



FOREST AND WILDLIFE ECOLOGY NEWS



A Newsletter for Dept. of Forest and Wildlife Ecology Staff, Students, Alumni, and Friends

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Quantifying ecosystem change may guide future policy

Ecosystems have been changing for millions of years but at no point in history has change occurred as quickly as the past several hundred years. These rapid changes create novelty in ecosystems; i.e., environmental conditions and biotic communities inherently different from the past and sometimes even different from all other ecosystems on the planet. If ecosystem novelty could be measured, scientists and policy makers would have a valuable tool to help formulate conservation measures.

What's an IGERT?

Accepting the challenge of understanding novel ecosystems is the Novel Ecosystems IGERT. The acronym stands for Integrated Graduate Education and Training, a program funded by the National Science Foundation. The goal of the IGERT program is to establish innovative new models for graduate education and training that encourage collaborative, interdisciplinary research. The Novel Ecosystems IGERT includes graduate students, postdocs, and faculty from across the UW-Madison campus, including six students and six faculty members in the Department of Forest and Wildlife Ecology led by principal investigator Professor Volker Radeloff.

One outcome of the Novel Ecosystems IGERT is a research paper titled, "The Rise of Novelty in Ecosystems," which is scheduled for publication in the December issue of *Ecological*



Professor Tim Van Deelen (far right) talks to students participating in the Novel Ecosystems IGERT about the impact of deer browsing at a timber harvest site in northeastern Wisconsin.

Applications. The paper was commissioned by the Ecological Society of America (ESA) to commemorate the ESA's Centennial celebration. In their paper the authors propose a method to quantify novelty in ecosystems. To illustrate ecosystems where novelty is already high or is expected to become high and to show how some dimensions of novelty can be measured, the authors present five case studies: 1) *Parthenium* rangelands, where the spread of *Parthenium hysterophorus*, a noxious forb, has drastically changed ecosystems in Australia, India, and eastern and southern Africa; 2) Puerto Rico, where deforested lands are returning to forest but are dominated by nonnative tree species; 3) Coral Triangle (Indo-Pacific), where the ocean temperature is rising and the pH is dropping; 4) Great Lakes, where dams and road crossings block the migration of fish; and 5) Isle Royale, a relatively pristine island in Lake Superior that has been impacted by nonnative pathogens, climate change and development of nearby land.

Together, the case studies demonstrated the need to assess novelty using temporal and spatial references.

Quantifying novelty

To calculate novelty IGERT researchers used a mathematical formula based on abiotic variables—temperature, precipitation, atmospheric nitrogen deposition plus human population. They

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Alumni Update

Jay Udelhoven (BS Wildlife Ecology 1990) was selected Executive Director of the East Multnomah Soil and Water Conservation District (EMSWCD) in May 2014. Jay oversees all district operations, including supervising staff, managing budgets, and developing long range plans. In addition to his BS degree, Jay earned a Master of Environmental Policy from the University of Denver, Colorado. jay@emswcd.org

Julian Colescott (BS Wildlife Ecology 1989) is a professional wetland scientist/wildlife biologist for an environmental consulting firm in Missoula, MT. He completed his master's degree in Zoology at the University of Wyoming in 1996 and then worked at Mt. Shasta, CA prior to moving with his family to Missoula. jocolescott@gmail.com

David Hix (PhD Forestry 1988) was promoted to Professor at Ohio State University. Since joining the faculty in 1991, he has taught forestry and natural resources courses at the Columbus campus, led a study abroad course to New Zealand, and was chosen to serve as program coordinator for reaccreditation of the professional curricula by the Society of American Foresters. hix.6@osu.edu

Mary Ann (Kroehn) Buenzow (BS Forest Science 1984) became the WI DNR Southern District Forestry Leader in August 2014. She oversees the department's private and state forestry and fire protection programs in 28 counties in Southern Wisconsin. She also participates on the Forestry Leadership Team that provides guidance regarding the Division of Forestry's policies and priorities. mamac13@aol.com

Tom Kimmerer (PhD Forestry and Botany 1982) is chief scientist at Venerable Trees, Inc., a nonprofit organization dedicated to the conservation of
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News from the Chair



Mark Rickenbach

On July 1, I began my service as Department Chair. Most notable in my short tenure has been the amazing range of activities and projects that fill the time of our faculty, staff, and students. For example, our cover story exemplifies how we connect science, policy, and graduate education through the "Novel Ecosystems" graduate training grant, while our research capsule (page 8) looks at the effect of longer rotations on red oak quality. Also noteworthy: Tedward Erker (Forestry PhD) and Ashley Hannah (Wildlife Ecology MS) received competitive fellowships, and Professor Tim van Deelen was named the Beers-Bascom Professor in Conservation. Faculty promotions include Adena Rissman to Associate Professor with

tenure, and David Drake, Christine Ribic, and Mike Samuel to Full Professor, all highlighting the depth of talent in the department.

