated plants. *Proceedings of the National Academy of Sciences* 108: 20645-20649
- Winfree, R, *I Bartomeus, and *D Cariveau. Native pollinators in anthropogenic habitats. 2011. *Annual Review of Ecology, Evolution and Systematics* 42: 1-22
- Winfree, R, B Gross (co-first author) and C Kremen. 2011. Valuing pollination services to agriculture. *Ecological Economics* 71: 80-88
- Garibaldi, L, I Steffan-Dewenter, C Kremen, J Morales, R Bommarco, S Cunningham, L Carvalheiro, N Chacoff, J Dudenhöffer, S Greenleaf, A Holzschuh, R Isaacs, K Krewenka, Y Mandelik, M Mayfield, L Morandin, S Potts, T Ricketts, H Szentgyörgyi, C Westphal, R Winfree, A Klein (authors Carvalheiro-Winfree contributed equally and listed alphabetically). 2011. Stability of pollination services decreases with isolation from natural areas despite frequent honey bee visits. *Ecology Letters* 14: 1062-1072
- *Bartomeus, I and R Winfree. 2011. The Circe principle: Are pollinators waylaid by attractive habitats? *Current Biology* 21: 652-654

Faculty Achievements and Activities:

Igacio (Nacho) Bartomeus (post-doctoral associate in Rachael Winfree's lab, Department of Entomology) became an Associate Faculty Member for Faculty 1000 (F1000), Theoretical Ecology section.

David Bushek (Marine Sciences; Haskin Shellfish Research Lab) was featured in the following article in the News of Cumberland County in NJ.com :

Delaware Bay oystermen wrap unusual season

http://www.nj.com/cumberland/index.ssf/2011/12/delaware_bay_oystermen_wrap_un.html

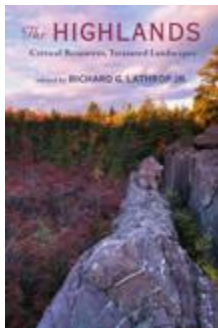


Siobain Duffy's lab welcomed visiting Ph.D. student Alison Talis Martins Lima in January with a dinner party of Brazilian food. Alison is an agronomist from the Universidade Federal de Viçosa. He is staying until the end of June and is working on the population genetics of begomoviruses, ssDNA viruses that are the limiting factor in crop production in Brazil.

Karl Kjer, with Dr. Xin Zhou, a Rutgers alumnus now at Beijing Genomics Institute (China), and Prof. Bernhard Misof, (Bonn, Germany) initiated an immense project to unravel the evolutionary history of insects. Dr. Jessica Ware (RU Newark) also joins the international team of more than 50 scientists from eight countries. The project uses the transcriptomes of 1,000 insect species to uncover relationships among species and estimate the origins of traits such as social behaviors, parasitism, herbivory, and flight. For more information visit: <http://news.rutgers.edu/medrel/newark-2012/rutgers-scientists-s-20120131>

Steven Handel has been selected for the jury to decide winners of the "Designing the Parks" competition of the National Park Service. This university competition has invited the nation's design schools to reinterpret and advance public experiences in seven of the the national's national parks and monuments. See: www.designingtheparks.org for details

Professors Rick Lathrop and Steven Handel attended the National Academies Keck Futures Initiative on Ecosystem Services: Charting a Path to Sustainability. The workshop was held on Nov 10-13, 2011 at UC Irvine.



The Highlands: Critical Resources, Treasured Landscapes, edited by **Rick Lathrop** and published by Rutgers University Press hit the shelves the month of December. The book explores the natural and cultural history of the 4 state Highlands region of Pennsylvania, New Jersey, New York and Connecticut. The book's Rutgers-affiliated authors include Drs. John Tedrow, Alec Gates, Peter Wacker and the late Dr. Joan Ehrenfeld.

Mike May (Department of Entomology) was the featured article in the New York Times Science section on October 18. The article states: "Dr. May, the main author of the modern revision of the standard identification manual "Dragonflies of North America," editor of the International Journal of Odonatology, describer and namer of six species of damselfly and dragonfly, expert at insect energetics — is spending his last year at Rutgers starting a project that should keep him busy well into retirement: understanding the mechanics of dragonfly sex."

Marci Meixler (DEENR) and students of the Fundamentals of Environmental Geomatics class organized a statewide event in honor of GIS Awareness Day November 16th in Cook Campus Center. The event showcased guest speakers and posters from a variety of disciplines including ecology, marine sciences, natural resources, hydrography, geography, urban planning and landscape architecture among others. This well attended event was designed to provide an opportunity for students in the GIS sciences to interact with academic and professional members of the statewide GIS community, see how GIS is used, and learn about potential career opportunities involving GIS.

