



# FOREST AND WILDLIFE ECOLOGY NEWS



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

Vol. 16, No. 2

Fall 2013

## News from the Chair



Bill Karasov

**G**rowing the Future, our college's strategic plan, is now online and you can read (pg. 3) how our Associate Chair, Professor Mark Rickenbach, will be one of the implementation leaders.

To catch up on this important process, read the plan's crisp, concise and clear statements about our mission, vision, and guiding principles. We in the college developed priority themes, which are bold faced below, where our research, instruction and outreach have the potential to make significant impact and lead nationally and internationally. **Healthy Ecosystems** are, of course, a core focus of our department and a key interest of our students and alumni, and so that needs no elaboration. Likewise, I've previously highlighted in this column our many activities related to the theme of **Changing Climate** on natural resources. But, in the area of **Food Systems**, Assistant Professor Mutlu Ozdogan also studies the effects of climate change on crop productivity in the state and around the world (pg. 7). Graduate student Collin Buntrock and his advisor Professor Scott Bowe provide one of many examples of our involvement in **Bioenergy and Bio-products**, especially in forestry. Assistant Professor Adena Rissman studies the intersection of market, social, environmental, and climatic changes (pg. 7) on resource management, and this kind of **Economic and Community Development** effort can be the key to success in biodiversity conser-

## The *inside* scoop on Sugar Maple

by Collin Buntrock

My name is Collin Buntrock and I am a forestry graduate student working under the direction of Dr. Scott Bowe. I am fortunate to be conducting research related to the management of sugar maple across northern Wisconsin. My thesis investigates the development and occurrence of a common internal defect in sugar maple known as facultative heartwood. Facultative heartwood is a structurally sound, discolored column of tissue centered on the pith of living trees that is induced by some degree of root, bole, or crown damage.

Two separate processes lead to development of facultative heartwood. First, after wounding occurs, cells in the inner xylem produce phenols to prevent decay, which progressively oxidize into a dark discoloration. During the second process, non-decay fungi and bacteria invade damaged trees over time and deposit dark colored enzymes around the tissues containing the oxidized phenols.



*Although tallied as a grade 1 tree prior to harvesting, it will likely be marketed as pulpwood because a sizable column of facultative heartwood and decay has developed inside the tree. A method for estimating the amount of facultative heartwood in standing trees would alleviate some of the problems associated with timber valuation. Photo by Collin Buntrock*

*Sugar Maple continues on page 2*

vation, which is also illustrated in Assistant Scientist Teri Allendorf's work in Asia (pg. 6). You can see how these themes are cross-cutting and interdisciplinary. Natural resource conservation and management integrates ecological knowledge with social issues such as economics, all within a framework of trade-offs and risk assessment. This has long been a focus of Emeritus Professor Joseph Buongiorno (pg. 3). Now, as we look to the future, it is the target in our search for a new faculty member (pg. 3).

### FOREST AND WILDLIFE

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## Alumni News

**Timothy Young** (BS Forest Science 1979, MS Forestry 1983) received two international honors this summer: Fulbright Scholar at Salzburg University for the fall semester 2013 and he was inducted as president of the 1,200-member Forest Products Society. During his semester at Salzburg, he will conduct research on cross-laminated timber and teach graduate courses on experiment design and statistical process control. In addition to his UW-Madison degrees, Young earned a PhD and MS from the University of Tennessee where he is a professor in the Department of Forestry, Wildlife and Fisheries. Email: [tmyoung1@utk.edu](mailto:tmyoung1@utk.edu)

**Jian-nan Liu** (PhD Wildlife Ecology 2011 and Postdoc Wildlife Ecology 2011-12) has joined the faculty in the Department of Forestry and Natural Resources at the National Chiayi University in Taiwan. He will specialize in wildlife management and ecosystem/protected area management. Email: [jnliu@gate.sinica.edu.tw](mailto:jnliu@gate.sinica.edu.tw)

**Daniel Storm** (PhD Wildlife Ecology 2011) joined the Wisconsin DNR as an Ungulate Research Scientist in June. Dan has extensive research experience with white-tailed deer management. In his new position he will work on deer management issues and furbearer monitoring projects. Email: [DanielJ.Storm@Wisconsin.gov](mailto:DanielJ.Storm@Wisconsin.gov)

*Sugar Maple, continued from page 1*



*Collin Buntrock inspects a deck of sugar maple saw logs at a timber sale near Woodruff, Wis. His thesis investigates the development and occurrence of facultative heartwood (the dark circles within the logs) in sugar maple. Photo by Scott Bowe.*

It should be noted that facultative heartwood is different from the distinctive heartwood color occurring in black walnut and red oak. These two species, among others, form colored, true heartwood that is caused by genetic or age-initiated processes at the cellular level and not by wounding or microbial activity.