Outgoing Chair Bill Karasov—who did an outstanding job of leading the Department—has a new role leading BioHouse—a freshman residential community. Professor and Wood Products Extension Specialist Scott Bowe has moved north to Kemp Station where he will continue high-impact outreach to the industry and learn how to be Station Director from the very best in the business, Tom Steele. We also note the passing of Peter Bloch (emeritus faculty associate and senior scientist), an excellent and thoughtful colleague for many years.

Though I've been Chair for only a short period, it's been an energizing experience. I'm learning more about the department and how our efforts here in Madison reach onto the land and into lives throughout Wisconsin and beyond. If you'd like to share your thoughts or experiences, please be in touch (mark.rickenbach@wisc.edu; 608-263-6710).

Faculty News

Bowe Move Strengthens Ties with Kemp

Scott Bowe, Professor and Wood Products Specialist, has a new office with a view! Bowe and his family moved to Kemp Natural Resources Station near Woodruff, Wisconsin, this past June. He will take over as station director when current director, Tom Steele, retires in

2016. "It is a real pleasure working with Tom Steele, Karla Ortman, and Lynne and Gary Dalka at Kemp Station. The overlap with Tom will provide a smooth transition," says Bowe.

In most ways, Bowe's duties will stay the same. He will maintain his professorship within the department, continue teaching undergraduate courses at Kemp Station, continue working with graduate students on applied forest products projects, and continue his UW-Extension work with the forest products industry. "This has been an exciting move for the whole

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family,” says Bowe. “Not only has the move increased the ties between the Department of Forest and Wildlife Ecology and Kemp Station, but my new location in northern Wisconsin has improved my accessibility to the forest products industry.”

Bowe says that he has always enjoyed undergraduate teaching. Kemp Station will enhance what he can bring to the students. Bowe recently completed FWE 675: Forest Management Practicum, also known as Management Camp. This weeklong field course exposes students to a variety of forest management and forest products topics such as landowner relationships, timber marking, harvesting, and forest products manufacture that are difficult to experience in Madison. If you are in the Woodruff area, Bowe invites you to stop by to say hello to him and his family.

Mladenoff selected for Silviculture Guidance Team

Professor David Mladenoff was selected to serve a three-year term as the forest ecology member on the Silviculture Guidance Team (SGT) for Wisconsin DNR. The 16-member SGT includes representatives from professional loggers, landowners, saw timber industry, paper and pulp industry, researchers, natural forests, county forests, and conservationists. The team meets quarterly to make recommendations on forest management strategies which are then incorporated into the Wisconsin DNR Silviculture Handbook.

Van Deelen receives a pair of awards

Congratulations to Professor Tim Van Deelen. He was recently appointed the Beers-Bascom Professor in Conservation by the College of Agricultural & Life Sciences. Van Deelen was selected for the award for his outstanding research, teaching, and service in the area of natural and






David Drake
Christine Ribic
Adena Rissman
Michael Samuel

Four faculty members receive promotions

Congratulations to four members of the department’s faculty who were recently promoted. Adena Rissman was promoted to Associate Professor with tenure, and Christine Ribic, Michael Samuel, and David Drake were all promoted to Full Professor. Rissman’s research focuses on the relationships between society and the environment in ecosystem management, conservation, and sustainable use. She joined the department in 2009 and earned her PhD from University of California at Berkeley in Environmental Science, Policy and Management. Ribic’s specialty areas are landscape ecology, conservation of grassland vertebrates in working agricultural landscapes, global climate change, alternative energy production, and statistics. She is Unit Leader for the USGS Wisconsin Cooperative Wildlife Research Unit. She joined the department in 1994 and earned her PhD at the University of Minnesota in Ecology. Michael Samuel’s research program employs lab analyses, field investigations, and epidemiology modeling tools to address a wide range of issues related to the ecology of wildlife disease. He is Assistant Unit Leader for the USGS Wisconsin Cooperative Wildlife Research Unit. Samuel joined the department in 2003 and earned his PhD at the University of Idaho, Moscow, in Wildlife Management. David Drake is an Extension Wildlife Specialist with emphasis on urban wildlife management and wildlife damage management. He joined the department in 2005 and earned his PhD at North Carolina State University in Forestry.