George McGhee (Department of Earth and Planetary Sciences) is quoted in a February 10th *SCIENCE* news-of-the-week article regarding invasive-species effects in the Late Devonian biodiversity crisis “More Than One Way for Invaders to Wreak Havoc”.

Andrew “Pete” Vayda, professor emeritus in the Department of Human Ecology, ran intensive, short courses on causal explanation, based on the book, *Causal Explanation for Social Scientists: A Reader* (edited by Pete and Brad Walters, AltaMira Press, Lanham, MD, 2011), at the University of Indonesia in May 2011, at the University of Palang Karaya (Indonesia) in August-September 2011, and at Oxford University in October 2011. He is scheduled to teach such a course again at Monash University (Australia) in July 2012.

Rachael Winfree (Department of Entomology) and her lab were featured in the Nature Commentary “What’s best for bees?” from the Nov 10th issue.
<http://www.nature.com/news/the-pollinator-crisis-what-s-best-for-bees-1.9308>

Rachael Winfree (Department of Entomology) was the North American representative to the STEP (Status and Trends of European Pollinators) working group, Identifying mechanisms for successful restoration of pollination services, Wageningen University, Netherlands, 6-8 February 2012, D Kleijn, organizer

Rachael Winfree (Department of Entomology) organized a symposium at the Entomological Society of America national meeting, Reno, NV Nov 13-16 2011, on Biodiversity, Global Change and Insect-Mediated Ecosystem Services

Rachael Winfree (Department of Entomology) became a Faculty Member for Faculty of 1000 (F1000), Theoretical Ecology section.

Rachael Winfree (Department of Entomology) became an Associate Editor / Editorial Board Member for Ecological Applications

Lena Struwe served as the chair for the committee that evaluated and awarded the OTS Outstanding Student Paper 2011 for The Organization of Tropical Studies (OTS). She will hand out the first prize to winner Amy Savage, a graduate student at Rice University, in Costa Rica during the annual OTS meeting on March 9-10, 2012.

The new plant species *Spigelia genuflexa*, recently described by **Lena Struwe**, was featured in the Hungarian edition of National Geographic, in an article in New Scientist on how digital resources such as Flickr can be useful for art and science (link: <http://www.newscientist.com/blogs/shortsharpscience/2011/12/see-flickr-daily-photo-deluge.html>), and in the magazine of the American Horticultural Society.

Advisory Panels:

Steven Handel has been appointed to the Fulbright Specialist Roster by the Council for International Exchange of Scholars for the period of 2012-2017. The mission of the group is to advise foreign universities on urban environmental issues.

Student Awards, Achievements, and Activities:

Josh Moody, a M.S. student working with Dave Bushek and **Amanda Wenczel**, a Ph.D. candidate also working with Dave Bushek, won student travel awards to present research at the Atlantic Estuarine Research Society Spring 2012 meeting in Cape May March 8-10, 2012. Reports on their presentations will be in the next newsletter.

Laura Shappell, a Ph.D. candidate advised by Lena Struwe, was awarded the Joan G. Ehrenfeld Memorial Award, New Jersey Water Resources Research Institute (NJWRRI) of \$5000 for her proposal titled "Urban wetland plant assemblage species diversity and invasive species dominance as expressions of flood regime."

Talia Young, a Ph.D student in Olaf Jensen's lab, sent in the following report on her outreach project: "Last fall, for my outreach project in conjunction with the NSF IRES Mongolia funding I received this summer, I designed and implemented an ecology enrichment after-school program for 12 ninth and twelfth grade students at Mastery Charter High School in Philadelphia. The program met once a week during the fall semester, and was structured around the theme of food webs. We discussed vocabulary and major concepts in the study of food webs, read a primary paper together on food chain length and ecosystem size, and then compared and contrasted two tools used to examine questions about food webs (diet analysis and stable isotope analysis). I took the students on an overnight field trip to the Rutgers University Marine Field Station, where the students dissected 23 black sea bass, participated in ongoing long-term data collection at the station, and attended a graduate student seminar on conservation of a rare bird in Mongolia. The students were introduced to computer programming using R, and we then worked together to graph and analyze the stable isotope data from Lake Hövsgöl. We created a presentation on the enrichment program and on the Mongolia data, and together gave a 20-minute talk to the E&E graduate program. Since the fall, the students have been working on assembling the black sea bass diet data into a poster for presentations at future conferences, and also presented their work again at the Mongolian Ecological Research Symposium on 2/25/12 in Tuckerton, NJ."

Talia Young, a Ph.D student in Olaf Jensen's lab, received a George C. Burlew scholarship from the Manasquan River Marlin and Tuna Club.

Transitions:

Congratulations to the following on the successful defense of their Ph.D. Dissertations:

- **Inga La Puma**, advisor Rick Lathrop, on November 17th.
- **Carolyn (Carrie) Norin**, advisor Steven Handel, on November 18th
- **Aspa Chatziefthimiou**, advisor Tamar Barkay, on December 8th
- **Monica Palta**, co-advisors Peter Groffman and Joan Ehrenfeld, on December 12th
- **Zachary Freedman**, advisor Tamar Barkay, on December 19th.