Facultative heartwood is considered a grading defect in both red maple and sugar maple. Uniform, white-grained maple forest products are much more valuable than products containing facultative heartwood. Because of this price discrepancy, a better understanding of facultative heartwood in sugar maple is needed. A central goal of my study is to determine which tree and site attributes explain the variability we observe in heart size. With these results, procurement foresters will be able to more accurately value standing timber and thus bid on timber sales with higher confidence. Furthermore, conclusions from this study will provide some direction for improving existing sugar maple management techniques.

Note:

This summer Collin shared information about his project, which is funded by the Gordon R. Connor Center of Excellence. He says: "This study would not be possible if it weren't for the generosity of the Gordon R. Connor Center of Excellence. I thank the Center for its continued support and commitment to promoting the sustainable management and use of Wisconsin's forest resources."





## Department News

### FWE in the market for a new assistant professor

By this time next year Forest and Wildlife Ecology will have a new faculty member among its ranks. The position announcement for an assistant professor in Forest Economics and Risk Management was posted in October with an anticipated start date of July 2014. The position will include both research and teaching responsibilities. The department is looking for an individual to develop a research program in the areas of forest management, forest economics, and risk assessment. He or she will teach two courses: one a required undergraduate course that covers decision-making, forest management, valuation, and spatial optimization; a second upper level undergrad/graduate course will focus on uncertainty and risk analysis and ecosystem management. For a complete position description visit:

[http://www.ohr.wisc.edu/pvl/pv\\_077826.html](http://www.ohr.wisc.edu/pvl/pv_077826.html)

### CALS' Strategic Plan provides a pathway to the future

In 2014 the College of Agricultural and Life Sciences (CALS) begins its 125th year as a part of the University of Wisconsin-Madison. It certainly seems like a good time to take stock and prepare a roadmap into the future. To this end and based on input gathered over the past year, CALS has prepared a strategic plan. FWE Professor Mark Rickenbach will provide a guiding hand during the implementation phase of the effort. "Mark will manage several implementation projects that will be taken up by various CALS committees and work groups," says CALS Dean Kate Vandenberg. "He will also work with departments, governance groups and associate deans to help them measure progress and advance key strategies identified in the plan performance."

"Competing expectations and new funding models will reshape what we do," Rickenbach says. "The strategic plan provides a path, but we need to move down that path and my role is to help the college do that," Rickenbach says. Some of the areas that have been identified for examination include educational capacity metrics, state funding for graduate assistantships, UW-Extension and CALS partnerships, integrating international programs across campus, future space and facility needs and priorities, alumni programs and services, priorities for the Agricultural Research Stations and exploring structural efficiencies for centers and institutes within CALS. To view the strategic plan visit:

<http://ecals.cals.wisc.edu/highlights/2013/10/07/cals-strategic-plan-new-publication-outlines-first-years-findings-and-next-steps/>

### Langston takes position at Michigan Tech

Professor Nancy Langston has taken a position at Michigan Tech University, Houghton, MI. As of July 2013 she is a professor of environmental history in the Department of Social Sciences and the recently formed Great Lakes Research Center. The center supports a wide range of interdisciplinary research related to the Great Lakes Basin.

### Buongiorno gives pair of presentations in Europe

Professor Emeritus Joseph Buongiorno participated in the 20th anniversary celebration of the European Forest Institute in Nancy, France, Sept. 23-26. He gave two invited presentations: "Foresight on the impact of the planned Transatlantic Trade and Investment Partnership on the North American and European forest sectors" and "Decision making under risk in forest management." October 15-28 he participated in the international conference *Forest sector modeling—new approaches and findings for improved resource decisions in a globalized world* in Lillehammer, Norway. He presented a paper titled, "Modeling technical change in forest sector models: The GFPM approach."