environmental resources conservation and management. For each of the next five years he will receive \$16,000 to support his research activities. A second award recently received by Van Deelen is the La Crosse Tribune/Wisconsin Department of Natural Resources Hunter Ethics Award. Sharing the honors with Van Deelen were two other UW-Madison faculty—Paul Robbins and Janet Silbernagel—who together organized and taught a free Massive Open Online Course (MOOC) titled “The Land Ethic Revisited: Perceptive Hunting, Aldo Leopold, and Conservation.” Van Deelen’s research focuses on the management of large mammals, including population estimation, hunting, and interactions of

Wisconsin’s large mammals; population dynamics; movement of large mammals through complex landscapes; and the growth of Wisconsin’s wolf population and its effects on white-tailed deer.

Kararov named faculty director of BioHouse

On July 1, the day after completing his term as Chair of the Department of Forest and Wildlife Ecology, Professor Bill Kararov became the new faculty director of BioHouse, a freshman residential community (65 students on one floor of Cole Residence Hall) that is a partnership of WISCIENCE and University Housing

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woodland pastures and ancient trees of the Kentucky Bluegrass region. He recently published a book titled *Venerable Trees: History, Biology and Conservation in the Bluegrass* where he describes the unique settlement history of the region that allowed the trees to survive and why they are now in danger. tom@venerabletrees.org

Hildy Reiser (MS Wildlife Ecology 1981) retired on Dec. 31, 2014, after nearly 30 years of Federal service (U.S. Fish and Wildlife Service, U.S. Forest Service, and Department of Defense), most recently 11 plus years with the National Park Service Chihuahuan Desert Inventory and Monitoring Program. After 3½ years in a commuter marriage, she has rejoined her husband in Loveland, CO. hildyranger@msn.com

IN MEMORIAM

Ronald Westemeier (MS Wildlife Ecology 1970), of Effingham, Illinois, passed away on April 28, 2015, at age 80. Ron's career was devoted to researching and managing prairie chickens in several counties in Illinois. After retirement Ron enjoyed planting trees, hunting and gardening. Survivors include his wife, Nancy, and three children.

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(<http://biology.wisc.edu/Undergraduates-TransitionandtheFirstYear-BioHouse.htm>) Its goal is to help students get a more integrated picture of their studies, see how they can make a difference in the world as biologists, connect with faculty, and create a support network that can help new students stay enthusiastic about studying science and build confidence in themselves as young scientists. Karasov and his leadership team offer a freshman seminar and organize other educational and communal activities. For more information about BioHouse, see <http://www.housing.wisc.edu/residence-halls-lc-biohouse.htm>.

Ornithologists honor Temple

Emeritus Professor Stan Temple was given the Wisconsin Society for Ornithology's first-ever Special Recognition Award for his leadership of the statewide and national commemoration of the 2014 centenary of the extinction of the Passenger Pigeon. Temple gave over 100 presentations in 20 states and 2 provinces, spearheaded the restoration of the Passenger Pigeon Monument at Wyalusing State Park in southwestern

Wisconsin (made famous in Aldo Leopold's poignant essay "On a Monument to the Pigeon"), digitized former department faculty member Bill Schorger's extensive pigeon research notes, published over a dozen articles on the pigeon, was featured in a Public Television documentary film, hosted a two-day Madison symposium and even convinced a local brewery to produce Passenger Pigeon IPA to promote public awareness.

Grant funds research related to climate change uncertainties

Assistant Professor Craig Johnston recently was awarded a McIntire-Stennis grant titled "Dealing with Risks and Uncertainties in Forest Management Under Climate Change." Johnston, who joined the department in January of this year, says that the aim of this research is to better inform forest managers and policy makers of the economic and ecological effects of uncertainties resulting from climate change.

Mladenoff summarizes the state of Wisconsin's forests

Professor David Mladenoff made a public presentation hosted by Wisconsin Academy of Sciences, Arts & Letters this fall titled "The State of Wisconsin's Forests." His talk covered the history of Wisconsin's forests as well as the challenges our future forests face from climate change, globalization of trade, and the diversity of land ownership. The presentation was recorded and will be available on Wisconsin Public Television's website at a future date. The Wisconsin Academy of Sciences, Arts & Letters is an independent, nonprofit organization that promotes civil discussions on a wide variety of science, art and other important topics.