Congratulations to **Joshua Moody**, advisor David Bushek, on the successful defense of his Master's Thesis on December 22nd

Congratulations to **John Ruppert**, advisor Ravit Golan Duncan, on the successful defense of his Preliminary Proposal on December 20th.

Congratulations to the following on the successful completion of their Qualifying Exam:

- **Cara Faillace**, advisor Peter Morin, on December 5th
- **Laura Shappell**, advisor Lena Struwe, on December 7th
- **Amanda Wenczel**, advisor David Bushek, December 21st

The E&E family continues to grow with the birth of three babies to faculty in the last two months.

Marci Meixler and husband Alan Braun welcomed daughter Joelle Braun on December 30, 2011 Joelle weighed 6 lbs, 5 oz. Mom and daughter are doing well.

Ravit Golan Duncan, husband Alex and big brothers Oz and Aitan welcomed Gaia Lily on February 15th. Gaia weighed 6 lbs, 9 oz. The entire family is happy and healthy.

Rebecca Jordan and **David Howe** welcomed Lucas Jefferson on February 25th. Lucas wins the heavy weight championship at 8 lbs and 6 oz. Rebecca and Lucas are healthy and happy!

Alumni:

Joanna Burger's Ph.D. alumni **John Brzorard, Kathy Parsons, Nellie Tsipoura, David Shealer, Brian Palestis, Jorge Saliva, and Susan Elbin** participated in the Waterbird Society 35th meeting in Annapolis, Maryland; where the first six gave oral presentations on their research on waterbirds, and **Susan Elbin** was announced as Vice-president and President-elect.

Sharron Crane (Ph.D. 2011 and co-advisors Tamar Barkay and John Dighton have the publication:

- Crane, S., Barkay, T. & Dighton, J. (2012) The effect of mercury on the establishment of *Pinus rigida* seedlings and the development of their ectomycorrhizal communities. *Fungal Ecology* 5: 245-251.

Kenneth Elgersma (Ph.D. 2010, advisor Joan Ehrenfeld) reports the following publication that is dedicated to Joan.

- Kenneth J. Elgersma, Shen Yu, Torsten Vor, & Joan G. Ehrenfeld (2012). Microbial-mediated feedbacks of leaf litter on invasive plant growth and interspecific competition. *Plant and Soil* (DOI: 10.1007/s11104-011-1117-z).

Zac Freedman (Ph.D. 2012, Tamar Barkay advisor) has accepted a post-doc at the University of Michigan working with Don Zak in the Department of Ecology and Evolutionary Biology within the School of Natural Resources and Environment. Zac will be studying the effect of chronic atmospheric N deposition on the microbial communities and their enzymes that mediate litter decomposition.

Frank Gallagher, (Ph.D. 2008 and Visiting Scholar in the Jason Grabosky lab) gave a presentation entitled "Valuing Ecosystem Services of Urban Green Space" for the Montclair State University Sustainability Seminar Series.

David La Puma (Ph.D. 2010, advisor Julie Lockwood) was featured in a documentary produced by New Hampshire Public Television entitled "Saving Songbirds". You can read about it here: <http://www.nhptv.org/songbirds/>
The program has been airing in the New England region for the last month, and will be going national after Jan 1. David discusses nocturnal migration and how they use radar and acoustics (microphones) to characterize and quantify migration 100s - 1000s of feet overhead, under the cover of darkness. Watch the video in its entirety: <http://video.pbs.org/video/2148904255>

Christopher Martine, (M.S. 2001, John Kuser advisor) has been named the Burpee Chair in Plant Genetics and Research at Bucknell University.
<http://www.bucknell.edu/x74783.xml>

Brooke Maslo (Ph.D. 2010 advisor Steven Handel) reports the following publication:

- Maslo, B., J. Burger, and S.N. Handel. Modeling foraging behavior of piping plovers to evaluate habitat restoration success. *Journal of Wildlife Management* 76:181-188.

Monica Palta (Ph.D. 2012, co-advisors Peter Groffman and Joan Ehrenfeld) has accepted the position of Bisgrove Postdoctoral Scholar at Arizona State University. Monica will be examining pathogen and nutrient movement and retention in the Salt River in Phoenix. The work will be in collaboration with Dr. Nancy Grimm.

Monica also has the following in press:

- Monica M. Palta, Thomas W. Doyle, C. Rhett Jackson, Judy L. Meyer, Rebecca R. Sharitz. In Press. Changes in diameter growth of *Taxodium distichum* in response to flow alterations in the Savannah River. *Wetlands*. DOI: 10.1007/s13157-011-0245-9