## In Memoriam

We are saddened to share the news that Professor Emeritus Gordon Cunningham



passed away on June 28, 2013, at age 91. Professor Cunningham was born in Oswego, Kansas and earned his

BS from Michigan State, MS from Penn State and PhD from Michigan State. After two prior professional positions—University of Illinois and Cornell University—he joined the UW faculty in 1963 as the state extension specialist in forest management. During his 20-year tenure at the UW, Professor Cunningham was an outstanding university ambassador and a true forestry leader, organizing forestry field days, participating in landowner workshops, speaking at woodland owner conferences and public radio programs, authoring extension publications, and serving on committees. After his retirement in 1983, he remained active, traveling and volunteering in a variety of activities. He is survived by Vera, his wife of 67 years, his sons Stephan and James, granddaughter Aubrey and great grandchildren Onyx and Opal. His daughter Gail passed away in 1969.



## Student News

### Congratulations to our 2013-14 scholarship recipients

The following undergraduate students have received scholarship support for the 2013-14 academic year. Congratulations to the recipients whose awards range from \$750 to \$4,000!

#### FOREST SCIENCE MAJORS:

- Megan Backhaus** . . . . Laurence and Anella Dexter Scholarship and Stone Forestry Scholarship Fund
- Adam Bontje** . . . . Stone Forestry Scholarship Fund
- Sadie Brown** . . . . Stone Forestry Scholarship Fund
- Andrew Ciurro** . . . . Stone Forestry Scholarship Fund
- Hayden Elza** . . . . Vick Lee Hirsch Conservation Scholarship
- Clint Gilman** . . . . Earle D. Lyon Memorial Scholarship, Stone Forestry Scholarship Fund and Vicky Lee Hirsch Conservation Scholarship
- Tori Klotz** . . . . Helen Miller Forestry Scholarship
- Patrick Laphilliph** . . . . Stone Forestry Scholarship Fund
- Ethan Lee** . . . . Stone Forestry Scholarship Fund
- Benjamin Mussehl** . . . . Stone Forestry Scholarship Fund
- Keith Phelps** . . . . Carolyn A. Craig Scholarship
- Robert Phetteplace** . . . . Stone Forestry Scholarship Fund
- Donald Radcliffe** . . . . Lenore Landry Life Sciences Communication Fund, Stone Forestry Scholarship Fund and Vicky Lee Hirsch Conservation Scholarship
- Matthew Reynders** . . . . Stone Forestry Scholarship Fund
- Sarah Roberts** . . . . Stone Forestry Scholarship Fund
- Devin Schlappbach** . . . . Lenore Landry Life Sciences Communications Fund and Stone Forestry Scholarship Fund
- Jessica Schultz** . . . . Stone Forestry Scholarship Fund and Vicky Lee Hirsch Academic Merit Award

### Graduate student scholarship recipients

Congratulations to **Andrew Norton** who was awarded the Aldo Leopold (Green Tree Garden Club) Scholarship. He is a wildlife ecology PhD student studying game species population ecology and management.

Congratulations also to **Phil Manlick** and **Andrew Norton** for being chosen as this year's recipients of the Terry Amundson Memorial Scholarship. The scholarship is awarded annually to Forest and Wildlife Ecology or Veterinary Science students conducting research in the area of wildlife disease or wildlife ecology. Phil is a wildlife ecology MS student and, as mentioned above, Andrew is a wildlife ecology PhD student. The award was presented at the August meeting of the John M. Keener Chapter of the Ruffed Grouse Society.