Peter Bloch succumbs to cancer

We are sorry to share the news that Peter Bloch, Emeritus Faculty Associate and Senior Scientist passed away May 27, 2015, from cancer. Peter joined the department in 1999. He specialized in the theory and practice of agrarian and land reform in developing countries and the development of agricultural and rural land markets following political change in Africa, Asia, and Latin America. Peter brought vast experience to two courses he taught in the department—*Agroforestry* and *Community and Forests*. He was an outstanding educator to our undergraduates and to a large community of social forestry students at all levels of experience. Peter retired from UW-Madison in 2009, then earned a law degree. He was a member of the California and Wisconsin Bar at the time of his death. On September 25, 2015, Peter's friends and family organized a workshop titled "Land Resource Challenges Around the World: A Workshop in Memory of Peter Bloch." Peter is survived by his wife Marianne "Mimi," and three children, Benjamin, Emilie, and Jesse.



Department News

Sabo is FWE’s new Faculty Associate

Autumn Sabo was selected Faculty Associate to support instruction in the Forest Science major. Over the current academic year she will be lead instructor for Fire Behavior and Management (FWE501) spring semester and support instructional and lab activities in Forest Ecology (FWE550/551), Silviculture (FWE401), and the First-year Interest Group (FIG) course (FWE375). Sabo is very familiar with the department, since she currently is finishing up her PhD in Forestry. Her dissertation topic is on how deer affect forest composition. Sabo’s work experience includes positions at Pennsylvania Bureau of Forestry, Wisconsin Department of Natural Resources, and the U.S. Forest Service. She earned her BS in Biology from Penn State University and her MS from the Forest Resources Department at the University of Minnesota.

Hof joins Forest Ecosystem and Landscape Ecology Lab

Dr. Anouschka Hof is a Research Associate in the Forest Ecosystem and Landscape Ecology Lab of the Department of Forest and Wildlife Ecology. She obtained BS and MS degrees in Ecology and Nature Conservation from Wageningen University in the Netherlands and a PhD degree from Royal Holloway, University of London. She also was a postdoc at Umeå University in Sweden, where she focused her work on the impact of climate change on subarctic and arctic biodiversity. Most recently she worked at the Swedish University of Agricultural Sciences on a project assessing the impact of climate



TWS club members from left to right, Steven Plesh, Tori Fuller, Siena Muehlfeld and Huijun Dong, enjoyed seeing many different types of birds on their trip to the Horicon National Wildlife Refuge.

The Student Chapter of The Wildlife Society Fall Report

It’s a new year, and with it, brings new excitement and opportunities for the Student Chapter of The Wildlife Society! We are proud to start a new year with a fresh group of officers and a new group of students that are eager to get involved in the wildlife field. We’ve already done some great events, such as Monarch Butterfly tagging, a trip to Horicon Marsh, a trip to Devil’s Lake and a Swamp Lover’s tour. We also have some exciting events coming up later this fall, such as Saw-Whet Owl banding, a Science Night at the Madison Children’s Museum, teaching children about the local wildlife in the state of Wisconsin, and our annual Game Dinner fundraiser, where we promote the cause of sustainable hunting, introduce people to somewhat unfamiliar meat items, as well as raise some financial support to continue to do more amazing events in the future!

*Eric Hammerer
Outreach Coordinator*

change and forest management strategies on the Swedish boreal forest. Hof started working in the department in September on a project that aims to identify forest management options to reduce climate change impacts on ecosystem services in a forest ecosystem in British Columbia, Canada.

*‘Ethical behavior is doing the right thing when no one else is watching—even when doing the wrong thing is legal.’
— Aldo Leopold*



Student News

Congratulations to award recipients

Forestry PhD student **Tedward Erker** was selected to receive NASA's Earth

and Space Science Fellowship (NESSF). His research proposal title is "Linkage of Remote Sensing, Field Spectroscopy and Modeling to Characterize Ecosystem Function in Relation to the Heat Island and Carbon Budget of an Urban Area." The objective of Tedward's research is to measure how the urban forest mediates the urban heat island at local scales and how it influences residential building energy use and the associated carbon emissions. The aim of the NESSF is to

ensure a continued highly qualified workforce in disciplines related to NASA's scientific goals. The fellowship may be used to defray a student's stipend, tuition, fees, relevant travel, books, and lab supplies. The NESSF is approved for one year and may be renewed for two more years.

NSF awarded a Graduate Research Fellowship to **Ashley Hannah**, MS student in Wildlife Ecology. The fellowship, awarded to graduate students in various STEM fields, will provide three years of financial support as well as access to international collaboration and professional career development. Hannah's research focuses on the impact of recreational trails in protected natural areas on breeding songbirds so that new trails can be designed to minimize negative effects. Specifically, she will focus on old-field habitat such as abandoned agricultural fields.