- Megan Seeley** . . . . Dorothy Strong Scholarship
- Joseph Sullivan** . . . . Harry Sharff Memorial Scholarship
- Allison Vitello** . . . . Lawrence Weyker Career Dev. Fund, Ruth and Carl Miller Academic Merit Award and Stone Forestry Scholarship Fund
- Logan Wells** . . . . Stone Forestry Scholarship Fund and WALSAA Outstanding Sophomore Award
- Gregory Wilke** . . . . Harry Sharff Memorial Scholarship and Stone Forestry Scholarship Fund
- Dylan Willis** . . . . Robert Hendricks Memorial/Hardwood Manufacturers Association Scholarship
- Brian Zweifel** . . . . Robert Hendricks Memorial/Hardwood Manufacturers Association Scholarship

#### WILDLIFE ECOLOGY MAJORS:

- Samuel Emmerich** . . Ruth & Carol Miller Academic Merit Award
- Jacqueline Ferrer** . . . . Irving W. Gerhardt Scholarship and Vicky Lee Hirsch Conservation Scholarship
- Bridget Gilmore** . . . Ruth and Carl Miller Academic Merit Award
- Ashley Hannah** . . . . Helen Browne Hobart Memorial Scholarship, Netzer-Brouchoud Scholarship and Robert Bjorklund LSC Scholarship
- Emily Hilts** . . . . Laurence and Anella Dexter Scholarship
- Holly Hovanec** . . . . Donald and Nancy Field Natural Resources Scholarship\*
- Rebecca Huff** Vicky Lee Hirsch Academic Merit Award
- Kathleen Keene** . . . . Alfred & Isabella Galpin Fund, Esther Ihlenfeldt Memorial Scholarship and Robert Bjorklund LSC Scholarship
- Rachael Klicko** . . . . Vicky Lee Hirsch Academic Merit Award
- Stephanie Kurth** . . . . Alfred & Isabella Galpin Fund and Esther Ihlenfeldt Memorial Scholarship
- Megan Landes** . . . . Alfred & Isabella Galpin Fund
- Cody Lane** . . . . Vicky Lee Hirsch Academic Merit Award
- Andy Muench** . . . . Vicky Lee Hirsch Conservation Scholarship
- Daniel Stien** . . . . Vicky Lee Hirsch Conservation Scholarship
- Ethan Thomas** . . . . Alfred & Isabella Galpin Fund
- Sarah Winter** . . . . Vicky Lee Hirsch Conservation Scholarship

\*This is the first year that the Donald and Nancy Field Natural Resources Scholarship has been awarded. Donald Field is Emeritus Professor in Forest and Wildlife Ecology. His wife, Nancy, is an author and publisher of children's nature books. Both are graduates of the University of Wisconsin. The scholarship is awarded to a CALS major whose program includes a natural resource, environmental or conservation focus. This year's recipient, Holly Hovanec, is a senior wildlife ecology major.



## Logan Wells to serve as WI FFA president

Congratulations to Logan Wells, a junior forest science major. He was chosen to serve as state president of the Wisconsin Association of FFA for 2013-14. Logan will travel across Wisconsin and the country to promote the agricultural industry, including forestry, and agricultural education. This past summer he gave presentations about forestry and soils at the Wisconsin State Fair. He also traveled to Springfield, IL for the organization's National Leadership Conference and to Washington DC to attend the State Presidents Conference. "I am extremely grateful for this opportunity and all of the support from the department...especially my advisor Scott Bowe. I'm looking forward to being an advocate for UW-Madison everywhere I go this year," says Logan.

## Meet the new FWE graduate students

This fall the Department of Forest and Wildlife Ecology welcomes 10 new graduate students, 6 PhD students and 4 MS students. Below is a brief introduction to each student.

**Emily Cornelius** is working toward a PhD in wildlife biology. She is examining the immune function of black-capped chickadees and their response to variation in resource availability. Emily received her BS in Zoology at Michigan State University and her MS in ecology at The University of Georgia.

**Tedward Erker** is a forestry MS student. Ted earned a degree in Environmental Studies at Washington University in St. Louis. He plans to investigate the urban forest's species composition, distribution and mortality with a goal of improving management practices and maximizing ecosystem services in all areas of a city.

**Diana Guzmán Colón** hails from Puerto Rico where she earned a BS in General Biology at the University of Puerto Rico at Bayamón. This past summer she earned her MS at Michigan State University in the College of Agriculture and Natural Resources



## Congratulations 2013 Forest Science Graduates

*Forest science graduating seniors pose for one last photo at the Forestry Club's end-of-the-year cookout in May. Left to right are Liz Wood, Hillary Grabner, Tom Butusov, and Louisa Daniels. Missing when the photo was taken is Clare Frederick. Congratulations to all five graduates and best of luck to you! Photo by Collin Buntrock.*

and she is currently pursuing a PhD in wildlife ecology.

**Michael Hardy** is a PhD wildlife ecology student. His research will focus on the distribution and population dynamics of Sharp-tailed Grouse and Greater Prairie Chickens in Wisconsin and the possible impacts of various land management practices and projected climate change. Michael earned his BS and MS degrees at Humboldt State University.

**Andrew Jablonski** is a forestry MS student. He earned his BS in Environmental Studies from SUNY ESF. He is interested in ecosystem modeling and synthesizing traditional field methods with new technology and remote sensing data to better understand ecosystem structure and function.

**Gavin Jones** is a wildlife ecology MS student. He earned a BS in zoology at UW-Madison. His master's research will focus on the California Spotted Owl, including examining the effects of spatial and temporal variation in weather on territory occupancy dynamics. With this information in hand, he hopes to be able to develop a model that predicts how owl populations might respond to future climate change.

**Battina Kaphingst** is a MS student working toward a degree in environment and resources. She earned her undergraduate degree at UW-Madison in 2011 and then worked on a large citizen-science database called Project FeederWatch. Her MS work will focus on species' response to climate change.

**Ricardo Rivera** earned his MS degree in plant biology and conservation at Northwestern University and is currently working on his PhD in forestry. His research will focus on the ecosystem processes in secondary forests and forest remnants in the Caribbean.

**Isabel Rojas-Viada** is a forestry PhD student. She earned her MS in Conservation Biology and Sustainable Development at UW-Madison. Her PhD research will likely involve conservation and restoration of wetlands in South America.

**Luping Wang** is a PhD student in wildlife ecology. His previous education is from Peking University in China. With a background in molecular biology and biochemistry he would like to apply these skills to answer ecological questions.





# Working with communities to conserve biodiversity

**D**r. Teri Allendorf, assistant scientist in the Department of Forest and Wildlife Ecology, is helping to make local communities active participants in wildlife conservation. Allendorf's research focuses on local community attitudes and perceptions of the benefits and problems of the protected areas and how best to sustainably manage protected areas based on this information. In a nutshell, she finds that people hold many positive values toward protected areas, including an appreciation of ecosystem services (e.g., clean air and water), wildlife conservation, and recreation and aesthetic benefits. These positive values exist together with more commonly recognized conflict issues, such as wildlife depredation and restrictions on resource extraction, such as fuelwood and fodder. She primarily works in Asia, including Nepal, Myanmar, China, and India.

## Community involvement is key to success

In one project, together with colleagues Dr. Bhim Gurung, University of Minnesota, and Dr. Rob Horwich, Community Conservation, Inc., Allendorf trains local community members to be active participants in tiger conservation in the Chitwan National Park in Nepal. Local residents are taught to monitor tigers and other wildlife in the community forests that border the national park so they better understand tiger behavior patterns and respond accordingly to keep themselves safe. They are also working to establish a forest corridor for tigers and other wildlife between south central Nepal and Assam, India. While there are serious conflict issues associated with tigers, Allendorf finds that they can more effectively be mitigated if local residents are active participants in the conservation process.

*Community forest guards, who have been trained by Allendorf and her colleagues, set up and maintain camera traps to monitor the movement of tigers and other animals in the buffer zone of Chitwan National Park in Nepal.*



*Shown above are participants in a training session for forest guards in the buffer zone of Chitwan National Park in Nepal. Allendorf is kneeling center front. Photo by Birendra Mahato.*

In another project, Allendorf and then graduate student Jodi Brandt (PhD 2012) explored Tibetan perspectives on village sacred forests. Brandt conducted a breeding bird survey to measure and compare songbird abundance and diversity in sacred forest patches, where natural forests have been protected, compared to the surrounding forests. They found that these forests primarily held religious meaning for people. Also, while younger people knew less about the history of the sacred forests, such as its creation story, they do not differ in terms of use and appreciation, indicating that the value of the area is not decreasing for them, as is often the case globally for sacred areas.