Michelle Verant and Gebbiena (Bieneke) Bron were awarded the Terry Amundson Memorial Scholarship at the August meeting of the John M. Keener Chapter of the Ruffed Grouse Society. Verant is working on her PhD in Veterinary Sciences focused on bat white-nose syndrome. She is leading a multi-state study investigating the influence of environmental factors in bat hibernacula on the distribution and abundance of the fungus that causes white-nose syndrome. Bron is a PhD student in Comparative Biomedical Science. Her research focuses on plague in prairie dog colonies in the western U.S. She hopes to gain a better understanding of how fleas contribute to enzootic plague cycles and how vaccination to prevent plague outbreaks will affect rodent communities. The Terry Amundson Memorial Scholarship is awarded annually to graduate students enrolled in the Department of Forest and Wildlife Ecology or Veterinary Science and are conducting research in the area of wildlife disease or wildlife ecology.



Forestry Club members enjoyed both fun and educational activities at the First Annual Field Forestry Fun Fest held this fall in Verona, Wis. Photo by Ellen Kinzer

Forestry Club Update!

Strong community, growth, and outreach were the common goals decided upon during the Forestry Club officer retreat at Kemp Station this past August. This year the club is looking to continue its storied traditional events like the Christmas Tree Sale and Tree ID walks, but also expand the horizons of our organization by creating events that build community within the club and reach out to educate other groups of people. Already this semester we hosted the first annual Field Forestry Fun Fest in Verona, WI, where 30 people came to learn about various forestry skills from marking trees for harvest and working with landowners to running a chainsaw and practicing timber sports. It was a great way to learn and come together as a student body with a grill out and apple cider making to cap off a great day! Throughout this fall semester we are going to continue the trend of building that community within our club while also expanding. Some events we are looking forward to later this semester include making apple butter and attending the National SAF Convention in Baton Rouge, LA. The outreach efforts are also continuing through our club newsletter (<http://labs.russell.wisc.edu/forestryclub/>) in which ideas and events will be shared not only with our members and department, but also Badger alumni and other schools. Lastly, we are very excited to welcome our new advisor, Craig Johnston, who has been a big help getting our year off to a great start! If you have any questions or ideas for club activities, feel free to email us at: uwmadforestryclub@gmail.com. Or if you are on campus, check our bulletin board next to Room 104 Russell Labs for events and updates. - Logan Wells, President



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measured novelty relative to a historical baseline and projected future novelty (to the year 2050) in relation to the present. Their global assessment, as reported in their journal article, identified large areas with high novelty due to abiotic factors and human populations relative to the past as well as widespread future increases in novelty. In the United States, current high novelty areas were concentrated in the eastern part of the country. Predicted future areas of high novelty will be in East Africa, the Arabian Peninsula, India, China, and Australia. They predict that temperature and nitrogen deposition will be the most important causes for future novelty. The full journal article will be available in *Ecological Applications* in December, 2015.

Building knowledge

IGERT participants will use this knowledge as a building block for further research on novel ecosystems. This Fall Semester, Anna Pidgeon is leading a seminar using bird species to predict

novel ecosystems. As the seminar progresses, their goal is to use the information gathered in the course to prepare a research paper summarizing their findings and submit it for publication. This provides IGERT participants with another opportunity to collaborate and achieve a useful end product.



The IGERT group (right) is on retreat in western Wisconsin in 2013 at the site of the Coon Valley Watershed conservation project, the first such project in the United States.

Forest and Wildlife Ecology Fund

We invite you to join us in our efforts to provide support for important department priorities. Donations to the three funds are, respectively, used to support activities that promote a sense of community in the department, help cover the costs of the summer field camp and host activities such as special lectures, and support student travel to professional meetings.

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Donations may also be made online at: <http://fwe.wisc.edu/alumni>

FOREST AND WILDLIFE

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RESEARCH CAPSULE

Brian Zweifel
Scott Bowe
Glen Stanosz

QUESTION

Do extended rotation ages for red oak in Wisconsin affect productivity?

PROJECT

With support from the Gordon R. Connor Center of Excellence, we are investigating the rates of decay and cull (fungal decay in the main stem) in red oak in relation to stand age and site conditions.

FINDINGS

Our initial findings run counter to current management recommendations. Red oak on high quality sites should have shorter rotations to prevent cull and maintain quality. Red oak on poor quality sites can have longer rotations without risk of cull and quality degrade.