Currently, Allendorf is working with Dr. Volker Radeloff, Dr. Anna Pidgeon, and members of their lab to incorporate the attitudes research into a spatial approach. The goal is to understand how attitudes and protected area effectiveness are related and use that understanding to more effectively prioritize and plan conservation actions across large scales.

### *About Dr. Teri Allendorf:*

*Allendorf is a conservation biologist working on issues related to local communities and protected areas. In addition to her appointment as assistant scientist in FWE, she is an Honorary Fellow in the Nelson Institute for Environmental Studies and the Land Tenure Center at UW-Madison and a research associate with the Smithsonian Conservation Biology Institute. She has been a member of USAID's Biodiversity Team and a Peace Corps Volunteer in Nepal. Allendorf can be contacted by email at [allendorf@wisc.edu](mailto:allendorf@wisc.edu).*



### The Wisconsin Idea at work

Much research in the department is shared with the public at a variety of venues, including workshops, seminars, and special talks at Kemp Natural Resources Station in Woodruff, Wisconsin. Following are two examples of these outreach efforts.

#### Adventures in Science.

In September Volker Radeloff gave a presentation in Minoqua titled "Adventures in Science." The talk was part of Kemp's Science On Tap outreach series. More than 80 people attended his talk, which was free and open to the public. Professor Radeloff focused on his research in China and Russia on how political and socio-economic changes are affecting land use, land cover, conservation and biodiversity. You can view the presentation at: <http://www.youtube.com/watch?v=DA6ZhQomfGA>

#### Youth Forestry Day.

There were also activities geared toward the younger end of the population spectrum. Scott Bowe gave a Youth Forestry Program at Kemp in August. This program was a hands-on affair geared toward children ages 5-11. The youngsters learned about the

*Pictured below are Professor Scott Bowe and his Youth Forestry Day participants.*



forests around them, how to age and measure trees, and even made works of art to help remind them of what they learned.

### FWE in the news

**Do conservation easements hinder environmental management?** - Adena Rissman <http://ecals.cals.wisc.edu/ecals-blog/2013/07/14/do-conservation-easements-hinder-efforts-to-manage-environmental-change/>

**Want more wildlife in your yard? Relax and let nature do the work.** - Anna Pidgeon <http://news.cals.wisc.edu/environment/2013/06/19/want-to-see-more-wildlife-relax-and-let-nature-do-the-yard-work/>

**Putting global food on the map.** - Mutlu Ozdogan [http://azdailysun.com/news/local/putting-global-food-on-the-map/article\\_4a0606abe375-5681-b03e-c0090bb8e012.html](http://azdailysun.com/news/local/putting-global-food-on-the-map/article_4a0606abe375-5681-b03e-c0090bb8e012.html)

## Forest and Wildlife Ecology Fund

We invite you to join us in our efforts to provide support for important department priorities. Donations to the Forest and Wildlife Ecology Fund are used to support various activities such as student travel to professional meetings, help cover the costs of the summer field camp, and host special lecturers.

I/we would like to donate to:  Graduate Student Travel Fund  General FWE Fund

I/we would like to donate:  \$25  \$50  \$75  \$100  Other (please specify amount)

I/we would like to pledge \$ \_\_\_\_\_ each year for \_\_\_\_\_ years

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## We enjoy hearing from you!

We'd like to hear what's new with you, your career, family, etc. Drop us a note and include your name, degree and year, and any news you'd like to share with us. Please send your email to Mary Miron at:

**mjmiron@wisc.edu**

or drop a hard copy in the mail to the return address above.

## Research Capsule

### Eric Wood & Anna Pidgeon

#### Question:

How do variations in annual spring temperatures affect tree phenology and foraging behavior of migrating wood-warblers?

#### Project:

With support from McIntire-Stennis Formula Fund and the Kickapoo Valley Reforestation Fund we collected foraging data on 15 species of migratory wood-warblers in 2009 and 2010. We simultaneously monitored phenology of 40 trees each of northern red oak, eastern white oak, sugar maple and red maple in both years. 2010 was an exceptionally warm spring and provided a natural experiment for our study.

#### Findings:

We found that flowering red oak and white oak, both trees that are regenerating poorly in regional forests, are preferred as foraging substrate by wood-warblers. Flowering time of the tree species is influenced by variations in spring temperature and also affects wood-warbler foraging preference.

